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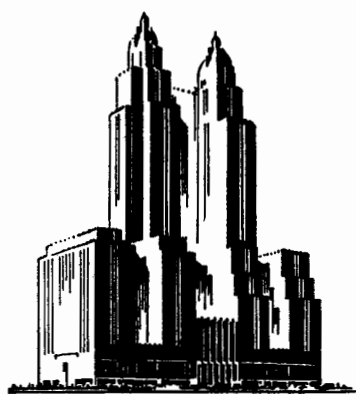
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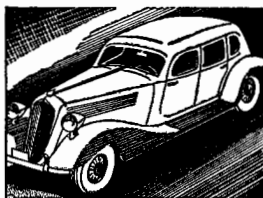
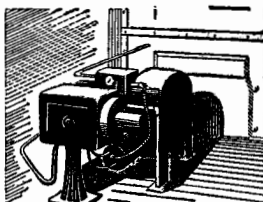
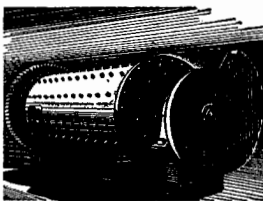
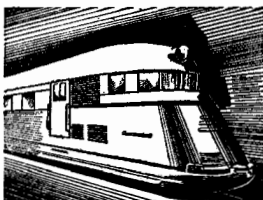
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FOREWORD

The Handbook of the Soviet Union is the successor of the "Economic Handbook of the Soviet Union," published by the American-Russian Chamber of Commerce in 1931, and seeks to present in a concise form, facts and statistics concerning the development of some of the more important phases of the national economy of the Union of Soviet Socialist Republics.

The statistics and much of the information contained in this volume were obtained from official Soviet sources. We publish them in the belief that they are as accurate as such compilations can be made and that they provide an authoritative basis upon which to build an understanding of the development of Soviet trade, industry and agriculture in recent years and of the social and political structure of that country. The figures for 1934 are in many cases preliminary and subject to later revision.

The American-Russian Chamber of Commerce is grateful to the Information Department of the Amtorg Trading Corporation for its assistance in connection with the preparation of the Handbook, and also to the various departments of the government of the U.S.S.R. which have published much of the material on which the data contained therein have been based.

THE AMERICAN-RUSSIAN CHAMBER OF COMMERCE.
October, 1935.

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Map of European Territory of the
U.S.S.R. Inside Front Cover

Map of Asiatic Territory of the U.S.S.R.. Inside Back Cover

I

AREA AND POPULATION

THE Union of Soviet Socialist Republics occupies over one-seventh of the total land area of the earth, making it the largest country in the world, with the exception of the British Empire with all of its dependencies. Its land area totals 21,230,700 square kilometers (8,195,000 square miles). The land area of the United States, excluding possessions, is 2,973,776 square miles. The total land area of the U.S.S.R. is divided geographically as follows: European part—4,600,000 sq. km., Asiatic part—16,600,000 sq. km. Owing to the separation after the war of Poland, Lithuania, Latvia, Estonia, Finland, Bessarabia and the province of Kars from the former Russian Empire, the territory of the Soviet Union is 97 per cent of that of the Tsarist Empire.

The population of the Russian Empire before the war was estimated at 182 million. On January 1, 1914, the population of the present territory of the U.S.S.R. was 139.7 million. The population on January 1, 1933 was estimated at 165.7 million. The growth of population is shown on the following page.

The Union of Soviet Socialist Republics, as established by the Constitution of the Union ratified on July 6, 1923, was composed of four republics: (1) the Russian Socialist Federated Soviet Republic (R.S.F.S.R.); (2) the Ukrainian Socialist Soviet Republic; (3) the White Russian Socialist Soviet Republic; and (4) the Transcaucasian Socialist Federated Soviet Republic. Early in 1925 two newly-formed republics entered

POPULATION OF RUSSIA AND U.S.S.R.

(in millions)

DATE	TOTAL	PER CENT OF 1914	URBAN	URBAN POPULATION	
				RURAL	<i>(in per cent of total)</i>
Jan. 1, 1914	139.7	100.0	25.8	113.9	18.5
Jan. 1, 1917	141.7	101.4	29.0	112.7	20.4
Aug. 28, 1920	130.9	93.7	20.8	110.1	15.9
Mar. 15, 1923	133.5	95.6	21.6	111.9	15.4
Jan. 1, 1925	140.0	100.2	23.2	116.8	16.6
Jan. 1, 1927 ¹	147.0	105.3	26.3	120.7	17.9
Apr. 1, 1928	151.3	108.3	27.9	123.4	18.4
Apr. 1, 1929	154.8	110.8	29.0	125.8	18.7
Apr. 1, 1930	158.4	113.4	30.2	128.2	19.1
July 1, 1931	162.1	116.0	33.6	128.5	20.7
Jan. 1, 1932	163.7	117.2	—	—	—
Jan. 1, 1933	165.7	118.6	38.7	127.0	23.3

¹ According to the census of December 17, 1926.

the Union, *viz.*, the Turcoman Socialist Soviet Republic and the Uzbek Socialist Soviet Republic. Late in 1929 the Tadzhik Socialist Soviet Republic, formerly an autonomous section of the Uzbek Republic, was organized and became the seventh constituent republic of the Union.

The Russian Socialist Federated Soviet Republic (R.S.F.S.R.) is the largest of the seven constituent republics, occupying over 90 per cent of the entire area of the Union and possessing about 70 per cent of the total population. It is divided into twenty-three main regions and fourteen autonomous socialist soviet republics. Some of these embrace a number of small autonomous areas. The autonomous areas and republics are divisions based on nationality lines; the regions on economic lines. Some of the other constituent republics embrace a small number of autonomous areas and republics. The Ukraine is divided into seven regions. All of the republics, regions and areas are subdivided into districts, of which there are approximately 2,500 in the U.S.S.R. Moscow is the capital of the U.S.S.R.

AREA AND POPULATION

The following tables give the most important territorial divisions of the U.S.S.R. and the name and population of the capital city or administrative center and its distance from Moscow:

AREA AND POPULATION OF THE CONSTITUENT REPUBLICS
(as of January 1, 1933)

CONSTITUENT REPUBLICS	AREA		POPULATION		
	(in thousand sq. km.)	(in per cent)	Total (in thousands)	(per square km.)	Urban (per cent of total) ^a
Russian Socialist Federated Soviet Republic	19,707.0	92.8	113,991.1	5.8	20.8
Ukrainian Socialist Soviet Republic	451.8	2.1	32,069.7	71.0	20.5
White Russian Socialist Soviet Republic	126.8	0.6	5,439.4	42.9	15.8
Transcaucasian Socialist Federated Soviet Republic	185.6	0.9	6,888.3	37.1	27.0
Uzbek Socialist Soviet Republic	172.0	0.8	4,928.4	28.6	24.2
Turcoman Socialist Soviet Republic	443.6	2.1	1,182.2	2.7	17.3
Tadzhik Socialist Soviet Republic	143.9	0.7	1,182.1	8.2	8.8
Union of Soviet Socialist Republics	21,230.7	100.0	165,681.2	7.8	23.3

^a For the seven constituent Republics as of July 1, 1931; for the U.S.S.R. as a whole as of January 1, 1933.

REPUBLIC OR REGION ^a	CAPITAL CITY OR ADMINISTRATIVE CENTER NAME OF CITY	POPULATION			DISTANCE FROM MOSCOW (km. ^b)
		Dec. 1926 Census	1933 ^c		
I. R.S.F.S.R. (Regions)	Moscow	2,025,947	3,572,000	—	
1. Northern	Archangel	69,578	148,047*	1,137	
2. Leningrad	Lenjngrad	1,614,008	2,839,000	650	
3. Western	Smolensk	78,520	96,000*	419	
4. Moscow	Moscow	2,025,947	3,572,000	—	
5. Ivanovo Industrial	Ivanovo	111,276	190,000	318	
6. Gorky	Gorky (former- ly Nizhni Novgorod)	220,819	477,000	440	

HANDBOOK OF THE SOVIET UNION

REPUBLIC OR REGION	NAME OF CITY	CAPITAL CITY OR ADMINISTRATIVE CENTER		
		POPULATION		DISTANCE FROM MOSCOW
		Dec. 1926 Census	1933 ⁴	(km. ⁵)
7. Sverdlovsk ⁶	Sverdlovsk (formerly Ekaterin- burg)	131,669	481,000	1,686
8. Cheliabinsk ⁶	Cheliabinsk	59,307	217,000	2,069
9. Ob-Irtysh ⁶	Tyumen	50,340	62,000	2,142
10. Kuibyshev (formerly Middle Volga)	Kuibyshev (formerly Samara)	175,662	239,200*	1,046
11. Central Black Soil	Voronezh	120,017	214,000	587
12. Stalingrad ⁷	Stalingrad (formerly Tsaritsyn)	143,110	412,000	1,072
13. Saratov ⁷	Saratov	215,276	338,000	843
14. Azov-Black Sea ⁸	Rostov-on-Don	323,225	520,000	1,353
15. North Caucasian ⁸	Piatigorsk ⁹	40,723	56,705	1,848
16. West Siberian	Novosibirsk (formerly Novoniko- laevsk)	125,382	294,000	3,488
17. East Siberian	Irkutsk	98,764	142,379*	5,092
18. Far Eastern	Khabarovsk	49,704	89,500*	8,461
19. Kirov ¹¹	Kirov (formerly Viatka)	62,907	73,534	965
20. Orenburg ¹⁰	Orenburg	123,283	133,300	1,471
21. Omsk ¹⁰	Omsk	115,650	228,700	2,721
22. Krasnoyarsk ¹⁰	Krasnoyarsk	72,261	104,700	4,112
23. Kalinin ¹⁰	Kalinin (formerly Tver)	108,413	151,089	166
<i>(Autonomous Republics)</i>				
1. Bashkir	Ufa	98,537	153,993*	1,519
2. Buryat-Mongol (part of East Siberian Region)	Verkhneudinsk	28,918	54,000*	5,581
3. Chuvash (part of Gorky Region)	Cheboksary	8,831	12,006*	746
4. Crimean	Simferopol	88,340	90,125*	1,459
5. Daghestan (part of North Caucasian Re- gion)	Makhach-Kala (formerly Petrovsk- Port)	32,000	52,040*	2,127

AREA AND POPULATION

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REPUBLIC OR REGION	NAME OF CITY	CAPITAL CITY OR ADMINISTRATIVE CENTER		
		POPULATION	DISTANCE	
		Dec. 1926 Census	1933 ⁴	FROM MOSCOW (km. ⁵)
6. German Volga (part of Saratov Region)	Engels (formerly Pokrovsk)	34,352	53,788*	872
7. Kara-Kalpak	Turtkul (formerly Petroalexandrovsk)	4,207	7,282*	3,136
8. Karelian	Petrozavodsk	27,105	48,477*	924
9. Kazak	Alma-Ata (formerly Verny)	45,385	108,481*	4,011
10. Kirghiz	Frunze (formerly Pishpek)	31,806	71,680*	3,720
11. Tatar	Kazan	179,023	267,000	785
12. Yakut	Yakutsk	10,508	10,558*	8,272
13. Udmurt (part of Kirov Region)	Izhevsk	63,211	98,205	1,152
14. Mordov (part of Kuibyshev Region)	Saransk	15,431	21,458	620

³ In addition to the autonomous republics and regions listed above, there are in the R.S.F.S.R. twelve autonomous areas and nine national regions. The autonomous areas are: Komi, Mariisk, Kalmyk, Adygeisk, Checheno-Ingushsk, Kabardino-Balkirian, Karachayev, North Ossetian, Cherkess, Khakassk, Oirat, Jewish. The national regions are: Nenets, Komi-Permyatsk, Ostyak-Vogulsk, Yamalsk, Vitimo-Olekminsk, Taimyr, Evenkisk, Koryak, Chukotsk. Three additional autonomous areas, the Gorno-Badakhshan, South Ossetian and Nagorno-Kharabakhsk are located in the Tadzhik S.S.R., the Georgian S.S.R. and the Azerbaïdzhān S.S.R., respectively.

⁴ An asterisk signifies 1932 data.

⁵ 1 km. = 0.62 mi. Distances are along railway lines.

⁶ Until January, 1934, these three regions constituted the Ural Region (administrative center Sverdlovsk).

⁷ Until January, 1934, these two regions made up the Lower Volga Region (administrative center Stalingrad).

⁸ Until January, 1934, these two regions formed one region—the North Caucasian (administrative center Rostov-on-Don).

⁹ The center of this region is to be transferred later to Georgievsk (1933 pop.—21,629).

¹⁰ The Kirov Region (formerly part of the Gorky Region), the Orenburg Region (formerly part of the Middle Volga Region), the Omsk Region (formed out of sections of the West Siberian and Cheliabinsk Regions), and the Krasnoyarsk Region (formed out of sections of the West and East Siberian Regions) were established by a decree of the Central Executive Committee of the R.S.F.S.R. on December 7, 1934. The Kalinin Region (formed out of sections of the Moscow, Leningrad and Western Regions) was established by a decree of the C.E.C. of the R.S.F.S.R. on January 29, 1935.

REPUBLIC OR REGION	NAME OF CITY	CAPITAL CITY OR ADMINISTRATIVE CENTER			
		DISTANCE			
		POPULATION	FROM		
		Dec. 1926	1933 ⁴	Moscow	
		Census	(km. ⁵)		
II. Ukrainian S.S.R. (Regions)	Kiev ¹¹	513,637	607,764*	855	
1. Vinnitsa	Vinnitsa	57,990	58,440*	1,085	
2. Dniepropetrovsk	Dniepropetrovsk (formerly Ekaterinoslav)	232,925	378,000	1,089	
3. Donetz	Stalino (formerly Yuzovka)	105,857	285,000	1,170	
4. Kiev	Kiev	513,637	607,764*	855	
5. Odessa	Odessa	420,862	442,980*	1,509	
6. Kharkov	Kharkov	417,342	742,000*	781	
7. Chernigov (Autonomous Republic)	Chernigov	35,234	35,005*	808	
	Moldavian	21,741	25,748*	1,637	
III. White Russian S.S.R.	Minsk	131,528	163,050*	751	
IV. Transcaucasian S.F.S.R.	Tiflis	294,044	414,000	3,218	
1. Azerbaidzhan S.S.R. (Autonomous Republic)	Baku	453,333	709,000	2,648	
	Nakhichevan	8,946	11,742	3,724	
2. Georgian S.S.R. (Autonomous Republics)	Tiflis	294,044	414,000	3,218	
	Adzharistan	Batum	45,450	62,609	3,567
	Abkhazia	Sukhum	20,032	28,136	3,520
3. Armenian S.S.R.	Erivan	64,649	150,000	3,421	
V. Uzbek S.S.R.	Tashkent	323,544	491,000*	3,328	
VI. Turcoman S.S.R.	Ashkhabad	51,593	70,988*	3,404	
VII. Tadzhik S.S.R.	Stalinabad (for- merly Dyushambe)	5,607	60,000	3,936	

¹¹ The seat of government of the Ukraine was transferred from Kharkov to Kiev in January, 1934. Before December, 1919, Kiev had been the capital.

Other large centers of population are as follows:

	REGION OR REPUBLIC	POPULATION	
		Dec. 1926	
		Census	1933 ¹²
Perm	Sverdlovsk Region	119,776	270,000
Stalinsk (formerly Kuznetsk)	West Siberian Region	3,894	249,000
Magnitogorsk	Cheliabinsk Region	2,382	230,000
Omsk	West Siberian Region	150,608	228,700*
Astrakhan	Stalingrad Region	195,232	221,650*

AREA AND POPULATION

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	REGION OR REPUBLIC	POPULATION	
		Dec. 1926 <i>Census</i>	1933 ¹²
Tula	Moscow Region	147,817	206,200*
Grozny	North Caucasian Region	70,896	201,000
Vladivostok	Far Eastern Region	107,980	190,000*
Krasnodar (formerly Ekaterinodar)	North Caucasian Region	154,303	179,900*
Yaroslavl	Ivanovo Industrial Region	114,277	177,000
Samarkand	Uzbekistan	105,106	154,600*
Taganrog	North Caucasian Region	86,465	149,000
Mariupol	Ukraine	71,211	146,000
Zaporozhye (formerly Alexandrovsk)	Ukraine (near Dnieproges) ¹³	55,774	142,054*

¹² An asterisk signifies 1932 data.

¹³ *ges* is a contraction standing for "state power station".

On Jan. 1, 1933, there were 65 cities with a population of over 100,000, as against 31 at the end of 1926 and only 16 in 1914. Moscow is the fourth largest city in the world and Leningrad the seventh.

More than three-quarters of the population of the Union inhabits its European part. There are in the U.S.S.R. approximately 180 nationalities speaking about 150 languages or dialects. The following table gives the population of the most important nationalities (according to the census of Dec. 17, 1926):

	POPULATION	PER CENT OF TOTAL POPULATION
Russians	77,760,100	52.9
Ukrainians	31,194,800	21.2
White Russians (White Russia)	4,739,900	3.2
Kazaks ¹⁴ (Kazakstan and Central Asia)	3,959,900	2.7
Uzbeks (Central Asia)	3,904,500	2.6
Tartars (Kuibyshev Region and Crimea).....	3,015,200	2.0
Jews	2,600,900	1.8
Georgians (Transcaucasia)	1,821,200	1.2
Azerbaidzhan Turks (Transcaucasia)	1,706,600	1.2
Armenians (Transcaucasia)	1,567,500	1.1
Mordvinians (Kuibyshev Region)	1,340,400	0.9

	POPULATION	PER CENT OF TOTAL POPULATION
Germans (Saratov Region)	1,238,500	0.8
Chuvashes (Gorky Region)	1,117,400	0.7
Tadzhiks (Central Asia)	978,200	0.7
Poles (chiefly Ukraine and White Russia)	782,300	0.5
Kirghizes (Central Asia)	768,700	0.5
Turcomans (Central Asia)	766,100	0.5
Bashkirs (Urals)	713,700	0.4
All others	7,216,200	5.1

¹⁴ Not to be confused with the Cossacks.

II

GOVERNMENT

THE Union of Soviet Socialist Republics is a federal state formed by the voluntary association of its seven constituent republics on a basis of full equality. The central government has jurisdiction in all matters concerned with foreign relations and in those domestic matters relating to the Union as a whole. Adherence to the Union does not limit the autonomy of the constituent republics in the field of local administration or matters of social welfare, such as health, education, etc.

The highest organ of authority in the U.S.S.R. is the All-Union Congress of Soviets, composed of delegates from urban soviets and from regional and republican congresses of soviets. It convenes once in two years. During the interval between the All-Union Congresses of Soviets the supreme authority devolves upon the Central Executive Committee, elected at the All-Union Congress and responsible to it. The Central Executive Committee is composed of two houses: the Council of the Union and the Council of Nationalities. The membership of these two Councils, as elected at the 1935 Congress, numbered 607 and 150, respectively. The last session of the Central Executive Committee took place during February, 1935.

The Council of the Union is elected by the All-Union Congress from the representatives of the seven constituent republics in proportion to their population. The Council of Nationalities consists of five representatives from each of the constituent and autonomous republics and one representative from each

autonomous area. The members of the Council of Nationalities are elected at the congresses of the various constituent and autonomous republics and areas, but their election must be ratified by the All-Union Congress. Both Councils are responsible to the All-Union Congress.

The Central Executive Committee meets three times a year. Between its sessions the supreme legislative, executive and administrative authority devolves upon the Presidium of the Central Executive Committee. This body consists of 27 members, including the nine members of the Presidium of the Council of the Union, the nine of the Presidium of the Council of Nationalities, and nine elected by the two Councils in joint session.

The Central Executive Committee and its Presidium are headed by seven chairmen, each representing one of the constituent republics. The full list of chairmen is as follows:

CHAIRMEN OF THE CENTRAL EXECUTIVE COMMITTEE OF THE U.S.S.R.

M. I. Kalinin	Russian Socialist Federated Soviet Republic
G. I. Petrovsky	Ukrainian Socialist Soviet Republic
A. G. Cherviakov	White Russian Socialist Soviet Republic
G. Musabekov	Transcaucasian Socialist Federated Soviet Republic
Nedirbay Aitakov	Turkoman Socialist Soviet Republic
Faizulla Khodzhaev	Uzbek Socialist Soviet Republic
Abdulla Rakhimbayev	Tadzhik Socialist Soviet Republic
—	
I. A. Akulov	Secretary, Central Executive Committee

The Council of People's Commissars is the executive and administrative organ of the Central Executive Committee. It consists of the following members:

COUNCIL OF PEOPLE'S COMMISSARS OF THE SOVIET UNION

Chairman	V. M. Molotov
Vice-Chairmen	A. A. Andreyev,
	V. I. Mezhlauk
Foreign Affairs	Y. E. Rudzutak,
Defense	M. M. Litvinoff
Foreign Trade	K. E. Voroshilov
Transportation	A. P. Rosengoltz
	A. A. Andreyev

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Water Transportation	N. I. Pakhomov
Communications	A. I. Rykov
Heavy Industry	G. K. Ordzhonikidze
Timber Industry	S. S. Lobov
Light Industry	I. E. Lubimov
Agriculture	M. A. Chernov
State Farms (Grain and Livestock)	M. I. Kalmanovich
Food Industry	A. I. Mikoyan
Internal Trade	L. Y. Veitzer
Finance	G. T. Grinko
State Planning Commission (Gosplan)	V. I. Mezhlauk
Internal Affairs	G. G. Yagoda

ADDRESSES OF COMMISSARIATS, MOSCOW, U.S.S.R.

Council of People's Commissars	Kremlin
Commissariat for Foreign Affairs	Ploschad Vorovskovo, 5/21
Commissariat for Defense	Ulitsa Frunze, 19
Commissariat for Foreign Trade	Ilinka, 23
Commissariat for Transportation	Novaya Basmannaya, 2
Commissariat for Water Transportation	Petrovka, 3/6
Commissariat for Communications	Ulitsa Gorkovo, 17
Commissariat for Heavy Industry	Ploschad Nogina, Delovoy Dvor
Commissariat for Timber Industry	Ulitsa Gorkovo, 59
Commissariat for Light Industry	Chistiye Prudy, 12
Commissariat for Agriculture	Orlikov per., 1/11
Commissariat for State Farms	Bolshoy Komsomolsky per., 6
Commissariat for Food Industry	Ulitsa Razina, 26
Commissariat for Internal Trade	Ulitsa Pervovo Maya, 47
Commissariat for Finance	Ilinka, 9
State Planning Commission	Karuninskaya, 7/2
Commissariat for Internal Affairs	Ulitsa Dzerzhinskovo, 2

The State Planning Commission is one of three permanent committees of the Council of People's Commissars. The other two committees are the Council for Labor and Defense (STO) and the Commission of Soviet Control. The chairman of the Council of People's Commissars is also chairman of STO; the other members are individually appointed by the Council of People's Commissars. In practice the following are among those usually appointed: the People's Commissars for Defense, for Finance, and for Heavy Industry, the head of the All-Union

Central Council of Trade Unions, the chairman of the State Planning Commission, and the head of the State Bank. Since December, 1930, Joseph V. Stalin has been a member of STO. This Council handles current problems of government activity, especially those concerned with the economic life or defense of the country. It has the power to issue binding decrees, but these may be repealed or amended by the Council of People's Commissars. The Commission of Soviet Control was organized in February, 1934. It takes over the functions of the Commissariat for Workers' and Peasants' Inspection and of the Committee of Fulfillment established in 1930. By centralizing control over the execution of Government decrees in the hands of this new committee it is expected to make such control more systematic and effective and to bring about a more rapid elimination of bureaucratic tendencies in administration.

On July 10, 1934 a new All-Union Commissariat for Internal Affairs was organized by a decree of the Central Executive Committee, simultaneously with the liquidation of the United State Political Department (O.G.P.U.) The militia and the various functions formerly carried out by the O.G.P.U., such as the guarantee of order and the security of the state, etc., were taken over by the new commissariat, while the judicial functions of the O.G.P.U. were transferred to the regular courts. Similar commissariats were established in all the federated republics of the Union, with the exception of the R.S.F.S.R., where a representative of the All-Union Commissariat functions as a member of the Council of People's Commissars of the Russian Republics.

The Councils of People's Commissars of the seven constituent republics comprise, in addition to the chairman and vice-chairmen, the Chairman of the State Planning Commission, the Commissars for Finance, Agriculture, Internal Trade, Local Industry, Municipal Economy, Justice, Health, Educa-

tion and Social Welfare, and representatives of the All-Union Commissariats for Foreign Affairs, Defense, Foreign Trade, Heavy Industry, Timber Industry, Light Industry, Food Industry, State Farms, Water Transport and Communications. In addition, as noted above, all republics, except the R.S.F.S.R., have also a Commissar for Internal Affairs. The first three commissariats, Finance, Agriculture and Internal Trade, are subordinated to the corresponding All-Union Commissariats, while the others exist only in the constituent republics, there being no All-Union Commissariats for these departments.

Village, municipal, district, regional and republican affairs are administered by corresponding soviets which form executive committees to carry on the work between their sessions. Election of delegates to the soviets takes place on the basis of occupational rather than geographical representation. In cities delegates are elected from factories, offices, etc., while in rural communities delegates are elected at village meetings or by state and collective farms.

The right to vote and to be elected is extended to all citizens—irrespective of sex, race, nationality or religion—who are 18 years of age or over and perform productive and socially useful labor, by members of the army and navy, and by citizens belonging to the category of workers but incapacitated for labor. Those disenfranchised include: members of royalty, police and secret service employees of the old regime, the clergy, private traders, persons living on unearned income or exploiting the labor of others, and the insane. Ninety-one million citizens were entitled to vote in the 1934 elections.

Five million more voters were eligible to take part in the elections to the VIIth Congress of Soviets than in the 1931 elections. Most of the new voters were young people who had reached the age of 18 since the previous election. In addition, many kulaks and their families and others formerly de-

prived of the right to vote but who, by their socially useful work and otherwise, had proved their support of the Soviet regime, had their citizenship rights restored. The actual participation in elections increased from 39 million in 1926 (51 per cent of the eligible voters) to 62 million (72 per cent) in 1931 and 77 million (85 per cent) in 1934. Attendance of women at elections has also increased markedly. In the last elections 90 per cent of the eligible women voters in the cities and 80 per cent in rural localities participated, while in 1926 only 43 per cent of the urban women and 28 per cent of the women in villages took part in elections.

At the VIIth Congress of the Soviets held in January, 1935, a resolution introducing several important changes in the Constitution of the U.S.S.R. was adopted. The resolution called for the modification of the Constitution in the direction of further democratization of the electoral system of the Soviet Union, equalization of electoral rights (as between the city and the village), substitution of direct for indirect elections, and of secret for open ballots. It called also for further clarification or adjustment of the social-economic bases of the Constitution in accordance with the existing relations of class forces in the U.S.S.R. (creation of a new socialist industry, liquidation of kulaks, victory of collectivization, strengthening of socialized property as the basis of the Soviet society, etc.) A Constitutional Commission headed by Joseph V. Stalin was appointed to work out the text of a Constitution embodying these changes.

The substitution of direct for indirect elections will result in the replacement of the old system whereby the members of the All-Union, republican and regional congresses were elected by delegates to the lower bodies by direct balloting by the people for all government organs, including the Central Executive Committee of the U.S.S.R. The equalization of electoral rights will remove the difference in representation of the village

and city (formerly representatives to city soviets and to the Congresses of Soviets of the federated republics and of the Union were elected on the basis of one delegate to 25,000 voters, while representatives to rural congresses where peasants predominated were elected on the basis of one delegate to 125,000 inhabitants). With the firm establishment of collectivization this inequality in representation is no longer considered necessary and is consequently being abolished.

The Communist Party, the sole political party, plays the leading role in shaping and helping to execute the policies of the government. The last Party Congress, the seventeenth, took place from Jan. 26 to Feb. 10, 1934; the previous one was held July, 1930. Party conferences and plenary sessions are held between the congresses. At the Seventeenth Congress 1,961 delegates (1,225 with decisive votes and 736 with consultative votes) represented 1,872,488 party members and 935,298 candidates. A Central Committee was elected consisting of 71 members and 68 candidates. The principal executive organ of the Central Committee is the Political Bureau, now consisting of the following members: J. V. Stalin, V. M. Molotov, L. M. Kaganovich, K. E. Voroshilov, M. I. Kalinin, G. K. Ordzhonikidze, V. Y. Chubar, A. I. Mikoyan, A. A. Andreyev, S. V. Kossior.

The Young Communist League is the youth communist organization (up to the age of 23). It has about five million members and candidates. The Young Pioneers, the children's organization (from ages of 10 to 16), has six million members.

COURTS AND LEGAL CODES

THE Soviet judicial system embraces local (people's) courts of both civil and criminal jurisdiction, regional courts of second instance, supreme courts of the constituent republics and the

Supreme Court of the Union, subdivided into various courts of special jurisdiction. The Supreme Court of the U.S.S.R., which is attached to the Central Executive Committee, renders opinions as to the constitutionality of decisions of the supreme courts or of any legislation of the constituent republics, settles legal disputes between any of these republics, and considers directly all cases of crimes committed in office by high officials and serious civil or criminal cases of Union importance.

Each of the seven constituent republics making up the U.S.S.R. has its own body of laws, which must, however, not conflict with the Constitution of the U.S.S.R. or with general legislation for the Union as a whole. According to the Constitution, the independence of the constituent republics extends to all matters not coming specifically within the competency of the Union, such as international relations, organization and control of the armed forces, foreign trade, the direction of transportation and communications, the establishment of the fundamental labor laws and the basic principles governing legal procedure and civil and criminal legislation.

One of the fundamentals of Soviet legislation is the abolition of private ownership in the basic means of production. All land, forests, mineral wealth, waters, transportation and large-scale industry have been nationalized. Another basic principle is the right of every nationality within the borders of the Soviet Union to self-determination, *i.e.*, the right to organize its own economic, political and cultural life, to establish its own local government and to use its own language in schools, courts, etc. In the case of the seven constituent republics the right of self-determination includes the right, guaranteed by the Constitution, of secession from the Union. No legislation in contradiction to either of these two principles is valid.

A recent addition to the Soviet judicial system is the Central

Department of Public Prosecution established by decree of June 20, 1933. A. I. Vishinsky is the present Public Prosecutor of the U.S.S.R. His authority and functions include: general supervision of the work of the prosecuting departments of the constituent republics; checking examination of all decisions adopted by government departments, both of the U.S.S.R. and its constituent republics, as well as by local authorities, to ensure that they conform to the Constitution and the decrees of the Central Government, with a right of appeal to higher judicial bodies against court decisions; the right to introduce cases in all courts of the U.S.S.R.; supervision of the acts of the militia, the criminal investigation authorities and corrective labor institutions as to their legality and propriety.

With the abolition of the judicial functions of the O.G.P.U. by the decree of July 10, 1934, crimes formerly tried by O.G.P.U. courts are now referred to special collegiums of the regular courts of the U.S.S.R. Cases of treason, espionage, terrorism, incendiarism, etc., are subject to the jurisdiction of the military collegium of the Supreme Court of the U.S.S.R. and competent military tribunals of the districts. Crimes on railways and water transport are subject to the jurisdiction of railway and water transport collegiums of the Supreme Court. Other crimes against the state of a counter-revolutionary nature are subject to the jurisdiction of the Supreme Court of the U.S.S.R. and the Supreme Courts of the federated republics; special collegiums composed of a Chairman and two members of the Court have been formed in the judicial institutions named for the consideration of these cases. All other cases are now referred to the jurisdiction of the People's Courts. A special judicial-supervisory collegium of the Supreme Court of the U.S.S.R., composed of the Chairman of the Court and two of his deputies, has been set up for consideration of appeals from sentences of the aforementioned collegiums and courts.

Civil and Criminal Law

The civil codes of the various republics are in all important essentials analogous, but differ in certain details according to the social peculiarities and customs of the nationalities inhabiting them. Regulations for civil procedure are uniform.

Actions as a rule are presented in writing, but oral actions are permitted as well, in which case they are recorded by the court. In response to an action the defendant may lodge a counter-action, not later, however, than the day set for the hearing of the case. The parties to an action may conduct their case in court personally or through duly authorized attorneys. The trial is conducted orally in public. The case is decided by the court on the basis of the evidence presented and the laws in force. Soviet civil procedure eliminates the possibility of long drawn-out litigation due to complicated legal technicalities. The court's duty is to clarify the rights and mutual relations of the litigants. It does not, therefore, limit itself to a consideration of the data presented, but aims to facilitate the elucidation of the circumstances essential to a decision of the case.

Appeals against decisions may be made successively to the next higher court. A court examining a petition for reversal is constrained by law not to limit itself to the formal or legal aspects of the case but to consider the substance thereof.

The purpose of Soviet criminal legislation is to secure the legal defense of the state before the courts from socially dangerous acts tending to undermine the government or violating the law and order established by it. The code categorically repudiates conceptions of punishment or revenge. Its aim is not to cause physical suffering or personal degradation, but to safeguard effectively the work of society.

Court sentences are consequently considered as measures of social protection and range widely in form and severity according to the nature of the offense. A sentence may consist

merely of a warning and public censure, of dismissal from service or of deprivation of civil rights; in more serious cases to imprisonment not to exceed ten years. Capital punishment is applied only in the case of crimes which seriously endanger the social order.

The period of imprisonment is utilized to help the prisoners overcome the influences which led them to commit criminal acts and to enable them to start life anew as normal, useful members of society. No new prisons are being built. Instead there has been set up a system of corrective-labor institutions, farm and industrial colonies where systematic cultural work is carried on and where the prisoners may learn a trade and acquire habits of industriousness. Regular wages are paid for work performed. The entire penal system being educational and corrective rather than punitive, the policy of probation and suspended sentences has been widely put into practice. Often prisoners are released on probation when from one-third to one-half of the sentence has been served.

III

FOREIGN RELATIONS

THE foreign policy of the Soviet Union has been characterized by M. Chicherin, while Commissar for Foreign Affairs, as follows:

“ . . . one of the essential foundations of Soviet policy is the aspiration to peace and the desire to co-operate in its consolidation. No other policy is possible for the Soviet Union for the reason that the principal object of its activity is the economic reconstruction of the country, for which the existence of friendly relations with all nations as well as strong and unbroken economic ties with them are indispensable.”

In 1927, at the disarmament commission in Geneva, the Soviet delegates pressed the formula that the Soviet Union, with its system of socialism, could peacefully coexist and carry on normal economic relations with other countries with different economic systems. At later conferences this formula has been emphasized and developed, and it has taken practical form in various bilateral and multilateral agreements concluded by the Soviet Government with other countries.

In 1928, at an international armament conference, the Soviet delegates presented a plan for complete disarmament for all nations and alternative plans for progressive partial disarmament. At succeeding conferences they have repeatedly introduced these plans, and they have supported all concrete plans for arms reduction submitted by the delegates of other countries, including the American reduction plan put forward in 1932. The Soviet Union was the first country to ratify the Kellogg

Pact renouncing war as an instrument of national policy, and, since the coming into effect of the pact was a slow process, the Soviet Government early in 1929 arranged special conventions with its contiguous neighbors (Danzig, Estonia, Latvia, Persia, Poland, Rumania and Turkey) making the pact immediately effective as among them. In the past two years, both at Geneva and London, the Soviet delegates have proposed a general non-aggression pact, with a definition of aggression, as a supplement to the Kellogg treaty. This definition was accepted in principle by the Committee on Security at Geneva. In addition, at the League of Nations Commission for the study of European Union, May, 1931, and again at the London Economic Conference, June, 1933, the Soviet delegation offered an international draft protocol on economic non-aggression, paralleling the Kellogg Pact in the economic field.

On June 3, 1934, M. Litvinoff, on behalf of the Soviet delegation, submitted to the Disarmament Conference at Geneva a draft of a resolution embodying a plan to transform the conference into a permanent body concerned with the preservation of the security of all states and of universal peace. Consideration of this proposal was postponed by the conference.

Beginning with 1925 the Soviet Government began concluding a series of non-aggression pacts with other countries. Turkey signed the first of these treaties with the Soviet Union in 1925. Similar treaties were concluded with Germany, Afghanistan and Lithuania in 1926, with Persia in 1927, with Finland, Latvia, Estonia, Poland and France in 1932, and with Italy in September, 1933. In April and May, 1934, protocols were signed extending until 1945 the non-aggression pacts with Estonia, Latvia, Lithuania, Finland and Poland. A protocol, wherein the government of the U.S.S.R. and of Germany would "undertake to be guided invariably in their foreign policy by an agreement to preserve the independence and integrity of the

Baltic States," was proposed to the German Government by the Soviet Government on March 28, 1934. On April 11th advice of the rejection by Germany of the Soviet proposal was received.

During the World Economic Conference held at London in June-July, 1933, the Soviet Union concluded a series of conventions in which the signatories subscribed to a definition of aggression based on the Soviet definition offered at Geneva previously. One of these treaties was signed with seven of the Soviet Union's immediate neighbors, viz., Afghanistan, Estonia, Latvia, Persia, Poland, Rumania and Turkey. A separate convention was signed with Lithuania. Another similar treaty was signed with the countries of the Little Entente (Rumania, Czechoslovakia and Jugoslavia), and to this treaty Turkey also was a party. The first of these conventions was later adhered to by Finland, the Finnish ambassador to the U.S.S.R. signing in Moscow on July 22, 1933.

The U.S.S.R. accepted membership in the League of Nations in September, 1934, and was elected to a permanent seat on the Council. Mr. Litvinoff, on behalf of his Government, renewed the proposal made earlier that the League establish a permanent body to keep a check on armaments and on threats to peace as they might arise, this organ, with definite responsibilities and duties, to replace the disarmament conference. The proposal of an Eastern European pact ("Eastern Locarno") to bind the nations of Eastern Europe in a common peace agreement was made by the Soviet Union in cooperation with France, in the summer of 1934, to Germany, Poland and other nations.

Practically all of the important countries of both Europe and Asia have granted *de jure* recognition to the Soviet Government, most of them during the period 1920-1925. Those countries which established diplomatic relations with the

U.S.S.R. at that time have maintained uninterrupted relations, with very few exceptions, until the present time. There was a break in relations with Great Britain and China, but relations were resumed in the first case in October, 1929, and in the second in December, 1932. Diplomatic relations with Mexico, established in 1924, were broken off in January, 1930, and have not been resumed. The Spanish Republic on July 28, 1933, established relations *de jure* with the Soviet Union.

On October 10, 1933, President Roosevelt, in a letter addressed to President Kalinin, suggested "frank, friendly conversations" with a view to bringing to an end "the present abnormal relations between the hundred and twenty-five million people of the United States and the hundred and sixty million people of Russia." President Kalinin warmly welcomed the suggestion and announced that Maxim M. Litvinoff, Commissar for Foreign Affairs, would go to Washington to carry on the discussions for the Soviet Government.

Mr. Litvinoff arrived November 7 and a series of discussions with President Roosevelt and with officials of the State Department began forthwith. November 16, shortly before midnight, after an exchange of notes between President Roosevelt and Mr. Litvinoff covering the problems involved, diplomatic relations between the United States and the Union of Soviet Socialist Republics were formally established. William C. Bullitt was appointed American Ambassador to Moscow and Alexander A. Troyanovsky was selected as Soviet Plenipotentiary Representative in Washington.

On Feb. 4, 1934, normal diplomatic relations were established between Hungary and the Soviet Union by an interchange of notes at Rome between duly authorized representatives of the two countries. On June 9, 1934, normal diplomatic relations were established with Czechoslovakia and Rumania. On July 23 and September 17, 1934, and on June 25 and

July 13, 1935, similar exchanges of notes announced the establishment of normal relations between Bulgaria, Albania, Colombia and Belgium, respectively, and the U.S.S.R. This brought the total number of countries having recognized the U.S.S.R. to over thirty.

The countries with which the Soviet Union has normal diplomatic relations are:

Europe: Albania, Austria, Bulgaria, Czechoslovakia, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Italy, Latvia, Lithuania, Norway, Poland, Rumania, Spain, Sweden, Belgium.

Asia: Afghanistan, China, Japan, Mongolia, Iran (formerly Persia), Turkey, Tuva, Saudi Arabia, Yemen.

North America: United States.

South America: Colombia, Uruguay.

DIPLOMATIC REPRESENTATIVES

A. OF THE U.S.S.R. IN FOREIGN COUNTRIES

COUNTRY	NAME OF SOVIET AMBASSADOR	ADDRESS OF EMBASSY
Afghanistan	Stark, Leonid N.	Kabul
Austria	Petrovsky, Adolph M.	Reisner St. 45, Vienna, 3
Bulgaria	Raskolnikov, F. F.	Sofia
China	Bogomolov, Dmitri V.	Legation Quarters, Nanking
Czechoslovakia	Alexandrovsky, S. S.	Villa Tereza, 438, Prague (Vinohrady)
Denmark	Tikhmenev, N. S.	Frydendalsvej, 27, Copenhagen, 5
Estonia	Ustinov, A. M.	Pikk, 19, Tallin
Finland	Asmus, Eric	Boulevard-Sgatan, 21, Helsingfors
France	Potemkin, V. P.	79, Rue de Grenelle, Paris
Germany	Suritz, I. Z.	Unter den Linden, 7, Berlin, W. 8
Great Britain	Maisky, Ivan M.	13 Kensington Palace Gardens, London, W. 5
Greece	Kobetsky, Mikhail V.	Rue Herode d'Attique, 7, Athens
Hungary	Bekzadian, A. A.	
Italy	Stein, B. E.	Via Gaeta, 5, Rome
Japan	Yurenev, Konstantin K.	Azabu, Tokio
Latvia	Brodovsky, Stefan J.	Antonijas Iela, 2, Riga
Lithuania	Karsky, M. A.	Laisves Aleja, 4, Kovno
Mongolia	Okhtin, Andrey Y.	Ulan-Bator-Khoto (The Consuls Village)

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COUNTRY	NAME OF SOVIET AMBASSADOR	ADDRESS OF EMBASSY
Norway	Yakubovich, I. S.	Uranien borgvein, 2, Oslo
Iran (Persia)	Alexey S. Chernikh	Teheran
Poland	Davtian, Yakov K.	Poznanska ul. 15, Warsaw
Rumania	Ostrovsky, M. S.	Bucharest
Saudi Arabia	Tiuriakulov, Nazir J.	Djedda
Sweden	Kollontay, Alexandra M.	Karlvaegen, 18, Stockholm
Turkey	L. M. Karakhan	Ankara
Tuva (formerly Tannu-Tuva)	Popov, Nikifor V.	
United States	Troyanovsky, Alexander A.	1125 Sixteenth St., N. W., Washington, D. C.
Uruguay	Minkin, Alexander E.	Bolevar Artigas, 1410, Montevideo

B. OF FOREIGN POWERS ACCREDITED TO THE U.S.S.R.

COUNTRY	NAME OF FOREIGN AMBASSADOR	ADDRESS OF EMBASSY <i>(all in Moscow)</i>
Afghanistan	Abdul Hussein Aziz	Vorovsky ul., 42
Austria	Pacher, Heinrich	Mertvy per., 6
Bulgaria	Michaltcheff, Prof.	
China	Yen, Dr. W. W.	Kropotkinskaya, 13
Czechoslovakia	Pavlu, Bohdan	Maly Kharitonevsky per., 10
Denmark	Engell, Ove	Staro-Konyushenny per., 23
Estonia	Tofer, Karl	Mal. Kislovsky per., 5
Finland	Yrjo-Koskinen, Baron A.	Mal. Kharitonevsky per., 3
France	Alphand, Charles	Pomerantsev per., 6
Germany	Frederick Von der Schulenberg	Leontievsky per., 10
Great Britain	Chilston, Viscount	Sofiskaya nab., 14
Greece	Polychroniades, Spiridon	Pervaya Grazhdanskaya, 24
Hungary	Arnothy, Dr. Michel J.	
Italy	Attolico, Bernardo	Denezhny per., 5
Japan	Ota, Tamekichi	Gertsen ul., 42
Latvia	Bilmanis, Dr. Alfred	Mashkov per., 2
Lithuania	Baltrusaitis, Jurgis	Vorovsky ul., 24
Mongolia	Darisap, M.	Kropotkinskaya nab., 35
Norway	Urbye, Andreas T.	Mertvy per., 9
Iran (Persia)	Pakrevan	Pokrovsky Blvd., 3
Poland	Lukasiewicz, Julusz	Vorovsky ul., 21
Rumania	Chiunta, E.	
Sweden	Gyllenstierna, Baron Eric	Vorovsky ul., 44
Turkey	Vassif, M. H.	Gertsen ul., 43a
Tuva	Sedyboola, Tanova	Vorovsky ul., 22
United States	Bullitt, William C.	Mokhovaya, ul., 13
Uruguay	Da Costa, Gen. Eduardo	Petrovka, 15

Consulates of the U.S.S.R. have been established in the United States at Washington, New York and San Francisco. The addresses and the names of consuls follow:

Washington, D. C.—1125 Sixteenth St. N. W.—G. I. Gokhman.

New York, N. Y.—7 East 61st St.—Jean Arens, Consul-general.

San Francisco, Cal.—2563 Divisadero St.—M. G. Galkovitch, Consul-general.

The address of the consulate of the United States in Moscow is Mokhovaya ul. 13.

PRINCIPAL PEACE TREATIES, NON-AGGRESSION PACTS AND EXCHANGES OF DIPLOMATIC NOTES

COUNTRY	PLACE AND DATE OF SIGNATURE OR CONCLUSION	
Afghanistan	Moscow; Feb. 28, 1921	A treaty between the R.S.F.S.R. and Afghanistan.
	Pagmen; Aug. 31, 1926	Non-aggression pact.
	Kabul; June 24, 1931	Renewal of 1926 pact; went into effect Oct. 15, 1931, for a term of 5 years.
Austria	Vienna; Dec. 8, 1921	A provisional agreement, including trade arrangements, between the R.S.F.S.R. and the Ukrainian S.S.R. of the one part and the Republic of Austria of the other; extended to apply to the entire U.S.S.R., September 8, 1923.
China	Pekin; May 31, 1924	A general treaty and an agreement concerning administration of the Chinese-Eastern Railway.
	December, 1927	Severance of relations with the Nanking Government.
	Khabarovsk; Dec. 22, 1929	Protocol re restoration of status quo ante on the Chinese-Eastern Railway.
	Geneva; Dec. 12, 1932	Announcement of resumption of diplomatic relations.

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COUNTRY	PLACE AND DATE OF SIGNATURE OR CONCLUSION	
Czechoslovakia	Prague; June 5, 1922	A provisional treaty, including trade regulations, between the R.S.F.S.R. and Czechoslovakia.
	Geneva; June 9, 1934	Exchange of notes re establishment of diplomatic relations.
	Prague; May 16, 1935	Security pact providing for mutual assistance in the event of aggression by a third country.
Denmark	Moscow; April 23, 1923	A preliminary agreement between the R.S.F.S.R. and Denmark.
	June 17, 1924	Exchange of notes re establishment of relations <i>de jure</i> ; includes questions of trade.
Estonia	Yurev; Feb. 2, 1920	A treaty of peace between the R.S.F.S.R. and Estonia.
	Moscow; May 4, 1932	Non-aggression pact; went into force August 18, 1932.
	Moscow; April 4, 1934	Non-aggression pact extended until 1945.
Finland	Yurev; Oct. 14, 1920	A treaty of peace between the R.S.F.S.R. and Finland.
	Helsingfors; Jan. 21, 1932	Non-aggression pact; went into force August 9, 1932.
	Moscow; April 7, 1934	Non-aggression pact extended until 1945.
France	Paris-Moscow; Oct. 28, 1924	Exchange of telegrams re establishment of relations <i>de jure</i> .
	Paris; Nov. 29, 1932	Non-aggression pact; went into force Feb. 15, 1933.
	Geneva; Dec. 5, 1934	Protocol providing for Franco-Soviet collaboration in negotiations for the Eastern European Pact.
	Paris; May 2, 1935	Security pact providing for mutual assistance in the event of aggression by a third country.
Germany	Berlin; May 6, 1921	A provisional agreement, including trade arrangements, between the R.S.F.S.R. and Germany.
	Rapallo; Apr. 16, 1922	A treaty between the R.S.F.S.R. and Germany; extended on Nov. 5, 1922 to the U.S.S.R.

COUNTRY	- PLACE AND DATE OF SIGNATURE OR CONCLUSION	
	Berlin; Apr. 24, 1926	Non-aggression pact.
	Moscow; June 24, 1931	Renewal of 1926 pact; ratification documents exchanged May 5, 1933.
Great Britain	Moscow-London; Feb. 1-8, 1924	Exchange of notes re establishment of relations <i>de jure</i> .
	Moscow-London; May 27, 1927	Exchange of notes severing relations.
	London; Oct. 3, 1929	Protocol providing for the resumption of diplomatic relations.
Hungary	Rome; Feb. 4, 1934	Exchange of notes re establishment of relations <i>de jure</i> ; ratified by Hungarian parliament Feb. 10, 1934.
Italy	Rome; Dec. 26, 1921	A preliminary agreement, including trade arrangements, between the R.S.F.S.R. and Italy.
	Moscow-Rome; Feb. 7, 1924	Exchange of notes re establishment of relations <i>de jure</i> .
	Rome; Sept. 2, 1933	Non-aggression pact; ratified Sept. 16, 1933.
Japan	Pekin; Jan. 20, 1925	Convention on resumption of diplomatic and trade relations.
Latvia	Riga; Aug. 11, 1920	A treaty of peace between the R.S.F.S.R. and Latvia.
	Riga; Feb. 5, 1932	Non-aggression pact; went into force July 28, 1932.
	Moscow; April 4, 1934	Non-aggression pact extended until 1945.
Lithuania	Moscow; July 14, 1920	Treaty between the R.S.F.S.R. and Lithuania.
	Moscow; Sept. 28, 1926	Non-aggression pact; ratified Nov. 9, 1926.
	Moscow; May 6, 1931	Renewal of 1926 pact for a term of 5 years; ratified Aug. 29, 1931.
	Moscow; April 4, 1934	Non-aggression pact extended until 1945.
Persia	Moscow; Feb. 26, 1921	A treaty between the R.S.F.S.R. and Persia.
	Moscow; Oct. 1, 1927	Non-aggression pact; ratified Jan. 31, 1928.
Poland	Riga; March 18, 1921	A treaty of peace between the R.S.F.S.R. and Poland.

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COUNTRY	PLACE AND DATE OF SIGNATURE OR CONCLUSION	
	Moscow; July 25, 1932	Non-aggression pact; went into effect Dec. 23, 1932.
	Moscow; April 4, 1934	Non-aggression pact extended until 1945.
Rumania	Geneva; June 9, 1934	Exchange of notes re establishment of diplomatic relations.
Spain	Moscow-Madrid; July 28, 1933	Exchange of telegrams re establishment of relations <i>de jure</i> .
Turkey	Moscow; March 16, 1921	A treaty between the R.S.F.S.R. and Turkey.
	Paris; Dec. 17, 1925	A treaty of friendship and neutrality.
	Angora; Dec. 17, 1929	Protocol providing for extension of 1925 treaty for two years.
	Angora; Oct. 31, 1931	Protocol providing for extension of above treaty for 5 years from date of expiration; ratified July 21, 1932.
United States	Washington; Nov. 16, 1933	Exchange of notes re establishment of relations <i>de jure</i> .
Uruguay	August 21-22, 1926	Exchange of telegrams re establishment of relations <i>de jure</i> .
	August 11-13, 1933	Exchange of telegrams re establishment of permanent diplomatic representation and entrance into negotiations for a trade treaty.

The foregoing list does not include multilateral agreements, the most important being the protocol on the Kellogg Pact and the 1933 conventions regarding aggression already noted. A separate list of those treaties and agreements dealing specifically with trade is given below. Some of the non-aggression pacts incorporate the obligation on the part of the contracting parties not to undertake any measures which might hamper trade. Thus, Article IV of the non-aggression pact signed in Paris on November 29, 1932, between France and the U.S.S.R. reads as follows:

“Each of the High Contracting Parties undertakes, during the period the present treaty is in force, to participate in no international agreements which would have the practical consequence of prohibiting purchases to be made of the other party, or the sale of goods, or the granting of credits to the other, and to take no measures which would result in excluding the other party from any kind of participation in its foreign trade.”

COMMERCIAL TREATIES AND TRADE AGREEMENTS

With the aim of regulating and developing its trade with other countries, the U.S.S.R has concluded commercial treaties with many nations, thereby establishing a legal basis for the normal development of economic relations. A special feature of such agreements is the granting of diplomatic status to the heads of the Soviet trade delegations, which carry on the foreign trade operations in other countries. Another feature of many of the agreements is the inclusion of a most-favored-nation clause. The conclusion of such trade agreements has worked out to the mutual benefit of both signatories. In particular, they usually provide guaranties against prejudicial measures aimed at the exports of either country. They also constitute a basis for an expansion of commercial intercourse between the two countries.

The Soviet Union has to date concluded commercial treaties or trade agreements with most of the leading countries of Europe and Asia. A list of the more important is given below:

COUNTRY	PLACE AND DATE OF SIGNATURE OR CONCLUSION	
Czechoslovakia	March 25, 1935	An agreement regulating general questions of trade and providing for most-favored nation treatment.
Estonia	Reval; May 17, 1929	A treaty on trade and navigation; came into force September 19, 1929.
	Moscow; Oct. 31, 1934	Trade agreement; came into force Jan. 1, 1935.

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COUNTRY	PLACE AND DATE OF SIGNATURE OR CONCLUSION	
Finland	April 3, 1929	Customs and navigation convention re customs supervision in the Gulf of Finland, coöperation in the struggle against contraband, and navigation rights.
France	Paris; Jan. 11, 1934	Franco-Soviet trade agreement; provides credits on Soviet purchases; reduces tariffs on and increases quotas for import of Soviet products; went into effect Jan. 24, 1934.
	Moscow; Dec. 9, 1934	Protocol re conclusion of new trade agreement; pact of Jan. 11 to remain in force until new agreement is completed.
Germany	Moscow; Oct. 12, 1925	Soviet-German Treaty, primarily a trade and commercial agreement.
	Moscow; Dec. 21, 1928	Protocol of Soviet-German negotiations, which defines and develops the provisions of the 1925 treaty.
	Berlin; May 28, 1932	Tariff agreement; reduces duties on certain Soviet products and places others on free list.
Great Britain	London; March 16, 1921	A trade agreement between the R.S.F.S.R. and Great Britain; annulled by Conservative Government on May 27, 1927.
	London; Apr. 16, 1930	Provisional trade agreement. On October 17, 1932, required six months' notice was given of the abrogation of agreement.
	London; Feb. 16, 1934	New trade agreement; provides reciprocal most-favored-nation treatment; ratio of Soviet proceeds from British trade to payments in Great Britain to be gradually reduced; came into force March 21, 1934.
Greece	Athens; June 23, 1926	A customs convention.
	Athens; June 11, 1929	A treaty on trade and navigation; came into force June 25, 1929.
	Athens; Sept. 8, 1933	Temporary agreement regulating transfer of payments for Soviet

COUNTRY	PLACE AND DATE OF SIGNATURE OR CONCLUSION	
		exports to Greece; most-favored-nation clause included.
	Athens; May 8, 1934	Trade agreement similar to that of Sept. 8, 1933.
Italy	Rome; Feb. 7, 1924	A trade treaty and customs convention.
	Rome; Aug. 2, 1930	Commercial agreement containing provision for government guaranty up to 75 per cent on credits for Soviet orders placed during the year ending June 30, 1931.
	Rome; Apr. 28, 1931	Renewal of above agreement to cover additional credits on Soviet orders.
	Rome; May 6, 1933	A new commercial treaty and customs convention supplementing that of 1924, and a new credit agreement; ratified in Rome Feb. 8, 1934.
Japan	Moscow; Jan. 23, 1928	Fisheries convention, granting Japanese subjects fishing concessions in Soviet waters in the Far East; expires in 1936.
	Moscow, Aug. 13, 1932	Fishing agreement, regulating a number of matters which had arisen in connection with the convention of 1928.
Latvia	Moscow; June 2, 1927	A trade agreement; expired in September, 1932.
	Moscow; Dec. 4, 1933	New trade agreement to take the place of the 1927 pact; came into force Jan. 1, 1934.
Lithuania	Sept. 24, 1928	Exchange of notes re mutual application of the most-favored-nation clause.
	Kaunas; Aug. 29, 1931	Protocol regulating juridical status of Soviet trade delegation in Lithuania.
Norway	Christiania; Sept. 2, 1921	Provisional trade agreement between the R.S.F.S.R. and Norway.
	Moscow; Dec. 15, 1925 Feb. 24, 1929	A treaty on trade and navigation. Convention concerning mutual protection of industrial property.

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COUNTRY	PLACE AND DATE OF SIGNATURE OR CONCLUSION	
	Oslo; May 29, 1933	Trade agreement and credit arrangements.
Iran (formerly Persia)	Moscow; Oct. 1, 1927	A trade agreement and customs convention; expired on October 1, 1929.
	Teheran; March 10, 1929	Customs convention; contains most-favored-nation clause; operative until May 10, 1936.
	Teheran; Oct. 27, 1931	Treaty on commerce and navigation; ratification documents exchanged in Moscow and treaty became effective June 22, 1932; term 3 years.
	Teheran; Aug. 27, 1935	New trade agreement providing for reciprocal increase of trade.
Poland	Riga; March 30, 1922	Multilateral protocol regulating the trade relations between the R.S.F.S.R. and Estonia, Latvia, and Poland.
Sweden	Stockholm; March 15, 1924	A trade agreement based on the principle of reciprocal non-discrimination.
	Moscow; Oct. 8, 1927	Agreement on status of Soviet trade delegation; ratified March 31, 1928.
Turkey	Angora; March 11, 1927	A trade agreement; came into force July 4, 1927; expired October 19, 1930.
	Moscow; March 16, 1931	A treaty of commerce and navigation; based on most-favored-nation principle.
	Angora; Jan. 21, 1934	Protocol under which the Soviet Union grants Turkey a credit of \$8,000,000 for the purchase of machinery in the U.S.S.R.
United States	Moscow; July 13, 1935	An exchange of notes providing for extension of tariff reductions by the U.S.A. to the U.S.S.R. and for increased purchases by the latter.

The above list does not include numerous conventions entered into regulating postal, telegraph, railway, and other similar matters. Agreements providing for government guaranties on credits to Soviet purchasing organizations, except in the case of Italy, where such arrangements were made directly with the Italian Government, are also not included in the list. In other countries such guaranties have been established either under a general scheme of government-guaranteed export credits, as in Great Britain, or by agreements entered into with industrialists and banks and approved by the government of the respective country, as in Germany and Norway.

IV

ECONOMIC GEOGRAPHY—NATURAL RESOURCES

THE enormous territory of the U.S.S.R. (21,230,700 sq. km.) extends in one solid mass across the top of the Old World, its west and east borders being about 8,500 km. distant from each other, and its greatest width from north to south being 4,500 km. A country of such vast area naturally possesses a wide diversity of climate, topography and natural resources.

ECONOMIC GEOGRAPHY

Topography—The European part of the Soviet Union is a vast plain lying at an average height of 165 meters above sea-level. The only mountain ranges of any significance are on the outer edges of this plain, viz., the Urals to the east and the Crimean and Caucasian mountains to the south and southeast. The Urals stretch almost directly north and south for a distance of nearly 2,500 km., the highest peak being about 1.5 km. high. The Crimean mountains are considerably lower and extend almost due east and west. The Caucasian range is also nearly latitudinal, stretching from the Black to the Caspian Sea. Its highest peaks reach 5 km. and over; nine of them overtop Mont Blanc in Switzerland, the highest being Mount Elbrus—5.63 km. (18,470 feet).

The territory of the Asiatic part of the U.S.S.R. also consists chiefly of an immense plain with mountain ranges on its eastern and southern borders. The former include the Upper Yan range east of the Lena River, the Kolyma range, and the Kamchatka mountains. The southern ranges, such as the Pamirs in Central Asia, comprise some lofty peaks towering to a height of over 7 km.

Rivers—The special characteristics of the country's relief determine the nature of its river systems. In contrast to Western Europe, where the rivers cover but a short distance between the mountains in which they rise and the seas into which they fall, the rivers of the U.S.S.R. flow through long stretches of land before they reach the sea. They are, consequently, noted for their great length, the volume and slow velocity of their waters, and their tortuous courses. The longest rivers of the U.S.S.R. are listed below:

NAME	SECTION OF COUNTRY	OUTLET	LENGTH (km.)	AREA OF BASIN (thous. sq. km.)
Ob	Ural and West Siberian Regions	Gulf of Ob (Arctic Ocean)	4,347	2,915
Yenisei	West and East Siberian Regions	Arctic Ocean	4,010	2,550
Lena	Yakut A.S.S.R.	Arctic Ocean	4,600	2,380
Amur	Far Eastern Region	Sea of Okhotsk (Pacific Ocean)	2,870	2,055
Volga	Central and Eastern section of European part	Caspian Sea	3,587	1,459
Amu-Darya	Central Asia	Sea of Aral	2,394	465
Syr-Darya	Central Asia and Kazakhstan	Sea of Aral	2,450	233
Dnieper	Western section of European part	Black Sea	2,283	518
Angara (or Upper Tunguska)	East Siberian Region	Yenisei River	1,880	—
Ural	Ural Region and Kazakhstan	Caspian Sea	1,808	229

It is of special significance for the water transportation of the country that in the European part of the Union the sources of the various rivers are concentrated near the center of the country and thence flow seaward, separating from each other as they radiate toward the borders. Also the proximity of large rivers one to another makes possible the connecting of the various river systems by canals. The Volga, Neva and Northern

Dvina systems are thus connected, and the Volga and Don systems are now being linked by a canal under construction near Stalingrad. These immense interlinked river systems make up an important part of the national transportation system, despite the fact that they are ice-bound during the winter months.

The Asiatic part of the Soviet Union is also endowed with many rivers, some of them—the Ob, Yenisei and Lena—being among the greatest in the world as regards length, area of river basin and volume of water. Their use for transportation is more limited, since they empty into the Arctic Ocean, which is closed to navigation during the greater part of the year. However, they constitute an important link between Northern Siberia and Europe. The Northern Sea Route was opened for systematic shipping via the Kara Sea and Ob and Yenisei Rivers in 1921, when shipments amounted to 8,300 tons. Since that date development has proceeded steadily, and shipments of furs, timber, etc., handled by the so-called Kara Sea Expeditions over this route now exceed 200,000 tons annually. As a result of the successful expedition in the summer of 1932 of the ice-breaker *Sibiryakov*, which attained the Northeast Passage without the need of wintering in the Arctic, an extensive program is being carried out to extend regular traffic on the Northern Sea Route to the mouth of the Lena River. An important step was taken in this direction in the summer of 1933, when three cargo ships convoyed by the ice-breaker *Krassin* successfully completed the first commercial expedition from Archangel to the Bay of Tiksa at the mouth of the Lena River.

The year 1934 marked further progress in opening up the Arctic regions. Over forty vessels participated in the various commercial and scientific activities. Nineteen new stations from which radio reports on meteorological conditions are regularly received were established, and a number of educa-

tional institutions for training polar explorers, meteorologists, radio operators, etc. are being started. An important event was the west bound voyage of the ice-breaker *Litke* from Vladivostok to Murmansk during one navigation season, the first time in the history of Arctic navigation that this has been accomplished. The rescue of the 104 marooned members of the expedition of the *Chelyuskin*, which, crushed by ice packs, finally sank on February 13, centered the attention of the world on Soviet activities in the Arctic.

A project is now being drawn up for linking the rivers of the European section with those of the Asiatic section of the U.S.S.R. The preliminary plans call for canals joining the Kama (a tributary of the Volga) with the Chusovaya River, the Chusovaya with the Tura (a tributary of the Tobol), the Tobol with the Irtysh, the latter with the Ob, and the Ob, in turn, with the Yenisei. This waterway would be of great economic significance, as with the Baltic-White Sea canal, recently completed, and the Caspian-Black Sea canal, in project, it would link up Siberia with European Russia and with the ports of the Black and Baltic Seas. The total potential length of waterways in the U.S.S.R. exceeds 350,000 km., of which about 84,000 km. are at present navigable. By the end of the second Five-Year Plan period (1937) it is expected to raise the latter figure to 101,000 km.

Water Power Resources—The rivers of the Soviet Union constitute important potential sources of hydroelectric power. In this respect the U.S.S.R. holds first place, possessing about 200 million kw., or one-third of the total world waterpower resources. This enormous source of power, however, has as yet been utilized to only a fraction of one per cent. The Svir and Volkhov hydroelectric plants, near Leningrad, the Dnieper River power plant officially opened in October, 1932, the hydroelectric stations already built and under construction in

the Caucasus and Central Asia, and the Volga project now under way are the first important steps in waterpower development. The rivers of the Asiatic section of the country, which comprise three-fourths of the country's water power, have as yet been hardly utilized at all for power purposes. It is estimated that the Angara and Yenisei river systems alone can provide power totaling 129 billion kilowatt-hours annually, or about fifty times the annual output of Dnieproges. Preliminary steps are now being taken for the development of the Angara power project.

Climate; Soil and Vegetation Belts—The Soviet Union has a considerable variety of climate ranging from arctic to subtropical. As a whole the mean annual temperature is lower than that of most European countries. This is due to the fact that the main bulk of the country lies further north (between 50° and 70° north latitude) and is situated at a great distance from seas which would have a moderating influence on the climate. The continental nature of the country makes for greater dryness, a more severe winter and hotter summer than in most countries of Western Europe.

The southern part of the Crimea, Western Transcaucasia and the Ferghana Valley in Central Asia, being protected from the cold winds of the North by mountain ranges, have a warm, mild, subtropical climate with relatively small fluctuations between summer and winter temperatures.

The chief soil and vegetation belts lie in broad solid strips from west to east. They are, beginning with the northernmost belt: (1) the tundra (marshy plains bordering on the Arctic), which occupies approximately 14 per cent of the entire area of the country; (2) the forest belt, covering about 50 per cent; (3) the wooded steppe belt (mixed wooded and prairie country), constituting 7 per cent; (4) the prairie steppe or grassland belt, making up over 15 per cent. In addition, there are

two belts which are confined largely to the extreme southern and southeastern sections of the European part and the southwestern section of the Asiatic part of the country (Kazakstan and Central Asia). These are: (5) desert and semidesert grazing belt (9 per cent); and (6) subtropical belt (5 per cent).

FUR AND TIMBER RESOURCES

The tundra and the northern forests are the main habitat of the fur-bearing animals. The U.S.S.R. is one of the world's leading fur-producing and -exporting countries. It ranks second, following the United States, in output of furs, producing one-fifth of the world total. It supplies one-fourth of the furs put on the world market, and for many years has been the largest exporter of certain varieties, such as squirrel, white fox, ermine and Persian lamb. A comparatively new industry in the Soviet Far North is deer breeding.

The forests of the Soviet Union are the most extensive in the world, covering about 950 million hectares, one-third of the world total and half of the entire forest area in the temperate zone. As regards coniferous species, which are of leading importance in the world lumber trade, the Soviet Union has approximately 470 million hectares, or 44 per cent of the world total. Pine, larch, fir and spruce are the principal species in the coniferous group. While coniferous forests predominate, there are also large tracts of valuable deciduous trees (birch, aspen, oak, walnut, etc.), especially in the Caucasus, where these species occupy 78 per cent of the total timber area. Despite the fact that only about 200 million hectares, or 21 per cent of the entire forest area of the country, are at present under exploitation, the Soviet Union ranks first in the output of timber and second, after Canada, in timber exports. Spruce lumber and pulpwood constitute the main items among Soviet timber exports, and the exceptionally high quality of these products is recognized on the world market.

AGRICULTURAL RESOURCES

In a country as large as the Soviet Union there is naturally an abundance of land suitable for agriculture. The continental character of the country and the existence of extensive areas of smooth plains make it especially adaptable for the production of the world's great staple crops—grain, forage and fiber. The northern location of a considerable part of the U.S.S.R. is not a deterrent to the development of agriculture in general nor to wheat production in particular. It is well established that the highest yields and best grades of wheat in the world are obtained from such northern semiarid grassland areas as are so extensive in the U.S.S.R. In recent years the Soviet Union has found that wheat can be grown successfully not only in the grassland belt but even in sections as far north as Karelia (north of Leningrad).

The relatively dry climate, level plains, and productive soil of the steppe or grassland belt (present center of grain production) of the Soviet Union make it practically ideal for large-scale, mechanized grain farming. In this belt there are approximately 190-200 million hectares of black soil (first-grade wheat land), and another 150 million hectares of chestnut soil and inferior chernozem (black soil). Together these make up about 350 million hectares (865 million acres), almost four times the area of comparable wheat land in the United States, according to figures cited by Mr. C. F. Marbut,¹ soil scientist of the United States Department of Agriculture.

While grain production, primarily wheat, plays the leading rôle in the grassland belt, stock-raising (cattle, hogs, and sheep) likewise is of major importance. The northern part of the European section of this belt and a considerable portion of the wooded steppe belt are utilized for the raising of the following industrial crops—sugar beets, soy beans, sunflower seeds, hemp,

¹ C. F. Marbut, "Russia and the United States in the World's Wheat Market" in *The Geographical Review*, January, 1931, p. 10.

kenaf, etc. Fruit- and vegetable-raising is carried on in both the steppe and wooded steppe belts, particularly near the large cities and industrial centers.

The southern part of the forest belt is utilized as a flax and dairy region. This region is quite broad in its western or European section, extending roughly between Leningrad and Sverdlovsk on the north and Minsk, Moscow, and Kazan on the south, but narrows down considerably in its eastern or Siberian section. The latter section is not as yet developed to any great extent, but the European section is already an important factor in the flax and dairy industries.

The arid pasture-lands of the desert belt, which cover large areas in Kazakstan and Central Asia, have been utilized as yet to a comparatively small extent but are suitable for the raising of beef cattle, sheep and goats on an extensive scale. A portion of these lands can and is being made available for cultivation by the establishment of modern irrigation systems.

The subtropical belt—including Southern Crimea, portions of Transcaucasia and the cotton regions of Soviet Central Asia—is utilized for the growing of tea, tobacco, citrus fruits, grapes and cotton. In addition to the latter crops steps are being taken in Central Asia to develop the growing on a commercial scale of olives, sweet potatoes, pomegranates, pistachios, Japanese persimmons, sugar cane and various medicinal herbs. Extension of the area adaptable to the raising of subtropical crops and the organization of large-scale production of such crops, especially tea and citrus fruits, has constituted one of the major tasks in connection with the specialization of agriculture.

Grain production is being shifted to the North, the aim being not only to make room in the southernmost districts for subtropical plants but to devote a larger share of the grain belt proper to the cultivation of industrial crops (cotton, sugar beets, etc.) and rubber-bearing plants. In connection with this policy

scientific research is being conducted on such problems as the selection of new varieties of hardy grain capable of ripening in the short growing season of the North. The search for new varieties not only of grain but of many other agricultural crops which may be suitable for commercial cultivation in the various sections of the U.S.S.R. is being carried out on a world-wide scale under the direction of the All-Union Institute of Plant-Breeding at Leningrad, headed by the renowned Soviet geneticist, N. I. Vavilov. The late I. V. Michurin, famous Soviet horticulturist, developed over 300 new varieties of fruits, many of them capable of being grown in severe climates where this was formerly impossible.

In an account of the agricultural resources of the U.S.S.R. mention should be made of certain native plants which have commercial value. The most important are the various rubber-bearing plants discovered in recent years. Among these tau-sagiz, containing from 30 to 40 per cent rubber, holds the leading place. Its native habitat is Kazakstan and Central Asia, but since its discovery as a rubber-bearing plant in 1929 its cultivation has been extended to other parts of the country. The area under tau-sagiz is now about 10,000 hectares, but, according to preliminary schedules, it is expected to reach 200,000 hectares by 1937. One hectare of tau-sagiz in its third year yields about one ton of pure rubber. The Crimean dandelion, or krim-sagiz, discovered in 1932, has a somewhat lower rubber content, but due to the quality and easy extraction of the rubber, this plant is considered to be also of great industrial value.

To give an idea of the possibilities for the expansion of agriculture, it suffices to note that the total area under cultivation at the present time, about 130 million hectares, constitutes only 12 per cent of the entire area suitable for agriculture (approximately 1,100 million hectares). Fallow land now embraces from 40 to 50 million hectares, and pasture land about 200

million hectares. Even if these are added to the sown area, there still remain unutilized over 700 million hectares of agricultural land. Moreover, there are in addition some 600 million hectares of land which have not yet been explored or require reclamation work and some of which may be found or made to be suitable for agriculture.

Considerable work is being done both in exploration and reclamation. The government has founded a special institute for the investigation of new areas for agricultural purposes. Swamps are being drained, arid lands are being supplied with modern irrigation systems, and the less fertile lands with increasing quantities of mineral fertilizers. Under the Soviet régime the drained area has been increased by almost 3 million hectares (the entire drained area before the war totaled 1 million hectares). The area of irrigated lands was increased by 1,500,000 hectares from 1928 to 1932, bringing it to a total of 5,700,000 hectares. According to Prof. Vavilov, it has been definitely established that the application of mineral fertilizers to the sandy-clay soil (podzol) of the forest belt makes it exceptionally fertile.

The Volga power project, already mentioned, will make possible the irrigation of some 10 million acres of land, which will be devoted to wheat, alfalfa, and other crops. The policy for the present (second) Five-Year Plan is, however, to proceed slowly as regards increasing the sown area, and to place the principal stress upon raising yields by improved cultivation of the area already under crops.

MINERAL RESOURCES

The U.S.S.R. is amply provided with the mineral resources necessary for the successful carrying out of its industrialization program and for the unrestricted growth of its national economy, according to Soviet authorities.

As a result of the work of the All-Union Geological Survey,

which progressed with particular rapidity during the period of the first Five-Year Plan, over 7 million square kilometers, or nearly one-third of the entire territory of the Soviet Union, had been surveyed by the end of 1932 and the known reserves of basic minerals had mounted to totals many times as great as in 1917. Under the tsarist régime geological exploration was in a very backward state; by the end of the 35-year period from the founding of the Geological Committee in 1882 to 1917 only 1.8 million sq. km. of European Russia had been imperfectly surveyed and Asiatic Russia was left uncharted. Prewar estimates of the country's mineral resources, consequently, represented only a fraction of the actual reserves. The following table shows the extent of increase in the known supplies of the basic minerals since 1917 and the ratio of present known reserves to total world resources:

	1917	JAN. 1	JAN. 1	SHARE OF	RANK IN WORLD
	(TERRITORY OF U.S.S.R.)	1929	1933	RESOURCES (in per cent)	
	<i>in thousand metric tons</i>				
Coal	130,500,000	553,700,000	1,200,000,000	15.0	3
Peat	—	—	65,000,000	75.0	1
Oil	—	—	2,427,000	26.0	1
Iron Ore	2,056,000	6,174,000	9,447,200 ²	30.0	2
Iron Ore (includ- ing quartzites)	—	—	259,500,000 ³	55.0	1
Manganese	168,000	167,000	588,700	65.4	1
Copper	1,392	1,630	15,850 ⁴	13.6	—
Lead	579	1,000	3,500	8.75	—
Zinc	1,292	1,500	7,300	13.2	—

² Exclusive of Kursk magnetic anomaly and the Krivoy Rog iron ore quartzite deposits. By Jan. 1, 1934, this figure had reached 10,303,400,000 tons. See section on Iron Ore.

³ Inclusive of above deposits.

⁴ Exclusive of the newly discovered Blyava deposits. See section on Non-Ferrous Metals.

Coal—The Soviet Union possesses, according to latest estimates, 1,200 billion tons of coal, or 15 per cent of total world resources. In rank it comes third, preceded by the United States (3,536 billion tons) and Canada (1,361 billion). However, since brown coal and lignite constitute over 70 per cent of the

Canadian reserves and only about 20 per cent of the Soviet reserves, the latter ranks second to the U.S. in actual energy units.

In European Russia the most important coal basin is the Donetz (Ukraine), with resources now estimated at over 70 billion tons. This basin has supplied the bulk of Soviet coal output. The other two established coal basins are the Moscow, with reserves of 5.9 billion tons and the Ural (Kizel, Cheliabinsk, etc.), with 4.5 billion tons. Much of the Moscow coal and part of the Ural coal is lignite; the Donetz coal, on the other hand, is high-grade bituminous and anthracite. A new coal basin was discovered in 1924 in the northern Urals, the Pechora Basin, and the first mine was sunk in the fall of 1932. These deposits cover a large area, and have not yet been thoroughly explored. Preliminary estimates place its reserves at about 250 billion tons. An expedition of the Academy of Science during the summer of 1933 made a special study of the resources of this district and of the possibilities of railway construction to link it up with the central districts of European Russia. The opening (in June, 1933) of the Baltic-White Sea Canal establishes a direct water route from Leningrad to Archangel and other northern points, thereby shortening the distance by water between Leningrad and the Pechora Basin by about ten days.

In Kazakstan, which adjoins the Ural Region on the south, a rich, new coal basin, the Karaganda, was opened up for exploitation in 1931. Its reserves are now estimated at over 20 billion tons of high-grade coal, some of which is suitable for coking purposes. The latter factor makes this basin of particular significance, since it provides the nearest supply of good coking coal for the Magnitogorsk steel mill and other large plants in the southern Urals. Karaganda lies only half as far away as the Kuznetz coal basin, upon which it was originally expected that these enterprises would need to rely for coking coal.

Asiatic Russia proper—West and East Siberia, Yakutia and the Far Eastern Region—possesses extensive reserves of coal, much of it as yet unexploited. One of the largest basins, the Kuznetz in West Siberia, with reserves totaling 400 billion tons, has, however, been undergoing intensive development during recent years, and is expected eventually to rival the Donetz Basin in coal output. Other smaller deposits in West Siberia, including the Minusinsk and Chulym-Yenisei Basins, are estimated to total 34 billion tons. Just east of these deposits, in the southern part of East Siberia, lie the Kan and Irkutsk coal basins, possessing reserves estimated at 40 and 58 billion tons, respectively. The Minusinsk and Irkutsk deposits are already under partial exploitation.

In the northern part of East Siberia lies possibly the largest coal basin in the world, covering an area of 1,000,000 sq. km.—the Tungus Basin. Only a beginning has been made at surveying its resources, but these are now estimated at not less than 500 billion tons. Still further to the east, in Yakutia, are the Lena and Aldan deposits, estimated at from 60 to 100 billion tons, while recent discoveries in the Far Eastern Region (the Bureya coal basin on the Amur River, with deposits estimated at 110 billion tons) have brought the total of its reserves up to a minimum of 200 billion tons. The Tungus and Yakutia deposits are not yet under exploitation, but scientific expeditions are now making further studies of the extent of their resources and possibilities for their development.

Coal is also found in smaller quantities in various other localities, such as Central Asia, Transcaucasia, and more recently upon the Kola Peninsula (on the White Sea). Exploration work in both old and new districts is constantly in progress.

Peat—The Soviet Union possesses about 65 billion tons of peat, three-quarters of the world's known peat reserves. The deposits lie for the most part in the central and northern sec-

tions of European Russia and in Siberia. They constitute an important source of cheap fuel for power and industrial plants.

Oil Shale—Another source of low-cost fuel is oil shale, the reserves of which in the U.S.S.R. are estimated to total 8.7 billion tons. The principal deposits are located in the Leningrad, Lower and Middle Volga and Gorky regions.

Oil—The U.S.S.R. oil resources are now estimated by the Soviet petroleum administration at 3 billion tons. Of the total reserves about half is to be found in the old established fields of Baku (Transcaucasia) and Grozny (North Caucasus) and the other half in new districts.

In prewar days the Baku and Grozny fields were exploited in a wasteful and primitive manner; during the civil war many of the wells were flooded or set on fire. As a result, when the Soviet Government took over the oil industry in 1920, the oil-bearing areas which had been tapped in the prewar period were practically exhausted. However, the deep drilling and extensive development work carried on under the Soviet régime have revealed abundant stores of oil riches in these old fields. The deep drilling has tapped the lower oil horizons in the old sections; exploration work has extended the boundaries of both fields to include new sections of rich oil-bearing land. Among the new areas in the Baku field are such big producers as the Kala, Puta and Lok-Batan areas, the latter of which boasts the world's fourth most powerful gusher, which broke into action the latter part of May, 1933, flowing 15-20,000 tons (140,000 barrels) of high-grade crude per day. The Lok-Batan area lies in a region of mud volcanoes, formerly considered to be indicative of absence of oil deposits. The Lok-Batan area alone covers 800 hectares, with reserves calculated as sufficient to justify the drilling of 800 wells. In August, 1933, the first oil well in the world to be drilled in the open sea was brought in 300 meters from shore off the Apsheron peninsula (Baku

district). According to latest estimates the total oil reserves of the Baku district amount to not less than 1.2 billion tons and those of Grozny to over 100 million tons.

Extensive exploration of other regions throughout the U.S.S.R. has also been carried on and has resulted in the discovery of many new deposits. The most important are those in the Ural-Emba district. The Emba fields (Kazakstan, at the north end of the Caspian Sea), where formerly only one deposit was known, now embrace over 60 deposits covering an area of more than 150,000 sq. km. The Emba oil reserves alone are now estimated at half a billion tons. Further north, at Sterlitamak in Bashkiria (Southern Urals), a number of powerful gushers were discovered in 1932, giving evidence of rich deposits. Still further north, near the shores of the White Sea, extensive deposits were discovered along the Ukhta River (Pechora district). These are the outstanding discoveries in the Ural-Emba district, but lesser deposits were also found between the Emba and Sterlitamak fields, and at various points along the western slopes of the Urals from Sterlitamak to the extreme north. It is now the belief of prominent Soviet geologists that there is a wide oil-bearing belt extending all the way from the Caspian to the White Sea. That the southern half of this belt may even extend westward well toward the center of the European part of the Soviet Union is evidenced by the discovery of numerous gas wells and other signs of oil in the Samara district of the Middle Volga Region and at numerous points throughout the Lower Volga Region down to Astrakhan.

Other oil districts where important new deposits have been reported include: Maikop and Daghestan (North Caucasus), Georgia (Transcaucasia), Sakhalin Island and Kamchatka Peninsula (Far Eastern Region), and Turkmenistan, Tadzhikistan and Uzbekistan (Central Asia).

Iron Ore—The total known reserves of iron ore in the

U.S.S.R., including the Kursk magnetic anomaly and Krivoy Rog iron ore quartzite deposits, are estimated at about 260 billion tons or more than the total world supply in 1926 (243.4 billion tons).⁵ Excluding the Kursk deposits and the Krivoy Rog quartzites, the Soviet Union has, according to latest estimates, 10.3 billion tons of rich iron ore, amply sufficient for its industrialization program (the United States reserves are estimated at 9.85 billion tons). Of the total rich iron ore 5.5 billion tons are brown ore, 2.4 magnetite, and 1.6 hematite ore.

The known iron ore reserves of the U.S.S.R., as of January 1, 1933, are distributed as follows:

	RESERVES (bill. tons)	PREDOMINANT TYPE OF ORE	IRON CONTENT (per cent)
1. <i>Southern Ukraine and Crimea</i>			
Krivoy Rog (Ukraine)	1.2	Red hematite	60-70
Kerch (Crimea)	2.7	Brown	30-40
2. <i>Ural-Kuznetz Area</i>			
Northern and Central Urals	0.7	Mixed	30-60
Southern Urals	1.0		
Bakal	0.1	Brown	45-52
Magnitnaya	0.5	Magnetite	30-60
Orsk-Khalilovo	0.4	Brown and Red	40
Kuznetz Basin (West Siberia)	0.4	Magnetite	40
3. <i>Central Russia</i>			
Tula, Vyksa, Lipetsk, and Khoher deposits	1.4	Brown	30-40
Kursk (Central Black Soil Region)	0.3	Red Hematite	55-67
4. <i>East Siberia</i>			
	0.7	Mixed	35-60
5. <i>Miscellaneous</i>			
Caucasus, Northern Region, Kola Peninsula, Far East- ern Region, Yakutia, etc.	1.1	Mixed	30-65
Total (excluding quartzites)	9.5		
Quartzites			
Krivoy Rog (Ukraine)	50.0	Quartzite	30-50
Kursk (Central Black Soil Region)	200.0	Quartzite	30-50

⁵ Estimate of O. R. Kuhn, German scientist, as cited by Academician I. M. Gubkin.

While the Kursk district, with its immense reserves of over 200 billion tons, will eventually be one of the principal metallurgical centers of the U.S.S.R., the country depends at present chiefly upon the two great metallurgical bases now under exploitation—the Southern Ukraine and Ural-Kuznetz. The former has supplied over three-fifths of the iron ore output of the Soviet Union, but by the end of the present Five-Year Plan it is expected that it will yield first place to the second great metallurgical base, the Ural-Kuznetz.

In addition to the 1.2 billion tons of rich ore at Krivoy Rog, which are now the main source of supply for the southern Soviet steel mills, there are estimated to be about 50 billion tons of iron ore quartzites at Krivoy Rog and 2.7 billion tons of brown ore at Kerch. While these latter two sources of supply consist of lower grade ore, experiments in their concentration have proven successful and their commercial utilization was commenced in 1932.

In the Ural-Kuznetz area the largest ore deposits now under exploitation are those at Magnitnaya or Magnet Mountain, estimated to contain about 460 million tons of high-grade ore. These deposits were first worked in 1929, and have constituted the chief supply for the furnaces of the two new giant steel mills of the Ural-Kuznetz combine—Magnitogorsk (Ural Region) and Stalinsk, formerly Kuznetz (West Siberian Region). The discovery in 1932-33 of 280 million tons of ore in the Gorno-Shori district (about 125 miles from Stalinsk) will eventually make unnecessary the transportation of Magnitnaya ore to Stalinsk. The deposits of the Gorno-Shori district alone are considered adequate to supply two or three large steel plants of the size of the Stalinsk mill.

The Kursk magnetic anomaly was discovered in 1874, but it was not until about 1925 that deep drilling carried on by geological parties revealed the presence of immense ore de-

posits at a depth of from 95 to 150 meters. Extensive drilling work, however, was begun only in 1931-32. On the basis of these drillings it was estimated that these deposits contained not tens of billions of tons of ore, as originally believed, but over 200 billion tons. Recent surveys also indicate that a greater share of these deposits than was hitherto supposed consist of high-grade ore. Thus, the noted Soviet geologist, Academician I. M. Gubkin, reported in November, 1932, that in a small area of ten square kilometers, constituting only 1.7 per cent of the total area of these deposits, 250 million tons of rich ore of the Krivoy Rog type, with an iron content ranging from 55 to 67 per cent, had already been revealed. It is now believed that the entire area contains not less than 6 billion tons of such rich ore. Much of the quartzite ore at Kursk already tested has been found to contain from 45 to 50 per cent of iron, and is considered suitable for industrial exploitation. The location of the Kursk deposits in the center of the European portion of the Soviet Union and about midway between the Moscow and Donetz coal basins is exceptionally favorable for their development. The new Moscow-Donetz railway passes through the district, providing convenient transportation. The first mine, the construction of which was commenced in 1932, produced the first ore from these deposits in April, 1933.

The iron ore reserves of other sections of the U.S.S.R. have only begun to be studied. However, recent discoveries in the East Siberian and Far Eastern Regions have brought their total known deposits up to about 3 billion tons each. The bulk of the East Siberian deposits are located in the immediate vicinity of the Irkutsk coal basin and the sites of the future Angara River power plants, thus making feasible the building up of a new iron and steel center at Irkutsk. As a result of the recent discoveries of large deposits of iron ore and coking coal

in the Far Eastern Region studies are now under way looking toward the establishment of a metallurgical center there.

Districts of secondary importance as regards iron ore reserves include the Caucasus, the Kola Peninsula, the Northern Region, Yakutia and Kazakstan. Recent discoveries of deposits in various sections of the Caucasus and at Monche Lake (Kola Peninsula) have raised the total known reserves of these regions to 200 million and 400 million tons, respectively. These deposits are to be utilized for serving important local needs—the Caucasus deposits the metal requirements of the local oil industry and the Kola deposits the needs of the machine-building industry of Leningrad.

Manganese—The U.S.S.R. possesses 589 million tons of manganese, or about two-thirds of the entire world supply (901 million tons). The famous Chiatury deposits (Georgia, Transcaucasia) and the Nikopol deposits (Ukraine) are the principal ones under exploitation and provide the bulk of the output. Recent geological exploration has revealed new deposits in the Ukraine, the Urals, Bashkiria, the North Caucasus, Kazakstan and West Siberia. Steps are being taken to develop manganese mining in the new regions, especially those adjacent to the big steel mills at Magnitogorsk and Stalinsk, in order to provide the latter with a more convenient source of supply. Now these mills have to transport their manganese from the Ukraine. The Chiatury deposits are worked almost exclusively for the export trade. The ore from these deposits is of very high quality, containing for the most part from 50 to 60 per cent of metallic manganese.

Nonferrous Metals—In tsarist days, when about 90 per cent of all mining of nonferrous minerals was controlled by foreigners and geological surveying was extremely limited, it was considered that Russia was a second-rate country as regards reserves of nonferrous metals. Geological surveys during the

past few years, however, have shown that the Soviet Union has considerable reserves of these metals. Its share, on January 1, 1933, of total world resources of lead amounted to 9 per cent and of copper and zinc to over 13 per cent. The discovery was reported in May, 1933, of immense deposits of copper pyrites at Blyava (Middle Volga Region), which, according to Soviet geologists, may make the Soviet Union one of the leading countries in the world as regards copper resources.

The Blyava deposits are considered of great significance, because of their location in the center of the country and in the immediate proximity of rail and water routes and fuel resources. They lie 300 km. from Orenburg on the Samara-Zlatoust railway. They are known to extend over a large surface, only part of which has been carefully explored. Preliminary estimates set the total reserves at 150 million tons of copper pyrites, under an iron "cap" containing 12 million tons of ore. The copper content is reported to average 4 per cent and to run as high as 20 per cent. Gold, silver and platinum are also reported to be present in high proportions. Steps are being taken to develop these deposits.

Prior to the discovery of the Blyava deposits the largest copper deposits in the Soviet Union were those at Kounrad, on Lake Balkhash, Kazakstan. These were discovered in 1928 in connection with the construction of the Turksib railway. An immense copper-mining works and smelter are under construction at Kounrad, and, while considerable progress has been made, construction has been retarded due to difficulties in transportation of materials and supplies. Eventually, however, Kazakstan is expected to hold a leading place in copper output. Of the total reserves of 15.85 million tons (as of January 1, 1933), over half (8.7 million tons) are to be found in Kazakstan. The Ural Region, with 3.8 million tons, is next in im-

portance, and, as its deposits have been developed most extensively, they have provided the bulk of the copper output of the country.

Among other sections where recent geological surveys have disclosed important copper deposits are: Almalyk (Uzbekistan, Central Asia), Agarak (Transcaucasia), the Minusinsk district of West Siberia, and several districts in Bashkiria (southern Urals).

Kazakstan also leads as regards deposits of lead and zinc, the Altai and Kara-Tau mountains in southern Kazakstan being especially rich in supplies of these minerals. Valuable deposits are also reported in the Urals, West and East Siberia, North Caucasus, Central Asia and the Far Eastern Region.

Nickel, tin, tungsten and aluminum were not produced at all in prewar Russia, and mercury only in insignificant quantities. In recent years deposits of ores yielding these minerals have been located, and production on a factory scale has begun. The recently discovered deposits of bauxite (chiefly in the Urals, where reserves were estimated in 1933 at 9 million tons), kaolin, alunite, nepheline, etc., constitute sources of raw material for the aluminum industry.

Known reserves of tin were estimated to total 9,522,000 tons in 1934, as compared with 3,210,000 tons in 1929. Deposits of nickel, also practically unknown before the war, totaled in 1934 (including cobalt) 1,054,000 tons as against 381,000 tons in 1929.

Even before the war Russia was a leading producer of precious metals, such as gold, silver and platinum. Extensive prospecting during the Soviet régime has substantially increased the known supplies of these metals. According to Soviet geologists, the U.S.S.R. possesses the largest gold reserves of any country in the world. A number of important new deposits have been opened up in Yakutia; the Lena gold field in this

region is reputedly one of the richest in the world, both as regards extent of reserves and average content of metal. Other rich fields, both of vein and placer gold, have been uncovered in the Far East and Eastern Siberia. The principal new mines of ore gold, the production of which is outstripping that of placer works, are located in Kazakstan, Western Siberia, the Transbaikal district and the Northern Urals. The great ore reserves of Kazakstan were uncovered only during the Soviet regime. Other old and new districts are under exploitation in the Altai, the North Caucasus and elsewhere.

In recent years Soviet geologists and scientists have discovered the ores and worked out the processes for the production of such rare metals as cadmium, tantalum, gallium, molybdenum, titanium, vanadium, radium, uranium and beryllium.

Nonmetallic minerals—Exploration work in recent years has also revealed the presence of large stores of various nonmetallic minerals, many of which were unknown in prewar Russia. Among the more important of these are potash, apatite, phosphorite, magnesite, asbestos, graphite, mica, barite, chalk, shungite⁶ and diatomaceous earth. According to estimates of Soviet geologists the Soviet Union holds first place with respect to reserves of a number of these minerals.

The following table shows the growth in known reserves of some non-metallic minerals since 1913:

<i>Mineral</i>	1913	1929	1932	1934
		<i>(in thousand metric tons)</i>		
Magnesite	.....	34.6	154.1	252
Bauxite	.....	1,815	4,957	8,480
Asbestos	.....	3,744	9,031	16,562
Potassium Salts	.....	41,000	6,600,000	16,000,000
Apatite	.....	.....	.....	530,000
Sulphur	714	614	12,137	13,888
Graphite	3,184	31,696	544,262	1,085,427
Mica (tons)	no data	1,815	4,957	8,480

⁶ A carbon compound found in the Shunga District of Karelia, the mining of which was begun in 1932. It is used in the manufacture of electrical appliances, as a substitute for graphite, and as a fuel.

The potash reserves, mainly at Solikamsk (Ural Region), are estimated at 16 billion tons or about 83 per cent of world resources. Secondary deposits have been discovered in the Middle Volga Region, Kazakstan and Turkmenistan (Central Asia). The Soviet reserves are considered ample to supply the demand of the Soviet Union for many years to come and to leave a surplus for export. Another recent discovery is that of the Khibini apatite deposits on the Kola Peninsula, with reserves estimated at 530 million tons. Total deposits of phosphorites and apatites in the U.S.S.R. are estimated at 16.4 billion tons, about 60 per cent of the world supply. These minerals are used chiefly in the manufacture of mineral fertilizers. Soviet resources of graphite were estimated at 20.4 million tons, as of Jan. 1, 1932.

At Satka and Khalilovo in the southern Urals are large deposits of magnesite ore, with reserves estimated at several hundred million tons, while smaller deposits have been reported in other sections also. One of the most recent reported discoveries was of rich deposits in the Biro-Bidzhan district of the Far Eastern Region. In addition, the Solikamsk potash deposits serve as a source of magnesium salts, and numerous saline lakes contain unestimated reserves of these salts.

The principal asbestos deposits are found in the Urals, and these, both on account of quantity and quality, rank among the most important in the world. They supply high-grade asbestos for domestic consumption and for export. The Soviet Union ranks second after Canada in the production of asbestos.

The Soviet Union possesses considerable reserves of numerous other minerals, such as salt, soda, chromium, Glauber's salt, borax, corundum, fluorite, gypsum, semi-precious and precious stones, (topaz, emeralds, garnet, aquamarine, etc.) and various building materials (stone, marble, granite, cement, sand, gravel, clay, lime, etc.) Known reserves of chrome ore

were estimated at about 15,000,000 tons at the end of 1934, as compared with less than two million tons in 1927.

State appropriations for geological exploration in 1932 amounted to 140 million rubles, as compared with 10.5 million rubles in 1928 and not over 550,000 rubles annually before the war. Including the expenditures of various economic organizations in searching for natural resources, the total amount spent for this purpose in 1932 approximated 500 million rubles. The staff of the All-Union Geological Survey includes an engineering-technical personnel of about 6,000. In addition to this group of specialists over 100,000 workers are employed in geological prospecting.

In 1932 the Geological Survey sent out close to 2,500 exploration groups. Special geological prospecting is also carried on directly by the various industrial organizations, especially in the field of coal, oil, nonferrous metals, gold, etc. Worker tourists are encouraged to do amateur prospecting, and are reported to have made some worth-while discoveries. In prewar Russia only about 8 per cent of the total area was explored, and even at the beginning of the first Five-Year Plan only 11.5 per cent. Extensive work during the past five years has raised this percentage to 36. Two-thirds of the territory of the Soviet Union still remains unprospected.

ALLOCATION OF PRODUCTIVE FORCES

Under the Soviet system, wherein land, forests, minerals, etc., are nationalized, all natural wealth is concentrated in the hands of the state and its exploration and exploitation are planned and carried out on a nation-wide scale. "Planned economic geography" has become an integral and important part of the state planning system. "Planned economic geography," in Soviet terminology, means that the natural resources of the various regions and sections of the U.S.S.R. are studied, and

industry and agriculture allocated accordingly. In localities where cheap power is available or great stores of mineral wealth are found new industrial centers or combines, such as the Dnieper and Ural-Kuznetz combines, have been organized, each comprising an entire group of enterprises developing and working up the various products and by-products of the region. Similarly, the various agricultural crops are more and more being scientifically allocated to those sections best adapted to their growth, by reason of soil, climate, location, etc. Thus, all sections which are suitable, or can be made suitable by irrigation, fertilization, etc., for the raising of industrial and sub-tropical crops are being devoted exclusively to such crops. One of the purposes of building the Turkestan-Siberian railway was to provide a means of sending Siberian grain to the cotton regions of Central Asia, thereby making it unnecessary to grow grain on valuable cotton land. Moreover, in accordance with the policy of bringing industry near to the sources of raw material, textile mills are being erected in the regions where cotton, silk, wool, etc., are produced.

Before the war practically the entire industrial development in Russia was confined to a few centers in the European part of the country. The Urals, Siberia and Central Asia combined accounted for less than ten per cent of the entire industrial output. Under the policy pursued by the Soviet Government of developing the natural resources of all parts of the country and accelerating the raising of the economic and cultural level of the backward outlying districts, capital investments in the Eastern regions are increasing much more rapidly than in the older industrial sections. This is reflected in the gradual shifting of the center of gravity of industrial output. For instance, before the war the Donetz Basin accounted for 87 per cent of the total coal output; by 1932 its proportion had been reduced to 68 per cent. Whereas the southern regions

in 1913 supplied 74 per cent of the pig iron output, in 1933 this had been reduced to 61 per cent.

During the period of the second Five-Year Plan this tendency will be accentuated. About one-half of the total investments in heavy industry are to go to the Eastern sections of the country. Similarly, a considerable proportion of the enterprises in the light and food industries are to be constructed near the sources of agricultural raw materials in the outlying regions (cotton mills in Central Asia and Transcaucasia, sugar refineries in West Siberia, etc.)

V

ECONOMIC DEVELOPMENT

THE FIRST TEN YEARS (1918-1928)

BEFORE the war Russia was essentially a backward agricultural country, with very low standards of living for the great majority of the people. Industry, measured by Western European standards, was undeveloped, production in most branches being considerably below that of the industrially advanced nations of the world. In 1913, the year in which Russia reached its highest prewar economic development, agriculture still accounted for more than half of the national income. Although in that year the larger industrial enterprises employed about three million workers (in the present territory of the Soviet Union), the basic industries were still in their infancy, the cotton textile industry alone having attained an extensive growth. Before the war Russia imported not only machinery, even of the simplest types, but also a very large part of its raw materials (cotton, nonferrous metals, iron, etc.). Russia's greatest coal deposits in Siberia remained practically untouched, the oil industry was confined almost exclusively to the Baku region, and only a bare start had been made in prospecting the vast mineral resources of the country.

Before the war Russia exported very large quantities of agricultural products, the exports of grain alone attaining in some years as much as 13 million tons. This circumstance, accompanied by a level of per capita wheat consumption among the lowest in the world, was primarily responsible for the comparatively large proportions (nearly three billion rubles in 1913) which the foreign trade of pre-war Russia attained.

Russian industry, agriculture and transportation declined greatly during the war, and by 1917 were in a condition approaching collapse. The civil war served to accelerate economic disruption, with the result that by 1920-21 industry was practically at a standstill, while agriculture was fast approaching the condition which, coupled with a severe drought, precipitated the famine of 1921-22. In 1920-21 grain production was only slightly over half and industrial output less than one-fifth of the prewar figure. Coal production was 25 per cent, iron ore 1.5 per cent, pig iron 2.5 per cent and cotton cloth 6 per cent of the 1913 figures.

The upbuilding of the national economy began in 1922. By the year 1927, practically all branches of the national economy—industry, agriculture, transportation, commodity turnover—either exceeded or closely approximated the prewar level. The national income totaled 15.2 billion prewar rubles, as against 14 billion in 1914. The country had entered upon the period of restoration with not only an industrial output scarcely one-fifth that of 1913 but with industry's basic capital sorely depleted. A large number of plants had been entirely destroyed; others were in such a run-down state that they required complete reconstruction. During the six years of the restoration period (1922-1927) over 500 new plants were built and about 1,500 old enterprises were reconstructed and modernized. Industrial output showed an average annual rate of increase for the six years of 37 per cent. By 1927 the output of practically all branches of industry, with the exception of the iron and steel industry, exceeded the 1913 figure.

The year-to-year output of census industry¹ during the period 1921-1928, as compared with 1913, is given in the following table:

¹ Census industry embraces all industrial enterprises employing over fifteen workers and using mechanical power and those with no mechanical power but employing at least thirty workers.

YEAR	OUTPUT (in mill. rubles, 1926-27 prices)	PER CENT GAIN OVER PRECEDING YEAR
1913	10,251.6	—
1921	1,924.9	42.7
1922	2,512.1	30.5
1923	3,829.2	52.4
1924	4,469.5	16.7
1925	7,436.1	66.4
1926	10,276.9	38.2
1927	12,051.2	17.3
1928	14,754.8	22.4

The regaining of the prewar level did not mean, however, a restoration of prewar conditions or proportions among the various branches of the national economy. Private ownership of the principal means of production, including land, had been abolished. The main resources of the country were concentrated in the hands of a single owner, the State, as well as the exploitation and distribution of these resources.

The policy of industrialization showed its effect both in a rising share of industry in the total output of the national economy and in a more rapid growth of heavy industry as against light industry. Thus, while in 1913 industrial output constituted only 35.5 per cent of the total production of industry and agriculture, by 1928 this percentage had reached 48. Socialized (*i.e.*, state and co-operative) enterprises had become dominant in all branches except agriculture. By 1926-27 97.7 per cent of census industry was operated by state and co-operative organizations and only 2.3 per cent by private operators. The transportation and banking systems were entirely in the hands of the state. More than 80 per cent of the total commodity turnover was carried on by state and co-operative organizations.

Agriculture registered slower progress during this period, the predominance of small-scale production hampering its development. Although the prewar level, so far as sown area and production of principal crops were concerned, was nearly attained by 1928, agriculture failed to keep pace with the grow-

ing demands of industry for agricultural raw materials and of the population for foodstuffs. This condition was the result of the extremely primitive methods employed by peasants operating very small farms, split into a series of "strips." In 1928 there were still in use millions of medieval *sokhas* (wooden plows); the small size of the farms precluded the possibility of utilizing modern agricultural machinery, such as tractors and combines. However, the extension of control of the economic resources by the Government and the increasing limitations put on rich peasants laid the basis in this period for the rapid growth of the system of large state and collective farms which during the subsequent period, the period of the first Five-Year Plan, brought about such a complete transformation in agriculture.

THE STATE PLANNING SYSTEM

State planning in the U.S.S.R. is an integral part of the national economy. The socialization of the means of production and distribution—land, minerals and other natural resources; banks; transportation; industrial and commercial enterprises—constitutes the basis for the national planning system. Its aim is to employ to the fullest extent and in the most effective manner the available natural resources and means of production for the purpose of increasing the productive capacity of the country and improving the living standards of the population.

During the civil war period economic planning was of necessity very limited in range, being concerned chiefly with keeping account of the stocks of consumers' goods and with distributing them as effectively as possible. In 1920 the so-called *Goelro* (state electrification) plan, covering a period of fifteen years, was drawn up. This was a skeleton plan indicating the general direction for the reconstruction of the national economy based on the electrification of the country. In 1921 a central plan-

ning organization, the State Planning Commission (Gosplan), was organized. At first its programs covered only individual branches of industry, but with the stabilization of the currency and the development of state industry and the co-operative system, annual plans or "control figures," beginning with the fiscal year 1925-26, were drawn up for the entire national economy.

The preparation of Soviet economic plans is carried out on the basis of general instructions issued by Gosplan. The specific data, however, are collected by the combined efforts of all economic organizations. The economic commissariats of the Union and of the constituent republics, the various economic agencies, local and national, the banks, the co-operatives, the industrial enterprises, the trade unions, the local soviets, the educational and scientific institutes, the state and collective farms—all these participate in the collecting of data for and the preliminary drafting of the respective parts of the nation-wide social-economic plan. All the specific data collected and partial plans submitted by the various organizations are then elaborated by Gosplan and co-ordinated into a unified plan of economic administration. On the basis of this unified plan the higher planning bodies assign each factory, mill, mine, state farm, etc. specific schedules which cover all phases of activity of the enterprise—amount and quality of output, production costs, labor productivity, working and living conditions, etc. In the preliminary discussions leading up to the drafting of the plans, the workers in the industrial enterprises and on the collective farms take an active part.

The annual plans or control figures cover all branches of national economy for one year in advance. They have assumed a more integrated and comprehensive character with each year, embracing distribution as well as production. However, expansion of the national economy as a whole made necessary longer-

range planning as well. Huge and complicated projects for power plants, factories, mills, state and collective farms, requiring several years for their execution, could not be covered by the control figures drawn up for one year. It was, consequently, decided to draw up a comprehensive five-year plan. The first Five-Year Plan, adopted finally in 1929, required several years of preparation. It was originally drawn to cover the period from October 1, 1928, to September 30, 1933, but later the period covered by the Plan was shortened so as to be terminated by the end of 1932.

The stated aim of the first Five-Year Plan was to lay the basis for transforming a backward agricultural country into a highly industrial nation capable of satisfying the rapidly growing demand of its population for agricultural and manufactured products. This involved the re-equipment of old plants and the construction of many new ones, some of which rank among the largest of their kind in the world, the creation of new industries, the opening up of new economic regions, and the socialization and mechanization of agriculture. In carrying out the policy of industrialization, the main emphasis was placed upon the development of heavy industry and electrification as the basis for the building up of both light industry and agriculture.

The stated aims of the second Five-Year Plan, while continuing the development of heavy industry, are to expand considerably the output of consumers' goods in order to bring about a marked advance in the standard of living. In the first Five-Year Plan period several large industrial combines, such as the Ural-Kuznetz combine, were started, but the building of large individual enterprises was considered of more immediate necessity. During the present five-year period development of the Dnieper and Ural-Kuznetz combines is being pushed and vast new projects, such as the Greater Volga and the Lake

Balkhash copper combine projects, are to be carried out. Industry is to extend into the rural districts, and agriculture is to be further mechanized during the period.

FULFILLMENT OF THE FIRST FIVE-YEAR PLAN

The first Five-Year Plan of economic development was concluded on December 31, 1932, *viz.*, nine months earlier than the date originally set (September 30, 1933). This fulfillment of the program in four and one-quarter years instead of five was made possible by the considerable overfulfillment of the schedules in the first two years of the Plan and was achieved despite certain unfavorable conditions during the last two years.

The Plan originally was prepared in two variants: optimal and minimal. The optimal schedules of the Plan, which were adopted by the Congress of Soviets, were based on the assumption that there would be no serious failure of harvest and that there would be a considerable expansion in the trade between the U.S.S.R. and the other countries of the world. As a matter of fact, adverse weather conditions in the principal grain regions in 1931 caused the crops in these regions to be considerably lower than the average during the preceding four years. Furthermore, the general decline in world trade and the various obstacles placed in the way of the trading operations of the U.S.S.R. in a number of countries resulted in the volume of Soviet export and import operations being considerably smaller than that anticipated in the Plan. Moreover, in 1932, due to the possibility of war, the U.S.S.R. greatly increased its defense program. Thus, not only were the favorable conditions, which were considered essential for the fulfillment of the optimal schedules of the Plan in five years, lacking but additional difficulties arose. Nevertheless, the program of "the Five-Year Plan in Four" was largely fulfilled in its basic

essentials, and the program of industrial output fulfilled to the extent of 96.4 per cent.

During the period of the first Five-Year Plan the sum of 50 billion rubles was invested in the national economy, about half of the total in industry. Over 1,500 new plants were erected, including a number of the world's largest. The volume of industrial production more than doubled during the period. The share of the Soviet Union in the industrial production of the world rose from 4.9 per cent in 1928 to 17.5 per cent in 1932. In the field of agriculture an even greater change in structure was consummated. In place of the narrow strips of land cultivated in the most primitive fashion there were organized more than 5,000 large state farms and 200,000 collective farms operating on the basis of modern technique and accounting in 1932 for 78 per cent of the sown area, as against 17.5 per cent scheduled by the Plan and 2.7 per cent in 1928. The principal indices of economic growth under the first Five-year Plan are given in the table below:

	1928	1932	RATIO OF 1932 TO 1932-33		1913
			1928 (5-Yr. Plan)	in per cent	
<i>I. Finance</i>					
A. National Income (bill. rubles, 1926-27 prices)	27.3	45.5	186.1	91.6	202.4
Socialized sector (per cent)	49.7	87.1	175.3	131.4	—
B. Capital investments in socialized sector of national economy (bill. rubles, prices of respective years)					
Total	5.4 ^a	19.3	357.4	154.4	—
Industry	2.3 ^a	9.6	417.4	239.1	—
Agriculture	0.9 ^a	3.3	366.7	191.3	—
Transportation	1.1 ^a	3.6	327.3	118.9	—

^a For the fiscal year 1928-29.

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	1928	1932	RATIO OF 1932 TO		
			1932-33		
			1928	(5-Yr. Plan)	1913
			— in per cent —		
C. State revenue (bill. rubles)	5.21 ^a	30.49	585.0	257.6	—
II. <i>Electrification</i>					
Capacity of all plants at end of year (mill. kw.)	1.87	4.57	243.7	83.0	415.9
Output (bill. kw.-h.)	5.00	13.10	261.8	—	1,543.5
III. <i>Industry, census</i>					
Number of workers (millions)	3.1	6.4	201.9	157.1	220.8
Wages, average annual (rubles)	870.0	1,478.4	169.7	120.1	—
Output (bill. rubles, 1926-27 prices)	15.7	35.3	224.8	96.4	344.4
A. Producers' goods (bill. rubles)	7.0	19.1	272.9	109.8	445.2
Fuel, total (bill. rubles)	1.08	2.38	220.8	99.8	—
Coal (mill. tons)	39.5	64.4	163.1	85.9	246.7
Oil (mill. tons)	12.3	22.2	180.5	102.3	238.7
Pig iron (mill. tons)	3.4	6.2	182.4	62.0	147.6
Machinery (bill. rubles)	1.58	6.14	388.6	162.0	1,023.3
Electrical equipment (bill. rubles)	0.24	1.22	509.1	136.0	1,355.5
B. Consumers' goods (bill. rubles)	8.7	16.2	186.2	84.4	271.8
Food (bill. rubles)	1.54	3.49	225.6	103.3	—
IV. <i>Transportation, Railway</i>					
Length of lines in operation (thous. km.)	76.9	83.4	108.5	88.7	142.6
Freight traffic (bill. ton-km.)	93.4	169.3	141.3	104.1	257.7
Passenger traffic (bill. pass.-km.)	24.5	84.1	343.3	237.6	333.7
V. <i>Agriculture</i>					
A. Sown area (mill. hectares)					
Total	113.0	134.4	119.0	94.9	128.0
Grain	92.2	99.7	108.2	89.0	105.7
Wheat	27.7	34.6	124.9	—	109.4
Industrial crops	8.6	14.9	172.6	124.2	327.0
Cotton	0.97	2.17	223.7	144.7	314.5
Sugar beets	0.77	1.54	200.0	140.0	236.9
B. Production (mill. tons)					
Grain	73.32	69.87	95.3	65.9	87.2

^a For the fiscal year 1927-28.

	1928	1932	RATIO OF 1932 TO		
			1932-33		
			1928	(5-Yr. Plan)	1913
			<i>in per cent</i>		
Cotton (raw)	.82	1.27	154.9	66.5	171.6
Flax (fiber)	.32	.50	156.2	80.7	151.5
Sugar beets	10.14	6.56	64.7	32.8	60.2
Vegetable oil crops	3.39	4.55	134.2	67.7	211.6
C. Mechanization					
Agricultural machinery in use (bill. rubles)	1.1	2.4	218.2	—	—
Tractors (thousands)	26.7	148.0	554.3	—	—
Tractors (thous. hp.)	278.0	2,225.0	800.4	—	—
D. State farms					
Number (thousands)	3.1	10.2	326.4	—	—
Sown area (mill. hectares)	1.7	13.6	781.3	309.1	—
E. Collective farms					
Number (thousands)	33.3	209.6	629.4	—	—
Percentage of peasant households collec- tivated	1.7	61.5	3,617.7	640.6	—
Sown area (mill. hectares)	1.4	91.6	6,684.5	631.7	—

In comparing the 1932 results with the schedules set by the Five-Year Plan, several factors have important weight. First, while the schedules cover a period of five years, the actual results were attained in four and one-quarter years. Second, the schedules for certain branches of industry were somewhat underfulfilled, but those for other branches were considerably overfulfilled. A marked growth was recorded in practically all industries. Third, several supplemental undertakings of major importance, not provided for in the original Plan, were begun and carried out. Chief among such supplements to the Plan were the expansion of industrial construction (the Ural-Kuznetz combine, many new plants for the manufacture of complicated machinery, etc.) and the mass collectivization of agriculture.

The national income in 1932 amounted to 45.5 billion

rubles, an increase of 86 per cent over 1928 and about 8 per cent under the figure set for 1932-33 (49.7 billion rubles).

Another basic index is capital construction. In this instance the actual results considerably exceeded the schedules set for the Plan. The volume of capital investments during the 4 $\frac{1}{4}$ years totaled 50.5 billion rubles, exceeding the program for five years by 11.9 per cent. Of the total 24.8 billion rubles was absorbed by industry (29.8 per cent above the five-year schedule), 9.7 billion rubles by agriculture (34.7 per cent above), 8.9 billion rubles by transportation (10.0 per cent below), and 0.56 billion rubles by communications (86.7 per cent above). This capital outlay was provided by the country's own resources, foreign credits being negligible. As a result of the construction work carried out, the national basic capital more than doubled during the four years.

The total output of census industry increased from 15.7 billion rubles in 1928 to 34.3 billion rubles in 1932, an increase of 118.5 per cent. The average annual rate of growth was 21.6 per cent. The level of production set for the fifth year of the Plan, however, was not quite attained, the 1932 output falling short by 3.6 per cent. This underfulfillment was attributed to a number of circumstances, including the necessity of diverting considerable resources to strengthen the defense of the country. Moreover, it should be noted that hundreds of important plants, in which large sums were invested during the period of the Plan either were not fully completed during the period or completed only shortly before its close. This was particularly true of the iron and steel industry, where actual production results fell furthest below the 1932-33 schedules. By the end of 1932 the basic capital of the iron and steel industry had doubled, but about two dozen of the new blast furnaces, with a combined capacity considerably greater than the total 1932 pig iron production, were not

fully completed and could not contribute to output. As a result, over 75 per cent of the 1932 output still came from old blast furnaces (those in operation before 1931). Nevertheless, output of heavy industry as a whole exceeded the Five-Year Plan schedule, and for certain major branches—machinery, electrical equipment—this excess was considerable.

Moreover, it was in heavy industry that some of the most important supplements to the original Five-Year Plan were made. Among the supplemental works of the four-year period (1928-1932) not envisaged by the Plan are: First, the creation of a second coal and metallurgical base in the East—the Ural-Kuznetz combine. This combine embraces not only the new huge steel mills at Magnitogorsk and Stalinsk (formerly Kuznetsk) but a whole network of new enterprises to produce coal, coke, locomotives, copper, heavy machinery (Sverdlovsk), tractors (Cheliabinsk), chemicals (Berezniky), potash (Solikamsk), etc. This new industrial center, with its available resources of iron, coal, nonferrous metals, and other minerals, is expected to be a very important factor in the program of economic development in the coming years. Second, the construction of a number of other large industrial plants, such as the Kharkov tractor plant, the Saratov combine works, the Gorky turret lathe plant, the Moscow milling machine plant, the new Azov and Tula steel mills, the synthetic rubber plants and a number of tube and pipe-rolling mills. Third, the organization of the manufacture of many new products, particularly numerous types of complicated machinery and electrical equipment, such as combines, caterpillar tractors, cotton pickers, 50,000-kw. turbines, electric cars, high-powered locomotives, blooming mills and other complex equipment for the iron and steel industry, rotary printing presses and linotypes, complex optical and measuring instruments, etc. Fourth, the solution of various technical problems, such as the production of aluminum

and synthetic rubber, of ferro-alloys and various types of special steel, and of vanadium from Kerch and Ural ores, the utilization of low-grade fuel on a large scale for power and industrial plants, etc.

The results obtained in the machine-building industry are of special significance. The Five-Year Plan schedule for the manufacture of machinery and electrical equipment was exceeded by 57 per cent; that for industrial machinery by 81 per cent. Total output of the machine-building industry in 1932 amounted to 7.4 billion rubles, four times the 1928 and ten times the 1933 output.

The requirements of capital investments and imported equipment in the key industries were so great and the growth of the urban population and its demands so rapid that, despite a considerable increase in output of consumers' goods during the four years, over 87 per cent, the Five-Year Plan schedule was underfulfilled by 15 per cent and output in several branches was inadequate to meet the growing demands of the population. However, the development of the basic industries, particularly the advances in the machine-building industry, established a solid basis for the growth of light industry and for the general upbuilding of the national economy during the second Five-Year Plan period.

The railway transportation system fell short of meeting the requirements of the country, although the volume of freight carried increased during the four years by 80 per cent and the number of passengers more than trebled. As regards both freight and passenger traffic, the Five-Year Plan was exceeded; in fact, for passenger traffic the schedule was more than doubled. The program for new railway construction (15,659 km.) was completed up to 90 per cent. Considerable progress was likewise made as regards water and highway traffic. Civil aviation developed rapidly during the first Five-Year

Plan, and by the end of 1932 the network of airlines totaled 30,500 kilometers, as against 11,400 km. in 1928.

The reorganization of agriculture on the basis of large-scale, socialized production was inaugurated during the first Five-Year Plan. The collectivization of agriculture progressed at a far more rapid pace than had been provided by the Plan. The state and collective farms accounted by 1932 for 78.6 per cent of the total area sown to grain, 90.6 per cent of the wheat area, and 82.8 per cent of the area sown to industrial crops (cotton, sugar beets, etc.). In regard to the output of marketable grain, the share of state and collective farms rose to 84 per cent, as against 42.6 per cent scheduled by the Plan. Mechanization accompanied socialization; the number of tractors available for agriculture rose from 26,700 in 1928 to 148,000 in 1932. The part of the sown area plowed by tractors increased to more than one-third, as against one per cent in 1928.

This transformation of agriculture was met by serious opposition on the part of the *kulaks*, one of the results of which was a drastic depletion of the livestock supply, the effects of which are still felt. As regards crop production, considerable increases were recorded for most of the technical crops (especially cotton, flax and vegetable oil crops). Grain production, however, declined in 1931 and 1932, rising again to a record level in 1933 and to almost as high a figure in 1934.

The share of the incomes of the workers and employees in the total income of the population increased during the Five-Year Plan period from 35.6 per cent in 1928 to 55.7 per cent in 1932; the share of the collective farmers rose from 1.3 per cent to 27.3 per cent; and that of artisans and handicraft workers organized in producers' co-operatives rose from 1.4 per cent to 2.9 per cent. Production of consumers' goods recorded an annual average rate of increase of 17 per cent during the period, which failed, however, by a wide margin to meet

the growing demands for manufactured products of general consumption and for certain foodstuffs. The total volume of goods handled by the state and co-operative trading system showed a gain of 75 per cent during the four years. Moreover, following collectivization of agriculture, a new form of trade—collective farm trade—was developed, which constitutes an important factor in the consolidation of the collective farms and in the system of distribution.

Among the principal results of the first Five-Year Plan were the elimination of unemployment and the placing of about 80 per cent of the industrial workers on the seven-hour day. The average number of employed persons per family was increased; social insurance funds were quadrupled. Socialized restaurants in 1932 served a total of 15 million persons; 27 million square meters of new housing space were added during the four years and 5 million persons moved into new houses; cultural and recreational opportunities were greatly increased. Twenty-six billion rubles were expended during the four years for social and cultural services, as against 22.8 billion rubles scheduled for five years. Of the total 15.4 billion rubles went for educational purposes and 10.6 billion rubles for health protection and social welfare.

The number of pupils in elementary and secondary schools doubled, increasing from 11,000,000 in 1928 to 23,000,000 in 1932. Elementary education was made compulsory, and an energetic drive was carried on against adult illiteracy. While before the war not more than one-third of the population was literate and in 1928 only about half, by the end of 1932 the percentage of literacy had risen to 90 (97 per cent for the urban population; 88 per cent for the rural). Millions of students and workers attended the day and evening factory schools, secondary and higher technical schools and universities. During the first Five-Year Plan period the factory train-

ing schools trained 300,000 young skilled workers for industry and 450,000 for the national economy as a whole, while a total of 284,000 new engineers and technicians entered service. The ratio of specialists in industry rose from 4 per 100 workers in 1928 to 7 per 100 in 1932.

Among the pressing problems of economic development have been: the lagging of the iron and steel and non-ferrous metals industries; insufficient emphasis given in the past years to the opening up of new coal and oil basins, particularly in the outlying regions; the relative backwardness of the consumers' goods and food industries; insufficiently high standard of the quality of manufactured goods; comparatively high labor costs and low labor productivity; faulty organization of labor and bureaucratic methods of management and administration.

The inadequate supply of trained engineers, technicians, mechanics, and workers experienced in the operation of modern machinery has hampered the efficient operation of the many new plants equipped with the most up-to-date machinery. Some of these plants during the early period of their operation suffered considerably from "infantile disorders." Successful operation of new plants often presented greater difficulties than their construction. At the present time major emphasis is being placed upon perfecting all the technical details of production and improving efficiency of operation.

In agriculture, while the government holds that the grain problem has been solved and a solid basis established for the further development of agriculture on a higher technical level, much still remains to be done. This includes: improving the unwieldy and bureaucratic methods of administration of many state and collective farms; introducing correct crop rotation; extension of summer fallow; improvement of seed selection; better organization of maintenance and repair of agricultural

machinery; increasing the amount of fertilizers; combating drought in the Volga region; developing crop cultivation on former waste lands in the so-called "consuming regions"; and, finally, building up the depleted supplies of livestock.

Other "bottle necks" in the national economy are the backwardness of the system of internal trade and of the transportation system. All of these difficulties are being given the closest attention by the government and diligent efforts are being made to overcome them. The statistical reports for the first years of the second Five-Year Plan—1933-1934—indicate noticeable improvements in almost all fields.

THE FIRST TWO YEARS OF THE SECOND FIVE-YEAR PLAN

The 1933 grain crop, totaling 89,800,000 metric tons, was ten million tons greater than in the two years preceding and exceeded by a considerable margin the previous records crops—those of 1930 and 1913. The principal technical crops (cotton, flax, sugar beets and oil seeds) also showed increases, although in each case the area sown was less than that of 1932. The period of intensive reorganization of agriculture on a socialized basis was completed in 1932, and the greatest emphasis is now being placed on increasing the yield. In spite of the considerable gain in total agricultural production, the sown area (129,700,000 hectares) was 3.5 per cent below that of the preceding year. The average yield of grain crops in 1933, 8.8 centners per hectare (13 bushels of 60 pounds per acre), was 26 per cent above that of 1932.

Despite the severe drought which affected certain sections of the country, the 1934 grain crop totaled 89,400,000 tons, only one-half per cent below that of the preceding year. However, owing to reduction of losses in harvesting, the amount of grain brought in was actually larger than in 1933.

State grain collections, amounting to almost 25 million tons, were also greater than in 1933 and were completed 1½ months earlier. The excellent crops for two years in succession furnished the basis for the abolition of the bread rationing system at the end of 1934.

As a result of the increased supply of grain, coupled with notable improvements in the organization of state and collective farms, an increase in the number of livestock was recorded in 1934 for the first time since 1928. The census of July 1934 demonstrated that only the number of horses continued to decline, although by only 5.5 per cent (as against 16 per cent in 1933), while the number of horses under one year of age increased by 40 per cent. The number of cattle, sheep, goats and pigs all showed gains, indicating the beginning of recovery in the deficient livestock industry.

Total agricultural production showed a gain of 6.7 per cent in 1933 and a further gain of 6.2 per cent in 1934, bringing output up to a value of 14,829 million rubles. The grain crop in 1934 was 29.3 per cent greater than that of 1932, while the average yield per hectare in 1933-1934 was 15.3 per cent above the average for 1928-1932. Grain cultivation during the two years kept abreast of the program set by the second Five-Year Plan but agriculture as a whole was somewhat under the program owing to the lag in the technical crops (cotton, sugar beets, etc.) and the livestock industry. Technical crops recorded an increase of 5.2 per cent in the two years.

Capital investments in agriculture in 1933-34 totaled five billion rubles, a large part of which went for machinery and equipment. During the two years the farms received tractors totaling 2,613,000 hp., 133,400 tractor plows, 75,900 grain seeders, 20,700 combines, and 25,300 multiple threshers. This brought the total tractor horsepower by the end of 1934 to 4,461,000 and the number of combines to 35,200.

Industry recorded increases in practically all fields in 1933, that for large-scale industry as a whole totaling 8.8 per cent. Heavy industry made the best record, the light, food and lumber industries lagging behind. Coal and pig iron showed gains of 18.4 and 15.6 per cent, respectively, the machinery and metal-working industries 14.2 per cent and power 18.4 per cent. Oil and non-ferrous metals recorded slight declines. Consumers' goods and food industries showed increases of 3.2 and 4.4 per cent, respectively, falling behind the program.

In 1934 industrial development was greatly accelerated. Output of large-scale industry, according to preliminary data, registered a gain of 18.4 per cent over the preceding year. Heavy industries, showing a rise of 27 per cent, were above the program. Production of light industry increased by 5.3 per cent, of food industries—20.2 per cent and of the timber and wood-working industries—12.1 per cent. The output of all industries increased from 43.3 billion rubles in 1932 to 53.9 billion in 1934, a gain of 24.5 per cent. The plan for the two years 1933-1934 was fulfilled to the extent of 97 per cent, according to recent government statistics.

An outstanding feature of the year 1934 was the growth of the metallurgical industry. Pig iron output totaled 10.4 million tons, recording an increase of 47 per cent; steel production, at 9.6 million tons, increased by 40 per cent and rolled products by 39 per cent. For the two-year period 1933-1934 the rates of growth of pig iron and steel reached the figures of 68 and 62 per cent, respectively.

Coal production, totaling 93.5 million tons, showed an increase of over 23 per cent. In the first two years of the second Five-year Plan the increase was 45 per cent. The number of automobiles and trucks produced reached 72,466, an increase of 45.8 per cent over 1933, and the number of tractors—94,478, a rise of 21 per cent. Electric power recorded an in-

crease of 25.5 per cent in 1934. Increases were recorded also by the non-ferrous metals, chemical and many other industries.

A great amount of capital construction was completed in 1933-1934. Capital investments in industry, exceeding 20 billion rubles, approximated 83 per cent of the investments during the entire first Five-Year Plan. Many new enterprises were put into operation during the two years. These included such important projects as the Ural and Kramatorsk heavy machinery plants, the Lugansk locomotive plant, the Cheliabinsk tractor factory, the Zaporozhye tool steel and ferroalloys plants, the Azov and Lipetsk steel mills, the Dnieper aluminum works, 69 coal mines with a capacity of 34 million tons, the Stalino-gorsk (Bobriky) and Voskresensk chemical plants, the Solikamsk potash works, over a dozen major power plants (or extensions to existing stations), a half-dozen large packing houses, 14 canneries, three sugar refineries, etc. In addition, work was started on many other projects. In the four years from 1930 to 1934 the basic capital of industry increased more than 100 per cent.

Railroad transportation, while still lagging far behind the general industrial development, showed some improvement in 1934. Average daily car loadings for the year amounted to 56,200, an increase of 9.8 per cent over 1933. The first section of the Moscow-Donbas Railroad was put into operation and the first section of the Moscow subway brought nearly to completion. Noteworthy in the field of water transportation were the completion of the Baltic-White Sea Canal (in 1933) and the starting of construction on the Moscow-Volga Canal.

THE PLACE OF THE U.S.S.R. IN WORLD ECONOMY

As a result of the advance of Soviet economy during the first Five-Year Plan and of the economic depression in other countries, the U.S.S.R., according to Soviet authorities, rose

in rank as regards industrial output from fifth to second place, and its share in total world output increase from 4.9 per cent in 1928 to 17.5 per cent in 1932.⁴ For certain products—timber, peat, agricultural machinery and tractors—it holds first place in the world at present; and for others—oil, pig iron and industrial machinery—first place in Europe, being second only to the United States.

The U.S.S.R. in 1932 ranked sixth in output of electric power, but by 1934 had risen to third place. The coefficient of electrification in industry amounted to 71 per cent in 1932, as compared to 40 per cent in 1933 and 51 per cent in 1928.

The U.S.S.R. holds the first place in peat production, and it has gained a leading position as regards coal and oil. With respect to coal production the U.S.S.R. rose from sixth place in 1928 to fourth place in 1934, following the United States, Great Britain and Germany. In 1931 the Soviet Union reached second place in oil production, supplanting Venezuela. Its production surpassed that in Venezuela by over one-third both in 1931 and 1932. While in 1928 output in the United States of coal was fifteen times and of oil eleven times that of the U.S.S.R., in 1932 it was about five times in the case of both coal and oil.

In 1934 the Soviet Union occupied second place in the world with respect to the output of pig iron and third place in steel output. This contrasts with the situation in 1928, when it held sixth place for pig iron and fifth for steel and when output in Great Britain was over twice, in France and Germany more than three times, and in the United States nearly twelve times Soviet production.

Total output of machinery in 1934 was nearly seven times the 1928 figure. Besides this rapid expansion of domestic output the Soviet Union has held first rank as an importer of machin-

⁴ *Konyunktura Mirovovo Khozaistva* (Survey of World Economics), No. 8-9, 1933, p. 16.

ery and may continue to be an important market for machinery and equipment for a considerable period to come.

The share of the U.S.S.R. in total world imports increased from 1.3 per cent in 1929 to 2.8 per cent in 1931, and in total world exports from 1.5 per cent in 1929 to 2.3 per cent in 1931. In 1934 its share in total world trade amounted to 2.0 per cent, as compared with 9 per cent for Great Britain and 10 per cent for the United States.

The exports of the Soviet Union have consisted principally of raw materials, industrial and agricultural, for some of which it ranks high among the world's exporters. It holds first place as an exporter of timber and manganese, supplying over half the world total of the latter, and is a leading exporter of furs, fish, oil and wheat. While its share of world exports of most of these commodities is equal to or in excess of the pre-war figure, for wheat the percentage has been cut in half. In 1913 Russian exports of wheat constituted about 25 per cent of total world exports; in 1930, a bumper crop year, Soviet wheat exports made up only 15 per cent of the world total and in 1933 five per cent. This is due to the fact that a much larger amount is now allocated to domestic consumption.

The Soviet Union has the largest grain and wheat area and the largest total agricultural output of any country in the world. It is among the three leading producers of grain, flax, sugar beets, cotton and tobacco. Its agriculture, formerly employing the most antiquated methods of cultivation, now holds a leading place as regards large-scale, mechanized production.

In transportation the U.S.S.R. ranks second, after the United States, in the length of air and railway lines and in railway freight operations. Passenger operations on Soviet railways in 1932 totaled 84 billion passenger-kilometers, more than triple the prewar figure (25.2 billion) and close to 2.5 times the 1932 level in the United States (35.3 billion). Nevertheless,

transportation is one of the weak spots in Soviet economy, for it is still unable to cope with the increasingly heavy demands of industry and agriculture.

While the Soviet Union occupies an advanced position as regards volume of industrial production, it lags behind the other leading industrial countries in certain other respects, such as technical efficiency, labor productivity, quality of output and norm of production per capita of the population. Even for those industrial products in the volume of output of which the Soviet Union ranks high, the norm per capita, due to the larger population of the U.S.S.R., is considerably below that in the other advanced industrial countries.

VI

THE SECOND FIVE-YEAR PLAN (1933-1937)

The following is a translation of portions of the resolution adopted by the XVIIth Congress of the Communist Party of the U.S.S.R. giving the main outlines of the second Five-Year Plan. The provisions of the Plan were ratified by the Central Executive Committee and the Council of People's Commissars on November 17, 1934:

The Congress resolves:

1. To set production for all industry in 1937, the final year of the second Five-Year Plan, at 92.7 billion rubles (in 1926-27 prices), as compared with 43 billion rubles in 1932, the final year of the first Five-Year Plan. This means that the annual increase is to average 16.5 per cent and that industrial output in 1937 is to be more than double that in 1932 and approximately eight times the prewar figure. As regards production of consumers' goods, to set a more rapid rate of development not only in comparison with the first Five-Year Plan (an average annual increase of 18.5 per cent, as against 17 per cent in the first Five-Year Plan), but also in comparison with the rate of development of the production of producers' goods in the second Five-Year Plan (an average annual increase of 18.5 per cent, as against 14.5 per cent for producers' goods).

2. To set the following schedules for production in the most important branches of industry:

THE SECOND FIVE-YEAR PLAN (1933-1937) 85

	PROGRAM FOR 1937	RATIO OF 1937 TO 1932 (in per cent)
Industry, total (bill. rubles, 1926-27 prices)	92.7	214.1
Commissariat for Heavy Industry (bill. rubles)	33.5	234.6
Commissariat for Timber Industry (bill. rubles)	3.6	200.0
Commissariat for Light Industry (bill. rubles)	19.5	248.8
Commissariat for Internal Supply (bill. rubles)	11.9	256.1
A. Producers' goods (billion rubles, 1926-27 prices)	45.5	197.2
1. Machine-building and metal-working industries (bill. rubles)	19.5	207
Machine-tools, metal-cutting (thous. units)	40	267
Tractors (thous. 15-hp. units)	167	323
Combines (thous. units)	20	200
Locomotives, trunk-line (in conditional units of "E" and "SU" type)	2,800	337
Freight cars (thous. 2-axle units)	118.4	531
Automobiles (thous. units)	200	837
2. Electric power, total (bill. kw.-h.)	38	283
Regional plants (Glavenergo) (bill kw.-h.)	24.5	296
3. Coal (mill. tons)	152.5	237
4. Oil, with gas (mill. tons)	46.8	210
5. Pig iron (mill. tons)	16	260
6. Steel ingots (mill. tons)	17	289
7. Rolled steel (mill. tons)	13	303
8. Chemical industry (bill. rubles)	5.5	280
9. Lumber, sawn (mill. cu. meters)	43	176
10. Copper (thous. tons)	135	290
11. Aluminum (thous. tons)	80	—
B. Consumers' goods (bill. rubles, 1926-27 prices)	47.2	233.6
1. Cotton cloth (mill. meters)	5,100	188
2. Linen cloth (mill. sq. meters)	600	461
3. Shoes, leather (mill. pairs)	180	220
4. Sugar, granulated (thous. tons)	2,500	302
5. Fish catch (thous. tons)	1,800	139
6. Meat—Comm. for Food Industry (thous. tons)	1,200	276
7. Canned goods—Comm. for Food Industry (mill. cans)	2,000	335
8. Soap (thous. tons)	1,000	280
9. Woolen cloth (mill. meters)	220	241

In view of the fact that local industry can constitute an important supplementary source of supply with regard to the satisfaction of the rapidly growing demands of the workers and collective farmers, the Congress calls for a trebling

of the production of consumers' goods by local industry during the second Five-Year Plan period and calls upon the local administrative bodies to manifest maximum initiative in the matter of the development of local industry and the search for new kinds of raw materials. At the same time, the Congress calls upon the Central Committee and the Council of People's Commissars to develop local industry by transferring to the jurisdiction of local administrative bodies a number of industrial enterprises formerly under all-Union jurisdiction, or that of the constituent republics, and also to place a considerable share of the profits of local industry at the disposal of the local central executive committees.

3. The Congress points out that for the fulfillment of the scheduled program of industrial development and the consummation of the technical reconstruction of the national economy it is necessary:

(a) To carry out the technical re-equipment of all branches of the national economy of the U.S.S.R., involving the introduction in the shortest time possible of the latest technical achievements, to the end that in 1937 about 80 per cent of industrial output will be accounted for by enterprises newly constructed or entirely reconstructed during the first and second Five-Year Plan periods. Means of production acquired by the national economy during the period of the second Five-Year Plan alone are to constitute at the end of this period 50-60 per cent of all means of production in the entire national economy.

(b) To consummate a reconstruction of the machine-building industry, the leading branch of the national economy, which will enable it to provide, by its own forces, for all the needs of the national economy in modern, technically up-to-date equipment, such reconstruction to involve the extensive development of new types of production. During the second

Five-Year Plan period the manufacture of some 200 different types of the newest machine-tools must be developed. Metallurgical machine-building should develop the manufacture of the entire range of equipment for all metallurgical departments; machine-building for the light and food industries that of dozens of new types of machines. Agricultural machine-building must develop the manufacture of all types of machinery and tractor-drawn equipment necessary for the carrying out of the further mechanization of agriculture, particularly the mechanization of the labor-absorbing processes involved in the cultivation of industrial and row crops. The manufacture of equipment for road work, for municipal economy, and for housing construction must be expanded.

(c) To complete basically the mechanization of all labor-absorbing processes and heavy work in industry. In the coal industry to increase the mechanization of cutting to 93 per cent by the end of the five-year period, with a corresponding raising of the level of mechanization of other processes; in the iron and steel industry to increase mechanization to a level which will insure that 80 per cent of the total output of pig iron will be obtained from fully mechanized blast furnaces; in the peat industry over 70 per cent of the total output to be produced by mechanized methods; in construction mechanization of the basic processes to be increased to 80 per cent and production of local building materials to be mechanized; in the timber industry mechanization of hauling is to be increased six-fold and sawing into lengths and shaping three-fold; mechanization of wood distillation.

(d) To create a new power base for the completion of the reconstruction of all branches of the national economy and to form in all power centers reserves of capacity adequate to insure an uninterrupted power supply for the national economy. To complete in the main the electrification of industry by

means of the widest utilization of the newest electrical methods of production in all branches of industry, especially in metallurgy and chemistry (consumption of power by electrified production to increase to an amount nine times the present figure); extensive development of the electrification of transportation and gradual introduction of electric power in the production processes of agriculture. To develop on a broader scale central heating for industry and large cities. To continue the policy of utilizing to an ever greater extent local fuel and especially hydro-electric resources for power supply. To complete during the second Five-Year Plan period the linking of regional stations into networks within district boundaries and to begin an inter-district linking of stations, including the creation during the five-year period of the Donbas-Dnieper power supply system, with an annual output of 9 billion kw.-h. To develop the gasification of peat and shale.

(e) To eliminate entirely the lagging behind of the iron and steel industry with respect to the general rate of development of the national economy. To double during the five-year period the capacity of the steel mills and to overcome as rapidly as possible the gap between the capacity of the blast furnaces and that of the steel foundries and, especially, rolling mill departments, which latter have lagged behind the former. To expand the production of various types of metal—special steels, electrosteel, ferroalloys, complex rolled shapes, etc.—to a volume fully adequate to satisfy the needs of the national economy. To carry out an extensive reconstruction of the iron ore industry, introducing on a broad scale methods of concentration and agglomeration of ores.

To proceed at an especially rapid rate with the development and technical re-equipment of nonferrous metallurgy; to consummate a complete transition to modern methods of copper extraction (flotation, reverberatory furnaces) and in

the production of zinc to introduce on a broad scale advanced electrolytic methods, obtaining in 1937 by such methods 70 per cent of the entire output; to organize the production of tin, nickel and magnesium, and to develop the production of aluminum on a broad scale; to satisfy completely the requirements of the entire national economy and of the power industry in particular for products of nonferrous metallurgy.

(f) To achieve advances in the development of the chemical industry, thus providing a broad chemical base for all branches of the national economy and a strengthening of the defense of the country. The production of all kinds of fertilizers to be increased tenfold during the period of the second Five-Year Plan; to develop extensively the process of organizing the production of new chemical products (chemical treatment of hard fuel—coal, peat, shale; new kinds of dyes; plastics; synthetic rubber; etc.); to introduce the newest technological processes in the chemical industry (extensive development of electrothermic and electrolytic methods, the introduction of reactions in gaseous phases, etc.). To strengthen the co-ordination of the chemical industry with other branches of industry (the coke, nonferrous metals, iron and steel, and other industries) and to encourage the utilization of a number of new kinds of raw material.

(g) To develop production in the most important branches of the light and food industries through the creation of a large machine-building industry, involving the raising of the share taken by automatic looms in the cotton textile industry to 40 per cent by the end of the period and substituting modern machines for obsolete spinning looms; to eliminate the technical backwardness of the linen industry by means of the introduction of high-speed machinery and the thorough reorganization of the primary treatment of flax; to carry out an all-round mechanization of knit-goods, clothing and shoe manufacture; to create

a large-scale, mechanized meat-packing industry on the basis of the development of combines; to raise the share taken by mechanized fishing to 70 per cent of the total output of the state fishing industry by means of considerable reconstruction of the fishing fleet; extensive reconstruction of the vegetable oil industry on the basis of the introduction of the most effective methods of extraction.

4. The accomplishment of the tasks of the technical reconstruction of industry necessitates the successful development of the new technique and of the manufacture of new products, to effect a considerable increase in labor productivity and a marked decline in production costs. Accordingly, the Congress calls for:

(a) An increase in labor productivity in industry during the second Five-Year Plan period of 63 per cent as against 41 per cent during the first Five-Year Plan period, *i.e.*, to such an extent that the productivity of labor shall become a decisive factor in the fulfillment of the scheduled program for increased output during the second Five-Year Plan period.

(b) A decrease in production costs for all industry of 26 per cent, as compared with the 1932 level, the saving in 1937 arising from such lowering of production costs to amount to not less than 13 billion rubles.

(c) Accompanying the decline in production costs, the attainment of marked improvement in the quality and assortment of the products of all branches of the national economy. A considerable decrease in the ash and sulphur content in coal, an increase in the variety of products of the metallurgical industry, an improvement in quality and a raising of the coefficient of utilization of machinery, an increase in the number of grades of yarn, a marked improvement in the quality of cotton and linen cloth, an increase in the proportion of the finer-weave and worsted grades in the total output of the wool

industry, an increase in the share taken by fine wool in woolen cloth, a marked improvement in the quality of soap by raising the fat content, improvement in the quality of footwear both as regards the methods of manufacture and the raw materials used, improvement in the quality of the output of the meat-packing industry by raising the proportion of pork, sausage and lard, improvement in the output of the fish industry by raising the proportion of the better kinds of fish, considerable improvement as regards the quality of output in the flour industry by increasing the amount of the better grades of flour.

5. Agricultural output during the five-year period is scheduled by the XVIIth Congress to increase from 13.1 billion rubles (in 1926-27 prices) to 26.2 billion rubles, *i.e.*, a gain of 100 per cent.

The most important branches of agriculture are to attain the following level of output: grain—1,048 million centners, with a yield of 10 centners per hectare; sugar beets—276 million centners, with a yield of 200 centners per hectare; cotton fiber—7 million centners, with a yield of irrigated cotton of 12 centners per hectare; flax fiber—8 million centners, with a yield of 3.7 centners per hectare; output of the livestock industry to record an increase of 125 per cent.

6. The Congress stresses the fact that the indicated growth of agricultural production can be attained only on the basis of the completion of collectivization and the technical reconstruction of agriculture in its entirety, which necessitates:

(a) The conversion of the grain, livestock, sugar-beet, cotton and other state farms into model agricultural enterprises on the basis of persistent efforts to develop the technique of large-scale, mechanized farming, complete application of correct crop rotation and seed selection, improvement of the cattle stock, improvement in the quality of production, and increase in the deliveries to the state of grain, sugar-beets, cotton, meat,

milk, butter, leather, and wool, and a marked improvement in the whole organization of production, involving the breaking up of the very large state farms, the elimination of excessive specialization, etc.

(b) An increase in the number of machine-tractor stations from 2,446 in 1932 to 6,000 in 1937, all collective farms to be served by machine-tractor stations.

(c) An increase in the tractor park from 2,225,000 hp. in 1932 to 8,200,000 hp. in 1937, *i.e.*, a gain of 270 per cent; the number of combines to reach 100,000 and the number of automobiles in agriculture 170,000, *i.e.*, 6 and 12 times as many, respectively, as in 1932.

(d) Further extensive mechanization of agriculture: in 1937 tractors are to be used for plowing to the extent of 80 per cent and for cultivating to the extent of 70 per cent; harvesting of grain is to be done by tractor harvesters to the extent of 60 per cent; and threshing is to be mechanized 85 per cent.

(e) The introduction on a broad scale of such measures as: correct crop rotation (100 per cent), sowing of selected seed (75 per cent of area sown to grain), fall plowing for spring sowing (50 per cent).

(f) An increase in the supply of nitrogenous fertilizers during the second Five-Year Plan period: for cotton—from 6 per cent of the sown area to 80 per cent; for sugar beets—from 6 per cent to 40 per cent; in the supply of phosphoric fertilizers from 9 per cent to the entire area; extensive development of irrigation work, expanding the irrigated area by 1,000,000 hectares.

7. The Congress sets the following increases in freight turnover by the basic branches of transportation: railway—from 169 billion ton-kilometers in 1932 to 300 billion ton-km. in 1937; river—from 26 to 63 billion ton-km.; merchant

marine—from 18 to 51 billion ton-km.; automotive—from 1 to 16 billion ton-km.

With a view to the more rational distribution of freight haulage among the various branches of transportation, the Congress points to the necessity of raising the share in the freight turnover of the country taken by new forms of transportation—automotive and aviation transport—and also by water transport, with railway transportation still playing the major rôle.

8. The Congress emphasizes the necessity for the technical reconstruction of transportation and communications, which must be carried out along the following main lines:

(a) Reconstruction of the most important *railway* lines: electrification of 5,000 km. of railway lines, laying of about 9,500 km. of double track on the most congested trunk lines (Ural-Kuzbas, Trans-Baikal and Ussurisk, Donbas, etc.); increase in the length of station lines at railway junctions and stations by 8,500 km.; substitution of light by heavy rails over a distance of 20,000 km.; extensive construction of bridges; equipment of 8,300 km. of lines with automatic block signalling; strengthening of the existing road-beds (transition to the use of rubble ballast, increase in number of ties per kilometer of line, etc.).

(b) Increase in the number of locomotives from 19,500 in 1932 to 24,600 in 1937, with a simultaneous transition to more powerful and more efficient types of locomotives: the high-powered locomotive "FD" is to become in the second Five-Year Plan period the basic unit of freight locomotives, and the powerful locomotive "JS" the basic unit of the passenger locomotives; more extensive utilization of Diesel and electric locomotives.

(c) The increase of freight cars from 552,000 in 1932 to 800,000 in 1937 (in two-axle units), with a considerable in-

crease in the share taken by large freight cars and the equipment of all freight cars with automatic brakes and not less than half with automatic couplings.

(d) Construction of the following important new railway lines: Baikal-Amur trunk line, Akmolinsk-Kartaly, Moscow-Donbas, Karaganda-Balkhash, Ufa-Magnitnaya, and others; increase of the total length of railway lines from 83,000 km. on Jan. 1, 1933, to 94,000 km. on Jan. 1, 1938.

(e) *Water transportation*—Extensive construction of artificial waterways or canals—the Baltic-White Sea canal, length 227 km. (first section completed in the first year of the second Five-Year Plan); the Moscow-Volga canal, length 127 km.; the Volga-Don canal, length 100 km. Reconstruction of the Mariinsk¹ and Moscow River waterways, which—together with the carrying out of hydro-technical work on a big scale on existing waterways (through route along the Dnieper, canalization of the Sozh River, reconstruction work on the Middle Volga)—to insure in the main the reconstruction of the waterways and the creation of a unified network of waterways in the European section of the U.S.S.R., connecting the White, Baltic and Caspian Seas. The length of navigable waterways is to increase during the second Five-Year Plan period from 84,000 to 101,000 km., with considerable improvement in navigation conditions on such waterways. The mercantile and river fleets are to be radically renewed and reconstructed, and the building of shallow boats for use on small rivers is to be developed.

(f) *Automotive transport*—Motor vehicles are planned to increase from 75,000 cars on Jan. 1, 1933 to 580,000 cars on Jan. 1, 1938, a growth of almost 700 per cent; wide-scale construction of a network of dirt and paved highways, with the practical liquidation of the paucity of roads and an increase

¹ Important artificial waterway connecting the Volga and Neva Rivers.

in the total length of the road network of the country by 210,000 km., not counting the considerable amount of construction carried out by means of local resources.

(g) *Civil aviation*—The network of airlines of all-Union significance is to grow from 32,000 to 85,000 km., *i.e.*, an increase of almost 200 per cent. At the same time there is to be extensive construction of local airlines, bringing the length of such lines under exploitation in 1937 to 35,000 km.

(h) Marked progress is to be achieved in the mechanization of loading and unloading operations in transportation, mechanization of such work in railway transportation to be trebled (from 18 to 57 per cent) and in water transportation approximately quintupled (from 14 to 72 per cent for the mercantile marine and from 12 to 56 per cent for river transport).

(i) The Congress emphasizes the necessity of extensive development of all forms of communications, especially radio, and improvement in the quality thereof.

9. The increase in labor productivity during the second Five-Year Plan period in railway transportation is set at 43 per cent and in water transportation at 86 per cent, and the decrease in production costs for transportation as a whole at 40 per cent, for railway transportation at 10.5 per cent, for water transportation at 36 per cent, and for automotive transport at 54 per cent.

10. A decisive prerequisite for the carrying out of the technical reconstruction program, the development of technique, and the fulfillment of the schedules for labor productivity is the training of skilled workers, technicians and engineers. Accordingly, the Congress sets up the following program for the training of skilled personnel during the second Five-Year Plan period:

(a) The training of 5 million skilled workers, including 2.5 million in factory schools, over 1.5 million in agricultural

schools and courses (tractorists, brigade leaders, etc.), and 700,000 in schools and courses for chauffeurs.

(b) Graduation during the second Five-Year Plan period of 340,000 specialists who will have completed the college course, as against 170,700 during the first Five-Year Plan period, an increase of 100 per cent, and of 850,000 specialists who will have completed the secondary technical school (technicum), as compared with 308,000 in the first Five-Year Plan period, an increase of almost 200 per cent.

(c) An increase in the number of skilled specialists in all branches of the national economy from 2.7 million to 4.0 million, a rise of 46.5 per cent; the number of specialists in industry to increase by 57 per cent, in transportation and communications by 60 per cent, and in agriculture by 100 per cent.

11. The Congress points out the need for extensive development of the work of scientific-technical institutes, particularly factory laboratories. Scientific-technical and inventive research are to take an important part in the matter of introducing modern technique, organizing the manufacture of new products, and finding new methods of utilizing raw materials and power.

PROGRAM OF NEW CONSTRUCTION

12. The completion of the technical reconstruction of the national economy and the fulfillment of the outlined production schedules in industry, agriculture and transportation necessitate the carrying out, during the period of the second Five-Year Plan, of a large construction program.

The XVIIth Congress of the Communist Party ratifies the program of construction during the second Five-Year Plan period worked out by the State Planning Commission and confirms the schedule for total outlay for capital construction in the national economy during the second Five-Year Plan

period of 133.4 billion rubles (in 1933 prices), as compared with 50.5 billion rubles during the first Five-Year Plan period, to be distributed as follows:

(a) *Industry*—69.5 billion rubles, as against 25 billion rubles during the first Five-Year Plan period; for industry manufacturing producers' goods—53.4 billion rubles, as against 21.3 billion rubles, or an increase of 150 per cent; for industry producing consumers' goods—16.1 billion rubles, as compared with 3.5 billion rubles, or a gain of 360 per cent.

(b) *Agriculture*—15.2 billion rubles, as against 9.7 billion rubles during the first Five-Year Plan period, or an increase of over 50 per cent.

(c) *Transportation*—26.3 billion rubles, as against 8.9 billion rubles, or an increase of 200 per cent.

The Congress points out that the larger increase in capital construction scheduled for light and food industries and for transportation, as compared with that for other branches of the national economy, should result in a more rapid rate of development for them.

13. The Congress endorses the putting into operation of new and reconstructed enterprises during the second Five-Year Plan period at a total cost of 132 billion rubles, as compared with 38.6 billion rubles in the first Five-Year Plan period, distributed as follows: in industry—69.1 billion rubles, as against 15.7 billion rubles; in agriculture—15.4 billion rubles, as compared with 9.2 billion rubles; and in transportation—25.6 billion rubles, as against 7.7 billion rubles.

14. The scheduled volume of capital construction and the program for the starting of exploitation of new and reconstructed enterprises will result in a gigantic increase in the productive-technical capacity and the creation of necessary reserves of capacity in the most important branches of the national economy, *viz.*:

(a) The total basic capital is to increase during the five-year period from 85 billion rubles to 195 billions rubles (in 1933 prices), an increase of 130 per cent, distributed as follows: industry—from 25.5 to 77.0 billion rubles; agriculture—from 11.4 to 22.6 billion rubles; transportation—from 19.8 to 38.5 billion rubles.

(b) In the most important branches of industry productive capacity is to increase as follows: in the iron and steel industry (pig iron) by 130 per cent, the coal industry by over 100 per cent, manufacture of generators by 140 per cent, the automobile industry by almost 300 per cent, locomotive works by 220 per cent, car-building plants by 290 per cent, regional power plants by 150 per cent, the shoe industry by 100 per cent, the cotton textile industry by 50 per cent, the linen industry by over 100 per cent, the sugar industry by 50 per cent, and in large meat-packing plants by 150 per cent.

15. The Congress considers it necessary that special attention be concentrated on the following most important construction works:

In machine-building—Completion of the following plants, the construction of which was commenced in the first Five-Year Plan: the Ural heavy machinery plant, annual capacity 100,000 tons; the Kramatorsk heavy machinery works, capacity 150,000 tons; the Ural chemical apparatus plant; the Lugansk steam locomotive works, annual capacity 1,080 "FD" locomotives; the Orsk steam and Diesel locomotive works, capacity 500 steam and 500 Diesel locomotives; the Kashira electric locomotive plant, capacity 300 main-line electric locomotives; the Ural, Kuznetz and Irkutsk car-building plants, capacity of the first 54,000, of the latter two, 10,000 four-axle cars each; the Ufa motor plant, capacity 50,000 motors; the Kharkov turbogenerator plant, annual capacity 1.5 million kw. Expansion of the Gorky automobile plant to a capacity

of 300,000 cars, of the Stalin (AMO) automobile plant in Moscow to a capacity of 80,000 cars, of the Yaroslavl plant to a capacity of 25,000 five-ton trucks, etc. Construction during the second Five-Year Plan of the Ufa and Stalingrad automobile plants, annual capacity of each 100,000 three-ton trucks; Samara automobile plant, capacity 25,000 five-ton trucks; machine-building plants manufacturing grinding machines, radial boring machines, gear-cutting machines, automatic and heavy machine tools; a new ball-bearing plant with annual capacity of 24 million bearings; the Ural plant for the manufacture of electrical apparatus and transformers; a group of plants for the manufacture of machinery for the textile industry and of equipment for the food industry, etc.

In electrification—Construction of 79 regional power plants, including completion of construction of the following plants: Zuevka (250,000 kw.); Gorky (204,000 kw.); Shatura (180,000 kw.); Dubrovka (100,000 kw.); Svir No. 3 (96,000 kw.); Dnieproges (558,000 kw.); Construction of several new large central stations: Stalinogorsk (400,000 kw.); Kemerovo (148,000 kw.); several new, powerful stations in the Donetz Basin; the following hydroelectric stations: Chirchik No. 1 (170,000 kw.); Kanakir (88,000 kw.); Khram River (60,000 kw.); Svir No. 2 (144,000 kw.); Tuloma; etc. Further construction work on the power plants of the Middle Volga project: Yaroslavl (100,000 kw.); Perm (310,000 kw.); Gorky (200,000 kw.). Construction of a number of large heating plants for the central heating of cities—the Moscow-Narvak and Okhta in Leningrad, the Stalin and Frunze in Moscow, the Sormovo-Kanavino, the Krasnozavodsk in Kharkov, and others; and of a number of large factory power plants of regional significance—Magnitogorsk (198,000 kw.), Kuznetz (108,000 kw.), and others.

In the coal industry—Extensive construction of large mines and the starting of operations of 178 mines, with an annual capacity of 143 million tons of coal.

In the oil industry—Construction of a new group of oil refineries (46 pipe stills for primary refining, 93 cracking units). Construction of pipe lines for oil and oil products with a total length of over 4,000 km.

Development of construction in the peat and shale industry.

In the iron and steel industry—Completion of construction of the Magnitogorsk plant to a capacity of 2.7 million tons of pig iron, and of the Kuznetz, Zaporozhye, Nizhne-Tagil, Azovstal, Krivoy Rog, Lipetsk, Tula and other plants. Continuation of construction work on and start of operations of the first units of the Bakal, Khalilovo, second Kuznetz and Far Eastern plants, and of several pipe-rolling mills, etc.

In the non-ferrous metals industry—Lake Balkhash copper combine (capacity 100,000 tons); Central Ural (50,000 tons). Completion of construction of the Kazakstan (60,000 tons of lead) and Altai lead and zinc plants, the Cheliabinsk, Ordzhonikidze and Kemerovo zinc plants, etc., completion of Volkhov and Dnieper aluminum plants; construction of new aluminum plants—Ural (25,000 tons) and Karelian (8,000 tons); construction of magnesium, nickel and other enterprises in the nonferrous metals industry.

In the chemical industry—Construction of new fertilizer and synthetic rubber plants and of factories manufacturing soda, sulphuric acid, rubber goods, plastics, aniline and lacquer dyes, artificial fiber, etc.

In light industry—Construction of 15 large cotton textile enterprises, including the Tashkent, Barnaul, Khodzhen, Chardzhui and Transcaucasian combines, with an annual capacity of 200,000 spindles each; 12 large woolen mills, each

with a capacity of from 8 to 15 million meters of cloth, 12 linen mills, with a capacity of from 18,000 to 27,000 spindles each; 18 large enterprises of the knit-goods industry; 11 silk mills; and 21 shoe factories with a capacity of 100 million pairs.

In the food industry—Completion of 17 meat-packing plants, the construction of which was started in the first Five-Year Plan; commencement of construction work on 23 new combines; construction of a large number of sugar mills, 6 soap factories, of canneries, vegetable oil refineries, candy factories, etc.; a large increase in the fishing fleet.

In the timber industry—Construction of a large number of saw-mills, wood-distillation plants, etc.; completion of construction of the Kama and Kondopoga cellulose-paper combines and the Syas cellulose plant; construction of the Bashkir and Krasnoyarsk paper mills, etc.

Extensive construction and reconstruction of thousands of enterprises of local industry manufacturing consumers' goods, with an investment during the five-year period of about 2 billion rubles.

In municipal construction—Extensive work in civic development; construction of thousands of apartment houses with apartments equipped with all conveniences and with a total dwelling space of 64 million square meters; development of work in the field of city planning, improvement of municipal transportation, water supply and sewage systems, street paving, planting of trees and shrubbery, etc. Construction of Houses of Soviets, houses of technique, parks for culture and rest, stadia, theaters, clubhouses, moving-picture theaters; construction in Moscow of the Palace of Soviets and the first subway in the Soviet Union, the first line of which is to start operations in 1935.

16. The scheduled program for the extensive development

of new construction necessitates marked advances in the allocation of productive forces:

(a) On the basis of the development of old industrial centers there are being created new bases of industrialization in the eastern regions of the Union (Urals, West and East Siberia, Bashkiria, Far Eastern Region, Kazakstan and Central Asia), where intensive development is under way in the machine-building, metallurgical, coal, oil, power and other branches of industry. About half of all the capital investments for new construction in heavy industry are to be expended in the Eastern regions. In 1937 the eastern regions are to account for one-third of the output of pig iron, as against one-fourth in 1932, for more than one-third of the output of coal, as compared with one-fourth in 1932, for about one-fifth of the total power output (of regional power plants), as against 6.5 per cent in 1932, and for one-tenth of the output of the machine-building industry, as compared with 5 per cent in 1932.

(b) Completion of construction of the second coal-metal-lurgical base of the Union, the Ural-Kuznetz combine, on the construction of which there is to be expended during the second Five-Year Plan period about one-fourth of total capital investments in the national economy of the U.S.S.R. and more than one-third of all capital investments in heavy industry. The Ural-Kuznetz combine is to account in 1937 for one-third of the output of the iron and steel industry, more than one-fourth of the total coal output of the country, one-sixth of the total production of power by regional power plants, and about one-tenth of the output of the machine-building industry.

(c) Allocation of industry in closer proximity to the sources of raw material on the basis of the development of new industrial regions. Thus, out of the total of fifteen cotton textile mills to be constructed during the second Five-Year

Plan period ten are scheduled to be constructed in Central Asia, Siberia and Transcaucasia in order to provide for a twenty-fold increase in the output of cotton cloth in Central Asia, as compared with an average increase for the U.S.S.R. as a whole of 140 per cent, and to constitute a sound foundation for textile production in these regions. In the linen industry large plants for the working up of flax are being erected in White Russia and in the Western and Gorky Regions. There are being created new raw material bases on the foundation of which new sugar mills are to be constructed (West Siberia, Kirghizia, Far Eastern Region, Transcaucasia, etc.). In the principal centers of production of agricultural raw materials there are being built leather, woolen, vegetable oil and other enterprises in the light and food industries. The output of various types of local fuel is to be increased in order to lessen the dependence of a number of districts on fuel transported from distant points.

(d) In agriculture—Considerable increase in grain output in the basic grain districts, start of work on the extensive irrigation of the Trans-Volga section, and creation of a sound wheat base in the central and northern districts; an enormous increase in the output of industrial crops in the principal regions where they are now grown, and also the creation of a new sugar-beet base in the East; extensive development of new high-value crops, particularly in the sub-tropical districts—all aimed to provide the solution of the problem of the correct allocation of the principal branches of agriculture and the specialization of districts according to crops and branches of agriculture.

(e) In transportation—Together with the reconstruction and strengthening of the principal transportation lines extending east and south from the center, the construction of a large group of new railway lines and waterways connecting the new

industrial centers with the national transportation network and constituting the basis for the economic development of new regions (the Karaganda-Balkhash, Ufa-Sterlitamak, Rubtsevk-Ridder and Tomsk-Chulyum railway lines, the Baltic-White Sea canal, etc.).

(f) Extensive industrial construction in regions formerly backward in an industrial sense, such as the Middle Volga Region, Tatar Republic, North Caucasian Region, Central Black Soil Region, Transcaucasia, Karelia, Murmansk district, Far Eastern and East Siberian Regions, etc., on the basis of the development of large-scale industry in these regions.

(g) Intensive development of construction in the field of education, health, art and the press in the republics and areas inhabited by the national minorities.

(h) Further development of the old industrial regions of the U.S.S.R. on the basis of a continuation of the specialization begun in the first Five-Year Plan period and a more equalized allocation of industry within these regions.

The Congress declares that the scheduled program for the allocation of productive forces in the second Five-Year Plan period is directed toward overcoming the economic and cultural backwardness of the national republics and areas, a more equalized distribution of the productive forces and the bringing of industry into closer proximity to the sources of raw material, the specialization of the principal regions according to agricultural crops and branches of agriculture, and the completion of the division of the country as a whole into regions based on economic lines.

PROGRAM FOR RAISING THE MATERIAL AND CULTURAL LEVEL OF THE WORKERS AND PEASANTS

The Congress, approving the program of the State Planning Commission in this regard, sets the following tasks in

respect to raising the material and cultural level of the workers and peasants:

1. (a) Increase of 26 per cent in the number of wage-earners in all branches of the national economy by the end of the second Five-Year Plan; in large-scale industry of 29 per cent.

(b) Increase in real wages of 100 per cent, based on the complete liquidation of non-productive consumption, a rapid growth of the national income, an increase in the consumption norms for such products as meat, fats, fish, eggs, sugar, and manufactured goods of 150 per cent, a decrease in retail prices of 35 per cent, and a further improvement in the living conditions of the workers.

(c) Increase of 55 per cent in the total wage fund of all wage-earners in the entire national economy; of 64 per cent in that of those employed in large-scale industry.

(d) Considerable increase in state expenditures for advancing the material and cultural welfare of the workers, *i.e.*, expenditures for social insurance and state expenditures for education, health, and other social and cultural services for the workers, such expenditures to rise during the five-year period from 4.3 to 9.3 billion rubles, an increase of 115.5 per cent.

(e) Increase of 150 per cent in the number of workers of town and village served by socialized restaurants.

(f) During the second Five-Year Plan period not only is the elimination of illiteracy of the entire population of the Union, the elimination of semi-literacy of the adult, able-bodied population, and the introduction of universal, compulsory elementary education to be put into effect, but universal, compulsory polytechnical education embracing the seven-year course is to be introduced in the village as well as the town, this work having been basically completed so far as the town is concerned during the course of the first Five-Year Plan.

The total number of students (in primary and intermediate schools, workers' faculties, factory schools, technicums, colleges, and universities) is to increase to 36 million, as against 24.2 million in 1932, or to 197 per 1,000 inhabitants, as compared with 147 per 1,000, not counting preschool institutions, which in 1932 embraced 5.2 million children.

(g) Extensive development of mass extramural education, closely connected with the organization of the leisure time of the workers for purposes of cultural advancement; increase in the number of clubs in town and village from 6,800 to 10,900 (the increase in towns amounting to 10.5 per cent, in villages to 130 per cent) and in the number of public libraries from 15,000 in 1932 to 25,000.

(h) Considerable further advancement in the field of health preservation of the workers, involving first of all the extensive introduction of sanitary-prophylactic measures; increase in expenditures for health preservation, workers' leisure, and physical culture from 5.4 billion rubles in the first Five-Year Plan period to 19.6 billion rubles in the second.

Increase of 44 per cent in the number of hospital beds in towns and of 98 per cent in the number of those in rural districts; increase of 164 per cent in the number of places in day nurseries in towns and of 129 per cent in the number of those in rural communities.

(i) Increase during the five-year period in the number of towns with water systems from 366 to 440; of towns with sewage systems from 55 to 125; of towns with street-car service from 50 to 70.

(j) Accordingly, capital investments in construction for municipal, housing and cultural needs during the second Five-Year Plan period are set at about 32 billion rubles, or about one-fourth of all the capital investments in the national economy of the U.S.S.R., to be distributed as follows: housing—

13.4 billion rubles, municipal construction—6.2 billion rubles, education—3.1 billion rubles, health preservation—2.9 billion rubles.

2. The program calls for the development of commodity turnover on the basis of increased production of manufactured goods of general consumption and improvement in the provisioning of the towns with agricultural produce.

Consequently, this Congress calls for:

(a) An increase in commodity turnover of 150 per cent, rising from 31.9 billion rubles in 1932 to 80 billion rubles in 1937 (1932 prices), with a gain in output of consumers' goods produced by the light and food industries of 150 per cent.

(b) An increase in the retail trade network of state and co-operative organizations of 37 per cent, with a simultaneous carrying out of its technical reconstruction.

(c) Lowering of the average level of retail prices by 35 per cent, as compared with 1933.

3. The Congress sets the growth of the national income at 120 per cent (from 45.5 to 100 billion rubles) and the growth of the consumption fund in the national income at 140 per cent, accompanied by a tremendous increase in the capital accumulations of socialized economy and also a growth of state reserves.

The Congress emphasizes the fact that the basis of economic activity should be the introduction of economic accounting in all links of the national economy, the improvement in planning and financial discipline, and the further strengthening of the Soviet ruble, the most important lever for the strengthening of economic accounting and of the economic bonds between town and village.

During the second Five-Year Plan the U.S.S.R. is taking a big step forward in the matter of outliving the age-old con-

tradition of human society—the contradiction between town and village—and is creating all the necessary prerequisites for the elimination of this contradiction. Agriculture is assuming the same social form as industry; agricultural labor is being transformed into a variety of industrial labor; there is a tremendous expansion of the transportation links between city and village; the rates of increase of industrial and agricultural production are becoming much more nearly identical; the material and cultural standards of the toilers of town and village are approaching the same level.

VII INDUSTRY

ORGANIZATION OF INDUSTRY

All large-scale industry in the U.S.S.R. is state-owned or operated by cooperative organizations. The state industries, which account for over 85 per cent of the total industrial output of the country and include all of the important enterprises, are under the supervision of the four industrial commissariats (Heavy Industry, Light Industry, Food Industry and Timber Industry) and the Procurements Committee of the Council of People's Commissars (mainly flour-milling plants). On January 1, 1933 there were in the U.S.S.R. 23,508 large-scale enterprises (exclusive of the lumber industry and fisheries), of which 12,283 turned out producers' goods and 11,225 consumers' goods. Of the total number of enterprises, 720 formed part of the fuel industry, 3,449—the metallurgical and machine industries, 964—mining and mineral industries, 890—chemical industry, 2,456—building materials, 1,349—textiles, 4,995—the food industry, etc. Sixty-eight per cent of the industries (producing 74 per cent of the output) were in the R.S.F.S.R.; 21 per cent (accounting for 18 per cent of the production) were in the Ukraine and the remainder scattered among the other republics. There are also many thousands of small industrial enterprises, not included in the above enumeration, operated mainly by producers' cooperatives and collectives. Small-scale (non-census) industries account for about eight per cent of total industrial output.

Production of large-scale industry in 1934 amounted to 49.5 billion rubles and output of small-scale industry to 4.4 billion rubles. In 1933 output of the producers' cooperatives totaled 5.6 billion rubles, the bulk of the output being accounted for by small-scale enterprises.

The fixed capital of large-scale industry more than doubled in the period from October 1, 1928 to January 1, 1934, increasing from ten billion to 28.9 billion rubles. Of the productive basic capital of industry on January 1, 1933, 71 per cent had been built or installed after October 1, 1925.

The four industrial commissariats are subdivided into a number of administrations, each of which supervises a particular branch of industry or some special functional activity. For instance, there are 33 chief administrations in the Commissariat for Heavy Industry, including such organizations as *Gutap*—Chief Administration of the Tractor and Automobile Industry; *Glavmashprom*—machine-building industry; *Glavneft*—oil industry; *Glavugol*—coal industry; *Glavenergo*—power industry, etc. There are also chief administrations which supervise the supplying of food and other commodities to industrial enterprises (*Gurs*), and the lower and technical schools under the control of the Commissariat (*Guuz*).

The remaining commissariats are divided similarly. The Commissariat for the Timber Industry, for instance, combines eleven chief administrations, among them *Glavlesoexport*—in charge of lumber exports; *Glavbumprom*—paper industry; *Glavspichprom*—match industry, etc. The chief administrations exercise general supervision over the operations of the trusts (combinations of enterprises in a given industry, covering either a particular territory or, in some cases, the entire country). The individual enterprises, in turn, are subordinated to the trusts. Many of the largest enterprises, however, are directly subordinated to the chief administrations.

FUEL

IN PREWAR Russia Donetz coal, Caucasus oil, and wood constituted practically the entire fuel base of the country. Local fuel resources, such as low-grade coal, peat, oil shale, etc., were utilized only to an insignificant extent. Leningrad and the northwestern region, one of the largest industrial centers, depended almost exclusively on coal imported from Great Britain. Imports of coal from that country totaled 7.8 million tons in 1913. The world and civil wars wrought havoc with the fuel production of the U.S.S.R., but beginning with 1921-22 the consolidation and development of the country's fuel base was undertaken. By the year 1927-28 the prewar level had been exceeded, marked progress had been made in the utilization of local fuel, and imports of foreign coal had been practically discontinued.

It was during the subsequent period, that of the first Five-Year Plan, that the most rapid progress was made in establishing a fuel base adequate for the supply of the country's needs. Extensive construction and reconstruction work was carried on, new fuel bases were established linked up with large industrial centers or combines, utilization of local fuel resources was greatly extended, and improved methods of using the various kinds of fuel were worked out. By the end of the first Five-Year Plan period local fuel constituted 30 per cent of total consumption in the Leningrad Region and 46 per cent in the Moscow Region. Of the total 1932 output of power by regional power plants throughout the U.S.S.R. 55.6 per cent was produced by plants using local fuel (peat, low-grade coal, etc.). The output of low-grade coal for the entire U.S.S.R. amounted to 12.2 million tons in 1932, as against 6.7 million tons in 1927-28 and 2.8 million tons in 1913. Similarly, the production of peat for industrial purposes reached 13.85 million tons

in 1932, as compared with 5.3 and 1.5 million tons in 1927-28 and 1913, respectively.

In 1932 total fuel output (excluding timber and peat for domestic use) amounted to 100.6 million tons of standard fuel ¹), as against 56.8 million tons in 1927-28, an increase of 77 per cent. Consumption of fuel in the country rose from 53.2 million tons in 1927-28 to 96 million tons in 1932.

The following table shows the share in output of fuel of the various types of fuel (in per cent of total):

TYPE OF FUEL	1913	1927-28	1932	1932-33	
				(Five-Year Plan)	1937 (program)
Wood, for industrial and technical purposes	25.2	17.4	13.6	10.8	10.1
Peat	1.4	3.8	5.6	5.3	5.4
Oil Shale	—	—	0.1	—	0.4
Coal	54.5	60.5	60.8	66.5	68.2
Fuel Oils	18.9	18.3	19.9	17.4	15.9
Total	100.0	100.0	100.0	100.0	100.0

The Five-Year Plan program for fuel was fulfilled 97 per cent. Coal output fell below schedule, while that of wood, peat and fuel oil exceeded the schedule. The rapid increase in the number of tractors and automobiles in the country necessitated that fuel oil be given a larger share in total fuel output than was originally allotted. The creation of a second coal-metallurgical base—the Ural-Kuznetz combine—gave a decided impetus to development of the Kuznetz and Karaganda coal basins. Extensive construction work was executed and rapid advances in mechanization of coal production were made during the first Five-Year Plan.

The second Five-Year Plan calls for large increases in the output of all types of fuel. Total output will amount to 196 million tons of conditional fuel in 1937, a gain of 100 per cent over 1932. Wood and oil are expected to decline in rela-

¹ 1 metric ton of standard fuel is equivalent to 7 million calories.

tive importance in the fuel balance and coal to increase—the expansion in coal production is set at 137 per cent as against 102 per cent for all fuels combined. The percentage growth in fuel consumption by principal classes of consumers is planned as follows: for coking—120; power plants—141; railroads—66; other consumers—70. The reconstruction of heating systems, the growth of electrification and the increasing share taken by hydroelectric power, the utilization of many industrial by-products as fuel (coke oven and blast furnace gases), etc., are expected to effect large economies in the consumption of primary fuels in production.

COAL

The coal industry of the U.S.S.R. suffered perhaps most of all from the effects of the world and civil wars. The mines of the Donetz Basin, which supplied 90 per cent of the prewar output, were for a time in the hands of the Germans and thereafter in the center of the civil war zone. Production in 1920 was only slightly over one-fourth of the prewar figure. Beginning with 1921, however, output started to gain, by 1927 already exceeded the 1913 output by 13 per cent, and by 1932 was 2.3 times and by 1934 3.2 times as great. While in 1927 the U.S.S.R. occupied seventh place among the countries of the world as regards coal output, it now occupies fourth place, being exceeded only by Germany, Great Britain and the United States.

COAL OUTPUT

YEAR	ANTHRACITE AND-SEMI- ANTHRACITE	BITUMINOUS	BROWN COAL AND LIGNITE	TOTAL
	<i>in million metric tons</i>			
1913	—	—	—	29.1
1921-22	2.2	7.0	1.5	10.7
1922-23	2.3	8.0	1.8	12.1
1923-24	3.5	10.9	1.5	15.9
1924-25	3.3	11.5	1.5	16.3

YEAR	ANTHRACITE AND-SEMI- ANTHRACITE		BROWN COAL AND LIGNITE		TOTAL
	<i>in million metric tons</i>				
1925-26	5.4	18.0	2.2		25.6
1926-27	6.9	22.6	2.6		32.1
1927-28	8.0	24.3	2.8		35.1
1928-29	9.6	26.8	3.1		39.5
1930	12.0	31.0	4.0		47.0
1931	—	—	6.0		55.4
1932	—	—	6.9		64.3
1933	—	—	8.9		76.3
1934 (prelim.)	—	—	—		93.5
1937 (prog.)	—	—	—		152.5

While the Donetz Basin still supplies the bulk of the output, its share declined from 90 per cent in 1913 to 64 per cent in 1934 and is expected to drop to 52.5 per cent by 1937. This is due to the fact that, simultaneously with intensive development of the Donetz Basin, the Soviet Government is devoting considerable attention to the development of other coal fields, some of which were entirely unknown in prewar Russia. The Kuznetz Basin, which in 1913 produced only 878,000 tons, attained an output of 11.6 million tons in 1934. The share of the various coal basins in total output in 1913, 1927-28 and 1932 and the program for 1937 are shown in the following table:

	1913		1927-28		1932		1937 program	
	OUTPUT (in mill. tons)	SHARE OF TOTAL (in per cent)	OUTPUT (in mill. tons)	SHARE OF TOTAL (in per cent)	OUTPUT (in mill. tons)	SHARE OF TOTAL (in per cent)	OUTPUT (in mill. tons)	SHARE OF TOTAL (in per cent)
Donetz	25.3	88.8	27.3	77.3	43.8	68.2	80.0	52.5
Kuznetz	0.8	2.8	2.5	7.1	7.0	11.0	20.0	13.1
Ural	1.2	4.2	2.0	5.7	3.1	4.8	13.0	8.6
Moscow	0.4	1.4	1.1	3.1	2.9	4.4	10.0	6.5
Karaganda	—	—	—	—	0.7	1.1	7.0	4.6
Far East	0.3	1.1	1.1	3.1	1.9	2.9	6.5	4.3
East Siberia	0.4	1.4	0.9	2.5	2.2	3.4	4.5	2.9
Central Asia	0.1	0.3	0.3	0.9	0.7	1.1	3.0	2.0
Others	—	—	0.1	0.3	2.0	3.1	8.5	5.5
Total	28.5	100.0	35.3	100.0	64.3	100.0	152.5	100.0

The increase in output is the result of the reconstruction and improved operation of old mines, construction of new pits in old fields and development of new fields. During the period of the first Five-Year Plan capital investments in the coal industry totaled 1.8 billion rubles, as against 1.25 billion scheduled by the Plan. During the four and one-fourth years 179 new pits with a capacity of 57 million tons, commenced operations. The construction of an additional 186 new mines was started in this period. In 1933 new pits accounted for 37 per cent of the total output, as compared with only 2.5 per cent in 1927-28. In 1934 they were scheduled to account for 43 per cent. Some of the new pits have an annual capacity of one million tons and over, whereas prior to the first Five-Year Plan the output of the largest pits did not exceed 600,000 tons.

In 1933 and 1934 there were put into operation 69 new mines with a total capacity of 34 million tons. Production increased by 45 per cent during the two years.

Mechanization of coal production recorded rapid progress during the first Five-Year Plan. For the country as a whole the proportion of coal produced by coal-cutting machines increased from 15.7 per cent in 1927-28 to 65.5 per cent in 1932, and for the Donetz Basin from 18.4 to 71.9 per cent. In 1934 the proportion was raised to over 75 per cent. The U.S.S.R. now ranks third, after Germany and the United States in respect to mechanized coal cutting. This progress has been recorded largely through the increased use of heavy cutting machines and pneumatic pick hammers. The number of the former increased from 550 on October 1, 1928, to 1,679 by the end of 1933, and of the latter from 71 in 1928 to 10,764 at the end of 1933.

In addition to the investments in mechanization and industrial construction and reconstruction, large sums of money have been expended on improving the miners' material and cul-

tural conditions. Wages of Soviet coal miners doubled during the four years 1928 to 1932. Dwelling space increased in the same period from 2,050,000 sq. meters to 5,222,000 sq. meters, an increase of 160 per cent, whereas the number of workers increased by 58 per cent. An additional 15 million cubic meters of water storage capacity and hundreds of kilometers of new water mains have greatly improved the water supply of the mining communities. Numerous schools, club-houses, theaters, kitchen factories and other municipal buildings have been constructed in the coal-mining areas. These improvements have tended to lessen the high labor turnover, one of the most serious difficulties with which the coal industry has had to contend. Another drawback has been inadequate supervision and training of the workers in the operation of the many new machines installed in recent years. The reorganization of the industry, instituted in accordance with a decree of April 8, 1933, was designed to overcome this drawback by reducing overhead administration and resulted in the transfer of hundreds of competent mining engineers from offices to underground work with a simultaneous raise in their salaries. All coal miners received a further increase in wages, and the piece-work and bonus system was readjusted.

During the second Five-Year Plan special stress is being laid on the further mechanization of production, particularly of those labor processes which have as yet not been mechanized or only to a small extent.

There is to be a further shift toward the East in the development of the industry (Urals, Siberia, Kazakstan). New coal regions are being created in the Far North (Pechora and Spitzbergen). Extensive new construction is planned, 178 large mines with a combined annual capacity of 143 million tons being scheduled to start operation during the five-year period. By the end of 1937 the basic capital of the coal industry is

expected to be more than double the 1932 figure, while output in 1937 is to reach 152.5 million tons, 2.4 times production in 1932. Capital investments are set at 3.5 billion rubles, as against 1.8 billion in the first Plan. By the end of the period it is expected that cutting will be 93 per cent mechanized, hauling—90 per cent, loading—20 per cent and surface work—60 per cent. Labor productivity is expected to increase by 91 per cent (from 13.8 tons monthly output per worker in the industry to 26.3 tons).

American engineers have taken an important part in the rationalization of the Soviet coal industry. Among the American firms which have furnished technical assistance to the Soviet coal industry are: Stuart, James & Cooke, Inc., Allen & Garcia Company and Roberts & Schaefer Company.

COKE

The development of the coke industry being of vital importance for iron and steel production, considerable sums have been invested in this field. During the period of the first Five-Year Plan twenty-three new coke-oven batteries were built, with a combined annual capacity of 5.5 million tons. These coke plants have been erected for the most part in connection with the large steel mills, such as the Stalinsk, Magnitogorsk, Petrovsky and Voroshilov mills. The new coke installations have been constructed according to the latest technique and have the most up-to-date equipment. Their annual capacity ranges from 400,000 to 1,300,000 tons a year, as against a maximum capacity of prewar plants of 560,000 and an average of 150,000 tons. The Koppers Construction Company of Pittsburgh, Pennsylvania, has rendered technical assistance in the erection of the Magnitogorsk and other large coke plants. Not only have new plants been constructed but production in old plants has been increased through improved methods of equipment. As a result output has recorded steady growth,

more than doubling during the first Five-Year Plan period. Production figures are given below:

YEAR	OUTPUT (metric tons)
1927-28	4,041,000
1929-30	6,000,000
1932	8,409,000
1933	10,450,000
1934 (prelim.)	14,200,000
1937 (program)	23,700,000

The total capacity of all coke plants at the end of 1932 amounted to 13.7 million tons, double the prewar figure (6.7 million tons). Moreover, 90 per cent of the present capacity is accounted for by ovens of the by-product type, as against 55 per cent before the war. Kuznetz coke has proved to be of higher quality than Donetz coke; therefore, particular emphasis is now being placed on the development of the coke industry in the Kuznetz coal basin.

During the second Five-Year Plan coke output is scheduled to show a gain of 182 per cent—from 8,409,000 tons in 1932 to 23,700,000 tons in 1937. In 1933, the first year of the Plan, the actual increase was 24.3 per cent, while in 1934 the increase over the previous year amounted to 36 per cent.

OIL

The principal oil regions in the U.S.S.R. are the Baku and Grozny fields, which account for nearly 95 per cent of the total production. The Baku field is the oldest oil region in the Soviet Union, having been producing continuously since 1863. The Baku field is situated in Azerbaidzhan, Transcaucasia, on the west shore of the Caspian Sea; the Grozny field in the North Caucasus. The fields ranking next in order as regards output are Maikop (also in the North Caucasus, in the Kuban-Black Sea section) and Emba (in Kazakstan, at the north end of the Caspian Sea).

In May, 1920, when the petroleum industry was nationalized, production was at an exceedingly low ebb. By means of a thoroughgoing reorganization and substantial capital investments during the succeeding years the oil industry was brought to a position considerably in advance of the pre-war level prior to the first Five-Year Plan. The total output, which had fallen in 1920 to 3.8 million tons, was brought up to 12.3 million tons by 1928, an increase of one-third over 1913, when production amounted to 9.2 million tons. The rate of development of the industry was accelerated during the period of the Five-Year Plan. By 1931 output totaled 22.3 million tons, nearly double the 1928 figure, and half a million tons in excess of the schedule for the end of the five-year period. Rapid progress was made also in oil refining. In 1932 over 90 per cent of the crude oil was run to stills, as against 61.7 per cent in 1913 and 75 per cent in 1927-28.

The Soviet Union now ranks second, after the United States, in both the production and consumption of oil. It is the third largest exporter, after the United States and the Dutch West Indies. However, as far as European consumption is concerned, the U.S.S.R. ranks second as a supplier, accounting in 1931 for 18 per cent of total European oil imports.

The growth in output and exports of oil is given below:

YEAR	OUTPUT OF	CRUDE OIL RUN	DOMESTIC	EXPORTS	DRILLING (in thous. meters)
	CRUDE OIL	TO STILLS	CONSUMPTION		
	<i>in thousand tons</i>				
1913	9,234.1	5,702.4	5,638.0	947.7	276.6
1920-21	3,780.6	2,800.0	—	30.3 ²	5.9
1923-24	5,957.7	—	3,475.0	749.5	123.2
1925-26	8,246.0	5,943.0	5,566.0	1,473.8	288.6
1927-28	11,720.0	8,846.0	6,861.0	2,728.2	362.0
1929	14,253.0	11,653.6	8,452.0	3,816.4	446.0 ³

² 1921.

³ 1928-29.

YEAR	OUTPUT OF	CRUDE OIL RUN	DOMESTIC	EXPORTS	DRILLING (in thous. meters)
	CRUDE OIL	TO STILLS	CONSUMPTION		
	<i>in thousand tons</i>				
1930	18,565.0	16,177.8	10,571.0	4,803.0	639.3
1931	22,323.6 ⁴	19,918.6	12,524.0	5,280.0	701.3
1932	21,396.7 ⁴	20,213.4	14,443.0	6,044.0	757.8
1932-33 (1st Five-Year Plan)	21,700.0	19,100.0	—	—	—
1933	21,433.5 ⁴	18,517.5	—	4,894.5	835.5
1934 (Pre- 1937 (Pro- lim.) gram)	24,150.5	20,735.2	—	4,314.8	1,256.2
	44,300.0 ⁴	38,000.0	—	—	3,972.0

⁴ Including gas, the totals for 1931, 1932, 1933, 1934 and 1937 are calculated at 23.3, 22.3, 23.0, 25.6 and 46.8 million tons, respectively.

From 1931 to 1933 oil production was practically stable, the failure to fulfill the program being caused in part by a shortage of equipment. However, this deficiency has to some extent been overcome, and in 1934 the output, totaling 24,200,000 tons, was 12.7 per cent in advance of the preceding year. Drilling operations totaled 1,256,000 meters and were 48.5 per cent above those for 1933.

Production in recent years, by principal trusts, has been as follows:

TRUST	1930	1931	1933	1934
	<i>in thousand tons</i>			
Azneft (Baku)	10,520.8	12,181.0	15,325.3	19,182.8
Grozneft (Grozny)	6,927.9	7,709.8	4,870.0	3,371.5
Maineft (Maikop)	416.3	946.8	608.0	938.2
Embaneft (Emba)	349.0	248.0	194.7	239.1
Others	351.0	311.3	433.6	418.9
	18,565.0	21,396.9	21,431.6	24,150.5

During the five years 1929-1933 about 100 million tons of crude oil were produced, as against 85.6 million scheduled for the first Five-Year period. The number of wells in operation increased from 4,760 in 1928 to 5,986 by the end of 1932. In 1934 practically the entire output was obtained from

wells drilled under the Soviet regime; 42 per cent came from oil-bearing areas for the most part unknown in pre-war times. The past few years have witnessed the bringing into production of highly productive areas in both old and new regions. The former include Malgobek in the Grozny field and Kala and Lok-Batan, famous for its powerful gushers, in the Baku field. Among the most promising locations already being developed in new regions are those in the Urals (Ukhta, Sterlita-mak), Kazakstan (Emba), Turkmenistan (Neftedag), and on Sakhalin Island.

Another important factor in the growth of the oil industry has been the introduction of modern technical methods, such as deep pumping instead of bailing, rotary and turbine drilling in place of the old and costly percussion methods, the use of electricity instead of steam, etc. The proportion of oil extracted by the old method of bailing declined from 94.1 per cent in 1913 to 6.3 per cent in 1927-28 and to 0.3 per cent in 1932. The new methods of drilling accounted for 99 per cent of all drilling done in 1933. A Soviet engineer, M. A. Kapelyushnikov, is the inventor of the turbo-drill, which is said to excel the rotary drill. Production has been mechanized to a high degree, electric power now being used almost 100 per cent.

Especial progress has been recorded in oil refining, which was at a very low level of development in the prewar period. The methods employed were primitive, pipe still and cracking plants being entirely unknown. The introduction of modern refining methods has proceeded rapidly since 1924. In the numerous up-to-date refining plants which have been constructed in recent years American equipment and technical assistance have been used considerably. As a result of improved facilities, marked progress has been made in increasing the output of light products, especially gasoline. Moreover, the manufacture of a number of new oil products has been begun,

such as asphalt, naphtha soap, petroleum coke, lampblack, ozokerite and paraffin. In 1934 the capacity of the oil refineries in the Union exceeded 26 million tons. Prior to the Five-Year Plan the U.S.S.R. had only two small pipe stills and no cracking plants. By the end of 1934 there were in operation 30 pipe stills, with a total crude capacity of nearly 13 million tons, and 36 cracking plants, with a combined capacity of 5.6 million tons. These added about 1,300,000 tons of cracked gasoline yearly to the output of the Soviet Union. Of the cracking units 4 have been installed at Baku, 6 at Batum, 2 at Tuapse, 14 at Grozny, 8 at Saratov, 1 at Konstantinovka and 1 at Khabarovsk.

The output of the first paraffin plant at Grozny amounted to 33,000 tons in 1934 as compared with 15,000 tons in 1932. Large scale production of petroleum bitumen or asphalt was started only five years ago. It increased from 140,000 tons in 1932 to 200,000 tons in 1934. Another new item is ashless coke, the demand for which arose as a result of the growth of the newly established aluminum industry of the U.S.S.R. So far special shell stills with a total annual capacity of 25,000 tons of coke have been erected, and additional units of similar capacity are now being completed.

There has been an increased demand for gasoline and the higher grade oils not only on the domestic market, due to growth in the number of tractors and automobiles, but also on the foreign markets. To meet this demand an increasing proportion of gasoline is being produced. In 1913 output of gasoline amounted to only 204,000 tons, or 3.6 per cent of the refined oil output; by 1934 it totaled 2.8 million tons or about 13 per cent of the total. Exports of gasoline in 1913 amounted to only 152,000 tons, or 16 per cent of the total exports; by 1928 they totaled 826,000 tons, or 27 per cent; and in 1932 they came to 2 million tons, or one-third of the total.

The growth in output and exports of the principal light products is shown in the table below:

	PRODUCTION			EXPORTS		
	GASOLINE	LUBRICATING		GASOLINE	LUBRICATING	
		KEROSENE	OILS		KEROSENE	OILS
	<i>in thousand metric tons</i>					
1913	204	1,521	337	152	440	290
1928-29	1,204	2,319	372	1,038	781	265
1931	2,756	3,861	652	1,783	729	261
1932	2,881	3,824	680	2,005	793	249
1933	2,702	3,872	1,135	1,296	570	292
1934	2,785	4,485	—	1,120	436	305

Oil exports in 1932 were over six times the 1913 and double the 1928 volume.

The following table gives the oil exports according to the principal countries to which they were consigned:

COUNTRY	1913	1929	1930	1931	1932	1933
	<i>in thousand tons</i>					
France	112.3	375.7	556.9	942.5	1,117.5	719.2
Italy	16.6	571.6	826.1	971.2	936.0	998.7
Great Britain	178.2	803.3	973.1	1,031.1	651.6	312.4
Germany	129.2	482.5	504.7	499.3	629.0	505.5
Spain	2.6	318.9	361.3	147.3	435.5	342.2
Egypt	123.3	238.5	221.3	136.9	260.0	100.4
India	—	145.7	204.8	154.4	202.2	176.4
Denmark	8.2	64.1	95.3	187.4	191.8	122.5
Sweden	5.1	7.2	38.4	96.1	173.0	218.6
Belgium	83.0	103.6	93.3	160.3	153.1	259.7
Japan	—	—	—	112.0	134.0	366.4
Turkey	148.9	182.1	189.6	150.0	107.9	56.1
China	1.8	—	—	30.1	86.3	106.7
Persia	34.8	46.6	52.9	59.2	65.5	32.9
Others	103.7	476.6	685.3	602.2	900.6	576.8
Total	947.7	3,816.4	4,803.0	5,280.0	6,044.0	4,894.5

Since the bulk of the oil exported is shipped from the Black Sea ports of Batum and Tuapse, many new refineries have been erected at these ports. These are supplied with oil from the Baku and Grozny oil fields by two 10-inch pipe lines: the Grozny-Tuapse line, 618 kilometers long (completed in 1929)

and the Baku-Batum line, 822 km. in length (completed early in 1930). These lines have an annual carrying capacity of 1.7 and 1.6 million tons, respectively. In addition, an 8-inch pipe line constructed before the war from Baku to Batum, with a capacity of 1 million tons, is still in use.

A number of other pipe lines have been designed to serve domestic needs. Of these one has been completed, the Armavir-Trudovaya 12-inch line, which connects with the Grozny-Tuapse line and carries Grozny oil to the Ukraine. It is 418 km. long, and has a capacity of 1.7 million tons. It is now planned to extend this line to Kremenchug, in Central Ukraine, one of the principal consuming areas. The Caspian-Orsk line, begun in 1932 and extending northeast from Guryev on the Caspian Sea at the mouth of the Ural River to Orsk (Southern Urals), will be 758 km. long; including gathering lines the length will come to 1,000 km. Construction work on this line is very difficult, as the line is being laid in practically uninhabited deserts of Kazakstan. The first section of the line, with a capacity of 500,000 tons a year, was reported nearing completion during 1934. The total capacity of the line will be about 2,000,000 tons. This line will carry oil from the Emba oil fields, and in part from Baku via the Caspian Sea, to Orsk, for supplying the Ural-Kuznetz industries. Oil is now shipped to this section from Baku on tankers sailing via the Caspian Sea and the Volga River up to Samara and from there eastward on railway tank cars. The new line should greatly facilitate and cheapen transportation of oil products to the Urals and Siberia. During the period of the second Five-Year Plan it is planned to extend the pipe line further northeast to Kurgan, which will double the length of the line and make it the longest and largest pipe line in Europe. It is estimated that the line will by 1937 handle a total quantity of 5 million tons of oil annually. Another pipe line in project is one from the Maikop

fields in the North Caucasus to Moscow, via Armavir and Lisky, to supply oil to the central regions of European Russia.

Altogether during the four and one-quarter years of the first Five-Year Plan a total of over 2,000 km. of pipe line was laid to carry approximately 5 million tons of oil annually. This, together with other construction work, such as pipe stills, cracking plants, storage tanks, etc., as well as all the other measures taken to develop and modernize the oil industry, naturally necessitated the expenditure of huge sums. Capital investments in the oil industry during the four-year period totaled 1.45 billion rubles, and the basic capital was approximately doubled. Investments in 1932 alone amounted to 453 million rubles. Of this sum 187.5 million rubles were spent for drilling. Investments in 1933 totaled 576 million rubles.

In the early years of the first Five-Year Plan oil equipment valued at \$9,800,000 in 1928-29 and \$18,150,000 in 1929-30 was purchased from American manufacturers. Since then such purchases have been much smaller.

Scientific research has played an important rôle in the development of the Soviet oil industry. There are at present four scientific institutes and scores of large plant and field laboratories devoted to research in the oil industry. Of the four institutes one, the Petroleum Geological Research Institute of Moscow, carries on extensive work in oil geology and prospecting. The other three institutes—the State Petroleum Institute in Moscow (GINI) and the Grozny and Azerbaidzhan Petroleum Institutes—cover research work in oil field and plant construction and equipment, chemistry of oil, oil refining, oil transport and storage, etc.

In exploration not only have the latest geophysical methods been extensively utilized, but electrical exploration has developed rapidly, and gas exploration, a new method whereby the air above the area being surveyed is sampled and analyzed,

is said to have shown remarkable results. In the sphere of drilling the research institutes are perfecting the Skvortsov automatic rig and the Kapelyushnikov turbodrill. A multistage type of the latter has been worked out, combining qualities of durability and high speed and designed primarily for deep drilling. The State Petroleum Institute has developed the possibility of secondary oil extraction by means of evaporation and gasification, and experiments on a commercial scale are now being carried out in the Maikop oil fields.

The rapid growth in air and automobile transport, the mechanization of agriculture and the export trade place heavy demands upon the oil industry as regards both quantity and quality of output.

The fulfillment of the second Five-Year Plan schedule of oil production (44.3 million tons in 1937) will depend largely upon the development of new oil regions and the speed with which the drilling work is carried out. The newer and more efficient methods of drilling are to be applied to an ever greater extent, and by 1937 it is expected that about 30 per cent of all drilling work will be done by the turbine method. Drilling operations in 1934 amounted to about 1,256,000 meters. A large part of the drilling during the second Five-Year Plan is to be done outside of the Caucasian oil districts. Between 35 and 40 new fields are to be exploited during the period, and newly-opened wells are expected to yield by 1937 44 per cent of the total oil production. The older oil wells are to provide a correspondingly smaller share of total output. Drilling operations are planned to total 3,972,000 meters in 1937, a gain of 428 per cent over 1932. The share of drilling for prospecting purposes is to rise from 17.5 to 20.6 per cent.

Many new refineries are to be built, especially in the oil-consuming regions on the Volga. These are to include 46 pipe stills for straight-run refining and 93 cracking units. While

waterways are still to serve as the major means of transporting oil, an extensive program has been outlined for the building of new pipe lines. These are to total about 4,000 kilometers in length, a large share of which is to be laid outside of the Caucasus. Total capital investments are set at 4.7 billion rubles, over three times those of the preceding period.

Deeper cuts are to be made in the crude oil to increase the yield of light products and lubricants. Of the 38 million tons of oil to be refined in 1937, gasoline and ligroin are scheduled to amount to 8,200,000 tons, 21.4 per cent of the total as against 14 per cent in 1932. The gain in output for the period is set at 185 per cent, and for kerosene 78 per cent. The capacity of pipe stills and refining batteries is expected to increase from 23.4 million tons on Jan. 1, 1933, to 40.9 million at the end of 1937; that of cracking installations from 3.0 to 15.8 million tons.

OIL SHALE

The development of the extraction of oil shale on an industrial scale was inaugurated during the first Five-Year Plan. During this period three large mechanized mines were constructed and began operations in 1933: an experimental mine at Gdov (Leningrad Region) with a capacity of 200,000 tons; one at Kashpir (Middle Volga Region), capacity one million tons; and one at Savelyevo (Lower Volga Region) capacity 500,000 tons. Two other large mines are now under construction at Gdov, with a combined capacity of 2 million tons. An experimental shale distillery has been built in Leningrad. Shale is there being reduced first to tar and then to gasoline and mineral oil in a tunnel furnace designed by Soviet engineers.

During the second five-year period shale is to be utilized more and more as a fuel, thereby freeing a number of regions

from the necessity of transporting fuel from distant points. Output, which in 1932 amounted to 193,000 tons and in 1934—230,000 tons, is scheduled to reach 2.6 million tons by 1937. Eight large mines are projected with a total capacity of 5.3 millions tons.

PEAT

Although the U.S.S.R. possesses about 65 billion tons of peat or three-fourths of the world's peat reserves, little was done in prewar times to develop this abundant source of fuel. Up to the outset of the Five-Year Plan production was still carried on for the most part in primitive fashion, mechanized output constituting only 15 per cent of the total in 1928. During the past few years, however, modern machinery and methods have been introduced in the peat industry, with the result that in 1932 mechanized output made up 50 per cent of the total, as against 30 per cent set by the Five-Year Plan. In 1933 the level of mechanization stood at 56 per cent and by 1934 was estimated at 67 per cent.

In consequence of the rationalization and mechanization of the peat industry labor productivity increased by 62 per cent during the first Five-Year Plan and output rose 160 per cent. Production in 1932 totaled 14.8 million tons, 19 per cent in excess of the Five-Year Plan program. Output during recent years as compared with 1913 is given in the following table:

YEAR	OUTPUT (thousand metric tons)
1913	1,688
1927	4,911
1928	5,320
1929	6,914
1930	8,076
1931	12,357
1932	14,789
1933	13,835
1934	17,200
1937 (program)	25,000

Production of peat in 1934 by enterprises under the supervision of the Commissariat for Heavy Industry amounted to 11.7 million tons as compared with 9 million tons in 1933. Another 5.5 million tons were produced by local industry as against 3.1 million tons in 1933.

In 1932 one-fifth of the total output of power by regional power plants was produced by plants using peat as fuel. The process of burning mixed milled peat was developed during the first Five-Year Plan, thereby making it possible to increase the share of milled peat in the total output of peat in 1932 to 27 per cent, as against 4 per cent scheduled by the Plan.

Successful experiments were reported in the use of peat, combined with oxygen or agglomerated calcined pyrites, as a fuel for blast furnaces. The working out of a process of smelting by raw peat, in place of coking coal, is of special importance for the central and northern sections of European Russia, where coking coal must be transported from other sections of the country.

Capital investments in the peat industry under the supervision of the Commissariat for Heavy Industry during the Five-Year Plan totaled 398 million rubles, as compared with 300 million rubles set by the Plan. Thirty-four new peat bogs were brought under development during the period, and many old bogs were expanded and prepared for the introduction of modern methods of production. Although not scheduled in the Five-Year Plan program, a number of peat-refining plants were constructed, including four for the manufacture of insulating peat slabs, with a combined capacity of 3.3 million square meters, a peat coking plant, and an experimental plant for peat briquets. Gas is also being produced from peat on an experimental scale.

Capital investments in the peat industry during 1933-1937 are set at 600 million rubles. By the end of the second Five-Year Plan output is expected to reach 25 million tons, 71 per cent of which is to be produced by mechanical methods as compared with 50 per cent in 1932. The peat industry will supply fuel to such important enterprises as the Shatura and Gorky power plants, the Yaroslavl rubber combine and the Urals heavy machinery and car-building plants.

IRON AND STEEL

The production of iron and steel, which fell to practically nothing during the years of civil war, had not regained the pre-war level by the beginning of the first Five-Year Plan period. In 1927-28, the year prior to the commencement of the Five-Year Plan, the output of pig iron amounted to only 78 per cent of the 1913 figure, and that of steel ingots and rolled steel to 98 and 93 per cent, respectively.⁵ Metal supply being of decisive importance for industrial development, the iron and steel industry received particular attention in the Five-Year Plan. It was planned to treble the output of pig iron by 1932-33, bringing it up to 10 million tons, and to raise the output of steel to a corresponding level. While the production figures scheduled by the Five-Year Plan were not attained, due primarily to difficulties in keeping up production in plants undergoing drastic reconstruction and in bringing into capacity operation within a short space of time the newly constructed plants with their advanced technique and complicated machinery, output of both iron and steel has shown steady growth and the basis for a modern, technically up-to-date metallurgical industry created.

The following statistics show the growth of output in this industry:

⁵ The higher percentage for steel than for pig iron output is explained by the fact that large quantities of scrap iron were utilized.

INDUSTRY

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YEAR	IRON ORE	PIG IRON	million metric tons	
			STEEL INGOTS	ROLLED STEEL
1913	9.2	4.2	4.25	3.5
1922	0.2	0.2	—	—
1927	5.0	3.0	3.8	2.8
1928	6.0	3.4	4.3	3.5
1929	7.8	4.3	4.9	3.9
1930	10.4	5.0	5.8	5.0
1931	10.9	4.9	5.4	4.1
1932	12.2	6.2	5.9	4.2
1933	15.1	7.2	6.9	4.9
1934 (prelm.)	21.7	10.4	9.6	6.7
1937 (prog.)	34.0	16.0	17.0	13.0

During the years 1928–1932 output of iron ore more than doubled, that of pig iron increased by 82 per cent and that of steel by 37 per cent. In 1933 there were further increases—of 25.2, 17.8 and 17.5 per cent, respectively. Output of rolled shapes has lagged somewhat behind. Nevertheless, it showed an increase of 40 per cent from 1928 to 1933. In 1934 pig iron production was 47 per cent greater than in 1933 and steel recorded an increase of 40.1 per cent. Rolled steel production increased by 36.7 per cent and iron ore recorded a rise of 49.6 per cent. These exceptionally large increases were due mainly to the putting in operation of many new installations. Output of rails totaled 786,000 tons in 1934 as compared with 426,900 tons in 1932.

During the first Five-Year Plan the character of the output of the iron and steel industry underwent a radical change in the direction of a far larger proportion of high-grade products—special steels, alloys, and complex structural shapes for the automobile, tractor, and aviation industries. In 1927–28 the output of special steels amounted to only 70,000 tons, confined to tool steels, such as carbon steel for saws, axes, etc. In 1932 the output of special steels rose to 555,000 tons, including structural chrome, chrome-nickel, chrome-molybdenum and chrome-vanadium steel, sheet steel for transformers, stainless steel, heat-resisting steel, manganese and silicon steels, etc. Pro-

duction of ferroalloys was begun in 1931, and output at the new Cheliabinsk ferroalloy plant in 1932 reached 14,000 tons of ferrosilicon and about 2,000 tons of ferrochrome.⁶ Successful experimental smelting of ferrotungsten and ferrovandium is reported. The production of super-hard alloys has been developed. Output of ferroalloys produced in electric furnaces rose from 15,500 tons in 1932 to 22,300 tons in 1933 and 67,000 tons in 1934. In 1932 about 115,000 tons, or 2 per cent of the total output of steel, were smelted in electric furnaces. In Germany this percentage does not exceed 1.1, and in the United States 1.5. Production of electro-furnace and crucible steels totaled 169,600 tons in 1933, while output of electro-steel in 1934 rose to 287,000 tons.

Investments in the iron and steel industry during the first Five-Year Plan period totaled 2.7 billion rubles, and those in the iron ore mining industry 284 million rubles, as against the 2.5 billion and 240 million rubles scheduled in the Five-Year Plan program. As a result of the construction work carried out under the first Five-Year Plan the basic capital of the iron and steel industry has doubled. During the four and one-quarter years covered by the Plan 40 blast furnaces (including 17 new furnaces) were blown in, with a total volume of 18,000 cubic meters and an annual capacity of 4.3 million tons of pig iron; 66 open-hearth furnaces (including 45 new ones), with a hearth area of 1,800 square meters and an annual capacity of 2 million tons of steel; one Thomas (Bessemer process) works with four converters, having a capacity of 360,000 tons of steel per year; 27 rolling mills (including 15 new mills, two of which are pipe-rolling mills), with an annual capacity of about 1.4 million tons of rolled steel.

⁶ The new Zaporozhye ferroalloy plant will have an annual output of 80,000 tons of ferromanganese and 20,000 tons of ferrosilicon, to be produced in electric furnaces using cheap power from Dnieproges. The new Zestafony works under construction in Georgia will have a capacity of 150,000 tons of ferromanganese.

By January 1, 1933, there were in operation 103 blast furnaces, with a total volume of 36,913 cu. meters, and 296 open-hearth furnaces, with a total hearth area of 6,701 sq. meters. This compared with 69 blast furnaces, with a volume of 20,000 cu. meters, and 202 open-hearth furnaces, with a hearth area of 4,630 sq. meters, at the beginning of the Five-Year Plan period. Eleven out of the seventeen new blast furnaces are high-power, fully mechanized units, on the technical level of the best American furnaces. Two of the new furnaces have a volume of over 1,000 cu. meters each, one over 900 cu. meters, five over 800, one over 700 and five over 600 cu. meters. Prior to the first Five-Year Plan period the U.S.S.R. had no fully mechanized blast furnaces, and none exceeding 700 cu. meters in volume. Almost all the newly built open-hearth furnaces are mechanized, having charging machines and powerful ladle cranes. Three of the new furnaces have a daily capacity of 150 tons each (at the Kuznetz mill), one of 100 tons, and about fifteen with capacities of from 60 to 75 tons each. The first four open-hearth furnaces at Magnitogorsk, which started operations in 1933, have a daily output capacity of 150 tons each. The annual capacity of the blast furnaces recorded an increase during the Five-Year Plan period amounting to over 4 million tons of pig iron, that of the steel-smelting furnaces an increase of 2.5 million tons, and that of the rolling mills also about 2.5 million tons. This meant a doubling of capacity as regards pig iron, and an increase in capacity of approximately 50 per cent as regards steel. A further increase in capacity of 1.8 million tons for pig iron and 1.5 million tons for steel was attained during 1933, when 7 new blast furnaces, 26 open-hearth furnaces, 13 electro-furnaces and a dozen blooming and rolling mills were brought into operation. In 1934, seven blast furnaces and 18 open-hearth furnaces were completed.

The new furnaces and rolling mills were installed at old and newly constructed plants. Outstanding among the new steel mills are those at Kuznetz and Magnitogorsk, constituting the basic units in the great Ural-Kuznetz combine. Prior to the first Five-Year Plan the South was the only important metal-producing section, the ore deposits of the Urals and Siberia being left comparatively undeveloped. While the projected capacity of the new works was originally set by the Plan at 660,000 tons of pig iron for the Magnitogorsk mill and 330,000 tons for the Kuznetz mill, these plants are actually being built with an ultimate capacity of 2.7 and 1.2 million tons, respectively. By the end of 1934, completed construction work at the Kuznetz plant included four American-type blast furnaces of 828 cubic meters each, nine open-hearth furnaces, a powerful blooming mill, with a roll diameter of 1,150 mm. (46 in.), and a large rail and structural steel mill, fully electrified and mechanized, with a capacity of 650,000 tons of finished products per annum. By the same date at Magnitogorsk four blast furnaces, with a volume of 1,180 cu. m. each, the first eight open-hearth furnaces, each of 90,000 tons annual capacity, and four rolling mills out of a projected fifteen had started operations. One of the mills is the largest in Europe having a capacity of 180 tons per hour. There are also a 100,000-kw. power plant, four huge batteries of coke ovens, etc. Around both plants have sprung up complete cities with over 200,000 inhabitants each.

Not only has a new metallurgical base been created in the Ural-Kuznetz area, but the old center in the South has been greatly expanded by extensive construction and reconstruction work. Among the many old plants which have undergone radical reconstruction, involving the modernization of the entire plant and the addition of entirely new mechanized departments, are the following:

NAME	LOCATION	
	City	Region
Tomsky	Makeyevka	Ukraine
Dzerzhinsky	Kamenskoye	"
Voroshilov	Alchevsk	"
Petrovsky	Dniepropetrovsk	"
Stalino	Stalino	"
Rykov	Yenakievo	"
Ilyich	Mariupol	"
Andreyev	Taganrog	"
Voykov	Kerch	Crimea

The first open-hearth furnace of the Tomsky plant and the first Soviet-made blooming mill installed at the same plant started operations in June, 1933. The second Soviet-made blooming mill was installed at the Dzerzhinsky plant in July, 1933. These blooming mills each have an annual capacity of one million tons of rolled steel. The third Soviet-made blooming mill began operations at the Zlatoust plant in December, 1934. Its output is set at 250,000 tons of high grade steels annually.

In addition to the above-listed reconstructed plants, the following new mills are under construction in European Russia: Krivoy Rog, Zaporozhye (Dnieprostal), Mariupol (Azovstal), Lipetsk (Central Black Soil Region) and Tula (Moscow Region). The three first-named plants, all located in Southern Ukraine, will have, when completed, a combined annual capacity of 3.3 million tons of pig iron. The Zaporozhye plant is to be the largest in the world as regards high-grade steel output, its capacity being set at 1.5 million tons. Of its ten electrical furnaces seven were in operation by March, 1934, as well as two blast furnaces and four rolling mills. In February, 1934, the second blast furnace of the new Azov mill at Mariupol was blown in. The Azov mill, in addition to its blast-furnace, open-hearth furnace and rolling mill departments and its coke-chemical works, will have a large sintering and flotation plant. The latter is designed to utilize the Kerch vanadium-bearing

ores, with an estimated annual output of 500 tons of pure vanadium. This is approximately half of the total world production of this rare metal, important in the manufacture of high-grade steel. The 115th blast furnace in the U.S.S.R. was blown in at the Kuznetz plant in December, 1934. At that time there were in operation 334 open-hearth furnaces.

American technical assistance was drawn upon in the construction of the new mills, the most important contracts being that with Arthur G. McKee & Company of Cleveland for aid in the construction of the Magnitogorsk mill and that with the Freyn Engineering Company of Chicago for technical assistance in the construction of the Kuznetz mill and in the designing and reorganization of other plants in various parts of the country.

The raw material base of the iron and steel industry was considerably increased during the period of the first Five-Year Plan, as a result of the discovery of new iron ore deposits and the development of the iron ore industry. Known reserves of rich iron ore mounted from 6.2 billion tons on January 1, 1929, to 9.5 billion tons on January 1, 1933, a growth of 50 per cent. Old mines were reconstructed, new mines sunk and a number of concentration works built. Ten mines in the Krivoy Rog district have undergone thoroughgoing reconstruction, and have been equipped with modern hoists, crushers, sorters, etc. Stopping of ore has been mechanized 100 per cent, loading 50 per cent, haulage from place of stopping 30 per cent and haulage to the surface 100 per cent. The mechanization of the old Ural ore mines, formerly employing antiquated methods, has likewise recently been undertaken. The new mine at Magnet Mountain, with reserves estimated at 450 million tons of rich iron ore, has been equipped throughout with modern machinery. During its first year of operation it produced 1.5 million tons of ore, and in 1933 3.1 million tons, or 50 per cent more

than the total output of all the old Ural mines taken together. This mine, which will have a capacity of 7 million tons a year, supplies ore for the Magnitogorsk and Stalinsk steel mills. Among other new mines which started operations during the first Five-Year Plan are those at Telbes and Temir-Tau in the Gorno-Shori iron ore district of West Siberia, which help to supply the Stalinsk mill, and those at the Kerch deposits in the Crimea which supply the Voykov works at Kerch and the new Azov mill at Mariupol. In 1933 mining operations were begun in several new districts, notably in Khalilovo (Middle Volga Region) and the Kursk (Central Black Soil Region).

During the course of the present five-year period the iron industry will be extensively developed. It is planned not only to complete the steel mills now under construction but to build a number of new plants. The latter will include the Bakal (Urals), Khalilovo, second Kuznetz and Far Eastern plants. These developments, together with improved operation of the new and reconstructed mills as the new technique is developed, are expected to result in raising output by the end of the second Five-Year Plan (1937) to 16, 17 and 13 million tons for pig iron, steel ingots and rolled steel, respectively. Production of iron pipe is scheduled to increase to 1,580,000 tons in 1937 as against 440,000 in 1932 and 520,000 in 1933.

The production of all branches of the industry is planned to show a twofold or greater growth. There will be especially large developments in rolled steel, particularly rails.

The total investments in the steel industry (including iron ore) will amount to 9.4 billion rubles as compared with three billion rubles during the first Five-Year Plan. To attain the scheduled output it is planned to put in operation during the period 45 blast furnaces, 164 open-hearth furnaces, 2 converter departments, 107 rolling mills (including 13 blooming mills), 13 pipe rolling mills, 14 pipe rolling and 4 pipe

welding departments, and a large number of pipe casting aggregates, electric furnaces, etc. By 1937 54 per cent of the total pig iron output, 55 per cent of steel and 48 per cent of rolled steel is expected to come from new equipment installed during the five years. About 200,000 tons of rolling-mill and pipe-rolling equipment will have to be supplied.

Besides completing the construction of the Ural-Kuznetz combine, a second eastern metallurgical base is to be erected—in Eastern Siberia. During the period over 40 per cent of the new furnaces are to be constructed in the eastern regions and by 1937, 40 per cent of the iron and steel is to come from that territory (as against 28 per cent of pig iron and 17 per cent of rolled steel in 1932).

Rapid advances are planned in the output of high-grade and electric steels and ferro-alloys. Production of high-grade steels is expected to increase from 555,000 tons in 1932 to 2,000,000 tons in 1937, and of electric steel from 115,000 to 600,000 tons.

The process of concentration of production in large plants will continue. By 1937 about 70 per cent of the total pig iron output is scheduled to come from mills of more than 600,000 tons annual capacity (as against 10.3 per cent in 1932) and there will be seven plants of over a million tons' capacity. In the United States 58 per cent of pig iron output came from mills of over 600,000 tons capacity in 1929 and there were 16 plants of over one million tons' capacity.

Production of iron ore is scheduled to rise from 12.1 million tons in 1932 to 34 million in 1937. By the end of the period 29.5 per cent of total output is expected to come from new deposits. Mines constructed or rebuilt during the first and second Five-Year Plans are to account for 78 per cent of total production by 1937. Capital investments in iron ore mining are expected to total one billion rubles in the five-year

period. Extensive mechanization is to be introduced and, by 1937, 85 per cent of the output is to be produced by mechanical means as compared with 35 per cent in 1932. The share of the Krivoy Rog (Ukraine) mines in total output is to be reduced from 65 to 47 per cent and that of the eastern, central and Crimean mines increased to 53 per cent. Many new agglomeration and treatment plans are to be erected.

MANGANESE

Prior to the war Russia was the largest producer of manganese in the world, its output amounting to more than half (54 per cent in 1913) of the world total. The ratio fell to 1 per cent in 1921, but in the following years increased steadily, reaching 38 per cent in 1926. In that year production totaled 1,334,000 tons, 7 per cent above the prewar figure (1,245,000 tons). Since 1926 production has been irregular, depending on world market conditions, inasmuch as a part of the output goes for export. Production figures are given in the table below:

MANGANESE ORE OUTPUT
(in thous. metric tons)

1913.....	1,245.0	1929.....	1,237.0
1922.....	103.0	1930.....	1,543.0
1924.....	459.0	1931.....	876.0
1926.....	1,334.0	1932.....	833.0
1927.....	1,109.0	1933.....	1,040.0
1928.....	710.0	1934 (prelim.).....	1,821.0
		1937 (prog.).....	2,700.0

The Chiatyry deposits in Georgia, Transcaucasia, are the most important in the world. The ore from these deposits is of high quality, containing from 52 to 55 per cent of metallic manganese. At present the domestic demand is supplied almost entirely by the Nikopol deposits of the Ukraine. However, with the development of the iron and steel industry in the Urals and Siberia, a more convenient source of supply for the new steel

mills of the Ural-Kuznetz area has become of vital importance. During the present five-year period, consequently, measures are being taken to develop the more recently discovered manganese deposits of the Urals, Bashkiria, Kazakstan and West Siberia. The Ukraine deposits are said to be ample to supply the needs of the steel mills of Southern Russia.

Total exports of manganese and those to the United States in 1913 and in recent years have been as follows:

YEAR	TOTAL EXPORTS		EXPORTS TO U.S.A.	
	(in metric tons)	(in thous. rubles)	(in metric tons)	(in thous. rubles)
1913	1,193,794	14,575	135,319 [†]	1,651
1926-27	784,686	24,090	214,527	7,152
1927-28	498,882	13,752	189,088	6,036
1929	1,037,122	20,440	401,361	9,176
1930	754,201	12,896	185,925	3,466
1931	741,705	9,774	217,567	3,585
1932	415,609	3,771	30,466	362
1933	655,007	4,512	93,452	724
1934	736,877	4,841	131,739	1,045

[†] Before the war considerable quantities of Russian manganese were re-exported to the United States from third countries, principally Germany. These exports are not included in the total given here.

Since 1886 Russia has been a leading supplier of manganese ore to the American market. In 1931-33 Soviet shipments made up from 40 to 50 per cent of total United States manganese imports.

During the second Five-Year Plan manganese output is scheduled to increase to 2,700,000 tons, a gain of 224 per cent. The Nikopol mines are to account for about 52 per cent of this total.

NONFERROUS METALS

Precious metals

Russia has always been a large producer of precious metals. There are gold, silver and platinum deposits in many parts of the country, particularly in Siberia, the Urals and the Caucasus.

Before the war the platinum deposits of the Urals gave Russia almost a world monopoly of that metal. The disorganization resulting from the world and civil wars brought about a sharp decline in the output of these metals, but in recent years production has increased considerably. The U.S.S.R. maintains first rank as a producer and exporter of platinum, and has risen to second place in gold output. Official figures on platinum production are not available since 1926, when output amounted to 92,700 troy ounces, or 55 per cent of world production (169,000 oz.). According to estimates cited in *Mineral Resources of the United States, 1930* (Part I, page 109), production in 1930 approximated 120,000 troy oz. The production and sale of silver, while still comparatively small in volume, are likewise on the increase.

As a gold producer the Soviet Union had by 1927 regained its prewar rank—fourth (after South Africa, the United States, and Canada). Output, however, was still less than half the 1913 figure, 1.96 million troy ounces, valued at \$40,000,000, and the share of the U.S.S.R. in total world gold production had fallen to 5.5 per cent, as against 8.6 per cent in 1913. During the succeeding period, that of the first Five-Year Plan, significant advances in developing the gold industry were made. By 1931 the 1927 production figure had been doubled and in 1932 a further increase of 17 per cent was recorded, bringing output to approximately the prewar level. According to a statement made by Joseph V. Stalin in a recent interview, production in 1933 reached over 100 million gold rubles (\$51,460,000 at old par; \$87,130,000 at new par). In the year 1934 output was nearly 50 per cent above that of 1933.

Whereas the total capital invested in the gold industry before the war amounted to only about 100 million rubles, during the four and one-quarter years of the first Five-Year Plan approximately 500 million rubles were invested in this industry by

the Soviet Government. These investments were applied to extensive geological and other research work, the opening up of new mines, the improvement of transportation facilities (road, water, rail and air), and the introduction of mechanized production in both placer and vein mining. In 1932 over 43 and in 1933 over 70 per cent of the total output was obtained by mechanical extraction, as against about 25 per cent prior to the war. By 1933 there were 16 electric dredges at work in the gold fields, as compared with one in 1928; altogether there were 85 steam and electric dredges, three times the number in 1928. In 1932 Soviet plants began the manufacture of dredges and other gold-mining equipment, but the supply of machinery and equipment is still inadequate.

During the period of the second Five-Year Plan scores of additional dredges, excavators, crushers, drills and scrapers, as well as a great deal of hydraulic machinery, will be required. Domestic production of gold-mining machinery is to be expanded, but it is expected that this will need to be supplemented by a considerable volume of imports. The aim is to raise the share of mechanized production to 85 per cent by 1937 and to increase the output to a point where the Soviet Union will approach the level of the Transvaal (South Africa), which now occupies first place in world gold production.

Copper, Lead and Zinc

As regards nonferrous metals, prewar production was very limited. Pre-war Russia produced only two per cent of the lead and 55 per cent of the copper consumed, while many metals, such as nickel, tin and aluminum, were not produced at all—this despite the fact that Russia has considerable reserves of ores containing these metals. As a result of the world and civil wars, some of the principal nonferrous metal plants were destroyed and several others were located in regions which

formed part of the territories taken over by Poland and Turkey. Production was brought practically to a standstill. During the first years of the reconstruction period, 1922-1925, only two small smelting plants were in operation, the Kalata copper plant in the Urals and the Alagir zinc and lead plant in the North Caucasus. Beginning with 1925 other old plants, such as the Karabash and Kalata copper-smelting plants in the Urals, were reconstructed, and production was gradually increased until in 1928 output of zinc and copper approximated and that of lead doubled the prewar figure.

During the period of the first Five-Year Plan considerable sums were invested in the construction of new plants for the smelting of copper, lead, and zinc and in the further reconstruction of old plants. In the copper industry alone capital investments during the four and a quarter years totaled 240 million rubles; in the zinc and lead industries 158 million rubles. Among the principal new plants completed or still under construction are the following:

COPPER	DATE OF COMPLETION (<i>actual or scheduled</i>)	LOCATION	ULTIMATE ANNUAL CAPACITY (<i>metric tons</i>)
Lake Balkhash	1st section 1936-37	Eastern Kazakstan	100,000
Pyshma electrolytic copper plant	partial 1934	Urals	100,000
Krasnoural	1st section, 1931	Urals	40,000
Central Ural	1938	Urals	50,000
LEAD AND ZINC			
Ridder lead and zinc plant	1st section, 1928 2d section, 1932	Altai Mountains, Kazakstan	50,000
Alagir lead and zinc plant (exten- sively reconstructed)	1932	North Caucasus	15,000
Chimkent lead plant	1st section, 1934	Kazakstan	60,000
Tetukhe lead plant (formerly British concession)	1930	Far Eastern Region	15,000

COPPER	DATE OF COMPLETION (<i>actual or scheduled</i>)	LOCATION	ULTIMATE ANNUAL CAPACITY (<i>metric tons</i>)
Cheliabinsk electro-lytic zinc plant	1st section, 1933-34	Urals	40,000
Kemerovo electro-lytic zinc plant	1937	Kuznetz Basin	50,000
Ordzhonikidze electro-lytic zinc plant	1934	North Caucasus	
Konstantinovka zinc distillation plant	partial 1931-32	Ukraine	12,000
Belovsk zinc distillation plant	partial 1931-32	West Siberia	12,000

During the first Five-Year Plan period a number of flotation plants and reverberatory furnaces were built at old plants, making it possible to utilize low-grade as well as rich ore and to extract a larger percentage of the metal. Formerly the rich ore was picked out and smelted in muffle furnaces; in 1932 half of the copper ore was smelted in reverberatory furnaces. The extensive construction and reconstruction work carried out resulted in a marked increase in output. Production data for recent years as compared with 1927-28 and 1913 are given below:

	1913 ^a	1927-28	1932 (<i>in metric tons</i>)	1933	1934
Copper	27,000	29,000	46,600	45,300	53,600
Zinc	2,947	2,246 ^b	13,656 ^b	16,620 ^b	27,055 ^b
Lead	1,520	2,164	18,664	13,700	28,000

^a Refers to territory now within the U.S.S.R.

^b Zinc concentrates.

By 1932 output of copper was 78 per cent above the prewar level, while that of zinc and lead was, respectively, five and fourteen times the 1913 figure. The gains during the Five-Year Plan period alone amounted to 65 per cent for copper and 558 and 762 per cent for zinc and lead. Despite this marked progress, production fell far short of the Five-Year Plan schedules. This was due to a number of circumstances,

chief of which were: First; the fact that in pre-war times many of the enterprises in the industry were largely owned and operated by foreigners whose withdrawal resulted in an extreme shortage of engineers and technicians skilled in this particular field. Second; retardation of the construction program led to many of the new plants either not being completed during the five-year period or being completed too late to produce any substantial effect on output prior to the second Five-Year Plan period. Third; the plants which were operating were not adequately and regularly supplied with ore due to slowness in developing the recently discovered deposits of copper, lead and zinc. Considerable progress, however, has been made in overcoming these difficulties. In 1934, as shown above, production of copper, lead and zinc recorded gains of 18.1 102.7 and 54.6 per cent, respectively, over the previous year.

In addition to deposits previously exploited, located principally in the Urals and the North Caucasus, many of the new deposits which have been discovered (in Kazakstan, Central Asia, Middle Volga Region) are now being brought under development. Of outstanding importance among recently discovered copper deposits are those at Kounrad, north of Lake Balkhash, and at Blyava in the Middle Volga Region. The former are estimated to contain 1.6 million tons of metallic copper, and are expected to provide ore at the rate of 20 million tons a year for the great Balkhash copper smelting plant, which will rank among the world's largest. Preliminary construction work at this plant began in 1932, and the first section is scheduled for completion in 1936 or 1937. A new railway connecting the plant with the Karaganda coal fields is under construction.

Southern Kazakstan and Central Asia are reported to abound in lead and zinc-lead deposits. In addition to the Ridder mines already under exploitation, many new deposits are

being developed. In August 1933 the discovery was announced of immense deposits of ore bearing copper, gold, silver and platinum, near Blyava in the Middle Volga Region. The fact that the deposits are located near the center of the country and immediately adjacent to railroads should greatly facilitate this development. Steps have been taken to bring them under exploitation as soon as possible.

The great development of electrification, the growth of consumers' goods industries and the needs of national defense will necessitate a rapid expansion of the non-ferrous metals industries. Output of copper, lead and zinc is to increase to 135,000, 117,000 and 90,000 tons, respectively. Production of the latter two metals is to show a sixfold growth while that of copper is to be almost trebled.

The expansion of production is to come primarily from the enlargement of existing plants or the completion of those started during the preceding period. The capacity of copper smelters is planned to increase to 207,000 tons by the end of 1937, as against 109,000 on Jan. 1, 1933. Capital investments in all branches of the non-ferrous metals industries will total 3.8 billion rubles from 1932 to 1937.

Other Nonferrous Metals

In addition to copper, zinc, and lead a number of metals formerly not produced at all, such as aluminum, mercury, tin, nickel, tungsten, magnesium and molybdenum are now being produced in small quantities. Production of the rare metals cadmium, tantalum, gallium, titanium and vanadium was begun in 1932. The first nickel plant at Ufaley in the Urals began operations in 1933. It has an initial capacity of 3,000 tons, to be expanded by 1937 to 5,000 tons. In 1934, output of the Soviet nickel industry totaled 836 tons. The Nikitovka (Ukraine) mercury mines produced 70,000 tons of mercury in 1932,

eliminating the necessity of imports for the first time in the country's history. In 1933 new mines were sunk and a concentration mill was under construction. By 1937 mercury output is expected to reach 400,000 tons a year, an amount considered ample to supply the needs of Soviet industries and leave a surplus for export. Production of tungsten concentrates is scheduled to increase sevenfold and that of molybdenum concentrates 30 times. The principal deposits are in the Transbaikal district, Transcaucasia and Central Asia.

The growing domestic demand for aluminum, especially for use in the manufacture of automobiles and airplanes, led to the creation of a Soviet aluminum industry. A small experimental plant was built in Leningrad, which produced the first Soviet aluminum in May, 1930. Construction was then begun of a large factory, the Volkhov aluminum plant, near Leningrad. This plant, completed in May, 1932, is said to equal in capacity and compare favorably in equipment with the best European aluminum plants. Its present annual capacity is 6,000 tons, but plans call for the further expansion of the plant to double this capacity. A second and even larger plant was opened at Zaporozhye (Ukraine), near the Dnieper power plant, in June, 1933. Its initial capacity is set at 20,000 tons, to be increased to 40,000 by 1937. Since aluminum production requires immense quantities of electric power, both these plants have been built near hydroelectric stations, which provide the cheapest energy. Production of aluminum has increased rapidly; output in 1934 totaled 14,400 tons, as compared with 4,400 tons in 1933, a gain of 225 per cent.

At the beginning of the first Five-Year Plan only one deposit of bauxite, the basic raw material for the aluminum industry, was known in the Soviet Union, that located in the Tikhvin district, east of Leningrad. Since this bauxite is of low quality, containing over 10 per cent silicate, it was necessary to

work out a special process for the extraction of aluminum oxide from it. More recently deposits of rich bauxites were discovered in the Urals—in the Nadezhdinsk, Alapaev and Cheliabinsk districts. The Nadezhdinsk deposits are reported to be of specially high grade and are estimated to contain 4 million tons of ore. Total deposits in the Urals are estimated at 9 million tons; the Tikhvin deposits at 4.5 million tons. While the known reserves of bauxite are sufficient to supply the Volkhov and Dnieper aluminum plants for a considerable period of time, they are not considered adequate for the future development of the industry. Measures are consequently being taken to develop methods of obtaining aluminum oxide from other available raw materials, such as alunite, kaolin, nephelite and certain types of clay, of which the U.S.S.R. has reserves totaling hundreds of millions of tons and which contain a considerable percentage of aluminum oxide. An experimental plant has been built at Gandzha, in Azerbaidzhan, which will operate on alunite ore. Preliminary work has been begun on the construction of a third large plant near Kamensk, a town 120 miles southeast of Sverdlovsk in the Urals, while several other plants are scheduled for completion by the end of the second Five-Year Plan period. By 1937 the Soviet Union expects to rank among the leading countries of the world in respect to aluminum production, the program calling for an output of 80,000 tons.

In order to develop additional production of aluminum oxide, which is required not only for the aluminum industry but also for the manufacture of abrasives, there is now being erected an alumina plant at Kandalaksha, which will work up the nepheline tailings obtained from the refining of the Khibinsk apatite-nepheline ores. This is to have a capacity of 20,000 tons. An 8,000-ton aluminum plant is to be built, using water power from the dams of the White Sea-Baltic Canal.

The production of nonferrous metals during the first Five-Year Plan period fell below the requirements of the domestic market. The electrical industry alone, the output of which was several times as great as before the war, required huge quantities of these metals. The rapid growth in the machine-building and chemical industries likewise greatly increased the demand for nonferrous metals. To make up the deficit in domestic output it was, therefore, necessary to import considerable quantities of nonferrous metals annually, as is shown below:

	1929	1930	1931	1932	1933
	<i>(in thousand rubles)</i>				
Copper.....	19,981	12,956	10,573	4,400	2,150
Lead	10,508	10,018	5,824	3,903	1,377
Zinc	9,603	8,269	3,790	1,417	675
Tin	10,649	7,888	5,123	4,819	5,410
Aluminum	6,303	9,073	15,658	7,609	6,842
Nickel	1,604	4,388	6,220	6,558	4,887
Miscellaneous	904	1,375	2,081	562	391
Total	59,552	53,967	49,269	29,268	21,732

A number of American firms and individual specialists have rendered technical aid to the nonferrous metals industry.

MACHINE BUILDING

It is in the manufacture of machinery that Soviet industry has recorded the most outstanding progress. From one of the most backward countries in this field it has risen to a leading position. Total output of machinery (including electrical equipment) in 1934 amounted to 9.83 billion rubles,¹⁰ five times the 1928 level. The ravages of the world and civil wars had brought production in the years 1920-1922 down to only about one-sixth of the pre-war level, *i.e.*, to less than 120 million rubles.

¹⁰ This includes only output by the Commissariat for Heavy Industry. Adding machinery, equipment and vehicles produced by other state organizations and by cooperatives, a total of 13.4 billion rubles is obtained for 1934 as compared with 10.8 billion rubles in 1933, a gain of 24 per cent.

The machine-building industry was recognized by government authorities as a key industry in the industrialization of the country and the socialization of agriculture. Consequently, in outlining the program for this industry under the Five-Year Plan, a high production schedule was set, namely, the attainment by 1932-33 of an output valued at 4,688 million rubles, an increase over the 1928 level of more than 150 per cent. But the actual results surpassed these estimates, the Five-Year Plan scheduled for the final year being exceeded in 1932 by 55 per cent and in 1933 by 77 per cent. The table below gives the schedules, for the period 1929-1933:

	FIVE-YEAR PLAN SCHEDULES <i>(in mill. rubles, at 1926-27 prices)</i>	ACTUAL PRODUCTION	PER CENT FULFILLMENT
1929	1,833	2,488.6	135.8
1930	2,289	3,933.8	171.9
1931	2,796	5,889.5	210.6
1932	3,548	7,252.0	207.0
1933	4,688	8,281.0	176.6

Production of the machine-building and metal working industry constituted 27 per cent of the total output of large-scale industry in 1934, as compared with 11 per cent in 1913 and 15 per cent in 1929.

Among the new branches of the industry, unknown to pre-war Russia, are: automobiles, tractors, combines, airplanes and aviation equipment, mining and metallurgical equipment (including blooming and rolling mills), chemical apparatus, refrigerating equipment, complicated machine tools and printing and office machinery (rotary presses, typesetters, typewriters, etc.). Both in these new branches and in the old branches the manufacture of new types of machinery and equipment formerly supplied exclusively through imports is constantly being introduced. The share of such new types, introduced since

the beginning of the first Five-Year Plan, in total machinery output rose from 20 per cent in 1930 to 73 per cent in 1934.

Nearly four billion rubles were invested in the industry during the first Five-Year Plan period. In pre-war Russia the production of machinery was carried on chiefly in small, poorly equipped plants; by the end of 1931 over 50 per cent of the workers engaged in the industry were employed in large plants having over 5,000 workers. The new enterprises produced about three-fourths of the total machinery output in 1932. Below are listed some of the principal new plants manufacturing power, industrial and transport equipment ¹¹:

NAME AND TYPE OF PLANT	LOCATION	PLANNED ANNUAL OUTPUT
Ural heavy machinery works (chiefly metallurgical equipment)	Sverdlovsk, Ural Region	100,000 tons
Kramatorsk heavy machinery plant (chiefly metallurgical equipment)	Ukraine	150,000 tons
Lugansk locomotive works	Ukraine	1,080 locomotives
Kharkov turbo-generator plant	Ukraine	1.5 mill. kw.
Moscow ball-bearing plant	Moscow	24-40 mill. bearings
Moscow machine-tool plant	Moscow	6,600 turret lathes
Gorky machine-tool plant	Gorky Region	6,700 milling machines
"Freser" milling machine plant	Moscow	65 mill. rubles
"Kalibr" precision instrument plant	Moscow	62 mill. rubles
Cheliabinsk abrasive plant	Ural Region	40 mill. rubles

The Ural and Kramatorsk machinery works, designed to manufacture equipment for the power, mining and metallurgical industries, each cover an area of hundreds of acres and cost over 200 million rubles each to construct. Both are only in partial operation at present. The Ural plant was opened officially on July 15, 1933, when it was adjudged ready to produce at least 60 per cent of its capacity output. Several de-

¹¹ New plants manufacturing automobiles, tractors and agricultural machinery are listed in subsequent sections.

partments of the Kramatorsk plant have been in operation since 1932; the entire first section, consisting of 13 large shops covering an area of almost 300 acres, was completed in August 1934. When operating at full capacity the Ural plant will turn out annually 4 blast furnaces of 1,000-1,250 tons capacity, 20 open hearth furnaces of 150 tons capacity each, 12 rolling mills (including 2 blooming mills), 50 gas generators and other equipment. The Kramatorsk plant will be able to turn out about 50 per cent more and is scheduled to produce half of the equipment required by the Soviet metallurgical industry. During the period of the second Five-Year Plan 300 million rubles more will be expended on the two plants to bring them up to about 75 per cent of capacity.

Each of the next three plants on the list—the Lugansk locomotive works, the Kharkov turbo-generator plant, and the Moscow ball-bearing plant—is among the largest of its kind in the world. The first section of the Lugansk works opened November 29, 1933. At full capacity it will produce 1,080 "FD"-type heavy freight locomotives, more than the combined capacity of all the other locomotive works in the U.S.S.R. Its boiler shop occupies an area of 25,680 sq. meters. The Kharkov turbo-generator plant started operations in January, 1934, and was scheduled to produce 20 million rubles' worth of equipment during 1934. It will manufacture turbo-generators of from 50,000 to 200,000 kw. each. The total cost of this plant was nearly 80 million rubles, while that of the Lugansk works was approximately 120 million rubles.

The first section of the Moscow ball-bearing works was completed in March, 1932, and the second section in November, 1933. The cost of constructing and equipping the plant came to 122 million rubles. It is equipped with a total of 5,000 machine tools, and its output at full capacity will be 24 million

bearings a year with a possible expansion to 40 million. By October 1933 the output of the first section already exceeded 600,000 bearings a month, of about 50 different types. With the completion of the second section the capacity of the works was increased threefold, and it was planned to manufacture 125 different types of bearings during 1934.

The above list embraces plants which are either in full or partial operation and does not include those under construction but not yet operating. Some of the largest of the latter are: the Siberian (Novosibirsk) machine-building plant (annual capacity—140 mill. rubles, chiefly mining equipment); the Ural excavator works, the Nizhni Tagil car-building plant (annual capacity—54,000 freight cars), the Kashira electric locomotive plant, the Orsk and Novocherkassk steam locomotive works, the Kazan passenger car factory, and the Kharkov machine-tool (drilling machines) plant. Among old plants which have undergone radical reconstruction are the "Red Putilov" (Leningrad) and "Red Proletarian" (Moscow machine-tool—turning lathes) plant. The extent of the reconstruction work may be gauged by the fact that the basic capital of twenty-three of the large reconstructed plants was doubled during the four years 1928-1932 and their output more than quadrupled.

In the four years 1931-1934 investments in the machine-building industry totaled 7.6 billion rubles. As a result, the basic capital increased from 2.35 billion rubles on January 1, 1931 to 6.17 billion on January 1, 1935. (This sum does not include plants still in the process of construction and not as yet productive).

Whereas in 1930 old machine-building plants still accounted for 80 per cent of the total output, reconstructed plants for six per cent and new factories for only 14 per cent, in 1933 newly completed plants produced 40 per cent of the greatly increased

output, reconstructed works—37 per cent and old plants—only 23 per cent.

The output of some of the most important products of the industrial and transport machinery industry¹² is given below:

ITEM	UNIT	1927-28	1929-30	1932	1933
<i>Industrial Machinery:</i>					
Machine tools	Number	1,783	7,062	17,666	18,027
Lathes	"	830	3,295	7,054	7,426
Drill presses	"	546	2,167	6,541	4,608
Coal-cutting machines	"	—	124	298	372
Machinery for textile industry	Mill. rubles	26.1	—	60.1	46.0
Machinery for food industry	"	16.7	—	60.8	—
<i>Transportation Equipment:</i>					
Steam locomotives (freight)	Number	320	564	679	748
Steam locomotives (passenger)	"	159	61	148	182
Freight cars (2 axle units)	"	10,612	19,427	20,866	22,800
Passenger cars	"	377	838	1,142	1,274
Street cars	"	468	—	974	939
<i>Road Building and Construction Equipment:</i>					
Rollers	"	—	505	315	463
Graders	"	97	769	1,161	1,693
Concrete mixers	"	25	720	1,089	492
Rock crushers	"	63	786	1,631	1,125
Excavators	"	—	—	84	116
<i>Miscellaneous Equipment:</i>					
Telephone apparatus	"	58,499	116,961	234,462	232,911
Radio apparatus	Mill. rubles	14.4	31.1	72.5	—
Pumps (power driven)	Number	6,604	19,824	41,355	44,130
Compressors	"	—	101	540	799
Motion picture projectors:					
Stationary	"	949	2,194	1,354	1,250
Portable	"	2,206	9,000	8,054	5,100
Sound apparatus	"	—	—	633	1,251
Surveyors' transits	"	1,955	3,665	5,456	5,178

¹² Exclusive of power plant machinery for which see section on *Electrotechnical Industry*.

Considerable increases in production of transport equipment were recorded during 1934. Production of main-line freight and passenger locomotives totaled 1,211 in 1934, an increase of 30 per cent. Freight car output (in two-axle units) amounted to 35,300 in 1934, a gain of 54 per cent. Production of railway passenger cars in 1934 totaled 1,490 cars, a rise of 17 per cent. Despite the increase in construction of rolling stock during the past several years, the transportation system is still unable to meet the rapidly growing requirements. To overcome this deficiency a government decision was announced in January, 1935, raising the schedule for freight car output for 1935 from 51,200 to 85,000, an increase of 141 per cent over the 1934 production.

Output of some of the other types of machinery and equipment in 1934 was as follows: machine tools—18,500, coal-cutters—466, excavators—325, stationary motion picture projectors—1,500, portable projectors—7,300, welding machines—6,764, radio receivers—70,000, radio tubes—2,700,000, industrial sewing machines—16,600, household sewing machines—261,000, typewriters—6,100, office machines—52,500.

Progress has also been made in numerous other branches of the industry, such as the manufacture of machinery for the oil industry (cracking and pipe-still equipment, etc.), coal industry, mercantile ship-building, etc. During the first Five-Year Plan 86 new ships were constructed for the merchant marine, with a total tonnage of over 200,000 tons, as compared with 9 ships (19,000 tons total tonnage) during the twelve years, 1905-1917. Electric welding is now being extensively employed in ship-building and other branches of the machine-building industry. Output of the marine shipbuilding industry amounted to 445 million rubles in 1934 as compared with 311

million in the previous year, an increase of 43 per cent. The production of self-propelled river vessels totaled 33,700 indicated horse-power in 1934, an increase of 55 per cent over 1933.

The Soviet Union has in the past several years built up a machine-building industry capable, it is claimed, of manufacturing practically every type of machinery and equipment. The share of machinery of domestic origin in all machinery installed increased from 35 per cent in 1913 to 90 per cent in 1932. Nevertheless, due to the tremendous demand for machinery occasioned by the extensive program of industrialization, the importation of machinery increased rapidly. The U.S.S.R. became one of the important machinery markets of the world, taking about one-fourth of total world exports in 1931. Machinery imports totaled close to \$175,000,000 in 1932, a slight decrease as compared with 1931, but an increase of 13 per cent as compared with 1930. In 1933-1934 they were reduced to less than half the 1932 total. The continued expansion of all branches of industry during the coming years may call for the importation of considerable quantities of industrial and transportation machinery and equipment to supplement domestic output.

Machine-Building—Agricultural

The Soviet Union now is a leader in the output of agricultural machinery. In 1932 there were 14,500 machine-tools in operation in the agricultural machinery industry of the U.S.S.R. Over two-thirds of these were installed during the period of the first Five-Year Plan. Output of agricultural machinery (including tractors) in 1932 reached 890.4 million rubles, over five times the 1928 production figure. Production, year by year, has been as follows:

	INCLUDING TRACTORS	EXCLUDING TRACTORS	TRACTOR-DRAWN
	<i>(in mill. rubles, 1926-27 prices)</i>		<i>(per cent of total)</i>
1913	55.0	55.0	—
1928	176.9	140.3 ¹³	2.6
1929	270.1	200.6 ¹³	5.7
1930	452.8	347.9 ¹³	15.0
1931	730.9	427.3	54.0
1932	890.4	412.0	84.0

¹³ Fiscal year ending September 30.

Of the total output—excluding tractors—in 1932, Glavselmash (Agricultural Machinery Trust) accounted for 348 million rubles. In 1933 production of Glavselmash rose to 370 million rubles, a gain of 6.3 per cent, and in 1934 amounted to 345 million.

In prewar times manufacture was limited solely to horse-drawn equipment and almost exclusively to the very simplest types of tools and implements, catering to the needs of small-scale agriculture. With the introduction and rapid development of large-scale agriculture—state and collective farms—there arose an ever-increasing demand for tractors and tractor-drawn machinery. The share of tractor-drawn machinery and tools in the total output of agricultural machinery (not including tractors) rose from 2.6 per cent in 1927-28 to 60 per cent in 1931 and 84 per cent in 1932. During 1931 and 1932 alone Soviet agricultural machinery plants began production of 130 new types of agricultural machinery, not only for grain crops but also for industrial crops, vegetables, etc. Some of these are types not manufactured elsewhere in the world. Among the latter are 45-foot combines, motorless combines, 35-foot hay-mowers, broad-swathe flax-pluckers, beet harvesters, rubber-bearing plant seeders, etc. Other types known abroad but new to Soviet manufacture include tractor plows and binders, potato-planting machines, cotton and corn sowing machines, beet and potato diggers, corn and cotton pickers, etc.

Production of many of these new types of agricultural machinery was not envisaged at the time the Five-Year Plan was drawn up. For almost all those types for which production schedules were set actual results exceeded the program. Thus, the schedule for output of tractor plows during the five years of the Plan was set at 134,700; actually production in four years reached 173,554. Similarly, for tractor seeders: plan for five years—61,900; output in four years—103,950; for tractor threshers: schedule for five years—28,900; output in four years—56,545.

The following table shows the output of the principal types of agricultural machinery in recent years:

ITEM	UNIT	1927-28	1929-30	1932	1933
Combines ¹⁴	Number	—	104	10,006	8,578
Windrowers	"	—	—	2,374	1,847
Threshers (grain)	"	4,463	12,391	16,013	12,891
Flax scutchers	"	—	—	7,810	497
Cotton picking machines (pneum.)	"	—	—	2,196	1,117
Reapers	"	116,935	179,497	25,360	43,107
Binders	"	500	3,551	12,342	9,143
Hay mowers (horse- drawn)	"	57,140	134,660	39,365	60,346
Hay mowers (tractor- drawn)	"	—	—	15,582	2,525
Plows, tractor-drawn (calculated in single units)	"	1,020	39,709	231,161	262,548
Plows, horse-drawn (calculated in single units)	"	1,293,241	2,288,341	47,716	80,305
Cultivators (tractor- drawn)	"	—	—	15,109	16,224
Cultivators (horse- drawn)	"	50,249	74,673	5,078	7,978
Ensilage-cutters	"	16	2,262	9,621	2,358
Seeders, grain (tractor-drawn)	"	562	17,783	20,893	11,868

¹⁴ Grain-combines only; in 1932 there were produced also 259 hay-combines, 265 cotton-combines and 258 beet-combines.

The year 1934 recorded further increases in the production of agricultural machinery. Production of tractor-drawn plows rose to 270,000 (calculated in single plowshares) and flax scutchers to 1,637. A total of 8,300 grain combines was produced. During the four-year period, 1931-1934, heavy industry furnished agriculture with 248,599 tractor-drawn plows, 893,055 plowshares, 455,616 horse plows, 95,533 tractor-drawn and 109,176 horse-drawn seeders, 3,531 cotton cultivators, 209,716 horse-drawn mowers, 30,424 combines, 99,825 simple reapers, 94,886 automatic reapers, 2,134 wide-flax scutchers, 7,257 maize pickers, 2,331 beet diggers, 61,758 tractor-drawn and 6,521 horse-drawn threshers, etc.

The bulk of the combines so far produced have been manufactured by the combine department of the "Kommunar" plant, which has a capacity of 10,000 combines a year. The Saratov works and the new combine department at the Rostov plant, when working at capacity, are designed to produce 15,000 combines each annually. This makes an ultimate capacity of 40,000 for the three plants now in operation. The Novosibirsk plant, now under construction, is scheduled to produce another 25,000 combines annually. During the first three years of its existence (1932-1934), the Saratov plant turned out 6,700 combines.

An important factor in the large increase in volume of output and in the variety and complexity of machines manufactured was the reorganization of the agricultural machine-building industry, involving the concentration and specialization of production. Whereas in prewar times there were over 700 small plants manufacturing agricultural machinery, production has now been concentrated in about 50 large mechanized enterprises, the majority of which specialize in certain particular types of equipment. The best of the old plants—"Red Putilov" in Leningrad, "Hammer and Sickle" in Kharkov, "Red Star"

in Kirovo, "Kommunar" in Zaporozhye, etc.—underwent reconstruction, which involved re-equipment with the most up-to-date machine tools, the construction of entirely new departments, such as the combine department of the "Kommunar" plant, reorganization of the process of production, and changes in types of machinery manufactured. In addition, a number of new plants were constructed, the principal ones being:

NAME AND TYPE OF PLANT	LOCATION	DATE OF
		COMPLETION (actual or scheduled)
Rostov agricultural machinery plant	Rostov-on-Don, North Caucasus	1931 (partial)
Saratov combine plant	Lower Volga Region	1931 (partial)
Gomel agricultural machinery plant	White Russia	1931
Siberian agricultural machinery and combine plant	Novosibirsk, Siberia	1932-33
Tashkent cotton machinery plant	Uzbekistan	1931 (partial)

The rapid progress in domestic production has resulted in a sharp decline in imports. In the early years of the first Five-Year Plan the domestic supply of agricultural machinery was supplemented by extensive imports from abroad, chiefly from the United States. In the past three years, however, such imports have practically ceased, as is shown in the table below:

	TOTAL IMPORTS		IMPORTS FROM THE U.S.	
	Tractors and parts	Other agricultural machinery and parts	Tractors and parts	Other agricultural machinery and parts
	<i>(in thous. rubles)</i>			
1929	34,847	28,302	32,462	7,445
1930	71,565	38,327	64,018	22,344
1931	79,627	26,287	78,767	19,385
1932	374	839	170	43
1933	2,387 ¹⁵	125	306	8

¹⁵ Practically all (2,240,000 rubles) for parts and accessories.

Tractors and Automobiles

Prewar Russia produced no tractors and only a few automobiles assembled from foreign parts. Now the Soviet Union leads in the manufacture of tractors, and is rapidly building up an automobile industry. In 1934 output of tractors totaled 94,418 and of automobiles 72,466, as against 1,449 and 839, respectively, in 1928. In 1934 tractor production increased by 20.9 per cent and automobile output by 45.9 per cent as compared with the preceding year. The output year by year has been as follows:

	TRACTORS	AUTOMOBILES	INCLUDING THOSE ASSEMBLED FROM FOREIGN PARTS
1928	1,449	839	—
1929	4,498	1,748	—
1930	12,597	3,340	8,525
1931	38,083	3,182	20,577
1932	50,600	23,886	25,412
1933	78,104	49,675	—
1934	94,418	72,466	—

Of the total automobile production in 1934, 55,366 machines were 1½, three and five-ton trucks, including also 755 buses and 761 fire trucks. The remainder consisted of light passenger cars. In the previous year, output of trucks totaled 39,467 machines, of which 344 were buses and 664, fire trucks.

By January 1, 1935, the new tractor industry had provided agriculture with 283,000 tractors. The greater part of these tractors were manufactured by the two new tractor plants at Stalingrad (Lower Volga Region) and Kharkov (Ukraine), which began operations in June, 1930, and October, 1931, respectively. Prior to their completion tractors were manufactured at the "Red Putilov" works in Leningrad. The latter is now starting to produce truck garden tractors, and also turns out tractor parts and tractor-drawn agricultural machinery.

The Stalingrad and Kharkov plants have been running at full capacity for some time (144 tractors each per day), their combined output now being 1.5 million hp. In June, 1933, the first section of the Cheliabinsk tractor works (Ural Region) started operations. When completed, it will have an annual capacity of 40,000 60-hp. caterpillar-type tractors, or a total horsepower capacity of 2.4 million. Its output in 1934 totaled approximately 10,100 tractors.

The Soviet automobile industry has the two largest automobile works in Europe, the Molotov plant in Gorky (formerly Nizhni Novgorod) and the Stalin (new AMO) plant in Moscow. These two plants accounted for 22,850 automobiles in 1932, the first full year of their operation, more than doubled this production in the following year, and are rapidly approaching their scheduled capacity—140,000 1½-ton trucks and passenger cars a year for the Gorky plant and 50,000 2½-ton trucks for the AMO plant. The Gorky works is one of the most important of the many large industrial plants constructed during the first Five-Year Plan period. It is modeled after the Ford plant at River Rouge, Mich. The AMO factory in Moscow underwent thorough reconstruction in 1930 and 1931 and is practically a new plant. In addition to these two large plants there is the reconstructed Yaroslavl plant, with an annual capacity of 4,000 trucks (chiefly 5-ton), and a number of assembly plants and special factories for the manufacture of automobile parts, such as the Samara carburetor plant (annual capacity: 535,000 carburetors) and the Ufa motor plant (annual capacity of first section: 100,000 motors). The AMO plant now manufactures buses as well as trucks. Motorcycles are produced at the "Red October" plant (Moscow) and at Kharkov, while the new Moscow bicycle plant attained an output of 6,000 velocipedes monthly by February, 1934. The output of bicycles amounted to 132,429 in 1933

and 280,000 in 1934. In the four-year period 1931-1934, 594,600 bicycles were produced.

At the beginning of the first Five-Year Plan period there were only 18,700 automobiles in the U.S.S.R., and these were practically all of foreign manufacture. By the end of the period (January 1, 1933) the number had grown to 73,000, about 70 per cent of which were of domestic manufacture. At the end of 1934 the number of cars totaled 179,500 (including 131,000 trucks). The majority of the cars imported or manufactured have been trucks. However, the manufacture of passenger cars is now being developed at the Gorky plant. In 1934, the plant increased its output of passenger cars to 17,100, a gain of 67 per cent over the previous year.

Present domestic production is still unable to meet the growing requirements of industry and agriculture, let alone the demand for cars for personal use. The Soviet Union, therefore, constitutes a big market for automobiles, parts and accessories. Imports of automobiles, motorcycles and parts during recent years, with the share supplied by the United States, is given in the table below:

	TOTAL	PER CENT	
		FROM U.S.A.	FROM U.S.A.
	<i>(in rubles)</i>		
1929	15,202	5,629	37.0
1930	26,448	19,406	73.4
1931	37,388	24,772	66.3
1932	8,268	5,903	71.4
1933	3,018	1,901	63.0

American equipment and engineering technique have played an important rôle in the development of the Soviet automotive industry. Among the technical assistance contracts made with American companies in the tractor and automobile industries the chief have been:

Austin Co.	Technical assistance contract to design the project and supervise the construction of the Gorky (Nizhni Novgorod) automobile plant and the adjoining workers' city.
Brown-Lipe Gear Co.	Technical assistance to the United Automobile and Tractor Industry.
The Electric Auto-lite Co.	Technical assistance to United Electric Industry in production of electric equipment for automobiles and tractors.
Ford Motor Co.	Technical assistance in the erection of the Gorky automobile plant and in the production of cars and trucks in this plant.
Hercules Motor Co.	Assistance in production of engines for automobile trucks.
Albert Kahn, Inc.	Technical assistance contracts for the designing of buildings for tractor and motor assembly plants.
Seiberling Rubber Co.	Designing and assistance in construction of a rubber tire plant at Yaroslavl, for Rezinotrest (Rubber Trust).
Timken-Detroit Axle Co.	Technical assistance to the United Automobile and Tractor industry in the production of axles.

Second Five-Year Plan of Machine Building

Great expansion is proposed for all branches of the machine building industry during the period of the second Five-Year Plan (1932-1937). The total output is expected to increase from 9.3 to 19.5 billion rubles during the five years, a gain of 107 per cent. Output of machine tools will increase from 15,000 machines in 1932 to 40,000 in 1937, and mass production of dozens of complicated machines never before manufactured in the Soviet Union are to be started. Production of heavy equipment for the chemical, metallurgical, oil refining and producing and other industries are scheduled to show a similar growth.

Output of textile machinery is to increase sixfold (from 60 to 350 million rubles). The output of twisters for various fibers, which were not produced at all in 1932, is scheduled to increase from 333 in 1933 to 6,500 and of looms from 444 in 1932 to 32,000 during the period.

Agricultural machinery output is to be increased more than $2\frac{1}{2}$ times. The output of combines is scheduled to rise from 10,000 in 1932 to 20,000 in 1937 and of tractor-drawn plows (calculated in single units) from 180,000 to 470,000. Tractor production is scheduled to increase to 88,500 machines with a total horse-power of 2,500,000. This is more than three times the capacity of the tractors produced in 1932. The average size of each tractor will be increased to 41 hp. and track-laying tractors (caterpillar type) will make up the greater part of the output. The Stalingrad plant will switch over to the production of track-laying machines, its final capacity to be 40,000 a year. The "Red Putilov" works will start the manufacture of special tractors for truck garden cultivation, with an output in 1937 of 10,000 units.

Railway equipment is scheduled to rise by 368 per cent (from 320 million rubles in 1932 to 1,500 million in 1937). The output of steam locomotives is to increase from 828 to 2,800; by 1937 the new types of heavy-duty freight and passenger engines, production of which was started in 1933, are to constitute over one-half of the total locomotive output. Construction of Diesel and electric locomotives is also scheduled to show rapid development. Freight car building is planned to increase (in two-axle units) from 22,200 in 1932 to 118,400 in 1937 and the average size of car will be increased from 29 to 47 tons. The production of railway passenger cars is to rise from 1,135 to 3,500.

Automobile output is scheduled to increase eightfold during the period, to 200,000 cars in 1937, 70 per cent of which will be trucks. Aside from the expansion of the existing plants (from a capacity of 92,000 cars in 1932 to 360,000 in 1937*), construction of several new plants is to be started.

* The discrepancy between the scheduled capacity at the end of 1937 and the production during the year is due to the fact that operation of the plants at full capacity will be attained only at a later date.

These include two factories to produce three-ton machines, with a capacity of 100,000 cars a year each, and two plants to produce 25,000 five-ton cars each. Altogether only five types of automobiles will be manufactured during the second Five-Year Plan. Later the capacity of the Gorky plant is to be increased to 300,000 cars a year and that of the AMO factory to 80,000.

Total capital investments in all branches of machine-building (including electrical equipment) will total 8.06 billion rubles, double those of the first Five-Year Plan. Of the total investments, 70 per cent will go for new construction, 17 per cent for expansion and reconstruction and 13 per cent for other purposes (capital repairs, etc.). During the preceding period 46 per cent of the outlays were for enlargement and rebuilding of old plants but this program has now been largely completed.

CHEMICAL INDUSTRY

In prewar Russia the chemical industry lagged even behind the generally backward industrial development. The country was almost completely dependent upon imports in this field, only a small number of chemical products being manufactured. Moreover, production was based largely upon imported raw materials. War and revolution resulted in practically a cessation of domestic production, which fell from 500 million rubles in 1913 to 25 million rubles in 1921. The new chemical industry has been built up in accordance with a unified plan and based upon the development and utilization of domestic raw materials and the employment of modern methods and equipment. By 1926-27 the prewar level of output had been regained and a foundation laid for the further development of the industry.

During the period of the first Five-Year Plan the Soviet chemical industry developed at a rapid pace. Output in 1932

amounted to 1.9 billion rubles, more than twice the 1928 output. For certain chemical products the increase was much greater, and many branches of the industry—synthetic nitrogen, coke by-products, aniline dyes, synthetic rubber, rayon, rosin and turpentine, synthetic resins, potassium salt, apatite, and many chemical-pharmaceutical products—were newly built up, having been entirely or almost entirely unknown in prewar Russia. Capital investments during the four years (1928-1932) totaled 1.46 billion rubles, considerably exceeding the schedule for five years (1.15 billion rubles). The largest share of the investments (about 70 per cent) were absorbed by new construction; the balance went for enlargement and reconstruction of old plants, housing, and research. Of the total basic capital of the industry at the end of 1932, over 80 per cent had been built or installed during the preceding four years.

Further increases were registered by the chemical industry during 1933 and 1934. Capital investments increased considerably—in the four-year period 1931-1934 they totaled 2.7 billion rubles. The value of production machinery in the chemical industry rose from 585 million rubles to 2.3 billion rubles during the four years. The gross output of the chemical industry under the supervision of the Commissariat for Heavy Industry in 1934 totaled 2.37 billion rubles, according to preliminary estimates, as compared with 1.62 billion rubles in 1933, a gain of 46 per cent.

First attention has been given to the manufacture of producers' goods—basic chemicals, coke by-products, paints and varnishes, aniline dyes, wood distillation by-products, etc. They now constitute almost two-thirds of the total output. Of the basic chemicals the largest share is taken by fertilizers, important in the agricultural development of the country. The creation of large-scale collectivized agriculture and the expansion of the

sown area has given rise to an immense growth in demand for mineral fertilizers. In 1934 the Soviet chemical industry supplied agriculture with over 2 million tons of fertilizers, as compared with 260,000 tons in 1928-29. In prewar Russia the output of fertilizers did not exceed 62,000 tons a year, and this was confined solely to superphosphates. By the year 1934 the production of superphosphates had increased to 849,000 tons, more than 12 times the prewar figure. In addition, there has been organized the production of potash and nitrogenous fertilizers, not produced at all in prewar Russia. Output of other basic chemicals has likewise recorded rapid growth, the 1934 production figures ranging from two to fifteen times the 1913 figures. The output of some of the more important products of the heavy chemical industry in the past few years, as compared with production in 1913, is shown in the table below:

	1913	1928	1932	1933	1934 (prelim.)
Superphosphates — 14% (in thous. tons)	62	182	614	708	890
Sulphuric acid (in thous. tons)	110	242	552	627	782
Calcined soda (in thous. tons)	154	230	285	330	400
Paints and varnishes (in mill. rubles)	13	60	103	83	89

Among other products of the heavy chemical and allied industries are: hydrochloric acid 18°B. (75,500 tons in 1931 and 73,100 tons in 1933); chrome ore (88,200 tons in 1931 and 109,400 tons in 1933); fluorspar (16,600 and 19,300 tons); sodium bicarbonate (22,300 and 21,800 tons); sodium sulphate (45,600 and 54,600 tons); sodium sulphide (20,800 and 24,600 tons); sodium bichromate (5,100 and 8,500 tons); calcium carbide (23,400 and 29,800 tons); aluminum sulphate (19,400 and 26,300 tons); barium chloride (6,800

and 7,500 tons); nitrogen fertilizers, in terms of ammonium sulphate (35,400 and 138,400 tons); aniline dyes (16,300 and 16,000 tons), and barytes (40,100 tons in 1931 and 31,400 tons in 1933).

During the first Five-Year Plan period a number of important raw material bases were discovered and development work commenced. The Soviet chemical industry is no longer dependent on imported raw materials. The Khibini apatite and nephelite deposits on the Kola Peninsula will provide abundant supplies of superphosphates. These concentrates are reported to compare favorably with the best Morocco phosphorites in quality. In addition, there are the phosphate deposits at Aktyubinsk (Kazakstan) and numerous other deposits of lesser extent. At Solikamsk (Urals) are potash deposits claimed to be the largest in the world and estimated to contain 22 billion tons of ore. The first potash mine, with an annual capacity of 1.5 million tons of potash salts, was opened there in November, 1932, and a second mine, of equal capacity, is under construction. These are the largest potash mines in the world. Output of the young potassium industry increased from 120,000 tons of crude potash in 1931 to 800,000 tons in 1933; output of 22 per cent sylvinite (potassium chloride) totaled 303,100 tons in 1933. Production of apatite ore increased from 387,000 tons in 1932 to 687,000 tons in 1933 (213,400 tons of concentrates) and 1,137,000 tons in 1934. The development of the Khibini and Solikamsk deposits has enabled the Soviet Union to start the exportation of potash and phosphates.

A basic constituent of nitrogenous fertilizers, synthetic ammonia, is obtained from coke, either coal or peat, of which the Soviet Union has large resources. Hydroelectric power resources are also to be utilized during the second Five-Year Plan for the manufacture of ammonia by the electrolytic method.

Ammonium sulphate, also valuable as a fertilizer, is to be ob-

tained from mirabilite, or Glauber's salt, of which immense deposits are located in the Gulf of Karabugaz on the eastern coast of the Caspian Sea. The Karabugaz mirabilite is exceptionally pure, being free from magnesium salts, and contains only 56 per cent water. Though existence of these deposits has been known for many years, their exploitation was undertaken only in recent years. Geological researches in the past three years have uncovered important sulphur deposits in Turkmenistan (Gaurdak) and in the Middle Volga region (Alekseyev and Vodinsk). Sulphur is also obtained from pyrites in two plants in the Urals. The output of mirabilite in 1933 totaled 448,200 tons as against 154,400 in 1931; of natural sodium sulphate—97,300 tons as compared with 28,200 in 1931; and of pyrites—465,800 tons in 1933 and 380,200 tons in 1931.

The Soviet Union is known to possess also substantial raw material resources for such products as dyes, synthetic rubber, methyl alcohol, etc. The same holds true for products of wood distillation and other branches of the chemical industry. Raw materials for sulphuric acid manufacture and nitrogen fixation are provided by the waste products of the growing metallurgical industry. About 80 per cent of the entire present output of the chemical industry is based on the working up in one form or another of the products of the fuel and metallurgical industries. The Soviet chemical industry has successfully utilized low-grade fuels—brown coal, peat, schist, etc. The Moscow and Ural brown coal, formerly considered of little value, yields an abundance of pyrites, a raw material for sulphuric acid imported from abroad in prewar days. Output of the aniline dye industry totaled 136.6 million rubles in 1934 as against 97 million in 1933.

While the main emphasis has been placed upon that group of chemical enterprises manufacturing producers' goods, marked progress has also been made in the manufacture of rubber

articles, consumers' goods, medicines, soaps and cosmetics, photo chemicals, etc. Production of the latter products in 1932 was nearly two and one-half times as large as in 1928. This is exclusive of the new rubber goods plant at Yaroslavl, which started operations at the end of 1932 and is designed to produce more than six million automobile tires annually, 35,000 tons of asbestos goods, 25,000 tons of rubber soles and other rubber goods to a total value of about 900 million rubles.

Output of soap increased from 183,600 tons in 1928 to 376,300 tons in 1934. The pharmaceutical industry doubled its production during the first Five-Year Plan. This involved the manufacture of 300 new products, including morphine, codein, aspirin, phenacetin, veronal, chloroform, ether, iodine, etc. In addition the production of some 400 reagents has been mastered. Production of drugs and medicaments totaled 48,000,000 rubles in 1933 which is still, however, far below the demand. Output of some of the important products in this group in 1933 totaled (in tons): bromine—142, iodine—62, mercury preparations—53, salicylic preparations—448, bismuth preparations—10, alkaloids—36, ether—67, and barium sulphate—78 tons. Output of chemicals for destroying insect pests and fungi rose from 15,800 tons in 1931 to 30,000 tons in 1934.

Production of the photo-chemical industry has been as follows in the past few years:

ITEM	UNIT	1927-28	1931	1933
Photographic plates	thous. sq. meters	162	669	647
Photographic paper	" " "	236	3,399	3,130
Moving picture film	thous. lin. meters	—	1,398	30,658

Advances have been made in the development of the rubber manufacturing industry from the semi-handicraft industry of prewar days, producing chiefly rubber shoes, toys, etc., to a large-scale industry manufacturing not only consumers' goods but goods for the automobile industry (tires, tubes, etc.).

Domestic sources of raw materials have been recently developed, both as regards the cultivation of native rubber-bearing plants (tau-sagiz, Krim-sagiz, etc.) and the organization of synthetic rubber production. The discoveries of Soviet scientists in working out processes for the manufacture of synthetic rubber have enabled the U.S.S.R. to become a pioneer in the production of synthetic rubber on a large-scale factory basis. Two large plants started operations in 1932, at Yaroslavl and Voronezh, a third in 1933 (Efremov) and two others are in course of construction. The manufacture of this rubber involves a difficult and complicated chemical process starting from ethylene, which is obtained from alcohol or coal-tar products. Output of synthetic rubber in 1934 totaled 11,200 tons. Other important developments in the field of synthetic production include synthetic solvents, rosins, varnishes, acetic acid, etc.

Output of rubber tires in the U.S.S.R. in 1933 totaled 705,000, representing a gain of 27.7 per cent over 1932. In 1934 production, totaling 1,500,000 tires, more than doubled. Production of rubber shoes increased from 37,500,000 pairs in 1928 to 61,600,000 in 1933 and 65,000,000 pairs in 1934.

The Soviet rayon industry was created during the first Five-Year Plan period. In prewar Russia there was only one small factory which produced about 100 tons annually. By the end of 1932 two large modern mills had started operations, a third was completed early in 1933, and others are in process of construction. Output in 1934 totaled 5,430 tons as against 600 tons in 1930.

Below are listed some of the more important of the many new large modern chemical works or combines which have been wholly or partially completed during the past five years.

Urals—Berezniky (2 sections; 300,000 tons capacity each; largely high-grade fertilizers—nitrogen, phosphorus, and po-

tassium); Magnitogorsk (largest by-product coking plant in Europe; also plants manufacturing sulphuric acid, ammonia, phosphates, etc.); Asha, near Sverdlovsk (large wood distillation plant).

Central District—Yegorievsk (superphosphates, ammonium phosphate, and nitrates); Voskresensk sulphuric acid plant, with an annual capacity of 160,000 to 240,000 tons; also plants to produce several hundred thousand tons of phosphates and superphosphates; Yaroslavl (largest paint and varnish plant in the U.S.S.R.); Yaroslavl rubber-asbestos combine; Bobriky electrochemical combine, to manufacture all kinds of chemical products—Output of fertilizers alone to total over half a million tons. The first section of the Bobriky combine, now renamed Stalinogorsk, cost over 300 million rubles to construct and was officially opened in December, 1933. The entire combine comprises 110 industrial units, a planned city, and many auxiliary buildings.

The raw materials base is the Moscow coal basin. Formerly it was believed that this coal was of too low a grade for profitable exploitation, being mixed with clay rock and gravel and containing a high percentage of ash and sulphur, as well as considerable moisture. However, these obstacles are reported to have been overcome: a method of obtaining synthetic ammonia from the coal is reported to have been devised, a technique of coking with an admixture of Don coal worked out, and ways of utilizing the clay, pyrites and gypsum met with in mining the coal for the production of fire brick, sulphuric acid and other valuable products perfected.

A new town of 40,000 people has been built around Bobriky. Schools attended by 9,300 children are functioning, as well as a chemical technical institute with 1,500 students.

Ukraine—Dnieper coke and chemical plant; Slaviansk soda plant; Kharkov coke by-product plant.

Northwestern District—Neva combine, in Leningrad; Kandalaksha plant, northern Karelia (to work up big deposits of apatite, nepheline, etc.); the Khibini mines now produce 1,000,000 tons of apatite a year and an industrial center of 40,000 population has been developed near them.

Central Asia and Kazakstan—Aktyubinsk, in Kazakstan (mineral fertilizers for cotton districts); Chirchik River plant, in Uzbekistan (to produce 150,000 tons of nitrogenous fertilizers a year, half the requirements of the cotton districts in Central Asia). The construction of this plant is associated with that of a large hydro-electric project.

In the development of the chemical industry scientific research work has played a leading rôle. More than fifty technical institutes have been founded, employing over 10,000 scientifically trained men and women. Among the more important of these are the Karpov Institute, the Nitrogen Institute, the Institute of Applied Chemistry, and the Chemical-Pharmaceutical Institute. The Soviet Union, in addition to its own qualified chemists and technicians, has employed many foreign experts. Among the American firms which have rendered technical assistance to the Soviet chemical and rubber industries are: the Koppers Construction Company of Pittsburgh, Pa. (technical assistance in designing and installing coke ovens); the Nitrogen Engineering Corporation of New York (technical assistance in the direction and starting of operations of the synthetic ammonia plants at Berezniky and Bobriky); the Du Pont de Nemours Company of Wilmington, Del. (technical assistance in erecting fertilizer plants); the Westvaco Chlorine Products Co., Inc. of South Charleston, W. Va. (technical assistance in the production of chlorine and caustic soda); Seiberling Rubber Company of Akron, Ohio (technical assistance in the design and construction of the Yaroslavl tire plant; and the Akron Rubber Reclaiming Company of Bar-

berton, Ohio (technical assistance in the construction of a reclamation plant). In addition to these firms, a number of prominent American chemists have served as consultants to the Soviet chemical industry.

A considerable part of the machinery imported for the equipment of the new Soviet chemical plants came from the United States (\$2,250,000 in 1929 and 1930). However, the largest share was imported from Germany.

The carrying out of the program of the second Five-Year Plan is expected to place the Soviet Union among the world's leading producers of chemical products. As regards fertilizers, output is scheduled to increase tenfold. Emphasis is to be placed upon the production of concentrated and mixed fertilizers, which besides being the most effective in raising yields are less bulky and consequently more easily transported.

The output of the chemical industry as a whole is scheduled to show a threefold increase—from 1.9 billion rubles in 1932 to 5.5 billion in 1937. An especially large gain is planned for basic chemicals (5 times). Output of sulphuric acid is planned to increase from 495,000 tons in 1932 to 2,080,000 tons in 1937; of calcined soda from 284,000 to 700,000 tons. Similar development is outlined for the coke by-products, aniline, paint and varnish, synthetic products, drug and pharmaceutical, plastics, rubber-asbestos, wood distillation and other branches of the chemical industry.

Output of plastics of all kinds is planned to show a specially large increase. Production of resol powder is scheduled to total 3,900 tons in 1937 as compared with 470 tons in 1932; output of asphalt-pitch materials will amount to 5,500 tons as against 80 tons while production of various articles from plastics is to total 13,650 tons in 1937 as compared with 690 tons in 1932. During the period the chemical industry will begin the manufacture of acetone, acetic acid, methanol, vari-

ous alcohols, etc., which were not produced in the U.S.S.R. previous to 1933. Considerable expansion of the production of complex ethers, many new types of dyes and other organic compounds is also planned.

Capital investments in the chemical industries supervised by the Commissariat for Heavy Industry are to total 4.77 billion rubles for the period. This is more than three times the expenditures made during the first Five-Year Plan.

TIMBER AND ALLIED INDUSTRIES

The U.S.S.R. claims first place in the world as regards timber resources, its forest area being estimated at 950 million hectares (2.35 billion acres), about one-third of the world's total. The forest area extends from north of the Polar Circle to the mountains of Persia on the south and from Karelia on the west to the shores of Sakhalin on the east; much of it is virgin timber. About 600 million hectares are of industrial value, but at the beginning of the first Five-Year Plan only about one-third of this area had been brought under exploitation. During the Five-Year Plan period steps were taken to utilize the vast timber regions of the Far North, Siberia and the Far East to a greater degree. The transportation problem has constituted a serious difficulty in some of these outlying regions. The new Baltic-White Sea Canal opens up vast timberlands in Karelia and adjoining sections of the Far North for Leningrad and other industrial centers. The Northern Sea Route, already in operation to the mouths of the Ob and Yenisei Rivers and now being extended to the Lena River, constitutes an outlet for the timber resources of the northern Urals, Siberia and Yakutia.

To facilitate exploration, preservation and exploitation of the timber resources of the U.S.S.R. various measures of reorganization have been instituted in recent years. In the latter part of 1930 all lumber companies and trusts were combined

in one organization, the United Timber Industry, under the control of the Supreme Economic Council. In January, 1932, the latter was broken up into three commissariats, one being the Commissariat of Forestry and the Timber Industry. This commissariat works out and supervises reforestation projects, and has under its control all branches of the timber industry, from the cutting down of the trees to the manufacture of sawn lumber and lumber products.

The timber industry recorded increases during the first Five-Year Plan. Total deliveries of timber for industrial purposes increased from 41.1 million cubic meters in 1927-28 to 99.4 million cu. meters in 1932, an increase of 142 per cent; of sawn lumber from 11.5 million to 24.5 million cu. meters, a gain of 113 per cent; of plywood from 185,000 to 424,000 cu. meters, an increase of 130 per cent. The manufacture of a number of new products, such as standard houses, silos, packing-boxes, and wooden pipes, was instituted in recent years (1930-32). To meet the increasing demand for furniture, output was greatly expanded, rising from 56 million rubles in 1927-28 to 172 million rubles in 1932.

In 1933 lumber production declined slightly, output of industrial timber totaling 98.3 million cubic meters, of sawn lumber 22.8 million cubic meters and of plywood 418,000 cubic meters. Shipments of timber for fuel increased from 65.3 million cubic meters in 1932 to 75.3 million in 1933.

The distribution of timber output in 1933 and 1932, by principal producers, is given below:

	TOTAL OUTPUT		SAWN TIMBER	
	1933	1932	1933	1932
Commissariat for Timber Industry	62,400	60,800	14,600	15,350
Commissariat for Heavy Industry	8,000	9,900	2,120	2,590
Commissariat for Transportation	11,200	11,900	1,820	2,070
Producers' Cooperatives	4,700	4,000	1,280	1,500
Local Producers	7,600	6,500	2,700	2,850

Production of a number of branches of the lumber industry showed substantial increases in 1934. Output of the Commissariat for Timber Industry totaled (according to preliminary figures) 2,185 million rubles, as compared with 1,903 million in 1933. Production of sawn timber rose from 22.8 million cubic meters in 1933 to 25 million in 1934. Output of plywood totaled 492,000 cubic meters, showing a gain of 10 per cent. Output of the wood distillation industry amounted to 86.4 million rubles as compared with 59.6 million rubles in 1933. Deliveries of timber for industrial purposes totaled 99.7 million cubic meters, an increase of two per cent; and for fuel—84.8 million cubic meters, a rise of 12 per cent.

To attain this output considerable construction work was carried on during the past several years and important steps were taken toward the mechanization of the various labor processes in the timber industry. As regards local timber transport, there were 7,000 kilometers of ice roads for horses, 835 km. of ice roads for tractors, 810 km. of narrow-gauge railways, and 300 km. of mono-rail suspended lines in 1934. Tractors were first introduced in the lumber camps in 1927-28, and their number increased to more than 1,300 by January, 1935 (mostly of the track-laying type). In addition, 970 trucks, many motor boats, etc., were at work in the timber districts in 1934. In 1934, 19 per cent of the timber was hauled by mechanized methods. Other work in the lumber camps is also being mechanized; electric saws, tie-cutting machines and apparatus to strip off bark are now employed in hundreds of camps.

In the lumber industry there were by the end of 1932 a total of 2,800 sawmill frames in operation, of which over 1,200 were installed during the period of the first Five-Year Plan. The capacity of these newly installed frames constitutes more than half the total output of the industry. Sixty-five per cent of all the newly built sawmills now have more than four

frames each, and some have from 8 to 12 frames, whereas prior to 1928 one- or two-frame sawmills were the rule. The new sawmills are often large plants, comprising in addition to the sawmill proper many departments (for the manufacture of boxes, pipe, silos, standard houses, etc.) which utilize the by-products of the mill. In addition to the sawmills there are many other plants: in 1932 there were 29 veneer plants; several plywood mills; 550 furniture, barrel and box factories; 81 cellulose and paper mills; 11 wood-chemical plants. In constructing new plants the type of the nearby timber is taken into consideration, paper mills being constructed near fir forests and furniture factories near oak, beech, chestnut and walnut groves. Capital investments in the industry totaled 414 million rubles in 1933.

Approximately 1,140,000 people are employed in the timber industry. Formerly work in the lumber camps was purely seasonal, the peasants working in the forests in the winter, when they were free from farm duties. There is now being formed a permanent body of skilled lumber workers, their number already totaling about 200,000, and the work is being organized so as to permit continuous operations throughout the entire year.

The second Five-Year Plan provides for an output of industrial timber of 170.0 million cubic meters in 1937, an increase of 71.0 per cent over 1932. The production figures for 1937 for sawn timber and plywood are 43 million cubic meters and 735 million square meters, respectively, representing increases of 76.2 and 73.8 per cent. Cutting of timber for firewood is set at 107.0 million cubic meters, an increase of 64 per cent. The output of furniture, which increased slightly in 1933, is scheduled to reach 507 million rubles, a threefold increase during the period.

A large development is planned for the wood distillation branch of the lumber industry. The following table shows the

production planned for 1937 for some of the products, as compared with the output in 1932-1934.

	1932	1933	1934	1937
Turpentine (thousand tons)	36.3	50.6	64.5	67.0
Acetic Acid 100% (thousand tons)	2.7	4.9	7.1	12.3
Charcoal (thousand tons)	62.6	79.9	—	195.3
Charcoal Briquets (thousand tons)	—	—	—	96.0
Resin (thousand tons)	24.3	38.4	49.7	64.0

This program will necessitate the building of many new sawmills, 13 plywood factories with an annual capacity of 400,000 cubic meters, and other enterprises. Mechanization of all branches of the timber industry will be extended. Total capital investments in the timber and wood-working industries for the five-year period are set at over three billion rubles.

The great bulk of the output of the timber industry has been absorbed at home, not over 15 per cent having been exported. This accounts for the fact that, while gross output of timber has for a number of years been far above the prewar level, exports only approximate the 1913 figure, according to official statistics.

Total exports of timber from prewar Russia (present territory of the U.S.S.R.) and the Soviet Union are given in the table following:

YEAR	QUANTITY		
	VALUE (million rubles)	(thous. cubic meters)	(per cent of 1913)
1913	126.5	10,358	100
1922	15.1	1,005	10
1923	30.7	2,171	21
1924	48.2	3,370	33
1925	71.5	3,700	36
1926	56.5	3,147	30
1927	82.6	4,205	40
1928	104.9	5,486	53
1929	145.7	9,200	89
1930	169.7	12,197	118
1931	113.6	9,926	95
1932	80.5	9,360	90
1933	76.7	10,300	99
1934	89.3	10,662	103

In 1929 the U.S.S.R. regained its prewar position as first among European exporters of timber, as compared with fourth rank in 1928. Beginning with 1930 its timber exports increased to the point where it became second, after Canada, among world exporters.

Sawn lumber, pulpwood, logs and pit props are the chief items of Soviet timber exports, accounting for approximately 90 per cent of the total volume. Great Britain has been the principal market, taking nearly 40 per cent of total timber exports. Shipments to this country have made up only 1 or 2 per cent of total American imports of lumber during the past three years, and a small fraction of 1 per cent of total American consumption. Imports of Soviet lumber consist mainly of spruce lumber and pulpwood, of which the United States produces an insufficient amount and has to import large quantities each year.

In 1929 trial shipments of Soviet pulpwood, totaling 9,500 cords were imported. This pulpwood proving satisfactory, imports in subsequent years were made as follows: 175,000 cords in 1930, 52,000 in 1931, and 26,000 in 1933 (U. S. customs statistics). This amounts to from 3.5 to 11 per cent of the total imports of pulpwood into the United States. The drastic decline in imports was due in part to restrictions imposed on the importation of Soviet pulpwood which have since been removed.

Paper Industry

Despite the immense resources of raw material available for the manufacture of paper, prewar Russia had to import about 40 per cent of her paper supply, due to insufficient domestic manufacture. Up to the beginning of the first Five-Year Plan period imports still exceeded 100,000 tons annually, but, as the new mills came into operation and domestic production increased, imports recorded a marked decline. This is shown in the following table which gives annual production and import figures for paper and cardboard;

	OUTPUT	IMPORTS
	(metric tons)	
Prewar average	220,000	147,000
1924-25	233,103	115,763
1925-26	233,672	146,517
1926-27	306,270	107,856
1927-28	320,523	100,320
1928-29	435,268	73,180
1929-30	555,000	72,440
1931	600,500	29,026
1932	514,000	624
1933	554,000	559
1934	612,000	457

A substantial increase in home production and decline in imports has taken place as regards cellulose and woodpulp, which were imported into prewar Russia to the extent of 75 per cent of the industry's requirements. Thus, production of cellulose in 1934 amounted to 236,000 tons, almost six times the 1913 figure (41,000 tons) and two and three-quarters times the output in 1927-28 (86,000 tons). Production of woodpulp in 1933 reached 277,000 tons, as against 84,000 in 1927-28, while imports dropped from 73,200 tons in 1927-28 to 2,246 tons in 1933.

Paper Industry

Despite the progress made, the paper industry has failed to attain the schedules set by the Five-Year Plans and falls short of supplying the growing needs of the home market. The rise in literacy has increased paper consumption, especially newsprint. Newspaper circulation by 1932 had risen to 36 million, as compared with 8.8 million at the beginning of the Five-Year Plan and 2.7 million in 1913. Demand has developed at a much faster pace than output, a situation which accounts primarily for the shortage of paper in the U.S.S.R. One of the factors retarding production increases in the paper industry has been delays in carrying out the program for new construction and the expansion and re-equipment of old plants, due largely to difficulties in obtaining sufficient quantities of

machinery. Although imports of paper machinery averaged more than one million rubles annually in the period 1930-1932 and despite the fact that domestic manufacture of such machinery was begun in 1931, it was found impossible to build and equip all the twenty or so new plants scheduled in the Five-Year Plan program. However, a number of huge new mills were constructed. Among the more important of those already in full or partial operation are:

NAME	REGION	ESTIMATED FULL CAPACITY (metric tons)
Balakhna cardboard factory	Gorky	15,000 (cardboard)
Volga cellulose-paper combine	Gorky	130,000 (newsprint)
Syas cellulose-paper combine	Leningrad	{ 75,000 (cellulose) 40,000 (newsprint) 4,800 (wrapping paper)
Kondopoga cellulose-paper combine	Karelia	25,000 (newsprint)

The combining of the two manufacturing processes—cellulose and paper—in one plant results in a considerable economy, it is claimed, since it obviates the necessity of drying and transporting the cellulose and makes possible a more rational utilization of power. All the new plants are equipped with the most up-to-date machinery. The Volga plant has three high-power machines, with cylinders capable of a speed of 360 meters per minute. More than 100 large machine units for paper and cardboard production are scheduled to be installed and put into operation during the second Five-Year Plan. Total output of the paper industry in 1937 is planned to reach 1.12 million tons of paper and cardboard, more than double the 1932 production. Even this amount may not be adequate to meet the growing requirements.

Of the total 1937 paper production, 650,000 tons is to be produced in existing or reconstructed plants and 350,000 in plants completed during the period of the second Five-Year

Plan. Aside from the enlargement of the old factories, five new plants, with capacities ranging from 55,000 to 88,000 tons a year, are to be started, as well as a number of smaller plants. Capital investments in the paper industry for the period 1932-1937 are to total 870 million rubles.

BUILDING MATERIALS

In addition to the many new factories and industrial plants constructed during the first Five-Year Plan, involving the expenditure of from 10 to 15 billion rubles, large sums have been spent in general building construction—dwellings, clubs, hotels, hospitals, etc. Not only have the old cities and industrial centers increased rapidly in population, necessitating additional housing, but entirely new cities are being constructed in connection with the new industrial enterprises.

All this construction work put heavy demands on the building materials industry. As for lumber, these domestic demands have been fairly well covered, but despite greatly increased output (production of the main items has increased from two to five times in the past five years) there has been a considerable shortage in other building materials. The 1932 and 1933 production figures as compared with 1927-28 and the schedule for 1937 are given in the following table:

	1927-28	1932	1933	1937
Cement (mill. bbls.)	11.0	22.4	18.0	48.3
Lime (thous. tons)	520.0	2,986.0	1,822	4,850.0
Chalk (thous. tons)	123.0	603.0	—	—
Alabaster (thous. tons)	241.0	475.0	446	1,200.0
Bricks (billions)	1.78	4.74	3.67	8.0
Refractory bricks (thous. tons)	430.0	793.0	899.0	2,300.0
Silicate bricks (thous. tons)	94.9	178.0	204	800.0
Tar paper (mill. rolls)	1.2	3.4	4.2	6.6
Rubberoid (thous. rolls)	38.0	395.0	566	2,000.0
Artificial slate (mill. sheets)	38.4	114.6	—	—
Roofing tiles (millions)	—	54.0	47.9	200.0
Glass, total (thous. tons)	—	396.0	388.0	1,033.0
Glass, window (thous. tons)	132.0	166.0	—	—
Asbestos (thous. tons)	—	60.0	74.0	200.0

Production of cement increased considerably in 1934. Output, totaling 23.2 million barrels, showed an increase of 28 per cent over 1933. Production of bricks rose to 4.6 billion.

Large sums were expended during the period of the first Five-Year Plan in the construction of new works and the reconstruction of old plants producing building materials. In the cement industry alone 323 million rubles were spent for this purpose. New plants with a total capacity of 14.5 million barrels were built, while the capacity of the fourteen old works was raised from 10.5 to 17.6 million barrels. The quality of cement produced is now much higher; 65 per cent of the total output in 1932 consisted of high-grade quick-setting cement. The production of lime, chalk and alabaster has been transformed from a handicraft to a factory basis, a number of plants with a capacity of from 50,000 to 100,000 tons having been built. Many new, mechanized brickyards were established, with an output of from 50 to 100 million bricks a year.

The extensive construction of new steel mills, coke batteries, coke chemical plants, and steam power plants created a large demand for refractory materials, which in the early years of the first Five-Year Plan could not be met by domestic manufacture. The reconstruction of old refractory materials plants and the construction of new plants at the Kuznetz and Magnitogorsk mills and of special refractory and silicate brick works have been carried out.

Since it was found necessary to divert the supply of roofing iron to meet the requirements of the oil, machine-building and other industries, the production of other types of roofing materials, such as tar paper, rubberoid and artificial slate, was increased. Glass production, formerly largely semi-handicraft in form, was mechanized to the extent of over 30 per cent. Of the 166,000 tons of window glass manufactured in 1932, 122,000 tons were plate-glass produced by machinery, as against

only 14,000 tons so produced in 1927-28. Many new complex products are now being manufactured, such as triplex glass, complex lenses, Dutch glass for high-pressure boilers, search-light glass, etc.

One of the means taken to overcome the shortage of building materials has been to utilize waste products or materials of which there is a great abundance and thus obtain building materials at less cost than ordinary bricks, roofing paper, etc. Examples of such materials are artificial slate, roofing manufactured from peat mixed with cheap concrete or cement, "kamisheet" made out of kamish reeds, artificial stone slabs made from combinations of various materials: fibralite (wood dust, lime and magnesite); slag cement (a mixture of cement, lime and slag); and combinations of straw or reeds and wire. The products are reported durable, water-proof and less heat-conducting than bricks. The use of artificial slabs, owing to their large size and light weight, is expected to speed construction work up considerably, and it is therefore planned to use them instead of brick on about 40 per cent of the construction work on which brick would ordinarily be used. Output of the building materials industry as a whole is scheduled to increase by 133 per cent from 1932 to 1937 (amounting in the latter year to 1.7 billion rubles). Capital investments for the five years are set at 1.5 billion rubles. Of this total 352 million rubles will be invested in the cement industry, 600 million in refractory materials plants, etc.

FOOD INDUSTRY

During the first Five-Year Plan period the problem of increasing the food supply was approached along several lines: (1) increasing the output of raw material for the food industry, *i. e.*, various farm crops, meat, fish and dairy products; (2) overcoming temporary difficulties in the food supply, caused by inadequate transportation and distributing facilities

and the wholesale slaughter of cattle in the years of intensive reorganization of the system of agriculture (1930-1932); (3) increasing the capital investments in the food industry, especially for the construction of new flour mills, sugar refineries, packing plants, canneries, etc.; (4) concentrating the industry under one supervising head, the Commissariat for Internal Supply, formed in November, 1930. In July, 1934, this Commissariat was split up into two separate commissariats—for internal trade and for the food industry.

As regards the raw materials supply, the development of large-scale state and collective farms has resulted in an increase in the marketable output of the various farm crops, such as grain, sugar beets, potatoes and other vegetables. Progress has also been made in improving transportation facilities and distribution by the co-operatives. The organization of large-scale socialized restaurants, of which a network has been established throughout the country, has helped considerably to alleviate distribution difficulties. Another important step in this direction was the establishment of closed distribution centers, which serve only the workers in the particular enterprises to which they are attached.

In order to overcome the shortage of meat and dairy products, the same program was instituted as that previously applied to the grain problem, namely, the organization of many large-scale state and collective stock-breeding and dairy farms. Special emphasis was laid on the state hog-breeding ranches as a means of securing an immediate supply of meat in the interval necessary to build up the cattle herds. Also the production of canned meat was pushed and likewise that of vegetable oils and margarine as substitutes for butter and other animal fats.

Capital investments from 1928 to 1933 totaled 3 billion rubles, as against half a billion rubles for the preceding five-year period (1924-1928). The greater share of these invest-

ments went into the construction of new, large plants, built and equipped in accordance with modern standards, American technique being followed to a great extent. A delegation of the United Meat Industry came to the United States in the fall of 1930 to draw up detailed plans and specifications for a number of large meat-packing plants which have since been built and put into operation. Much of the machinery and equipment installed in the new plants is imported. The number of new factories opened in the past five years totaled more than 700.

Prior to the year 1929 meat-packing was carried on in the antiquated slaughter houses, with no refrigerating equipment and with no departments for the utilization of by-products. Since then 20 big meat-packing plants have been constructed, and new departments (for sausage production, fat products, bristles, etc.) were added to many of the old plants.

Two large meat packing plants—one in Moscow and the other at Srednaya Rogatka, near Leningrad—started operations in December, 1933. They were erected at a cost of 55 and 72 million rubles, respectively.

Progress has also been made in the canning industry. At the beginning of the first Five-Year Plan period there were 22 factories with an aggregate capacity of 100 million cans a year; by the end of 1932 there were 48 plants with a capacity of one billion cans a year. In the newly built plants all labor processes are mechanized and production is organized on the conveyor system. Canned milk was not produced at all prior to 1932. Now several canned milk factories, modeled after the latest American technique, have been erected. Among other new canned products are corn, whole tomatoes, and pork and beans.

Dozens of new, modernly equipped flour and sugar mills have been put up, many of them in formerly undeveloped re-

gions, such as Kazakstan, Siberia and the Far Eastern Region. Seven factories for the manufacture of margarine, the production of which was begun in 1930, are now in operation. These range in capacity from 6,000 to 20,000 tons annually. A number of other new plants have been recently constructed for the manufacture of spaghetti and macaroni, confectionery, non-alcoholic beverages, starch and molasses, corn products, soy bean milk, etc.

During the years 1929-1932, seven large sugar refining plants were put into operation ranging in capacity from 85 to 340 tons of refined sugar daily. The total cost of constructing and equipping these refineries amounted to more than 68 million rubles.

Large mechanized bakeries are to a great extent replacing the small hand bakeries of prewar days. Between 1930 and 1933, the number of such mechanized bakeries increased from 67 with a daily capacity of 4,400 tons of bread to 211 with a daily production of 13,500 tons. In addition there are 169 smaller units with a total daily production of 4,800 tons. The total production of these bakeries in 1933 amounted to 5,700,000 tons of bread.

The gross production of the food industry in 1932 totaled 5.66 billion rubles, three and one-half times the 1928 figure and considerably in excess of the Five-Year Plan schedule for 1932-33. The output of a number of food products recorded exceptionally high increases, notably that of canned goods and confectionery, the 1932 outputs of which were, respectively, eight and six times that of 1928.

In 1933 there was a comparatively small increase (six per cent), the output totaling six billion rubles. Of this total, industries under the supervision of the Commissariat for Food Industry accounted for 3,743 million rubles. In 1934, enterprises controlled by the newly formed Commissariat increased

their production by 25.6 per cent to 4.7 billion rubles. Production figures in some of the principal branches of the food industry in recent years are given in the following table:

PRODUCT	1928-29	1930	1931	1932	1933
Food industry, total (mill. rubles, 1926-27 prices)	2,537.1	4,221.2	5,324.6	5,660.0	5,996.5
Flour and grits (thous. tons)	4,193.2	6,443.7	7,604.2	8,102.0	9,025.0
Fish catch (thous. tons)	972.0	1,297.1	1,433.4	1,333.0	1,300.0
Vegetable oil (thous. tons)	363.3	317.8	321.6	409.7	284.0
Margarine (thous. tons)	—	6.3	20.6	38.6	60.0
Sugar, gran. (thous. tons)	915.0	1,519.7	1,524.8	828.2	1,100.0
Canned goods (mill. cans)	104.7	229.2	313.4	716.0	750.0
Macaroni (thous. tons)	50.4	99.2	160.3	195.4	173.0
Starch-molasses (thous. tons)	70.8	99.9	102.5	130.3	161.8
Confectionery (thous. tons)	135.6	271.5	517.9	572.2	479.0
Cigarettes (billions)	53.2	62.6	65.6	67.4	70.0
Meat (thous. tons)	—	550.0	691.8	435.0	380.0
Salt (thous. tons)	2,670.0	3,234.0	3,200.0	2,659.0	2,900.0
Butter (thous. tons)	72.9	39.5	60.0	65.1	124.0

Production of meat rose to 461,200 tons in 1934, a 21 per cent increase over 1933, while output of dairy products rose to 167,600 tons. Output of some of the other products of the food industry, practically all of them showing considerable increases over 1933, were: Fish catch, 1.5 million tons; granulated sugar, 1.4 million tons; confectionery, 546,000 tons; butter, 128,600 tons; vegetable oils, 352,000 tons; margarine, 68,900 tons; canned goods, 886,500 cans; cheese, 16,700 tons; whole milk and sour milk products, 344,000 tons; fruits and vegetables, 709,000 tons; alcohol (100°), 4,825,000 hectoliters; cigarettes, 70.6 billion; macaroni, 209,500 tons; starch and molasses, 191,000 tons; yeast, 26,900 tons; beer, 4,397,000 hectoliters; non-alcoholic beverages, 7,441,000 hectoliters; wines, 774,000 hectoliters, vodkas, 534,000 hectoliters; salt, 3,400,000 tons.

Fish plays an important rôle on the domestic food market. As a consequence of the recent construction of refrigerating plants and canneries the population is now being provided with

both fresh and canned fish in addition to dry or salted fish, which in prewar days constituted the main part of the supply. The fish resources of the Soviet Union are among the most important in the world. Russia's fisheries enjoyed a position of considerable importance even in prewar times, when primitive methods were employed. By 1930 the output exceeded that of prewar by 30 per cent and had attained the level set for the last year of the Five-Year Plan.

By continued intensive development and the application of scientific methods and equipment it is planned to increase the production several times. During the first Five-Year Plan period capital investments for the fishing industry totaled over 350 million rubles, chiefly for refrigerating plants and canning factories. Much of the equipment has been purchased abroad, partly in the United States. The main center of the fishing industry is the Volga-Caspian region, which provides about half the annual catch, but the Arctic-White Sea and the Far Eastern fisheries are gaining in importance with the increasing emphasis on deep-sea fishing. The proportion of the total catch contributed by this type of fishing rose from 17 per cent in 1913 to 34.5 in 1933.

In the four years from 1929 to 1933 the number of motor vessels in the fishing industry increased from 56 to 4,500 (including 96 trawlers, 66 seiners, 97 whalers and sealers, and 10 crab vessels). However, the process of mechanization is only beginning, as is indicated by the fact that the total fleet comprises 110,000 boats. The industry also had in 1933, 50 canneries with a capacity of nearly 300 million cans, 12 refrigeration plants with a capacity of 800 tons, nine ice factories, 27 by-products plants, eight shipbuilding yards and 26 cooperage mills. The number of people employed in the fisheries amounted to 250,000 and in the other enterprises to 136,000. Over 80 per cent of the fishermen are organized into collectives.

The food industry supplies a considerable volume of exports. The principal exports of the industry are vegetable oils, butter and eggs, fish, caviar, sugar and canned goods. Owing, however, to the improvement of the trade balance and the increased domestic consumption of these products, there has been a considerable decline in sales of food products abroad, in recent years. Exports of fish for example, dropped from 48,533 tons in 1931 to 29,168 tons in 1933; of sugar, from 320,000 tons to 38,000 tons.

The second Five-Year Plan provides for the construction of many new plants in the various branches of the food industry. Total capital investments for the period 1932-1937 are set at five billion rubles. Of this sum, 505 million rubles are allotted to the meat packing industry, 900 million to the fish industry, 1,090 million to sugar, 120 million to confectionery, 220 million to the canning industry and 141 million to dairy products. The gross production of the industry is scheduled to show in 1937 an increase of 254 per cent over 1932 and to amount to 14.4 billion rubles. The planned expansion in output of the principal items during the period is indicated by the following table:

PRODUCT	UNIT	1932	1937
Meat	thous. tons	435	1,200
Fish (catch)	" "	1,333	1,800
Sugar (gran.)	" "	828	2,500
Margarine	" "	39	120
Canned goods	mill. cans	716	2,000
Butter	thous. tons	65	180
Cheese	" "	12.5	37
Flour and grits	" "	8,102	14,000
Confectionery products	" "	572	1,350
Macaroni	" "	195	510
Salt	" "	2,659	6,000
Cigarettes	billion	67	125
Beer	thous hectoliters	4,179	7,500
Non-alcoholic beverages	" "	6,075	16,000

During the period, 17 additional meat packing plants, now partially completed, are to be put into operation, and construction of 23 new plants begun. The total capacity of these plants will be 541,000 tons annually and their cost is put at 620 million rubles.

Twenty-three canning plants, some of which were under construction in 1931 and 1932, are scheduled to be put into operation. Their total cost will reach 118 million rubles; their capacity is set at 523 million cans of various products and 1,250 tons of powdered milk annually. There is to be a large expansion of the fishing fleet and of processing and canning facilities.

MANUFACTURED CONSUMERS' GOODS

Many branches of the light industries showed advances during the first Five-Year Plan, during which period the output of the clothing industry increased by over 440 per cent, that of the shoe industry by about 220 per cent and that of the knit goods industry by nearly 150 per cent. The textile industry, however, recorded a decline in output, due largely to an inadequate supply of raw materials. This accounted in the main for the failure of light industry as a whole to fulfill its program.

In prewar Russia all branches of light industry—textile, shoes, etc.—imported practically all their equipment from abroad. Only the simplest weaving looms and equipment were of domestic manufacture. With the development of the machine-building industry, particularly during the first Five-Year Plan, the domestic manufacture of machinery for light industry has been accelerated. For the textile industry alone more than 125 types of new machines are now being manufactured. This has facilitated the re-equipment and reconstruction of many of the old enterprises manufacturing consumers' goods and the

equipment of new enterprises with modern machinery. Among the many new factories in light industry which commenced operations during the four years of the first Five-Year Plan are: 13 large cotton textile mills (1 million spindles), 3 large knitting mills, 3 linen factories, 4 woolen mills, 13 clothing factories, 4 shoe factories, 11 tanneries, 2 cinema film factories, scores of printing shops, etc. Most of the new mills which have been built and those now under construction are located close to the sources of raw material. While formerly there was but a single important center of the cotton textile industry (the Ivanovo Industrial Region in the central part of European Russia), in recent years a number of mills have been constructed in Transcaucasia and Central Asia, the principal cotton-growing regions.

During the period of the first Five-Year Plan the domestic base of raw materials for the various light industries was broadened. Production of the most important textile fibers—cotton, flax and hemp—recorded large increases; the cultivation of various new fiber plants, such as kender, rami, southern hemp, etc., has also been developed. The latter constitute an important supplementary base of raw material for the “cottonite” (cotton substitute) industry. Considerable progress has likewise been made in the production of artificial raw materials, such as rayon, artificial wool, leather substitutes, synthetic rubber, etc.

Coincident with the extension of the raw material base for light industry, the processes for the primary treatment of the various raw materials have been mechanized to an increasing extent. At the beginning of the Five-Year Plan period there were only two plants for the primary treatment of hemp and 18 for that of flax. By the end of 1932 there were 65 plants for hemp and 350 for flax already in operation and hundreds more were in process of construction. The number of ginning

machines at the cotton-ginning plants had increased from 492 in 1928 to 651 in 1932.

During the period of the first Five-Year Plan the manufacture of many new products in established branches of the industry was initiated and entirely new branches were established to meet the increased and more diversified demands of the consumers. Among these may be mentioned: musical instruments, phonograph records, cameras, radio receivers, motion picture apparatus, watches, sporting goods, etc.

The following table shows the production of some of the most important consumers' goods in 1928, 1932 and 1933, and the growth scheduled during the second Five-Year Plan:

PRODUCT	UNIT	1928	1932	1933	1937
					(2nd Five-Year Plan)
Cotton cloth (total)	Mill. meters	2,871	2,713	2,816	5,100
Linen cloth (total)	Mill. sq. meters	174	130	135	600
Linen cloth, consumers'	" " "	—	30	—	323
Woolen cloth, consumers'	Mill. meters	99 *	95	85.2	226.6
Silk cloth	" "	9.8 *	21.6	25.5	64.0
Clothing	Mill. rubles	365 *	1,510	1,510	3,130
Knitgoods†	" "	89 *	504	589	2,300
Hosiery	Mill. pairs	—	208	243	725
Shoes, leather	" "	23 *	82	75.5	180
Rubbers	" "	37.5	64.7	61.6	100
Soap, total (40% fat content)	Thous. tons	183.6	357.2	295	1,000
Glass, total	" "	320	396.4	388	1,033
Glass, Comm. Light Ind.	" "	—	277.2	270	800
Porcelain and china	" "	—	83.6	83	180
Matches	Mill. cases	5.6	5.6	7	12
Furniture	Mill. rubles	—	172	—	506.7
Household utensils	" "	—	38.3	—	150
Watches	" "	—	20.8	24	100
Beds	Thousands	—	499	—	1,700
Velocipedes	"	10.8*	128	140	575
Sewing machines	"	285.6*	328.7	266	450
Electric lamps	Millions	13.7*	54.2	69.5	180

* 1927—28 figures.

† Commissariat for Light Industry only.

PRODUCT	UNIT	1928	1932	1933	1937
					(2nd Five-Year Plan)
Radio receiving sets	Thousands	—	29.3	30	500
Cameras	"	—	12	95	140
Phonographs	"	—	57.8	98	1,500
Phonograph records	Millions	—	1.7	2.1	40
String instruments	Thousands	—	659.9	622	2,160
Keyboard instruments	"	—	3.8	4.0	28
Motion picture film	Mill. meters	—	25.7	32.8	300
Perfumery and cosmetics	Mill. rubles	—	186	—	396
Dry goods and notions	" "	—	490	—	1,365

In 1933 light industry increased its output by three per cent over 1932 and in 1934 there was an increase of 5.4 per cent. Production in the latter year, totaling 8.96 billion rubles, was 35 per cent greater than in 1930. Output of the knit-goods industry more than doubled, amounting to 713,000,000 rubles in 1934 as against 318,000,000 in 1930 and 589,000,000 rubles in 1933, while the silk industry increased its output from 134,000,000 rubles in 1930 to 254,000,000 in 1934. The cotton textile industry produced goods valued at 2.94 billion rubles in 1934, including 2.7 billion meters of cotton cloth, as compared with 2.27 billion rubles in 1930; the dry goods industry—253,000,000 rubles as compared with 91 million. Output of linen cloth in 1934 totaled 160.5 million square meters, according to preliminary estimates; of stockings—232 million pairs, and of silk cloth—28 million meters, representing increases of 18.5, 10 and 24 per cent, respectively. Production of woolen cloth showed a decline of 16 per cent. The musical instrument industry produced goods to the value of 31 million rubles in 1934 as compared with 13 million in 1930.

Output of some other products of light industry in 1934 and the percentage increases over 1933 was as follows: knitted underwear—40,400,000 pieces (37.4%); knitted outerwear

—16,500,000 pieces (25.6%); gloves—23,900,000 million pairs (59.9%); twine—21,300 tons (18.8%); rope 27,400 tons (22.3%); rope cable—17,400 tons (no increase); sacks—52,100,000 (13.5%); window glass—50 million square meters (35.9%); household porcelain and chinaware—37,000 tons (decline of 12.3%); pencils—4,000,000 boxes (34.2%); radio receiving sets—70,000 (133.3%); radio tubes—2,700,000 (42.1%); phonographs—203,000 (106%); phonograph records—2,557,000 (19.5%).

The output of light industry as a whole is scheduled to more than double during the second Five-Year Plan. Considerable attention is being devoted to the construction of new and reconstruction of old plants. During 1933 and 1934 capital investments in the industry totaled 1,433.3 million rubles, as compared with 570 million in the previous two years. Among the more important projects started during this period are: the Tashkent textile mill, the first unit of which will have a capacity of 61.7 million meters of cloth and which began operations in 1935; the Barnaul mill, which will contain 100,300 spindles and 1,584 looms when completed—by January 1, 1935, 20,000 spindles and 600 looms had been installed; the Gomel glass plant, several large silk mills and knit-goods factories, etc.

Producers' Co-operatives

The above table covers not only the output of large-scale state industry but also the small-scale enterprises operated by the producers' co-operatives. The latter occupy an important role in provisioning the population with consumers' goods. In certain branches of the textile, clothing and wood-working trades these co-operatives account for from one-quarter to one-half of the total output.

The second Five-Year Plan provides for a further increase in the number of workers and artisans working in producers'

cooperatives, both in city and village. The number of persons engaged in such small-scale production is scheduled to increase to 2,520,000 in 1937, a gain of 38 per cent over 1932. The production of this branch of industry is to reach 13.97 billion rubles in 1937 as compared with 6.98 billion in 1932. An increasing share in the total output of the producers' cooperatives will be taken by consumers' goods, such as toys, musical instruments, educational products, sports goods, etc. (67 per cent in 1937 as against 20 per cent in 1932). The increase planned in the output of producers' cooperatives is shown in the following table:

BRANCH OF INDUSTRY	1932		1937	
	TOTAL PRODUCTION	CONSUMERS' GOODS	TOTAL PRODUCTION	CONSUMERS' GOODS
	<i>(In thousands of rubles)</i>			
Metal working	695	225	1,260	860
Chemical	261	172	560	435
Woodworking	669	296	1,320	940
Leather and fur	752	576	1,170	1,120
Dry goods	225	185	580	560
Cultural goods	183	129	500	430
Food	979	979	2,473	2,473

Production of the Commissariat for Light Industry is scheduled to rise from 7.8 billion rubles in 1932 to 19.5 billion in 1937, a gain of 149 per cent. To accomplish this growth will necessitate capital investments of over eight billion rubles. Among the new enterprises will be included 50 large cotton, woolen, linen and silk mills, 18 knitting plants and 21 shoe factories. The number of spindles in the cotton industry is planned to increase from 8,002,000 in 1932 to 11,200,000 in 1937; the number of looms from 197,000 to 250,000. In the woolen mills the number of thread machines will rise from 65,600 to 112,500, the number of twistors from 279,000 to 350,000, and the number of looms from 12,200 to 20,000. The number of flax spindles is to increase from 334,000 to

700,00, and a corresponding expansion is planned for other industries.

ELECTRIFICATION

Pre-war Russia was one of the most backward countries in power development. The capacity in 1913 of all power plants on the territory of the present U.S.S.R. amounted to 1.1 million kilowatts, with an output of 1.9 billion kilowatt-hours. Of the prewar power plants only nine (3 in Moscow, 4 in Leningrad, and 2 in Baku) exceeded 5,000 kw. in capacity. Even this small power base was to a large extent destroyed during the world and civil wars. By 1920, when the government was able to undertake the task of rehabilitation, the power industry was consequently in a most critical state. Realizing the importance of building up a power base for the entire economy of the country, an electrification program was drawn up in 1920 and 1921, at Lenin's initiative, by a specially constituted State Commission for the Electrification of the Soviet Union (Goelro). This program provided for the building of 30 regional electric power plants with a total capacity of 1.5 million kw. within from 10 to 15 years. Together with the prerevolutionary stations this was to provide for a total capacity of 1.7 million kw. for all the regional plants in the country.

By 1931 the *Goelro* plan had already been fulfilled, the capacity of the regional plants at the end of that year totaling 2.1 million kw. By the end of 1934 their capacity amounted to 4.2 million kw., more than double that of the Goelro schedule and twenty-five times the prewar figure. The capacity of all power plants totaled 6.1 million kw. and the annual output reached 20.5 billion kw.-h. As compared with the prewar period, capacity was over five times and output over ten times as great. The U.S.S.R. now ranks third in output of power, as compared with fifteenth in 1913 and tenth in 1928.

The most rapid development took place during the course of

the first Five-Year Plan, the annual increase in output during this period averaging 27 per cent. In 1933 the gain was 18.4 per cent while in 1934 power production was 25 per cent above that of 1933. The progress from year to year is set forth in the following table:

	1913	1928	1930	1931	1932	1933	1934
Capacity (at end of year, thous. kw.)							
All plants	1,098	1,905	2,876	3,972	4,696	5,579	6,143
Regional plants	177	626	1,419	2,376	3,028	3,757	4,280
Output (million kw.-h.)							
All plants	1,945	5,007	8,368	10,687	13,576	16,366	20,500
Regional plants	431	2,001	4,541	6,474	9,217	11,400	15,150
Share of regional plants in total (in per cent)							
Capacity	16.1	32.9	49.3	59.8	64.5	67.3	69.7
Output	22.2	40.0	54.3	60.6	67.9	69.7	73.9

The more rapid pace of development of the regional plants is clear from the fact that in 1934 both the capacity and output of these power plants were about seven times as large as in 1928, as against about 4 times for all power plants. The share taken by the regional plants in the total output rose from 40 to 74 per cent during the six years. In 1928 the average capacity of the regional power plants amounted to 34,000 kw.; by the end of 1932 this had risen to 61,000 kw. In 1928 there was not a single station with a capacity of 100,000 kw.; by the end of 1934 there were eleven.

The capacity of the turbo-generators installed at these large power plants range from 25,000 to 62,000 kw., as compared with 10,000-kw. units prior to the first Five-Year Plan period. The concentration of power production in a small number of large regional stations, one of the basic principles of the *Goelro* plan, was thus realized as a result of the power plant construction (involving the expenditure of almost 3 billion rubles) carried out during the past five years. The following table lists the principal regional power plants in operation in 1935 and indicates their location and the kind of fuel used:

NAME	REGION	FUEL OR POWER SOURCE	TOTAL CAPACITY PROJECTED	
			IN 1932	CAPACITY (in thous. kw.)
Dnieproges ¹	Ukraine	water power	434	558
Kashira	Moscow	lignite	186	186
Gorgres	Gorky	peat	204	204
Shterovka	Ukraine (Donbas)	anthracite slack	152	152
Zuevka	Ukraine (Donbas)	anthracite slack	150	250
Shatura	Moscow	peat	180	180
Red October	Leningrad	peat	111	111
Red Star	Baku, Azerbaidzhan	crude oil	109	133
Moges I	Moscow	crude oil	119.5	119
Cheliabinsk	Ural	lignite	126	250
Berezniki ²	Ural	lignite	93	93
Stalingrad	Lower Volga	anthracite slack	75	250
Ivgres	Ivanovo Industrial	peat	99	123
Shakhti	North Caucasus (Donbas)	anthracite slack	90	95
Volkhov	Leningrad	water power	58	58
Magnitogorsk ²	Ural	low-grade coal	104	198
Kuznetz ²	West Siberia	low-grade coal	84	108
Kizel	Ural	lignite	74	100
Rionges	Georgia	water power	48	48
Kemerovo	West Siberia	coke-oven gas	48	148
Dzherzhinski	Ukraine	coal	48	96
Svir	Leningrad	water-power	72	96
Stalinogorsk	Moscow	coal	50	400

¹ More generally known as Dnieprostroy, the name applied during the time of its construction.

² Large power plants built at the new industrial enterprises — the Bereznikiy chemical combine and the Stalinsk and Magnitogorsk steel mills. They supply power not only to the plant to which they are connected but to the adjoining territory as well, and consequently may be included among the regional stations.

Practically all of the large plants listed above use water power or some other form of cheap fuel—peat, lignite, anthracite slack, etc. The utilization of this type of fuel, by the erection of power plants directly adjacent to such sources of power, was the second basic principle of the *Goelro* plan. In prewar Russia power plants used exclusively high-grade

fuel requiring long-distance transport: approximately 40 per cent coal, partly from the Donetz Basin and partly imported from Great Britain, and 60 per cent Caucasian oil. Even in 1927 such high-grade fuel constituted 61 per cent of the total fuel used by power plants. By 1932, however, the situation had been reversed: high-grade fuel made up only 36 per cent of the total; local fuel (peat, low-grade coal, etc.)—55.6 per cent; and water power—8.4 per cent. Dnieproges started operations only toward the end of 1932, and its effect in sharply increasing the proportion of water power will be reflected in the figures for later years. In 1933, water power and local fuels accounted for 76.8 per cent of the total fuel consumed in regional stations.

Dnieproges is the largest hydroelectric station in the world, its ultimate capacity being 558,000 kw. and its annual output 2.7 billion kw.-h. Col. Hugh L. Cooper, builder of the Muscle Shoals plant, was chief consulting engineer. The machinery and equipment used in constructing this plant was purchased almost entirely in the United States. The permanent plant machinery (electric generators and hydraulic turbines) installed in the power station is the largest of its kind yet manufactured. All of the nine turbines were supplied by the Newport News Shipbuilding and Drydock Company and five of the generators by the General Electric Company. The remaining four generators were furnished by the "Electrosila" plant in Leningrad. The power plant is located on the Lower Dnieper, about 200 miles north of Odessa, in the center of a vast mining, industrial and agricultural area. In addition to supplying mines and industries with cheap electric power (about $\frac{1}{4}$ cent per kw.-h.) the dam, with its collateral works, has opened the Dnieper River to navigation along practically its entire length, and its seasonal surplus of power will be utilized for the irrigation of the adjoining steppes.

Prior to the erection of Dnieproges the Volkhov hydroelectric station (58,000 kw. installed capacity) had been built near Leningrad. During the first Five-Year Plan a number of other hydroelectric stations were constructed. Among those which started operations in 1932 or 1933 are: Svir (near Leningrad)—ultimate capacity, 96,000 kw.; Niva River (60,000 kw.); Rionges (Georgia)—48,000 kw.; Zages (Georgia)—37,000 kw.; Dzorages (Armenia)—22,000 kw. A number of others are at present under construction, of which the largest are: three stations on the Upper Volga—Kama (near Perm), 310,000 kw.; Vasilev (near Gorky), 200,000 kw.; and Yaroslavl, 100,000 kw.—the construction of which is under the supervision of A. V. Winter, the chief Soviet engineer at Dnieprostroy; the Chirchik plant in Central Asia, 170,000 kw.; and the Niva No. 2 plant (on the Kola peninsula), 92,000 kw. Preliminary work on the Lower Volga project is also under way. This project calls for the erection of a hydroelectric station at Kamyshin, with a capacity of from 1.8 to 2.0 million kw., and an annual output of from 10 to 12 billion kw.-h., about four times as large as Dnieproges. This plant will serve not only to generate electric power but to irrigate an area of over 4 million hectares of land in the trans-Volga section and to improve river transport on this great central artery. Both the Upper Volga and the Lower Volga projects are scheduled for partial completion during the period of the second Five-Year Plan.

An even more extensive project is that of Angara-Yenisei in East Siberia. Here it is proposed to construct during the course of the next 10 or 15 years several hydroelectric stations, the combined capacity of which will far outstrip that of the Volga or any other similar project in the U.S.S.R. The Asiatic part of the Soviet Union possesses approximately 165 million kw. of water power, over three-fourths of the total water power

resources of the country, which is available for this development.

Another principle of the electrification program—the uniting of the principal power plants by means of inter-connecting high-voltage networks—has been only partially put into effect, *i.e.*, only in certain important industrial sections of European Russia—Central, Leningrad, Donetz, Dnieper and Ural. The extension of such networks to include the Ural-Kuznetz territory of the Asiatic part of the country is part of the program projected for the second Five-Year Plan. However, considerable progress was made during the course of the first five-year period. By January 1, 1933, the total length of transmission lines had reached 10,200 km. of which 5,300 had a voltage of 115,000 and over, including 200 km. of 165,000 voltage from the Dnieper hydroelectric plant. In 1928 there were only 3,000 km. of lines having a voltage of 22,000 or over, while in 1913 the total length of transmission lines did not exceed 100 km. During 1933 and 1934 the total length of transmission lines was increased by over 2,000 km., including the Svir-Leningrad line (240 km. long) of 220,000 voltage. On January 1, 1935, the total length of high-voltage lines rose to 12,207 kilometers.

The realization of the principles of centralized supply and planned regulation of consumption of electric power has resulted in marked success in the intensive exploitation of the capacity of the power plants. During the four years 1929–1932 the rate of operation averaged 3,750 hours annually. The more developed networks of the Soviet Union showed a still higher utilization. Thus, in 1932 the Moscow network recorded 4,560 operating hours; the Leningrad network 4,770. In 1934, the stations of Glavenergo (State Power Board) which produced 65.6 per cent of all the electric energy output in that year, recorded an average of 4,000 operating hours.

The consumption of electric power by industry in 1933 was more than triple that of 1928. Machine tools in new enterprises are practically all run by electric power, for the most part individual drive. In the reconstruction of old enterprises electric drive has been substituted for mechanical. As a result the proportion of electric power to total energy consumed in industry for mechanical needs rose from 51 per cent in 1928 to 77 per cent in 1933. The electrification of industry has made possible the mechanization of numerous labor-absorbing processes in the coal, steel and other industries.

The last two years of the first Five-Year Plan period—1931 and 1932—witnessed an intensive development of central heat and power systems. The total capacity of such plants rose from 55,000 kw. in 1928 to 720,000 kw. in 1933. The Berezniky central heat and power station has a capacity of 93,000 kw. and a pressure of 60 atmospheres. By the end of 1934, there were in operation 65 central thermo-electric power plants with a total capacity of 870,000 kw. The length of pipe lines increased to 200 km. as compared with 150 km. in the previous year. The development of these stations during the past five years is shown in the following table:

	1930	1931	1932	1933	1934
Capacity (at the end of year, in thous. kw.)	210	310	580	720	870
Length of pipe-lines (in kilometers)	45	70	100	150	200
Output (in million megacalories)	1.5	3.5	5.5	8.0	10.0

The second Five-Year Plan has made provision for especially large expansion of this type of power plant. Central heating is to be extended not only to industrial plants but to municipal buildings, urban dwellings and eventually to the rural districts. These stations are to range in capacity up to 150,000 kw. The total capacity of central heating plants is

scheduled to rise to 2,769,500 kw. The length of pipe lines of the regional stations alone, is to increase to 480 km. as compared with 60 km. in 1932, while the output of all central heating stations is planned to total 20 million megacalories as against 5.5 million in 1932.

During the second Five-Year Plan period power development is scheduled to continue along the lines outlined above, and, in addition, the electrification of agriculture and transportation, which has proceeded at a slower rate than that of industry, is to be more widely extended. To achieve the results desired, it is estimated that it will be necessary by 1937 to increase the capacity of all power plants from 4.7 to 10.9 million kw., and output to not less than 38 billion kw.-h. Of this total about two-thirds will go for industry and the balance for transportation, agriculture, municipal economy, dwellings and domestic needs. The length of the transmission network of the regional stations is planned to increase to 26,250 km.

This development will make the U.S.S.R. second only to the United States as a power producer. Capacity is to be increased by 132 per cent and output by 183 per cent during the five-year period. By 1937 regional plants are to account for three-fourths of the total power output. There will be constructed 79 regional stations as well as a number of large factory and municipal stations. A number of these were begun during the years of the first Five-Year Plan. Of the seventy-nine, 71 are scheduled to attain their full capacity on or before January 1, 1938. Total consumption of power by industry is scheduled to rise to 26.4 million kw.-h., three times the 1932 figures.

The longest high voltage line in the Union will be constructed in the Ukraine, connecting the Donetz Basin with the Dnieper district. The current will be of 220 kilovolts, and the system will have a capacity of 2.0 million kw. and an annual

output of 8.53 billion kw.-h. Several large new stations will tie in to the Ukraine net and existing stations will be greatly extended. The stations in the entire section from Odessa to Stalingrad will be inter-connected.

Another large electrical network will encompass the Moscow district and reach as far as Kazan. Several new stations will increase the output of the Moscow distributing system to twice that of 1932. High tension lines will connect Moscow with the Ivanovo and Gorky districts, this network to have a capacity of 1.4 million kw. and an output of 5.2 billion kw.-h. These power systems will be among the largest in the world.

Power development will be especially intensive in the eastern sections of the country. By 1937 these regions are to account for 20 per cent of all the power produced in the U.S.S.R., as compared with 6.5 per cent in 1932. This expansion is required to supply the new industrial centers in the Urals, Western and Eastern Siberia, Kazakstan, Central Asia and the Far East. The united Urals system will have a capacity of 1.3 million kw. with an output of 5.0 billion kw.-h.

A large amount of new construction is proposed in Central Asia, where during the first Five-Year Plan not a single regional station was erected. The power output of Central Asia will be developed to 256,000 kw. as compared with 6,700 in 1932. Transcaucasia is also being rapidly developed.

By 1937 the majority of the stations in the Soviet Union, both old and new, will operate on local fuel or water power, in the proportions of 60 and 20 per cent, respectively. A considerable saving on fuel and transportation will thus be effected.

ELECTROTECHNICAL INDUSTRY

The great increase in production and consumption of electrical current necessitated a corresponding expansion in the output of electrical machinery and apparatus. The achieve-

ments in this field have been noteworthy. Before the war what small factories Russia possessed manufactured only the simplest apparatus. All complex electrical machinery and equipment was imported. The output of 1913 was exceeded by that of 1925-26, tripled by that of 1928 and in 1932 production attained a value fourteen times the pre-war figure. The production program of the first Five-Year Plan was fulfilled in two and a half years and exceeded by 36 per cent in four years.

Annual production figures are given in the following table:

	<i>(in mill. rubles, 1926-27 prices)</i>		
1913	86.0	1925-26	98.8
1920	5.8	1926-27	131.4
1921	9.7	1928	239.3
1922	19.2	1929	339.3
1922-23	29.0	1930	589.6
1923-24	37.8	1931	1,014.1
1924-25	72.0	1932	1,218.3

Almost half of the output of the Soviet electrotechnical industry now consists of equipment for power plants. From the first turbogenerators of an average power of 1,300 kw. in 1924 the industry passed in 1930 to the manufacture of 24,000-kw., in 1931 to 50,000-kw., and in 1932 to 62,000-kw. hydraulic turbogenerators. The latter have been produced at the "Electrosila" plant in Leningrad for the Dnieper power plant. The Kharkov turbogenerator plant, which began operations in 1933, is equipped with machine-tools and cranes capable of producing and handling generators of from 50,000 to 200,000 kw. Its annual capacity is 1.5 million kw. The Ural electrical apparatus works, construction of which was started in 1933, will produce equipment for the high-voltage branch of the electro-technical industry. In 1933 erection was begun also of the Kashira works (near Moscow) which will have a capacity of 300 trunk-line electric locomotives annually.

The growth in output of power plant equipment and electrical apparatus during the past few years is shown in the following table:

ITEM	UNIT	1927-28	1929-30	1932	1933
Steam boilers	thous. sq. meters	87.1	164.3	163.3	197.3
Prime Movers					
Steam turbines	thous. kilowatts	35.7	24.1	239.0	634.5
Hydro turbines	" "	12.0	31.9	59.5	52.9
Steam engines	" horsepower	4.15	11.05	31.6	27.7
Diesel engines	" "	38.9	103.4	95.1	90.2
Other oil "	" "	58.8	154.8	116.5	133.1
Locomotives	" "	14.6	27.3	35.45	26.9
Electric Power Equipment					
Turbo-generators	thous. kilowatts	75.4	187.0	826.0	385.0
Hydro- "	" "	—	—	259.0	201.5
Other " (A.C.)	" "	17.6	42.0	79.3	150.0
Direct current machines	" "	40.2	95.4	151.0	114.0
A.C. motors	" "	258.6	632.6	1,658.0	1,385.0
Power transformers	" kva.	403.2	1,525.3	3,426.0	3,330.0
Oil circuit-breakers	pieces	1,812	7,046	11,592	10,185
Motor-generators	thous. kilowatts	2.9	2.0	32.8	37.7
Mercury rectifiers	" "	1.3	20.2	91.1	105.1
Electrical equipment					
for autos and tractors	million rubles	—	0.8	17.3	55.8
High-tension cable	kilometers	2,776	3,648	5,736	6,196

In 1934, production of steam turbines rose by 15 per cent, of hydro-turbines by 68 per cent, of Diesel engines by 46 per cent. Production of power machinery and equipment amounted to 1,019 million rubles in 1934, as compared with 885 million in 1933 (a gain of 15 per cent), and 814 million in 1932. Output of the low-tension branch of the electro-technical industry totaled 398 million rubles in 1934, as compared with 324 million in the previous year and 268 million in 1932. Production of consumers' goods (electric lamps, appliances, etc.), in 1934 almost doubled, totaling 93,681,000 rubles as compared with 48,770,000 rubles in 1933. By the end of

1933, 16 per cent of the boiler and 20 per cent of the turbo-generator capacity in regional power plants was made up of Soviet-built equipment, as against four and 3.7 per cent in 1930.

The total power of the generators produced in the U.S.S.R. in 1932 amounted to over one million kw. In the year 1928 the "Electrozavod" factory in Moscow produced transformers of 100 kva. capacity; in 1931 of 20,000 kva. and for a tension up to 150,000 volts; and in 1932 similar transformers for 220,000-volt transmission lines. Other equipment now manufactured includes: rotors for turbines of 50,000 kw. and up; condensers; high-pressure boilers; high-voltage cables, including cable of 380,000 volts; interurban telephone cables; motors of all kinds, including some of from 3,000 to 6,000 volts; electric furnaces and blooming mills; electric welding apparatus; electric locomotives and equipment for electric railways; electric plows and harvesters; electric pumps; electric mining equipment; automatic telephone stations and other telephone apparatus; storage batteries, magnetos, spark plugs, and a great variety of other electrical apparatus and equipment, including many household articles.

Despite the increase in domestic manufacture, the demand for electrical equipment exceeded production and large quantities had to be imported. Such imports totaled 48.8 million rubles in 1930, 53.4 million rubles in 1931, and 64.9 million rubles in 1932. Of these totals the United States supplied 12.2, 12.7 and 4.8 million rubles, respectively. The bulk of the imports from the United States have been made up of power-plant equipment. In 1933 total imports were reduced to 19.4 million rubles and those from this country to 1.04 million rubles.

A number of technical assistance contracts have been made with American companies or individual experts for assistance in the erection of the new power plants and in the manufacture

of electrical apparatus. Chief among these are: Col. Hugh L. Cooper, Dnieper River hydroelectric power plant; International General Electric Company, general technical assistance and exchange of patents; Newport News Shipbuilding and Drydock Co., technical assistance in the construction of turbines; Electric Auto-lite Company, technical assistance in the production of electrical equipment for automobiles and tractors.

The second Five-Year Plan calls for a several-fold increase in practically all branches of the electrical industry. Capital investments in excess of 600 million rubles are contemplated during the period, the bulk of which will go for the construction of a number of huge plants. The output of turbines is scheduled to be increased to 1.4 million kilowatts by 1937, of internal combustion engines to 2.6 million kw. and of generators to 1.4 million kw.

VIII

AGRICULTURE

As a result of the land redistribution following the revolution in 1917, whereby formerly landless peasants were enabled to obtain land, and the growing number of peasant families, the number of individual peasant farms increased from 15 million in 1913 to 25 million in 1927. In 1928 small individual peasant farms, averaging only 4.5 hectares,¹ still made up 97.3 per cent of the total sown area. Many of these farms were split up into a number of narrow strips often located at a considerable distance one from another, an old Russian system making the use of modern agricultural machinery and methods impossible. As late as 1928 one-third of the peasants still cultivated their fields with wooden plows, and three-fourths of the sowing and nearly half of the harvesting and threshing was done by hand. Such antiquated methods naturally resulted in a low level of production and in an entirely insufficient amount of marketable surplus of grain and agricultural raw materials. Despite the fact that the land holdings of the poor peasantry had been at least doubled in size and that the peasants consumed much more of their own products than before the war,² the primitive tools and methods employed made it impossible for the peasants to raise their standard of living to any appreciable extent.

The limitations of small-scale production were especially patent as regards marketable output. Although the total output of agricultural products steadily increased and by 1929

¹ 1 hectare = 2.47 acres.

² Prewar Russia, a big exporter of wheat, occupied one of the lowest ranks as regards per capita wheat consumption.

amounted to over 94 per cent of the prewar level, the amount of marketable output, *i.e.*, that available for consumption outside the villages, was less than the demand. This was attributed to increased consumption by the peasants themselves and to the breaking up of the large estates which before the revolution supplied a large part of the marketable surplus of agriculture. The marketable output of grain in the years 1927-1929, when total output already amounted to over 90 per cent of the prewar level, was less than half the prewar figure. The result was that the rapidly growing cities and industrial centers were inadequately supplied with grain, and exports were down to 1/3 per cent of the prewar total. The situation as regards industrial crops was much better, both total yield and marketable output exceeding the prewar level. Nevertheless, the supply was quite inadequate to fill the needs of industry, which during this period was registering an annual increase in production ranging from 20 to 30 per cent.

The disparity between the limited possibilities of small-scale agriculture, on the one hand, and the demands made upon it by the rapidly growing large-scale industry, on the other, made it necessary to speed up the reconstruction of agriculture. Consequently, the first Five-Year Plan included a program for the fundamental reorganization of agriculture.

The Five-Year Plan program provided for a considerable development of state and collective farms, involving the extensive use of modern agricultural machinery and scientific methods of farming. According to the Plan, by the end of the five-year period the sown area of state farms was to total 4.4 million hectares and that of collective farms 14.5 million hectares, their combined area to constitute 13.3 per cent of the total sown area. Together they were to supply 43 per cent of the marketable grain. The actual results greatly exceeded these schedules. By 1930 the full five-year program for collective

farms was considerably exceeded in all respects, while that for state farms was closely approximated. By 1933—instead of one-eighth of the sown area, as scheduled for 1932–33—state and collective farms accounted for over 83 per cent of the total. Instead of 43 per cent of the marketable grain scheduled for 1932–33, these farms in 1933 supplied more than 89 per cent of the total. They produce about 90 per cent of the country's wheat, cotton and sugar beets and about 80 per cent of the total production of flax fiber. By 1933 they accounted for 37 per cent of the meat, 60 per cent of the butter and milk, and 56 per cent of the wool delivered to the state.

Expansion of Sown Area

In connection with the process of collectivization and mechanization of agriculture, an increase in sown area of 21.4 million hectares was recorded during the first Five-Year Plan period. The sown area in 1932 totaled 134.4 million hectares, as compared with 113.0 million in 1928 and 105.0 million hectares in 1913. Of the total increase over 1928, 15 million hectares, or 70 per cent, was attained by the addition of new areas in the southern and eastern regions. State farms accounted for 11.7 million hectares, over half of the total. The increase in the sown area by crops is shown in the table below:

CROP	INCREASE 1932 OVER 1928		Per cent of total increase
	(in mill. hectares)	(in per cent)	
Grain	7.5	8.2	35.2
Wheat	6.9	24.9	32.2
Industrial crops	6.3	72.7	29.3
Cotton	1.2	123.8	5.6
Sugar beets	0.8	108.5	3.8
Long-fibre flax	1.1	84.0	5.3
Vegetables and melons	1.5	19.9	7.1
Forage crops	6.1	135.1	28.4
Total	21.4	18.9	100.0

As a result of the large increase in grain area (a gain of 7.5 million hectares), and the improvement in organization of production on large state and collective farms equipped with modern machinery, the government considers that the grain problem is practically solved. Wheat now constitutes one-third of the total grain area. Progress has been made in sowing wheat in the more northerly sections of the country.

The area under industrial crops increased by 6.3 million hectares, or 72.7 per cent, during the first Five-Year Plan period. Over half of the new area is accounted for by the standard crops (cotton, flax, hemp and sugar beets) and the remainder by new crops (soy beans, tea, new fiber crops, medicinal herbs, etc.) The area sown to sugar beets and to cotton was more than doubled. The Soviet Union is one of the leading countries of the world as regards sugar-beet production. The major sugar-beet regions are the Ukraine and the Black Soil region.

The increase in the area sown to cotton was the result both of expansion of cultivation in the old cotton-growing districts, Central Asia, Kazakstan and Transcaucasia, which account for over two-thirds of the total acreage, and of development of new cotton districts in the Ukraine, Crimea, North Caucasus, etc. Expansion of cotton cultivation in old districts has been facilitated by extensive construction and reconstruction of irrigation works and by completion in 1930 of the Turkestan-Siberian Railroad. This railroad, by bringing Siberian grain to Kazakstan and Central Asia, has made it possible to restrict the area under grain in these sections and expand the cotton area. In the five years from 1928 to 1933 the irrigated area, principally in the cotton regions, was increased by 1.5 million hectares, bringing it to a total of 5.7 million hectares.

The extension of the area under cotton to over two million

hectares and of that under long-fiber flax to over 2.5 million hectares, together with the mechanization of their cultivation and harvesting and the growing of new fiber crops, has resulted in an enlargement of the domestic raw-material supply of the textile industry. Cotton imports, which before the war reached 200,000 tons and in 1928 amounted to about 144,000 tons, dropped to a total of 22,000 tons in 1933. From 1924 to 1930, inclusive, the Soviet Union purchased a total of \$263,-000,000 worth of cotton from the United States alone, an average of over \$37,000,000 a year.

The increase in the area sown to vegetables, from 800,000 hectares in 1928-29 to 2,319,000 hectares in 1933, has been an important factor in improving the food supply of the cities. In addition, an area of 5,602,000 hectares was sown to potatoes and 700,000 hectares to melons in 1933. While these totals were smaller than in the preceding year, the decrease in area was largely compensated for by an increased yield per hectare. An especially large expansion of area has taken place in the suburban districts, where the consumers' co-operatives alone had 466,800 hectares of garden truck in 1932. Of the total vegetable area in 1932 state and collective farms accounted for 62 per cent. The marketable output of vegetables and melons totaled 4.2 million tons and of potatoes almost 9 million tons.

The area sown to the principal crops in 1932, as compared with 1928 and 1913, is given in the table below:

	1913	1928		1932			
	TOTAL AREA SOWN (mill. hectares)	TOTAL AREA SOWN	SHARE SOWN BY STATE COLLEC- FARMS TIVE FARMS (Per cent)		TOTAL AREA SOWN	SHARE SOWN BY STATE COLLEC- FARMS TIVE FARMS (Per cent)	
Total	105.00	112.99	1.5	1.2	134.43	10.0	68.1
Grain	94.36	92.17	1.2	1.1	99.71	9.3	69.3
Wheat	31.65	27.73	1.3	1.6	34.63	12.7	77.9
Industrial crops	4.55	8.62	3.7	1.9	14.88	6.5	76.3
Cotton	0.69	0.97	1.5	1.8	2.17	6.9	65.8
Flax, long-fiber	—	1.36	0.3	0.7	2.51	2.0	63.3
Sugar beets	0.65	0.77	26.0	1.6	1.54	13.0	72.1

Further large expansion of the sown area is considered unnecessary for the present, emphasis now being laid upon increasing the yield. The results of the sowing and harvesting campaigns in 1933 and 1934, the first two years of the second Five-Year Plan, have seemed to justify this course. While the area sown, 129.7 million hectares in the former and 130.2 million in the latter year, was slightly below that of 1932, much greater care was taken in carrying out the work according to the best agricultural practice. In 1934 state and collective farms accounted for 86.4 per cent of the total sown area, as against 83.2 per cent in 1933. Of the total area in 1934, grain crops made up 103.5 million hectares, industrial crops 10.6 million, potatoes 6.1 million, melons and vegetables 2.7 million and feed crops 7.1 million.

State Farms

The organization of state farms (*i.e.*, state-operated farms employing hired labor) was begun in 1918, almost immediately after the establishment of the Soviet régime. For the first ten years, however, these state farms were comparatively few in number and small in size. Only in 1928 was the organization of large state farms undertaken on a broad scale. The first to be organized were the state grain farms. Soon thereafter there were organized farms devoted to other branches of agriculture. These were grouped, according to their specialization, into large combinations or trusts, such as the Grain, Sugar, Cotton, Sheep-breeding and Cattle-breeding Trusts.

During the period of the first Five-Year Plan (1928-1932) the number of state farms rose from 3,125 to 10,200, and their total area increased from approximately 4,000,000 to over 82,000,000 hectares, an area double the territory of Poland and exceeding that of France and Germany by 50 and 75 per cent, respectively. Their sown area increased from 1,735,000 to 13,500,000 hectares, including 9,300,000 hectares

under grain. This is about three times the sown area set for 1932-33 by the Plan, and equal to the entire arable area of Italy or Rumania. The extension in sown area was accounted for almost entirely by virgin soil; over half of the total increase was in the grain regions of the South. The number of tractors employed by the state farms mounted to nearly 64,000, and the number of workers to over 2 million. The extent of draft power per worker rose from 0.14 hp. in 1928 to 0.58 hp. in 1932, resulting in a considerable increase in labor productivity. The harvested area per worker increased from 3 to 7 hectares during the four-year period.

Additional development of state farms was reported in 1933 and 1934. The sown area increased to 15,026,000 hectares, an increase of eleven per cent over 1932. The number of tractors rose to 99,000 (an increase of 55 per cent) with a total horsepower of 1,714,000. The amount of grain delivered to the state in 1933 totaled 1.4 million tons, an increase of 16 per cent over 1932. The higher yield was due in large measure to improved quality of work; weeds were extensively destroyed before plowing and most of the land was plowed deeply.

Considerable progress has also been recorded in the development of stock-breeding on state farms. About 2,000 state livestock farms have been organized. By the spring of 1934 the herds of the *soukhozi* embraced about 4.4 million head of cattle, 8.6 million head of sheep and goats, and 4.2 million head of swine.³ The network of state grain and livestock farms

³ These totals, as well as the other data in the table following, include farms operated by cooperatives and by the food supply departments of industrial enterprises. In recent years these farms have played an increasingly important part in supplementing the supplies of meat, dairy products and vegetables furnished to the city population by the peasant farms and the regular commercial state farms. The generic term for all these farms employing hired labor (in contrast to the collectives or individual peasant farms) is *soukhozi* (Soviet farms). Other livestock of *soukhozi* at the end of 1933 included 1.5 million poultry and 1.2 million rabbits.

became so extensive that a special commissariat was organized in October, 1932, to supervise their work. The 15-month schedule (October 1, 1932-January 1, 1934) for meat procurements was on the whole carried out by the state livestock farms, which delivered to the state during this period a total of 229,330 tons, nearly double the amount delivered during the preceding 15-month period (130,000 tons). Milk procurements from state farms likewise registered a considerable increase, reaching 28,700 tons (in terms of butter fat) in 1933, as compared to 23,300 in 1932. Procurements of goats' milk cheese totaled 2,800 tons as against 2,900 in 1932. In 1934 meat deliveries to the state by state farms totaled 241,700 tons as compared with 129,000 tons in 1933; butter deliveries rose to 32,000 tons, compared with 27,500, and wool, to 9,700 tons as compared with 9,200 in the previous year.

The following table sets forth the main points in state farm development during the years 1928-1934 (including also the farms operated by cooperatives and by workers' supply departments of industrial enterprises):

	1928	1930	1932	1933	1934
<i>A. Number of state farms</i>					
Total	3,125	4,870	10,203	10,510	—
Large trustified	1,407	2,862	4,523	4,742	—
<i>B. Area, total (thous. ha.)</i>					
Sown area	1,735	4,926	13,557	14,107	15,026
Per cent of total	1.5	3.6	10.0	10.9	11.4
Grain	1,096	2,924	9,244	10,845	11,608
<i>C. Grain delivered to state (thous. tons)</i>					
	50.2 ⁴	470.7	1,204	1,400	—
<i>D. Livestock (thous. head in spring of year)</i>					
Cattle	180	741	3,526	3,762	4,435
Cows	60	306	1,716	1,698	1,823
Sheep and goats	747	2,754	7,221	7,725	8,595
Hogs	59	190	1,928	2,559	4,192

⁴ 1929.

	1928	1930	1932	1933	1934
<i>E. Tractor supply</i>					
Number of tractors (at end of year)	6,719	24,653	63,957	82,661	98,947
Capacity (thous. hp.)	77.6	444.6	1,043	1,395	1,714
Mechanized traction					
(in per cent of total)	51.7	—	67.0	—	—
<i>F. Labor</i>					
No. of workers (thous.)	316.8	724.0	2,030.5	2,176.2	—
Wages, aver. annual ⁵	327.4	543.0	902.8	—	—
<i>G. Basic capital</i> (mill. rubles, 1926-27 prices)					
	301	566	2,880	3,767	4,484

⁵ For workers on state farms and at machine-tractor stations.

The average area of the state grain farms in 1932 was 56,000 hectares and the average sown area 25,000 hectares. The largest grain farms—from 50,000 to 100,000 hectares—proved to be unwieldy, and are now being reorganized into farms of 15,000 to 25,000 hectares. State cattle ranches ranging in size from 100,000 to 800,000 hectares, which were first organized in 1930, now extend over the prairie lands of Kazakstan, Siberia, and, to a lesser extent, of the Lower and Middle Volga Regions.

In organizing and operating such enterprises many problems and difficulties arose, such as those involved in devising the best methods and forms of carrying on large-scale farming, training capable managers, training the greatly increased number of workers on state farms, most of whom had practically no knowledge of modern agricultural machinery, etc. Progress in solving these problems has been reported by the government agencies.

The government decree, of December 22, 1933, ordering the breaking up of the larger state grain farms provided that 70 of the existing farms be reorganized during 1934 and the remainder during 1935. The farms are being divided into units of not more than 2,000 to 2,500 hectares and the inclusion in a single farm of separate plots of land not easily ac-

cessible from a central point is to be avoided. In order to make better use of products otherwise largely wasted, as well as hay and pasture facilities, subsidiary sections are to be organized for the raising of cattle, sheep, hogs and poultry. Special measures are to be taken to provide a permanent supply of skilled workers and specialists, including the granting of loans to encourage building of houses by individuals and for the purchase of livestock for personal use.

Collective farms

Collective farms differ from state farms in that they are not state-operated enterprises, but consolidations of individual holdings jointly operated by the peasants. There are three main types of collective farms:

1. *Associations for the joint tillage of land*—means of production not socialized; land cultivated by joint labor of members of associations.

2. *Artels*—all basic means of production (land, labor, machinery and implements, work animals, farm buildings) socialized; dwellings, livestock for domestic use, land adjoining homes (small garden and vegetable plots), and personal belongings not socialized.

3. *Communes*—all means of production, also distribution, socialized; only articles for personal use remain individual property.

The peasant associations, the most primitive type, made up 60 per cent of the total in 1928, but have since been replaced for the most part by the artels. The latter have become the basic form of collective farms, by 1932 constituting 92 per cent of the total, while peasant associations and communes accounted for only about four per cent each. The transition to the artel form meant the bringing together of the small, scattered strips of land into one large tract, and the socialization of the buildings, machinery, tools and horses utilized for its cul-

tivation. Only in case the collective decided to specialize in some branch of commercial livestock enterprise were the members to contribute a portion of their livestock to the collective herd. In any case each household was expected to retain a milk cow or two and as many pigs, sheep, chickens, rabbits, etc., as desired for home consumption.

The collectivization campaign suffered a temporary setback in 1930 as a result of too rapid development. Thereafter, collectivization proceeded more slowly but the number of peasants enrolled in collectives grew steadily. The percentage of the total number of peasant families in collectives, which was 3.9 in 1929 and in 1930 had grown to 23.6, reached 52.7 in 1931, 61.5 in 1932, and 71.4 at the middle of 1934.

In 1934, the number of collective farms rose to 240,000, a gain of 15,500 over the previous year. Their sown area embraced 90 per cent of the area sown by peasants and collectives and 75 per cent of the entire sown area of the country. Of the total grain output in 1934, collective farms accounted for 77 per cent. Collective livestock and dairy farms totaled 194,000 on December 31, 1934, increasing by 62,000 during the year, while the number of livestock on these farms rose to 21 million head.

The chief factor in raising productivity and, consequently, income on the collective farms was the mechanization of production made possible by the larger units and the aid rendered by the state-operated machine-tractor stations. The latter provide the collectives with tractor and machinery service and agronomical and organizational guidance in return for a share of the crop. They have played a leading rôle in the reconstruction of agriculture along the lines of machine technique and scientific farming. The number of these stations increased from 158 in the spring of 1930 to 2,100 in the spring of 1932, 2,650 in the spring of 1933 and close to 3,500 by the

end of 1934. According to the first Five-Year Plan, the machine-tractor stations were to embrace a sown area of three million hectares within five years and an area of 25 million hectares within ten. But as early as 1931 they sowed an area of 29 million hectares and in 1933 of 55.4 million hectares, or 58 per cent of the total area sown by collectives. They accounted for 57 per cent of the grain area sown by the collectives, 96 per cent of the cotton area and 90 per cent of the sugar-beet area. During the spring sowing of 1934, the machine-tractor stations sowed 44.4 million hectares, nearly two-thirds of the total area sown by collectives.

Slightly over half of the stations serve collective farms in the grain regions, from 200 to 300 each are established in the cotton, flax and sugar-beet districts, and the remainder in districts devoted to the raising of hemp, tobacco, rice, fruits and vegetables, etc. Over one-third of the collective farms are now served by machine-tractor stations, which operated almost 4,000 repair shops by the end of 1933.

The progress recorded by collective farms during the past six years is summarized in the table below (figures as of June 1):

	1928	1932	1933	1934
A. Number of collective farms				
(thous.)	33.3	217.1	224.5	233.3
Number of peasant households collectivized (mill.)	0.4	14.9	15.2	—
Per cent of total	1.7	61.5	65.0	71.4
B. Sown area (thous. ha.)	1,370	91,579	93,858	98,550
Per cent of total sown area	1.2	68.1	72.4	75.0
Average sown area per collective farm	42.0	434.0	418.0	422.4
C. State procurements or quotas				
Per cent of total grain deliveries by peasantry	3.3	77.3	88.7	—
Per cent of total cotton deliveries	1.86	78.6	90.0	—
D. Livestock in commercial dairy and livestock collective farms (in thous. head)				
Cattle	152	5,305	5,550	6,608
Hogs	45	2,369	2,500	2,930
Sheep and Goats	223	5,445	6,342	9,844
Poultry	—	3,630	3,250	—

	1928	1932	1933	1934
Rabbits	—	1,040	1,366	—
E. <i>Tractor supply</i> (of collectives and machine-tractor stations)				
Number of tractors	20,714 ⁶	84,500 ⁷	127,700 ⁷	179,500 ⁷
Capacity (thous. hp.)	200.5 ⁶	1,182.0 ⁷	1,809.9 ⁷	2,746.2 ⁷
F. <i>Basic capital</i> (mill. rubles, 1926-27 prices) ⁸				
	79	6,478	6,309	6,614

⁶ As of October 1, 1928, on collective farms.

⁷ As of January 1 of the following year.

⁸ As of January 1 of each year.

About the middle of 1931, when thirteen million peasant households, or over half of the total, had joined the collective farms, emphasis was shifted from the task of attracting additional peasants into the collectives to that of strengthening the internal organization of the collective farms already established. The piece-work system of remuneration, laid down as a general principle in the "model statutes" adopted in 1930, was not put into practice on the majority of farms until 1931. According to this system, farm work is divided into a number of categories (now set at seven), a norm of work per day (quantity and quality) is set for each category, and a valuation of this norm in so-called "labor-days" is established, ranging from one-half a labor-day for the least skilled work to two or more labor-days for the highest skilled. In carrying out the work the members of a collective farm are divided into a number of so-called "brigades," each assigned a definite parcel of land and a definite production program. At the end of the year the crop—after state assessments and special funds for seed, fodder, social and cultural work, etc., have been set aside—is divided among the collective farm members in accordance with the number of "labor-days" credited to each.

Another measure designed to stimulate the peasants to increased efforts was the inauguration, early in 1933, of a system of fixed quotas instead of state procurements of grain and dairy products. Under this new system the peasants know in

advance exactly what proportion of their total grain, dairy and other produce must be delivered to the state at fixed prices. The better the crop the greater the surplus of products remaining for their own disposal, either to keep or to sell. In this respect the state and collective farms are entirely different. Everything a state farm produces above its own needs (food, fodder, and seed) is turned over to the state; everything a collective farm produces above the fixed government quota and the share due the machine-tractor station belongs to it to dispose of as it sees fit. The only stipulations made by the state in this regard are that sufficient produce must be set aside for the collective's seed fund and that a part of the income be paid to the fund out of which loans which have been made to the collective are repaid.

Beginning with May, 1932, when measures were taken providing for the unrestricted sale of all surplus produce from the collectives, collective farm trade has shown steady development. By the fall of 1932 there were already over 20,000 collective farm booths and stands in the towns. In addition to the regular day-to-day trade large fairs are organized from time to time embracing one or more districts. Collective farm trade constitutes a vital factor both in the economic strengthening of the collective farms and in the improved provisioning of the city workers.

Capital Investments

The extensive reconstruction of agriculture has involved heavy capital investments. Investments in socialized agriculture during the four and one-quarter years of the first Five-Year Plan totaled 10.8 billion rubles, 50 per cent in excess of the original schedule set for five years. Of the total, 3 billion went to the share of the collective farms and machine-tractor stations. The collectives and stations invested an additional 1.7 billion rubles from their own resources. State investments went

for agricultural machinery, organization of machine-tractor stations, extensive irrigation and reclamation work, farm buildings (modern cattle barns, silo-towers, garages, repair shops, etc.), dwellings, clubhouses, and other communal structures. As a result of these investments and the development of collective and state farms, the basic capital of the socialized sector of agriculture (including dwellings) increased from 1.37 billion rubles on January 1, 1928 to 13.35 billion on January 1, 1933; the value of farm inventory (tractors, implements and means of transportation) increased from 170 to 3,274 million rubles, and to 3,990 million rubles on January 1, 1934. In agriculture as a whole the value of machinery and implements on January 1, 1934 was 5.3 billion rubles, having shown a gain of over 75 per cent in five years.

During the first two years of the second Five-Year Plan period Soviet farms received agricultural machinery to a value of 1.3 billion rubles including 137,000 tractors, all of which were of Soviet manufacture. The total tractor power in agriculture rose from 278,000 hp. on October 1, 1928, to 4,500,000 hp. by the end of 1934, while the average power per tractor increased from 10 to 15 hp. In addition to 281,000 tractors, there were at the end of 1934 approximately 33,000 combines, 129,000 threshers and about 34,000 trucks and cars at work on farms in the U.S.S.R. Tractor-drawn machinery made up 84 per cent of all the agricultural machinery in use in 1932, as against only 4.6 per cent in 1927-28. In the early years of the first Five-Year Plan this machinery consisted chiefly of machines used in grain raising, but by the end of the period machinery for the cultivation and harvesting of industrial crops constituted a substantial share of the total.

Practically the entire supply of tractors and agricultural machinery is now concentrated in the machine-tractor stations and on large state farms, the former having 63 per cent and

the latter 35 per cent of the total number used in agriculture. This concentration is intended to make for the maximum utilization of the machinery. A tractor of a machine-tractor station works on the average 2,000 hours per year, considerably more than the norm of utilization in many countries.

In order to carry out properly the new methods of cultivation involved in large-scale, mechanized agriculture, it has been necessary to train many workers and peasants in the new technique. In 1933 the number of students in agricultural colleges reached 60,600 as against 27,300 in 1928; in secondary agricultural schools 121,400, as compared with 62,800. In addition, 4.5 million peasants in 1932 took special agricultural courses. Among the latter were about 400,000 tractor drivers and 500,000 brigade and field-work leaders. During the five-year period over 50,000 organizers and directors received special training. All this, however, is only a small beginning in the great task of transforming the illiterate peasantry of pre-war days, accustomed to only the most primitive tools, into skilled agriculturists, conversant not only with scientific methods of cultivation, but also with the entirely new organizational forms of socialized agriculture. It is expected that by 1937 the number of students in agricultural colleges will have been increased to 106,000 and the number in technicums (secondary agricultural schools) to 197,000.

Grain Crop

The 1933 grain crop was reported to have been the largest in Russian history. The total grain harvested, 89.8 million tons, was 12 per cent greater than the record crop of 1913 and 28 per cent above the 1932 crop (69.87 million tons). The gain was due primarily to increased yield per hectare, the area under grain in 1933 being only 1.6 per cent above that of 1932. The yield per hectare was 25.7 per cent larger, amounting to 8.8 centners in 1933, as

against 7.0 centners in 1932 (7.5 centners in the five year period 1928-1932 and 7.4 centners in 1909-1913). The grain area, yield and harvest, by principal crops, is given below:

	1932			1933		
	SOWN AREA (mill. ha.)	YIELD (centners per ha.)	HARVEST (thous. tons)	SOWN AREA (mill. ha.)	YIELD (centners per ha.)	HARVEST (thous. tons)
Wheat	34.63	7.4 ⁹	20,250.0	33.24	10.8 ⁹	27,726.8
Rye	25.20	8.4 ⁹	22,020.0	25.38	9.5 ⁹	24,185.7
Barley	6.30	6.7 ⁹	5,030.0	7.26	9.7 ⁹	7,848.4
Oats	14.40	7.3	11,240.0	16.68	9.2	15,410.9
Millet	7.68	5.6	4,330.0	8.85	5.5	4,825.7
Corn	3.50	9.3	3,430.0	3.96	12.1	4,800.4
Buckwheat	1.66	5.6	920.0	2.04	5.5	1,265.2
Others	6.34	—	2,650.0	3.94	—	3,739.2
Total	99.71	7.0	69,870.0	101.35	8.8	89,802.3

⁹ Yield for winter crop; 1933 spring crop yields: wheat—7.1; rye—8.3; barley—10.9.

In a number of republics and regions the yield per hectare was considerably higher than the average for the country as a whole. In the Ukraine, for example, the average yield for all grains was 11.2 centners per hectare, as compared with 8.1 in 1932 and 10.5 in 1930.

Grain collections were 21.2 per cent above the 1932 figure; those for wheat and oats 49.3 and 63.7 per cent greater. Collectives supplied more than 80 per cent of the total collections, while the individual peasants contributed only somewhat more than 10 per cent. The remainder was accounted for by the state farms. Of the total grain collections in 1933, totaling about 20 million tons, the collectives contributed over 16 million tons, the state farms 1.4 million and the individual peasants 2.1 million tons.

The 1934 grain crop practically maintained the high level attained in 1933, totaling 89.4 million tons. Wheat (30,410,000 tons) and oats (18,900,000 tons) showed substantial increases; rye (20,130,000 tons), barley (6,840,000 tons) and corn (3,840,000 tons) declined both in total production

and average yield. The slight decline in the total grain crop was due chiefly to the severe drought which affected certain areas in the spring of 1934. The better organization of harvesting, irrigation and other measures resulted in a higher yield per hectare and largely counteracted the effects of the drought. Despite the unfavorable meteorological conditions the yield per hectare for spring wheat amounted to 8.9 centners, exceeding the proposed yield in 1937 by 11.2 per cent, and the yield in 1933 by 1.8 centners. The yield for all grain crops was 8.5 centners, slightly less than in 1933. Deliveries to the state amounted to about 25 million tons, exceeding those of the preceding year.

Industrial and Other Crops

The 1933 harvest of industrial crops, despite a slight decrease in sown area, was also considerably higher than in 1932, and, with the exception of sugar beets, higher than in any preceding year. A yield of from 150 to 180 centners per hectare was attained in a number of sugar-beet districts, but the average yield for the country as a whole was still low—74 centners per hectare. The average cotton yield on collective farms was 8 centners per hectare, as against 7 centners in 1932. The total cotton crop in 1933 amounted to 1.32 million tons, 59 per cent more than in 1928 and about 80 per cent above the pre-war level. Of the total output in 1933 Egyptian cotton constituted 30,150 tons, as against 22 tons in 1928.

The decreased yield per acre in recent years, as compared with before the war, was due primarily to the introduction of new, hitherto uncultivated cotton land. In 1933 the yield per hectare amounted to 0.64 tons and in 1934 0.68 tons.

Among the factors contributing to the expansion of cotton cultivation are collectivization of cotton-raising areas, extensive irrigation projects, mechanization, increased application of mineral fertilizers, and improvement of quality of the seed. In

1927 individual peasants sowed 98 per cent of the total cotton area. In 1933, 89.8 per cent of the total area under cultivation was sown by collectives and state farms (1,713,400 and 128,100 hectares respectively), while individual peasants sowed only 210,100 hectares.

The collectivization of cotton growing made possible extensive mechanization of operations. The number of machine and tractor stations serving cotton collectives increased from 19 in 1930 to 230 in 1933, while the total horse-power of tractors employed in the cotton regions increased from 12,300 to more than 192,000, of which 136,000 hp. were in the service of the machine and tractor stations and 56,000 on state farms. Another step in the direction of mechanization is the development of the mechanical cotton picker, which has been introduced in many districts.

A great deal has also been achieved in improving the quality of the cotton. The average length of cotton fiber before the war was 26 mm. and in the last three years—27.5. About 37 per cent of the total area in 1934 was sown to long-fiber cotton (28 mm. and longer) as compared with only 22 per cent in 1933.

The oil-seed crop in 1933 was 4.6 million tons, as compared with 4.5 in 1932. Half of the total was accounted for by sunflower seeds, the 1933 harvest of which exceeded that of 1932 by 80,000 tons. Sunflowers and flax are grown more extensively in the U.S.S.R. than in any other country. Nearly four million hectares were sown to sunflowers in 1933, the chief producing sections being the Ukraine and the Central Black Soil, Lower and Middle Volga, and North Caucasus Regions. Long-fiber flax, grown chiefly for its fiber, is raised principally in the central and western sections (Moscow, Western, Ivanovo Industrial and Gorky Regions); curly flax, cultivated primarily for its seed, is grown further south—in the Central Black Soil, Lower Volga and North Caucasus Regions. The

1933 tea crop totaled 3,168 tons of tea leaves, yielding about 770 tons of dried tea, nearly double the 1932 figure (396 tons). The yield per hectare in 1933 was 803 kilograms, as against 700 kg. in the preceding year.

Preliminary reports of the 1934 crop indicate considerably higher returns for sugar beets, tea and tobacco. Flax and sunflower seeds recorded declines while the cotton crop remained at the level of the preceding year. The harvest of sugar beets increased by 26.4 per cent and the yield per hectare from 74 to 96 centners. The tea leaf crop more than doubled, amounting to 6,560 tons and yielding about 1,480 tons of tea. The yield per hectare of irrigated cotton increased to 8.1 centners as compared with 7.8 centners in 1933 while the average yield for the entire cotton area was 7.5 centners as compared with 6.4 centners in 1933. The yield per hectare of flax fiber (2.53 centners) recorded a gain of ten per cent, but owing to a larger drop in the sown area the harvest was slightly below that of 1933. The yield of tobacco amounted to 8.8 centners per hectare as compared with 6.3 during 1928-1932, and for sunflower seeds—5.9 centners as against an average of 5.2 centners from 1928 to 1932 and 6.0 centners in 1933. The potato yield in 1934 totaled 91.6 centners per hectare as compared with 78.1 centners in 1928-1932 and 87.1 centners in 1933.

The sown area and harvest data for the principal industrial crops in recent years are given below:

	COTTON (UNGINNED)		SUGAR BEETS		FLAX (LONG FIBER)	
	<i>Sown area</i>	<i>Harvest</i>	<i>Sown area</i>	<i>Harvest</i>	<i>Sown area</i>	<i>Harvest</i>
	(<i>in mill.</i> <i>ha.</i>)	(<i>in mill.</i> <i>tons</i>)	(<i>in mill.</i> <i>ha.</i>)	(<i>in mill.</i> <i>tons</i>)	(<i>in mill.</i> <i>ha.</i>)	(<i>in mill.</i> <i>tons</i>)
1913	0.70	0.74	0.62	10.90	1.86	0.45
1928	0.97	0.82	0.77	10.14	1.36	0.32
1930	1.58	1.11	1.04	14.02	1.47	0.44
1932	2.17	1.27	1.54	6.56	2.51	0.50
1933	2.05	1.32	1.21	9.00	2.40	0.56
1934	1.94	1.32	1.18	11.36	2.11	0.53

The statistics on sown area of some of the other industrial crops, aside from those given in the table above, are shown in the following table:

	SOWN AREA				
	<i>(in thousands of hectares)</i>				
	1928	1930	1932	1933	1934
Sunflower *	3905	3386	5306	3897	3500
Soybean	48	332	300	164	113
Hemp	913	728	944	755	598
Kenaf	12	55	40	12	11
Tobacco *	45	54	99	89	90
Mustard	83	113	318	265	258

* The sunflower seed crop for the corresponding years totaled (in millions of tons): 2.13, 1.63, 2.27, 2.35 and 2.08; the tobacco harvest totaled 56,850 tons in 1933 and 79,200 tons in 1934.

The Livestock Situation

The raising of livestock in the U.S.S.R. suffered a severe setback during the years of the first Five-Year Plan. Chief among the factors contributing to this situation were: the wholesale slaughter of cattle, horses, etc. instigated by the hostile elements in the peasant population as a form of resistance to collectivization; illegal insistence, in some instances, by overzealous local organizers upon collectivization of small livestock, etc.; inadequate care of stock due to lack of experience of members of collectives. As a result of these and other factors, the number of horses, cattle, and swine was cut in half during the period from 1928 to 1933 and the number of sheep and goats reduced by 65 per cent. The rate of decline was greatest during the years of intensive reorganization of the system of agriculture (1930-1932). With this process well on the way towards completion, 1933 witnessed an appreciable lowering of the rate of decrease. In the case of swine the decline was definitely checked and there was a gain of 600,000 head over the previous year.

The year 1934 marked a turning point in this field in that the decline in the number of livestock which characterized the

preceding years was halted, and an upward trend started. The July, 1934, census of livestock, the results of which are given in the table below, registered a 10 per cent increase in the number of cattle, a three per cent gain in the number of sheep and goats and an increase of 44 per cent in the number of swine, as compared with July, 1933. For cattle and sheep and goats this was the first increase recorded in a number of years. Only the number of horses declined, by 5.5 per cent, but the number of young horses and colts increased by 311,000 head (12.4 per cent). Preliminary returns from the January, 1935, livestock census indicated that the upward trend started at the beginning of the year had been maintained. The number of cattle of collective farms and belonging to individual and collective farmers registered a gain of 21 per cent as compared with January 1, 1934; pigs increased by 118 per cent and sheep and goats by 11 per cent. The decline in the total number of horses dropped to three per cent during the year. At the same time, the number of horses on collective farms increased by 8.5 per cent.

LIVESTOCK IN U.S.S.R.
(in millions of head)

	HORSES	CATTLE	COWS	SHEEP AND GOATS	SWINE
1928	35.5	70.5	30.8	146.7	26.0
1929	34.0	68.1	30.3	147.2	20.9
1930	30.2	52.5	26.7	108.8	13.6
1931	26.2	47.9	24.4	77.7	14.4
1932	19.6	40.7	21.0	52.1	11.6
1933	16.6	38.4	19.6	50.2	12.1
1934	15.7	42.4	19.6	51.9	17.5

DISTRIBUTION OF LIVESTOCK
(in millions of head)

	STATE FARMS	COLLECTIVE FARMS	COLLECTIVIZED PEASANTS	INDIVIDUAL PEASANTS
<i>Horses</i>				
1930	0.21	4.44		25.37
1931	0.62	12.12		13.07
1932	0.89	10.77	0.36	6.79
1933	0.82	10.12	0.43	4.37
1934	0.96	9.94	0.39	3.37

	STATE FARMS	COLLECTIVE FARMS	COLLECTIVIZED PEASANTS	INDIVIDUAL PEASANTS
<i>Cattle</i>				
1930	0.74	3.57		47.81
1931	2.53	8.27		36.46
1932	3.53	10.11	12.70	13.43
1933	3.69	9.17	14.88	9.62
1934	4.43	9.86	17.21	9.32
<i>Cows</i>				
1930	0.31	1.41		24.75
1931	1.20	3.00		19.74
1932	1.72	3.04	8.14	7.54
1933	1.70	2.97	9.00	5.20
1934	1.82	3.09	9.15	4.52
<i>Sheep and Goats</i>				
1930	2.65	5.61		100.10
1931	4.85	12.35		59.83
1932	7.22	12.08	14.56	17.72
1933	7.63	12.24	17.28	12.29
1934	8.60	14.13	17.51	10.53
<i>Swine</i>				
1930	0.19	0.86		12.46
1931	1.13	2.52		10.57
1932	1.93	3.22	2.90	2.87
1933	2.54	2.97	3.77	2.18
1934	4.19	3.70	5.42	2.73

There were on January 1, 1935, 194,000 collective farms engaged in the production of livestock for the market, making up 80 per cent of the total number of collective farms. The aim is to establish livestock sections on every collective farm. Aside from these, there are about 2,000 state-owned livestock farms, all established in the last few years. A number of these are devoted to the development of improved breeds of stock for the collective farms.

A definite indication of the improvement in the livestock situation last year is the considerable reduction in the losses of young livestock. In 1934, deaths of calves amounted to 13.8 per cent of the total births as compared with 19.7 per cent in 1933. The percentage declines in losses for pigs and lambs

were 14.4 and 9.0 per cent, as compared with 24.9 and 12.2 per cent, respectively, in the previous year.

The government has outlined a comprehensive program embracing every phase of the livestock problem. In order to encourage the establishment of livestock sections and increase of production on the collective farms various special tax exemptions will be granted. The quota for meat deliveries to the state established for 1934 is to be left unchanged in 1935 and 1936 and it is strictly prohibited to require collective farms to sell livestock above the compulsory norms.

Aside from measures to stimulate the growth of the collectively-owned herds, assistance is being extended to collective farm members to purchase livestock for their personal use. In the latter part of 1933 and the first half of 1934, these farmers were enabled to purchase 1,500,000 calves and two million suckling pigs with the assistance of government credits without interest. By April, 1935, it was planned that 2,000,000 more calves would be purchased, and within two years it is expected that every peasant home will have its cow and other livestock.

Attention is now being devoted to improving the herds. In order to extend the distribution of blooded stock, state registration of cattle has been organized in all regions, under the control of the Commissariat for Agriculture. The breeding of selected stock is encouraged by means of special tax exemptions, exhibits, and competitions among the various farms.

For the organization of correct feeding, special plots of land have been set aside for sowing of grain fodder and root crops. The state livestock farms have introduced crop rotation of feed crops. The collective livestock farms are to devote five million hectares of additional land in 1935 for the purpose of growing feed crops. This area will be exempt from taxation.

In connection with the basic reconstruction of the livestock

industry the field for veterinary work has been greatly broadened. The number of districts receiving veterinary service has increased considerably and now totals over 4,400. In addition there are 6,800 points at which assistant veterinarians are stationed. An even greater expansion in veterinary services is required, however. In 1934, there were still 40,000 head of cattle to each veterinary doctor.

In order to cope with this situation there has been created a large network of veterinary educational institutions. In pre-war Russia there were only four veterinary institutes, graduating a few dozen specialists annually from each. At the end of 1934 there were eleven veterinary and four zootechnical colleges and 32 veterinary and zootechnical faculties at agricultural colleges, the number of students in these totaling 15,421. In addition, there were 32 veterinary technicums and 45 veterinary departments in other technicians, 70 zootechnicums and 92 such departments in other technicums; the students in these secondary institutions and faculties at the end of 1934 totaled 32,095.

Second Five-Year Plan

A great deal remains to be accomplished in agriculture in the way of improving organization, extending the application of machinery and modern methods, training peasants in the use of new equipment, increasing yields and developing livestock production. These tasks are given emphasis in the second Five-Year Plan program for agriculture. The output of the livestock industry is scheduled to record a gain of 125 per cent. Grain production is to reach 104.8 million tons, sugar-beet—27.6 million tons, cotton fiber—0.7 million tons, and flax fiber—0.8 million tons. Total agricultural output is scheduled to double, rising from 13.1 billion rubles in 1932 to 26.2 billion rubles in 1937.

The planned growth in the marketable output of agricultural products (aside from the part consumed by the peasants themselves) is shown in the following table:

PRODUCT	MARKETABLE OUTPUT (in mill. tons)		PER CENT INCREASE
	1932	1937	
Grain	19.85	34.5	73.8
Potatoes	8.98	15.8	76.2
Vegetables and melons	4.19	8.7	108.1
Meat	0.94	2.5	165.7
Milk and dairy products	4.09	9.6	135.7

The increase in production is expected to come almost entirely from greater yields per hectare rather than from expansion of the sown area. The latter is to be increased by only 5,305,000 hectares during the period (as compared with a gain of 21,400,000 hectares during the first Five-Year Plan). Of the increased grain production about 85 per cent is expected to be derived from higher yields. The yield per hectare is scheduled to rise from an average of 7.5 centners in 1928-1932 to 10.0 centners in 1937. There is to be a great expansion of scientific methods, including the use of selected seed, proper crop rotation, expansion of fallow and fall plowing, etc.

The machine and tractor stations are expected to play a leading role in the process of completing the technical reconstruction of agriculture. Government authorities predict that by the end of the second Five-Year Plan period collectivization will embrace the entire peasantry. The number of machine and tractor stations will increase 2½ fold, to a total of 6,000, and it is expected that in these centers will be concentrated from 75 to 90 per cent of the principal types of agricultural machinery in the country (tractors, combines, tractor-plows, etc.). The stations will have as one of their main tasks the training of millions of mechanics and machine operators and the improvement of labor discipline and organization on the

collective farms, with the aim of converting them into efficient industrialized enterprises.

According to the program the use of the principal mineral fertilizers during the second Five-Year Plan will increase from 1,115,000 tons in 1932 to 8,390,000 tons in 1937. A large program of construction of shops, garages, sheds, etc. is to be carried out, as well as the building of some 200,000 kilometers of improved country roads.

IX

TRANSPORTATION AND COMMUNICATIONS

THE Soviet Union inherited a very backward transportation system. The railway network was entirely inadequate to serve the needs of such a large country; the river and merchant fleets were small and antiquated; motor transport and automobile roads were practically unknown; and civil aviation was entirely nonexistent. By the close of the world and civil wars both water and rail transportation were completely disorganized. In spite of these handicaps the Soviet Union succeeded, in the course of the past dozen years, in building up its railway system to a point far beyond the prewar status and its river shipping to second rank (after the United States), and made great progress in the development of motor transport and civil aviation. Rapid strides were made in the course of the first Five-Year Plan period, during which a total of 9.8 billion rubles were invested in various branches of transportation.

RAILWAYS

The railways suffered most of all from the ravages of war. Already undermined by the strain of the world war and lack of repairs to the antiquated rolling stock, the railway system was brought to utter devastation by the civil war and intervention. Close to 80 per cent of the railway lines lay in the sphere of hostilities. About one-fourth of the total trackage and thousands of railway bridges and other structures were destroyed. The majority of the locomotives were in disrepair, while nearly half of the passenger and one-third of the freight cars were out of commission. Due both to destruction of tracks and rolling stock and to lack of fuel, the railways carried in 1921 only one-fifth of the prewar volume of traffic.

The rapid development of industry during the period of the Five-Year Plan placed heavy burdens on the transportation system, especially the railroads. In order to provide the maximum facilities, capital investments were concentrated mainly on lines already in operation at the expense of some of the new railway construction scheduled in the Five-Year Plan. Consequently, the program for the length of lines in operation was not fully carried out; that for freight and passenger operations, on the other hand, was overfulfilled. In 1932 railway freight operations reached 169.3 billion ton-kilometers, two and one-half times the pre-war figure and four per cent in excess of the 1932-33 schedule; passenger operations came to 84 billion passenger-kilometers, over three times the pre-war figure and more than double the 1932-33 program.

The progress made during the past few years, as compared with pre-war conditions and the program of the first Five-Year Plan, is set forth in the table below:

	1913	1928	1930	1932	1932-33 (plan)	1933	1934 (prelim.)
A. Length of lines in operation (thous. km.)	58.5	76.9	77.0	81.6	94.0	82.6	83.2
B. Freight Traffic:							
1. Operations (bill. ton-km.)	65.7	93.4	133.9	169.3	162.7	169.5	202.2
2. Volume (mill. tons)	132.2	150.6 ¹	238.7	267.0	281.0	268.1	316.0
Industrial	100.2	120.6	—	219.4	—	—	—
Agricultural	32.0	30.0	—	47.6	—	—	—
3. Density (mill. ton-km. per km.)	1.1	1.2	1.7	2.03	1.73	2.05	2.43
4. Average daily run:							
Locomotives (km.)	119.1	137.5	152.9	164.4	175.0	163.5	169.5
Cars (km.)	72.0	84.6	89.4	98.5	110.0	97.6	117.2
5. Average daily car loadings (thous.)	27.4	32.4	46.3	51.4	—	51.2	56.2
C. Passenger traffic:							
1. Operations (bill. pass. km.)	25.2	24.5	51.8	84.1	35.4	75.1	71.0
2. Volume (millions)	184.8	291.1	558.6	980.0	455.0	927.0	942.0
3. Density (thous. pass. km. per km.)	432.0	320.0	678.9	1,008.0	402.0	909.0	853.0

¹ Data for fiscal year 1927-28.

Freight and Passenger Traffic

During the four and one-quarter years of the first Five-Year Plan period freight operations increased by 81.3 per cent, an unprecedented rate of increase. The process of industrialization was reflected in the large increase in shipments of industrial goods, especially fuel, metals and building materials. Shipments of these chief items of industrial freight doubled during the four-year period and accounted for 60 per cent of the total freight traffic in 1932. The creation of the new industrial centers in the East, particularly the Ural-Kuznetz coal and metallurgical base, and the industrialization of the minor national republics and backward regions resulted in a considerable change in the direction of the flow of freight traffic. Thus, the freight turnover in West Siberia doubled and that in Kazakstan trebled during the four-year period, as against a general increase of about 80 per cent. The socialized sector accounted for 99.8 per cent of total freight turnover in 1932, shipments by the private sector amounting to only 350,000 tons, as against 10 million tons in 1928.

The growth in passenger traffic during the first Five-Year Plan period greatly exceeded the program. As early as 1930 passenger operations surpassed the schedule set by the Plan for 1932-33 by 50 per cent, and by 1932 this schedule was more than doubled. This tremendous growth in so short a period of time was primarily the result of the rapid industrialization of the country and the creation of many new industrial centers. The average number of railway trips per year per inhabitant trebled during the four years, averaging 6 in 1932, as against 2 in 1928 and 1.4 in 1913.

There has been an especially large increase in traveling for pleasure by workers, singly or in groups. Excursions of all kinds are organized by the trade-union or other organizations, for free days or for the annual vacation. In 1932 "workers'

tourism" embraced between 10 and 15 million workers, about four times as many as in 1931.

Suburban transportation has developed at an exceptionally rapid rate, commuters in 1932 constituting 69 per cent of total passenger traffic, as against 54 per cent in 1928. This is the result of the large amount of industrial construction in the urban centers and the accompanying extension of the radius of the towns. A large share of the new housing for workers is being constructed in the outlying sections of the towns. The electrification of suburban lines has speeded up service and is making commutation possible for an ever larger number of city workers.

In 1934 there was an increase in railroad traffic. Freight operations for the year (316 million tons) were 17.9 per cent greater than in 1933; daily freight car loadings averaged 56,200 cars, a gain of 9.8 per cent. There was a large gain in the amount of bulk freight of products of heavy industry (coal, oil, ores, metals, etc.), which made up 45 per cent of the total freight carried as against 41 per cent in 1933. The average daily run per freight car increased from 97.6 kilometers in 1933 to 117 km. in 1934; of locomotives from 163.5 to 169.5 km. The average haul per ton of freight amounted to 640 km. in 1934 as compared with 632 km. in 1933 and 598 km. in 1928. Heavier freight cars and locomotives were introduced (the average capacity per freight car increased from 19.04 to 19.56 tons and the proportion of heavy locomotives from 60 to 68 per cent). Nevertheless, railway transport is still considered one of the weakest phases of the entire national economy and special measures are being taken to enable it to fulfill the program set for it. In the second quarter of 1935, loadings averaged 68,000 cars daily as against 55,000 in the first quarter.

The overfulfillment of the Five-Year Plan schedules as

regards traffic operations led to operating expenditures exceeding the program. However, revenues showed an even greater excess over the program than did expenditures. Expenditures doubled during the four years; revenues trebled. The following table gives revenues and expenditures since 1927-28:

	OPERATING REVENUE	OPERATING EXPENDITURE (mill. rubles)	NET OPERATING PROFIT
1927-28	1,855	1,469	386
1928-29	2,249	1,566	683
1929-30	2,968	1,814	1,154
1931	4,313	2,751	1,562
1932	5,489	3,373	2,116
1933	5,764	3,670	2,094

The net profit of the railways in 1933 amounted to 2.1 billion rubles, five times the profit in 1927-28, while the coefficient of exploitation (ratio of expenditures to income) was lowered from 79 to 64. The sum total of profits for the period of the first Five-Year Plan came to about 6 billion rubles, sufficient to cover the bulk of the investments in railways during the period (6.4 billion rubles).

Technical Reconstruction of Railways

Railway transportation overfulfilled the program of the first Five-Year Plan, despite the fact that the increase in rolling stock was somewhat below schedule. This result was achieved by reconstruction measures and by improved utilization of rolling stock. Chief among the measures of reconstruction were: replacing lower- by higher-powered locomotives and increasing the carrying capacity of freight cars; strengthening the road bed and laying heavier rails; constructing stations and yards and lengthening station tracks; laying second, third or fourth tracks on the most important trunk lines; introduction of automatic coupling, brakes and signalling; partial adoption of electric and Diesel locomotive traction.

During the first Five-Year Plan period the Soviet railroads received 2,666 new freight locomotives of the E type (traction power—16.2 tons), 75 per cent more powerful than the type prevailing in prewar Russia, 288 large passenger locomotives, and 65,000 freight cars (2-axle units), including 40,000 heavy-tonnage cars, 12,000 tank cars, and 3,200 hopper cars. Moreover, the existing rolling stock was modernized and equipped with new features, such as rocking grates, automatic brakes, etc. In the four-year period the total traction power of freight engines rose by 35 per cent, making it possible to increase considerably the average size of trains. The manufacture of super-power locomotives, exceeding the power of the E type by 30 per cent and ranking with the best types of American heavy locomotives, was begun during the first Five-Year Plan. It is planned to produce over 1,000 of them annually at the new Lugansk locomotive works, opened in November, 1933.

Further increases in all types of rolling stock took place in 1933 and 1934. The average number of locomotives available in 1933 was 18,700 (17,900 in 1932 and 16,800 in 1913) and of freight cars (in two-axle units)—555,000 as against 397,000 in 1913. In 1934, 1,087 engines and 26,800 freight cars were added.

In the past few years experiments have been made in the use of Diesel locomotive traction in the desert regions of Central Asia, new types of Diesel locomotives designed and their manufacture begun. A number of suburban lines with the heaviest passenger traffic and two sections in the Caucasus and Ural mountains were electrified. The length of electrified sections was 350 km. on January 1, 1934. In addition, over 1,400 kilometers of the most congested sections of railroads in the Urals, Donbas, Kuzbas and Transcaucasia are in process of electrification. By the end of 1934 automatic

block signalling had been introduced on 2,500 km. of railway lines (over 1,500 km. during 1933 and 1934). While before the war there were no train dispatchers, and by 1928 the newly installed dispatchers controlled only 18 per cent of the lines in operation, by the end of 1932 over 90 per cent of the lines were so controlled. By the end of 1934, 27 per cent of the freight cars had been equipped with appliances for automatic braking as against 17 per cent in 1933. The basic capital of the railway system increased from 11.5 billion rubles in 1928 to 15.5 in 1933. Capital investments in the railway system during the first Five-Year Plan totaled 7.4 billion rubles; in 1933 and 1934 investments amounted to 5.4 billion rubles.

Among the experiments now being conducted with new types of trains may be mentioned those with the "aero-train" and the ball-bearing or "sphero" train. The former runs on an elevated single-rail track, the train being designed in the form of two zeppelin-shaped cars linked together by a rigid steel frame and hanging over the sides of the track. It is propelled by Diesel engines. The ball-bearing train is made of stream-line-shaped cars running on huge motorized ball-bearings in a grooved track. It is claimed that these trains will be able to develop speeds of from 200 to 300 km. per hour.

New Railways

During the first Five-Year Plan period 1.3 billion rubles were expended on the building of new railroads. Construction was begun on 14,000 km. of new lines, of which 6,500 km. were opened during the four-year period. Of the latter total about 80 per cent are located in outlying regions, chiefly in the East. In 1933 new lines of 1,065 km. in length were put into operation and in 1934 an additional 577 km. Among the most important of the new lines are:

1. *Turkestan-Siberian* (1,442 km.)—links up Siberia with Kazakstan and Central Asia; important aid in development of rich natural resources of Kazakstan and of cotton regions of Central Asia.

2. *Borovoye-Akmolinsk-Karaganda* (460 km.)—facilitates development of Karaganda coal basin.

3. *Troitsk-Orsk* (398 km.)—principal outlet from the southern Urals.

4-7. *Leninsk-Novosibirsk* (295 km.), opened for service in November, 1933; *Sverdlovsk-Kurgan* (248 km.); *Kolchugino-Kuznetz*; *Kartaly-Magnitnaya*—four lines providing improved transportation facilities for the Ural-Kuznetz combine.

Of the new lines still under construction two are of exceptional importance: (1) the Moscow-Donbas (1,195 km.), begun in 1932 and to be completed in 1936; and (2) the Karaganda-Kounrad (507 km.), constituting a link between the Karaganda coal basin and the large nonferrous metals combine being built on the shores of Lake Balkhash. The first section of the Moscow-Donbas line, of 641 km., and a branch of 95 km. were put into operation during 1934. Two large railroad bridges were completed in 1934, at Kashira and Gorky. Early in 1935, the double-tracking of the Trans-Siberian railway was completed.

In 1934 the total length of lines in operation reached 83,200 km., as against 76,900 km. in 1928 and 58,500 km. in 1913. The Asiatic part of the Soviet Union has shown by far the greater increase over prewar—over 70 per cent as compared with a gain of a third for the European part of the Union. The latter has about 70 per cent of the total railway mileage. At the beginning of 1933 there were only 3.9 kilometers of railways for every 1,000 square kilometers of territory and 4.9 kilometers of lines for every 10,000 inhabitants.

Foreign Technical Aid and Training of Personnel

In the building of new lines and the reorganization of the entire Soviet railway system American experience was drawn upon to a considerable extent. A delegation of 35 Soviet railway executives, headed by D. C. Sulimov, at the time Vice-Commissar for Transportation and now Chairman of the Council of People's Commissars of the R.S.F.S.R., visited the United States in the spring and summer of 1930 and made a study of American railway transportation and industries serving transportation, particularly locomotive and car building. Ralph Budd, formerly President of the Great Northern Railway and now President of the Chicago, Burlington & Quincy, visited the U.S.S.R. that same summer, at the invitation of the Soviet Government, and submitted recommendations for the reorganization and improvement of railway transportation. A number of American engineers and more than 100 skilled railway mechanics and technicians have since then aided in the reorganization of Soviet railroading along American lines. The U.S.S.R., being a country of long hauls and considerable bulk freight, as in the United States, has found the American system of railroading more suitable than the European, which is adapted to the conditions of shorter hauls and lighter tonnage. Considerable rolling stock and other railway equipment has been imported from the United States in recent years. According to Soviet authorities, the U.S.S.R. could absorb large additional amounts of imported railway equipment, if suitable credit facilities were made available.

A commission of Soviet transport workers visited Japan also to study its system of engine and car repairs, and a group of Japanese specialists was engaged to assist in this work in the U.S.S.R. Altogether there are about 200 foreign specialists now at work on the Soviet railways.

In recent years considerable attention has been devoted to

the problem of developing an adequate corps of railway engineers, technicians and skilled workers. The number of colleges and secondary technical schools specializing in the training of such personnel has increased several-fold. The number of students enrolled in transportation and communications technical schools amounted to 147,300 on Jan. 1, 1933. Over 30 per cent of this total were enrolled in colleges. As a result the number of railway technicians with higher and secondary education more than doubled (from 15,300 in 1928 to 32,300 in 1932). During the same period thousands of workers with many years of practical experience were promoted to the higher technical and administrative positions.

Among the engineers, technicians and railways workers there have developed many promising inventors, who have made a large contribution to the reconstruction and rationalization of railway transportation. Some of these inventions are now being used, such as the Matrosov and Kazantsev brakes, Andreyanov's rail joint, Dulchevsky's electric-welding apparatus and Trofimov's slide valves and exhaust steam injectors.

The total number of workers employed in the operation of Soviet railways rose from 863,000 in 1928 to 1,166,300 in 1932, an increase of 35 per cent. If the workers employed in capital construction are included, the total in 1932 reached 1,526,500, a gain of 57 per cent over 1928. In 1933 the number reached 1,887,000 and by the end of 1934—2,189,000. Average monthly wages increased from 71.55 rubles in 1928 to 128.00 rubles in 1932, a growth of 76 per cent. A further increase took effect in 1933 of 8.2 per cent bringing the average annual wage to 1,618 rubles.

The schedules of the Five-Year Plan for labor forces and wages were both exceeded by over 30 per cent. Labor productivity, on the other hand, while recording an increase during the four years of 55 per cent, failed to attain the Plan schedule

by 5.7 per cent. Car loadings also lagged behind the program. This has been attributed chiefly to bureaucratic administration, absence of individual responsibility, and incorrect application of wage scales. With a view to remedying this situation a number of decrees were issued in 1933 and 1934 which instituted a fundamental reorganization, from top to bottom, in the management of the railway system and in the wage-scales. This involved considerable increases in the salaries of engineers, technicians and skilled workers. Political departments, similar to those set up at the state farms and machine-tractor stations, were established to aid in increasing efficiency on the railroads. A large number of engineers and technicians were transferred from office positions in various administrative departments to work in actual operation and production. Many local and regional offices and departments were abolished. These measures are of vital importance, since railway transportation is still unable to keep pace with the demands made upon it by the rapidly expanding industry and agriculture.

Second Five-Year Plan

The second Five-Year Plan will place burdens on the railways to cope with which will require a basic technical reconstruction of the entire system. It is planned to increase freight turnover by 79 and the number of passengers carried by 35.5 per cent in the period from 1932 to 1937. Reconstruction of the most important railway lines will involve electrification of 5,000 km. of lines, double-tracking of 9,500 km. of the most congested trunk lines, increasing the length of lines at stations and junctions by 8,500 km., replacing light by heavy rails over 20,000 km., installing block signalling on 8,300 km. of lines, building of many bridges, and strengthening of road beds. The number of locomotives in use is to be increased from 19,500 to 24,600. Of the new locomotives to be added during the period, more than a half will be of

the powerful new types of freight and passenger engines of Soviet design, 400 will be electric locomotives, and 270 Diesel engines. Construction of all of these new types was started only in 1933 and much railway equipment may be bought abroad during the second Five-Year Plan. The number of freight cars is to increase to 803,000 (in two-axle units), that is, by 45 per cent; there will be a considerable gain in the proportion of large cars and in the number equipped with automatic brakes and couplings.

The length of new lines to be put into operation will be 11,400 km. This will bring the total length of railway lines to 94,800 km. Among the more important new roads will be those connecting the following places: Baikal-Amur, Moscow-Don Basin, Ufa-Magnitnaya (Urals), Karaganda-Balkhash, and Akmolinsk-Kartaly (Kazakstan). The principal sections of a new trunk line, 12,000 km. long, connecting the Pacific Ocean with the Black and Baltic seas, will be completed during the period.

Capital investment in railway transport will total 18.7 billion rubles, of which 54.1 per cent will go for reconstruction of existing lines, 14.3 per cent for new railroad construction, 18.2 per cent for capital repairs and maintenance, and 4.0 per cent for housing construction. The total investments will be almost three times as great as during the first Five-Year Plan.

WATER TRANSPORTATION

Although the railroads handle the bulk of the total volume of freight, water transportation is of vital importance to the Soviet Union. The U.S.S.R. has many long, navigable rivers and excellent ports. In the past few years the Soviet Government has expended considerable sums in developing water transportation, and the freight turnover of the inland waterways and maritime ports has shown steady growth.

During the four years ending December, 1932, a total of 1,189 million rubles was invested in water transportation, as against the sum of 1,106 million rubles scheduled for the full five years of the first Five-Year Plan. These investments were used to increase the tonnage of the river and maritime fleets, to open up canals, river ways and sea routes, to construct wharves, docks, harbors, etc. A number of large new shipyards were put into operation, and old shipyards, repair yards, and dry docks reconstructed and re-equipped. Loading and unloading operations have for the most part been mechanized, and an extensive system of warehouses, cold storage plants and elevators built. The basic capital of water transportation more than doubled during the four-year period. In 1933 capital investments totaled 520 million rubles and the basic capital reached a total of 2.56 billion rubles as compared with 1.87 billion in 1928.

Inland Waterways

The Russian river fleet was greatly depleted during the world and civil war periods. When its reconstruction was undertaken in 1923-24, at least 60 per cent of the prewar river craft had either been scrapped or were lying in disuse. Despite the considerable sums expended on reconstruction, the prewar level had not yet been attained by 1928. During the course of the first Five-Year Plan period, however, river shipments mounted rapidly, especially that portion carried by power-driven boats, and by 1932 were 40 per cent greater than prewar. Shipments in the past few years as compared with 1928, are given in the table below:

	1928	1932	1933	1934
Freight carried or towed (million tons)	18.3	46.9	44.7	52.0
Freight operations (bill. ton-km.)	15.9	25.1	26.0	29.2
Passengers carried (million)	17.8	43.6	41.6	40.0
Passenger operations (bill. pass.-km.)	2.1	4.5	3.7	3.5

Of the total freight tonnage in 1934, timber made up 30.2 million tons (8.0 million on vessels and 22.2 million in rafts). This is exclusive of the timber floated by the enterprises of the People's Commissariat for the Timber Industry (50.4 million cubic meters in 1933). If floated freight is included, the total freight turnover in 1934 comes to 81.6 million tons, as compared with 71.9 million in 1932 and 48.1 million in 1913. Total freight and passenger operations have almost doubled since 1928. The Volga lines accounted for about 57 per cent of the freight traffic and 37 per cent of passenger operations (in 1933).

Soviet river shipping now holds first place in Europe and second in the world, coming after the United States.

Considerable work has been carried out to enlarge the river fleet and improve and lengthen the waterways. Existing vessels were re-equipped and new, modern boats constructed. By 1934 the capacity of steam- and motor-driven boats of the river fleet totaled 573,600 indicated hp., as against 429,500 in 1930, while that of towed river craft rose from 4,297,000 tons to 5,663,000 tons. The length of navigable rivers in use increased from 71,600 kilometers in 1928 to 84,200 kilometers in 1932 and 84,500 in 1933 (including 2,670 km. of artificial waterways in 1933 as against 2,240 km. in 1928). The length of riverways equipped with signalling facilities increased from 52,000 km. in 1928 to 70,000 km. in 1933.

The Soviet Union has the greatest potential length of waterways of any country in the world, amounting to over 420,000 kilometers, of which 110,000 kilometers can be used for navigation by steamers. The United States has 47,000 kilometers of navigable waterways, Germany 12,217 km., France 12,139 km., and England 7,487 km. During the first Five-Year Plan period a number of immense hydraulic construction projects were undertaken which are of paramount significance in im-

proving Soviet waterways. First, the building of the Dnieper dam and navigation locks, in connection with the Dnieper River power plant, resulted in the deepening of the river channel in the hitherto impassable "rapids" section and made this river navigable from the Black Sea to its upper reaches. Freight traffic on this river alone is expected to amount to three or four million tons annually.

The second great project, the construction of the Baltic-White Sea Canal, completed in June, 1933, shortens the distance by water from Leningrad to Archangel to less than one-fourth, from 2,840 to 674 miles. Instead of circling around Norway, Sweden and Finland, a hazardous journey at best, ships now proceed from Leningrad to Archangel by this internal waterway. The canal provides a direct outlet for the rich natural resources of the Soviet North—Khibini apatite, Pechora coal, Ukhta oil, the timber, fish and furs of the Northern Region. It is expected that by the end of the second Five-Year Plan freight traffic on it will reach ten million tons a year.

Preliminary work on a third great hydroengineering project, the Volga-Moscow Canal, was likewise commenced during the first Five-Year Plan. This canal will be 127 kilometers long, and is planned to be ready for navigation by the spring of 1936. When it is completed part of the waters of the upper reaches of the Volga will be diverted into the Moscow River, to rejoin the Volga near Gorky. The cost of this project, which is designed also to provide an adequate supply of drinking water for the city of Moscow, will be 700 million rubles. Toward the end of 1934 work was commenced on the construction of the Volga-Baltic Sea Canal. The completion of this project together with that of the Moscow-Volga Canal will make it possible for steamers to pass directly from the Baltic Sea to Moscow.

Besides these projects, preliminary work has been done on

two other important projects for developing the Soviet internal waterways—the Volga-Don Canal and a project which, by the construction of a series of canals linking up a number of rivers, will provide a continuous waterway between the Southern Urals and the Kuznetz coal basin in West Siberia. The Volga-Don Canal, 100 kilometers in length, will give the land-locked Volga basin access to the open sea, by way of the Black Sea. It is scheduled to be completed by 1937.

Merchant Marine

The prewar merchant fleet, consisting of 974 vessels with a capacity of 495,284 tons, was depleted more than half in the world and civil war periods, and about half the remaining ships were old and unseaworthy. Restoration began in 1923: the existing vessels were either scrapped or put into operating shape, a number of steamers were purchased abroad, and a beginning was made in the domestic construction of freight boats, the first four steamers from Soviet shipyards being completed in 1926–27. Prior to the war the shipbuilding industry in Russia was confined almost exclusively to the construction of war vessels.

The development of Soviet maritime shipping and transport is shown in the following table:

	NO. OF VESSELS	FREIGHT CAPACITY (tons)	TOTAL	MARITIME
			FREIGHT TURN- OVER OF SOVIET MARITIME PORTS	AND COASTWISE FREIGHT SHIPMENTS
			——(mill. tons)——	
1913	974	495,284	44.4	33.1
1928	195 ^a	212,624 ^a	25.5	18.4
1932	300 ^b	777,000	48.6	34.3
1933	—	859,700	47.4	33.1

^a As of January 1, 1927.

^b As of January 1, 1932.

The proportion of Soviet shipping employed in the foreign trade of the U.S.S.R. has gradually increased. In 1933, 10.5

per cent of the exports, 88.7 per cent of the imports and 14 per cent of the entire turnover was carried in domestic bottoms, as compared with nine per cent in 1932. The remaining tonnage is chartered—Italian, Greek, Norwegian, British and German vessels accounted for 64 per cent of the export shipments in 1933. The total amount of freight carried by the Soviet maritime and coastwise fleet was 22.1 million tons in 1934 and 15.9 million in 1933. The number of passengers totaled 2,339,000 in 1934 and 2,334,000 in 1933. The bulk of the available tonnage is employed in the coastwise trade.

In 1932 Soviet shipyards began the manufacture of Diesel-engine ships of from 5,500 to 9,500 tons, whereas the largest previously produced were of 4,800 tons. New oil tankers of 10,000 tons each are now produced, as against 6,000-ton tankers a few years ago. Among the most important shipyards engaged in the manufacture of ships for the merchant marine are the Marty and Northern yards at Leningrad, the Marty Shipyards at Nikolayev (Ukraine), the Sebastopol yards (Crimea), and the Voroshilov yards at Vladivostok. About half of the increase in the merchant fleet in the past four years is accounted for by the Soviet shipbuilding industry. From 1929 to 1933, 59 sea vessels totaling 179,000 tons were built.

Maritime Ports

Considerable sums have been expended during recent years upon construction work on the maritime ports (dredging, warehouses, etc.). About half of the total turnover of these ports is accounted for by coastwise trade and about half by foreign trade. Ports are playing an increasingly important rôle in the foreign trade of the country. The share of the total foreign trade passing through the maritime ports has risen from 67.8 per cent in 1913 to approximately 90 per cent in recent years.

Before the war there were only about ten mechanized wharves in Russia; by 1934 there were 134. Whereas in 1930 only 20 per cent of the freight was handled entirely by mechanical means, by 1933 the percentage had increased to 34. Especially great development work has been carried out on the port of Leningrad. Tuapse on the Black Sea has become an important oil-handling port during the course of the past few years, and the port of Murmansk has also been greatly developed. Aside from the improvement in mechanical equipment, many warehouses and grain elevators have been constructed. In the four years from 1928 to 1932, 125 million rubles was expended on port construction and equipment and in 1933 an additional 60 million rubles was allotted.

The principal Soviet maritime ports are:

I. *On the Arctic Ocean*—Murmansk (the most northerly port in the world; ice-free the year round); *Pechora* (a new port for the export of coal and timber from the Pechora district).

II. *On the White Sea*—Archangel; Onega.

III. *On the Baltic Sea*—Leningrad.

IV. *On the Black and Azov Seas*—Odessa; Novorossisk; Tuapse; Sukhum; Batum; Nikolayev; Kherson; Sebastopol; Mariupol; Rostov.

V. *On the Caspian Sea*—Baku; Krasnovodsk.

VI. *On the Pacific Coast*—Vladivostok; Petropavlovsk (Kamchatka); Komsomolsk.

The freight turnover of 47,394,000 tons in 1933 was divided as follows (in tons): White and Barents Seas—3,689,000, Baltic Sea—4,235,000, Black Sea—14,931,000, Azov Sea—3,143,000, Caspian Sea—19,052,000, Pacific Ocean—2,344,000.

The principal ports in order of turnover in 1933 were Baku (8,313,000 tons), Batum (4,557,000), Leningrad (4,196,-

000), Odessa (2,557,000) and Novorossisk (2,065,000 tons). The port of Astrakhan on the land-locked Caspian Sea had a turnover of 5,833,000 tons in 1933. All of these ports have shown considerable growth in the past few years.

The Soviet Union has made noteworthy progress in recent years in the development of Arctic navigation. Among the many important expeditions undertaken in 1932 was the Sibiriakov expedition which succeeded in making the Northeast Passage from Archangel to Vladivostok in a single season, a feat never before accomplished. Numerous Arctic expeditions were also made in 1933, including one to extend the Northern Sea Route to the mouth of the Lena River. This is considered of major economic importance in helping to open up the vast undeveloped regions of Yakutia, rich in gold and other natural resources.

The Chelyuskin expedition sailed from Leningrad in the Summer of 1933 with the object of completing a voyage through the Northeast Passage in one season on a commercial vessel. When within a few miles of the Pacific Ocean the ship was caught in the ice floes and finally sank. All but one of the more than 100 persons among the passengers and crew were rescued from the Arctic ice by Soviet planes.

Paralleling the feat of the Sibiriakov was the voyage of the Litke in the summer of 1934, accomplishing for the first time the Northwest Passage in one navigation season. The trip from Vladivostok to Murmansk was made in 83 sailing days.

Second Five-Year Plan

Despite the progress which has been recorded in the past few years, water transportation is still considered the most backward branch of transport. In order to bring it up to the level required by the general expansion of the national economy, a comprehensive program of development has been outlined for the second Five-Year Plan. Capital investments in

this field, including the construction of hydro-technical works, will be over 4.2 billion rubles, $3\frac{1}{2}$ times the total during the first Five-Year Plan. The basic capital of water transport is expected to increase to 4.9 billion rubles in 1937, as compared with 2.41 billion in 1932. As a result of this development freight carried by the river fleet is expected to increase to 91.5 million tons and by the sea-going fleet to 38.7 million tons. The ton-kilometers of work of the river fleet is scheduled to show a gain of 145 per cent and of the maritime fleet—180 per cent.

The length of navigable waterways is scheduled to increase from 84,000 km. in 1932 to 101,000 in 1937. A great program of construction of artificial waterways and canals will be carried out. This will include: the Baltic-White Sea Canal with a length of 227 km., the first section of which was completed in 1933 in record time; the creation of a new through waterway on the Dnieper River; the Moscow-Volga Canal, the largest river hydro-technical development in the world; reconstruction of the Mariinsk and Moscow river systems, which will constitute an outlet and continuation of the future Moscow-Volga Canal; construction of the Volga-Don Canal; extensive irrigation work in the Volga regions, involving among other projects the construction of the Yaroslavl, Gorky and Perm hydro-electric stations, and the construction of five dams. A total of ten million acres of the arid lands east of the Volga will be irrigated. With the carrying out of this program the White, Baltic, Caspian and Black Seas will be connected by a major waterway system.

Extensive shipbuilding operations will be carried on, and the river and maritime fleets will be basically renewed and reconstructed. The capacity of the latter is to be increased from 777,000 tons in 1932 to 1,353,000 tons in 1937. The land and port structures will be extensively mechanized and elec-

trified. Besides the enlargement and re-equipment of existing ports, the Plan calls for the construction of 14 new ports, including six on the Arctic Ocean, one on the White Sea, one on the Black Sea, two on the Caspian Sea, two on the Sea of Azov, and two on the Pacific Ocean.

MOTOR TRANSPORT—ROADS

In prewar Russia motor transport and automobile roads were practically unknown. The total length of all roads suited for any kind of vehicular traffic was 24,300 kilometers, of which only 4,823 kilometers were paved. Prior to the first Five-Year Plan period the Soviet Union, applying the greatest part of its resources to the restoration of industry and railway transportation, did comparatively little toward building new roads. Nevertheless, by 1928 the total length of roads suitable for automobile traffic had increased to 41,000 kilometers, of which 32,000 were gravel or paved roads and 9,000 improved dirt roads.

The U.S.S.R., with a population of 170 million and a territory $2\frac{1}{2}$ times as large as the United States, has less than one-fifth the railway mileage. Hence the importance of developing motor transport as a supplementary means of transportation is evident. The society "Avtodor" (Friends of Automobile and Road Development), which was organized in 1927, now has several million members and has promoted great popular interest in increasing the production and importation of automobiles, in improving old roads and building new ones and in developing motor transport, both freight and passenger. During the period of the first Five-Year Plan the extent of automobile roads was more than trebled, the number of automobiles in the country quadrupled and the length of motor bus lines increased by 159 per cent.

Over one billion rubles was invested in road construction

during the first Five-Year Plan period. A total of 93,000 kilometers of new roads was built, of which about 12,000 were paved roads. This was several times as great as the entire length of improved roads before the war. In a number of regions and republics—Central Asia, Kazakstan, Yakutia—automobile roads were built for the first time. Among the more important highways opened during the first Five-Year Plan are: the Amur-Yakutsk highway (869 km.); the Chuisky highway (598 km.); and the Usinsky highway (345 km.). In addition, 21,000 km. of local roads were built in rural areas. The highest automobile road in the world, its average altitude being 3,500 meters above sea level, is being built across the Pamir Mountains; some of the most difficult sections were completed and opened for traffic in 1933.

In 1933, the first year of the second Five-Year Plan, further growth was recorded. Freight operations of automobile trucks totaled 1.8 billion ton-kilometers, a gain of 71 per cent over 1932, and the amount of freight carried amounted to 183 million tons as against 113 million in the preceding year. The amount of new road construction totaled 33,000 km.

Aside from the building of new highways, hundreds of thousands of kilometers of country roads have been reconditioned. This work is done in large part by peasants under the supervision of local authorities. In 1933 about ten million collectivized farmers participated in road repair projects in their respective districts.

The net work of roads in the U.S.S.R. at the beginning of 1934 was estimated at 1,417,000 km., of which 248,000 km. consisted of main highways (national, republican or regional) and 1,169,000 km. of local roads. Of the latter only about 3.6 per cent were improved and 61 per cent suitable for automobile traffic.

Prior to 1930 there were no schools which trained workers

for road construction. Now there are over 50 secondary technical schools and about 100 factory schools, as well as evening and correspondence courses, which give such training. But this will scarcely be adequate to supply the thousands of new engineers and technicians needed to carry out the program of the second Five-Year Plan. This program calls for trebling the length of automobile roads and for mechanization of road work to the extent of 70 per cent. At the present time there is a marked shortage of road-building machinery.

By the end of 1934 the number of automobiles in the country was 179,500, as compared with 18,700 in 1928. Of the 1934 total about 85 per cent were of Soviet make, while in 1928 practically all were of foreign manufacture. Domestic production in 1932 amounted to 23,900 automobiles, while in 1934 it reached 72,500. About 75 per cent of the cars manufactured are trucks, the average tonnage now being 2.2. Large auto-repair shops have been built, such as those at Moscow and Kiev, and the number of garages and gasoline stations is rapidly increasing.

The number of bus lines increased from 265 in 1928 to 582 in 1932, and their length from 14,582 to 35,255 km. These operate for the most part in the health resort districts of the Crimea and Caucasus, and between the suburbs and centers of the largest towns. In 1933 the number of cities operating bus lines totaled 130 (as compared with 40 in 1928).

On July 6, 1933, twenty automobiles of Soviet manufacture and three of foreign make left Moscow on a 9,500-kilometer test run across the Kara-kum desert, in Central Asia. The run was completed Sept. 30, 1933, and indicated that despite certain minor imperfections the Soviet machines could stand up under severe conditions.

On July 24, 1934 a similar test for Diesel-powered automobiles (a forty-day, 3,000-km. run) was started. Participat-

ing in this test were cars of nineteen foreign firms, and three Diesel engine trucks of Soviet manufacture. After completion of the run, the motors were subjected to an additional series of tests during several weeks. Prizes for general excellence, durability, fuel economy, power, starting speed, etc., were awarded to English, German, French, Hungarian and Italian firms. The motors were mounted on three- and five-ton Soviet chassis. A similar contest was instituted for Diesels mounted in heavy and medium tractors, in which Soviet and American Diesels were awarded prizes.

The management of motor transport, both passenger and freight, is concentrated largely in the hands of a single organization, the All-Union Transport Trust, organized in 1929. Some of the important commissariats—Agriculture, Heavy Industry, Light Industry—have motor transport systems of their own, but they call on the Transport Trust in emergencies, when building materials must be rushed, when sowing or harvesting is in full swing, etc. In addition to such emergency work the Transport Trust handles regular freight and passenger service in many sections of the country, where railroads have not yet penetrated or where connecting links are necessary between railway lines. Practically all the summer tourist traffic, especially of vacationists and foreign visitors in the health resort districts of the Crimea and the Caucasus, is handled by the Trust, as is the transportation of food and other necessities to the various sanatoria and rest homes. Towards the end of 1934 a series of interurban motor-truck lines was established to relieve freight congestion on the railroads. It is planned to have these lines handle short hauls near all the large cities.

During the second Five-Year Plan motor transport is scheduled to show a more rapid growth than all other forms of transportation. Of the total freight operations of the transport system, automobiles are scheduled to account for 3.7 per cent

in 1937 as compared with 0.5 per cent in 1932. Freight operations are planned to total 16 billion ton-kilometers, a 14-fold increase in five years. The number of automobiles in 1937 is set at 580,000 (as compared with 75,000 at the end of 1932).

During the period a total of 210,000 kilometers of roads is to be constructed, including 80,000 kilometers of dirt roads, 77,600 kilometers of improved dirt roads, 22,400 kilometers of gravel and 30,000 kilometers of paved roads. Of the 210,000 kilometers of new or reconstructed roads, 48,000 kilometers will be part of national, republican or regional systems while the remaining 162,000 kilometers will be local roads. The road-building program is planned to be more than double that of the first Five-Year Plan. Total capital investments in highway transport will exceed three billion rubles, about three times the total of the preceding period. Expenditures for mechanization of road-building operations are set at 300 million rubles.

CIVIL AVIATION

Civil aviation is of exceptional importance to the Soviet Union with its outlying territories still lacking adequate transportation and communication facilities. The first airline, operated by a Soviet-German joint stock company called "Deruluft," was established in 1922. This line links Moscow with Berlin and other European capitals. The real beginning of Soviet civil aviation, however, dates from 1923, when the U.S.S.R. commenced to build up its own civil air fleet and to establish regular airlines throughout its territory. By 1933 the Soviet Union was second in length of airlines, following the United States.

The growth of Soviet civil aviation is set forth in the following table:

	1925	1928	1930	1932	1933	1934
Length of lines in operation (thous. km.)	5.0	11.4	29.2	31.9	37.0	43.0
Distance flown (mill. km.)	0.9	2.8	5.9	7.0	—	19.0
Passengers carried (thous.)	6.1	10.6	17.8	27.2	42.5	65.0
Mails carried (tons)	13.4	93.2	143.9	430	1,986.2	3,000.0
Freight carried (tons)	72.3	162.2	206.4	447	1,886.7	4,200.0
Aerial photography (thous. sq. km.)	0.9	30.7	96.3	115.0	149.9	323.1
Agricultural and forest land treated against pests (thous. ha.)	2.5	32.9	68.9	1,028.6	1,154.1	1,769.0
Sowing by airplane (thous. ha.)	—	—	4.2 ⁴	58.0	138.0	126.7

⁴ 1931

Particularly rapid growth has been recorded in the transport of mail and freight. Over twenty times as much was carried by air in 1934 as in 1930.

In 1934 airlines totaled 43,000 kilometers in length, having increased fourfold since 1928. Including the lines of purely local significance and those operated by industrial organizations, the length of lines in operation in 1934 aggregated 68,000 kilometers. In 1930 only one service was operated throughout the year; now many of the lines maintain year-round service. The network of airlines embraces—in addition to the Moscow-Koenigsberg and Leningrad-Riga lines, which are sections of the international lines operated by Deruluft—such important trunk lines as:

1. Minsk-Moscow-Sverdlovsk-Novosibirsk-Irkutsk-Khabarovsk-Vladivostok (8,847 km.);
2. Leningrad-Moscow-Kharkov-Rostov-Baku-Tiflis (3,675 km.);
3. Moscow-Samara-Orenburg-Aktyubinsk-Tashkent (3,049 km.);
4. Moscow-Kazan-Ufa-Magnitogorsk-Karaganda-Alma-Ata;
5. Vladivostok-Sakhalin-Kamchatka (5,000 km.).

Airlines now cross the frozen tundra and dense forests of the Far North and Siberia, the deserts of Kazakstan and Cen-

tral Asia, and the high peaks of the Caucasus Mountains. The most remote places in the U.S.S.R., such as Yakutia, Kamchatka and Sakhalin Island, are reached by airlines. For many sections not only of Siberia and the Far East but of Central Asia and Kazakstan the airlines constitute the only means of mechanical transport and mail communication. Airlines connect regional and district centers; the largest industrial plants and state and collective farms have air service.

The network of airports and landing fields grows from year to year, but, with the exception of the Moscow airport, only a very few of the airports and landing fields can be classed with the best in other advanced countries.

In addition to the transport of mail, freight and passengers over established routes, special expeditions are made for various scientific purposes, such as exploration, etc. During 1932 about 170,000 km. were covered by polar expeditions, as compared with 30,000 km. in 1928. In 1933 flights in the Arctic increased to 232,000 km. The work done by aviators in assisting Arctic expeditions of Soviet icebreakers and in searches for lost airship crews, such as that of the *Italia* and the American aviator, Carl Ben Eielson, is well known. The Soviet aviator Levanevsky, made a long and perilous journey in the summer of 1933 to come to the rescue of James Mattern, the American aviator stranded in the far northeastern corner of the U.S.S.R. on his attempted solo flight around the world, and piloted him safely across Bering Strait to Alaska. Airplanes have for a number of years participated regularly in hunting and fishing expeditions, locating seal herds and fish schools, guiding the boats through the ice, transporting young herring and other fish from one breeding place to another, etc. Planes likewise accompany the annual Kara Sea trading expedition, which sails from European ports to the mouths of the Ob and Yenisei Rivers on the Arctic Ocean. In 1933, for the

first time in history, freight vessels, guided by an airplane, made a journey to the mouth of the Lena River, sailing through areas as yet uncharted. The exploits of Soviet aviators in effecting the rescues, early in 1934, of the 104 members of the "Cheliuskin" expedition marooned in the Arctic ice, attracted world-wide attention.

Among the many other diverse uses to which Soviet aviation is applied is aerial photography. Aerial surveys in 1934 covered an area of 323,000 sq. km., ten times as great as in 1928. Aerial photography has proven especially valuable in cartographic work in connection with the planning of new economic regions. Since 1931 this branch of aviation work has been placed under the jurisdiction of the Chief Geodetic Survey.

In the field of agriculture and forestry Soviet aviation has recorded noteworthy achievements. This branch of aviation work was first undertaken during the period of the first Five-Year Plan. The program outlined for five years was exceeded in three and one-half years. The principal services are: airplane sowing, destruction of pests, photographic surveys, preventing and extinguishing forest fires, transport on large state and collective farms, rush delivery of spare parts for tractors, air mail service for sowing and harvesting correspondence, etc. Airplanes used on agricultural services flew a total of 46,000 hours in 1933 as against 12,000 in 1932. In 1934 this was increased to 90,000 hours.

In 1932 over 10 million hectares of forests were patrolled by airplanes in combating fires, 429,000 hectares of farm and forest land were cleared of injurious pests by airplane dusting, and 58,000 hectares of land were sown from the air. In 1933 the patrolled forest area amounted to 23 million hectares and sowing increased to 138,000 hectares. The area cleared of plant pests by means of chemicals was also enlarged. Airplanes have also been used effectively in fighting early frosts by spread-

ing smoke clouds over planted areas, particularly orchards and vegetable gardens. First experiments have been made in applying mineral fertilizers by air. In 1933 some of the largest state grain farms were allotted airplanes for their exclusive use the year round.

The agricultural air fleet has recently assumed the task of fighting the malarial mosquito. In 1934 the larvae of malarial mosquitoes were destroyed over a water surface of 1,358,000 hectares.

Aviation Industry, Dirigibles, Gliders and Stratostats

Prior to 1928 Soviet aviation depended largely on foreign airplanes and motors. Domestic manufacture of airplanes, motors, and aviation equipment was established during the first Five-Year Plan period. At the present time practically all planes in service on Soviet airlines are of domestic make. The production of airplane motors, both air and water-cooled, has been organized, and motors up to 700 hp. are now being built. All types of modern planes for civil and defensive uses are now manufactured in the U.S.S.R., including the following new types: the all-metal, five-motor, 36-passenger monoplane, ANT-14; the all-steel, electrically welded planes, Stal-2, Stal-3, Stal-5, and Stal-6; tailless planes, amphibians, autogiros, gliders, etc. Important research and experimental work in airplane construction is carried on at three aviation institutes. The foremost of these is the Central Aero-Hydrodynamics Institute (TSAGI) in Moscow.

During the past seven or eight years the United States has exported to the U.S.S.R. airplane engines and parts to a value of from \$155,000 to \$535,000 annually. Various commissions of Soviet aviation experts have visited the United States from time to time in recent years to study the organization of American airlines and of the aviation industry. In 1933 a contract was concluded between Glavaviaprom (The United Aviation

Industry) and the Curtiss-Wright Airplane Corporation providing for the technical assistance of the latter company in the design and manufacture of airplane engines in the U.S.S.R.

A special trust for dirigible construction was organized in 1931, since which date several airships have been designed, built and tested with success. Five of these, four non-rigid and one semi-rigid, are small experimental ships ranging from 2,150 to 6,800 cu. meters. A semi-rigid airship of 20,000 cu. meters was recently completed and a dirigible of 50,000 cu. meters is being designed. Umberto Nobile, former commander of the *Italia*, is serving as consultant for the Soviet dirigible construction trust.

The growth of civil aviation in the U.S.S.R. has necessitated the training of many qualified pilots, mechanics, instructors, etc. There are more than a dozen training schools in the Soviet Union, where skilled airmen are trained. Interest in aviation is becoming widespread among the population. Aviation clubs and glider schools have been organized in many towns, and glider meets have been held from time to time at which several world records in glider flying have been broken.

In May and June, 1934, several successful flights were made by "aerial trains" consisting of a plane towing two or three gliders. The longest was from Moscow to Koktebel, in the Crimea, a distance of 1,280 kilometers which was covered in 11½ hours. Plans are being worked out for the commercial development of air routes using glider trains.

Through an organization known as "Osoaviakhim" (Union of Societies of Friends of Defense and Aviation and Chemical Development), with a membership of many millions, the general population has contributed funds for the building of scores of airplanes. Special interest was taken in the construction of a huge, 8-motor, 63-passenger airplane, named after Maxim Gorky, which was destroyed in May, 1935, after a

small plane collided with it in midair. It was used for educational purposes and had its own printing plant, broadcasting equipment and motion picture projector. The plane's motors had a capacity of 7,000 hp. and its weight was 43 tons. It was constructed and equipped almost entirely with domestic materials. A number of successful trial flights were made in 1934. Its fuel capacity permitted a range of 2,000 km. After the catastrophe it was announced by government officials that several new planes of similar design were to be constructed.

In 1933 the stratostat "U.S.S.R.," which was of Soviet design and manufacture, reported reaching an altitude of 19,000 meters (60,352 ft.), as against the previous world record of 16,200 meters reached by the Belgium physicist, Professor Piccard. During the flight of the Soviet stratostat, which took place September 30, 1933, constant radio connection with the earth was maintained and important scientific observations recorded. In January, 1934, a flight by a second Soviet stratostat, the "Osoaviakhim," ended in the destruction of the balloon and crew after the record height of 70,000 feet was reported to have been reached. Further researches are being made with the objective of determining the feasibility of establishing super-speed air routes in the higher atmospheric strata.

During the second Five-Year Plan Soviet civil aviation is scheduled to record rapid progress along the lines outlined above and in addition new forms of service are to be developed. The length of through airlines is to be increased to 85,000 kilometers in 1937 as compared with 32,000 in 1932. Local lines are expected to expand to 35,000 kilometers. The number of passengers carried in 1937 (655,000), the amount of mail (68,500 tons), and of freight (26,500 tons) are scheduled to increase from 25 to over 150 times as compared with 1932.

COMMUNICATIONS

The industrial development of the country, the opening up of new centers, and the growth of outlying regions have resulted in a great expansion in all branches of communication—post, telegraph, telephone and radio. The greatest progress was made during the period of the first Five-Year Plan. This plan called for investments in the communication services of 327 million rubles during five years; actually 565 million rubles, or more than half as much again, were invested in four and one-quarter years. In 1933 investments totaled 202 million rubles.

The number of post offices in 1913 in the territory of the present-day U.S.S.R. amounted in all to 12,380. By 1928 there were 15,063, and by the end of 1934—47,900. During the four and one-quarter years of the first Five-Year Plan 20.7 billion letters and parcels were handled by the postal service, exceeding the schedule for five years by 40 per cent. The number of pieces handled in 1932, 6.3 billion, was more than three times the total in 1928 and almost five times the 1913 figure. In 1934 the number of pieces sent by mail totaled 6.5 billion, including 1.4 billion pieces of correspondence and 5.1 billion newspapers, periodicals, etc.

In 1913 there were about 261,000 kilometers of mail routes; in 1932—over one million, or four times the pre-war figure. All manner of transport is used for the delivery of mail—not only the automobile and airplane but the peasant cart and, in the far north, the reindeer sleigh. In prewar Russia about 60 per cent of the village settlements are said to have had no postal service. Now mail is delivered regularly in the rural districts, many of the larger villages and most state farms and machine-tractor stations having daily delivery. On January 1, 1934, there were 105,000 village mail carriers, over five times as many as there were five years previously. The

development of postal service in outlying regions and national republics has been especially rapid.

Telegraph and Telephone

The total length of interurban telegraph and telephone lines in 1934 reached 1,870,000 km., as compared with 503,000 km. in 1913 and 890,000 km. in 1928. In 1932 the average number of telegrams sent per inhabitant was 2.5 times as great as in 1913. The number of telegrams sent by all stations totaled 79 million in 1934 as against 53 million in 1930. Direct telegraphic wire service is maintained between Moscow and Vladivostok, a distance of 9,500 km.

The telephone network of prewar Russia was extremely antiquated, consisting of 242,000 telephones of an old-fashioned type. By the end of 1932 this number was doubled (522,000), mostly of modern types. Automatic telephone stations have been opened in a number of the larger towns. In 1932 there were 12 such stations with 77,600 telephones, and in 1933 and 1934 many additional stations were opened, totaling 47 by October, 1934. At the end of 1934 the capacity of automatic stations was 162,000 numbers. The total capacity of urban telephone stations rose from 492,300 numbers at the end of 1932 to 636,000 at the end of 1934, while the number of subscribers increased from 415,600 to 541,000. In 1934 interurban telephone calls numbered 28 million, more than double the 1928 figure (13.2 million).

Before the war the longest telephone connections were: Moscow-Leningrad (650 km.) and Moscow-Kharkov (780 km.). Now long-distance calls may be made over thousands of kilometers, as, for instance, between Leningrad and Baku (3,350 km.) or Moscow and Stalinsk, West Siberia (5,400 km.). In the summer of 1934 direct telephone connections were established between Leningrad-London, Moscow-Paris and Leningrad-Paris,

Telephone service is gradually being extended to the rural districts. During the first Five-Year Plan the number of telephones installed in villages rose from 19,300 to 40,100, exceeding the program by 78 per cent. The percentage of village Soviets having telephone service increased from 11.7 in 1929 to 37.2 in 1932.

Radio

Rapid progress has been recorded in the field of radio. In 1924 the first radio broadcasting station was opened. The number of central broadcasting stations by the end of 1934 totaled 67 with a capacity of 1,600 kw., as compared with 23 in 1928, with a capacity of 126 kw. Early in 1933 the Noginsk station, near Moscow, of 500 kw. capacity, one of the largest and best equipped broadcasting stations in the world, began operations. Its programs are clearly received as far away as Novosibirsk, some 3,500 km. distant. It is entirely of Soviet design. Besides this there are five stations of 100 kw. capacity.

The number of radio receiving "points" rose from 348,000 in 1928 to 2.3 million in 1934. Many of the receiving points serve workers' clubs, village reading-rooms, dormitories, or army barracks. The total number of radio listeners in 1932 was estimated at from 10 to 12 million persons. Programs are given in more than 60 different languages, so that the peoples of the minor nationalities may listen in to songs and talks in their native tongues.

There has been developed an extensive system of local amateur stations, set up at large industrial plants and on many state and collective farms. These stations are operated for the most part by local volunteers, and broadcast local news, amateur concerts, etc., to listeners in their immediate vicinity. They also transmit or relay programs from the central broadcasting stations, and on occasion send out some special program of their

own through the central stations. The number of such local stations increased from 27 in 1928 to over 3,000 by the end of 1932.

The largest proportion of the broadcasting period (about 60 per cent) is devoted to musical and literary programs. The remaining programs are devoted mainly to news and educational topics. There are special programs for young people, peasants, the Red Army, the minor nationalities, and other groups of the population.

Special radio broadcasting of correspondence courses has been organized in recent years. About 125,000 radio study points have been established for this purpose.

The development of a growing network of ultra short-wave transmitters has provided radio connection between Moscow and all regional and republican centers, even those most distant, such as the Ural Region, Yakutia, Kazakstan, etc. These centers are, in turn, connected with the district centers, thereby facilitating the transmission of various types of official information. The number of district receiving stations increased during the first Five-Year Plan period from 150 to 2,500.

Ten large radio-telegraph centers have been organized in Moscow, Tashkent, Alma-Ata, Khabarovsk, Irkutsk, Novosibirsk, Sverdlovsk, Leningrad, Tiflis, and Baku. The Moscow radio-telegraph center is the fourth largest in the world. Radio-telephone connections have been established between Moscow and Sverdlovsk, Tashkent, and Irkutsk (East Siberia). The latter city is over 5,000 km. distant from Moscow. The conversations are transmitted the entire distance by radio waves and only at the end points are taken over by the telephone system. It is planned to use this method in future for all long-distance telephone communications, thereby saving the expense of erecting telephone poles and wires to far-distant points.

The number of interurban telegraph-telephone transmitters increased from 207 in 1933 to 243 in 1934, with a capacity of 1,186 kw. The number of short-wave transmitters on local networks rose from 415 to 470, with a capacity of 40 kw.

A photo-telephonic line was established between Moscow and Tashkent in February, 1934. This line, of 3,328 km., is the first such line in the U.S.S.R. There are now about 30 television broadcasting points.

Construction of a radio studio center in Moscow, similar to the Radio City in New York, was begun in 1934. It is to be a 22-story skyscraper with 29 broadcasting studios, and will house a radio theatre seating 2,000. Soviet radio commissions have visited the United States in the past few years to make studies of the most recent radio developments. In 1930 direct radio communication was established for the first time between New York and Moscow. The Soviet radio administration co-operates with the Radio Corporation of America in the maintenance of this service.

Beginning with April, 1934, a series of exchange broadcasts was inaugurated between New York and Moscow, the first of their kind. In the United States these are distributed over the networks of the National and Columbia Broadcasting systems. The programs are broadcast on wave lengths of 50 and 25 meters (6,000 and 12,000 kilocycles).

Despite the progress recorded in recent years the communications system is far from adequate to meet the requirements of the national economy, and the second Five-Year Plan calls for further development of all forms of communication, particularly radio, as well as basic reconstruction of the existing system. The combined utilization of wire and radio communication is to be greatly extended. Direct telegraph and telephone connections are to be established between Moscow and all the principal cities and industrial enterprises in the country

as well as between the chief centers within the respective republics and regions.

The number of post offices is to be increased to 70,500, as against 43,643 in 1932, and the length of routes correspondingly. The length of local and interurban telephone and telegraph lines is scheduled to total 3,830,000 kilometers by 1937, 2½ times that of 1932. The number of telephones is to show a corresponding growth, the figure for 1937 being set at 1,224,000 phones. In particular, the number of rural phones is expected to increase sixfold (254,000 in 1937) and automatic phones likewise (500,000 in 1937). The number of telephone subscribers in cities is planned to increase from 415,600 in 1932 to 820,000 in 1937.

It is planned to increase the number of radio broadcasting stations to 88 (as against 57 in 1932) with a capacity of 2,194 kw. (1,502 in 1932). The output of tube-receiving sets is scheduled to total 700,000 in 1937 as compared with 29,300 in 1932 and 324,000 in 1934. The number of long-distance radio transmission installations connected with the telegraph-telephone systems is to grow from 73 in 1932 to 294 in 1937, with a capacity of 3,411 kw.

Total capital investments for the five years are set at 1,679 million rubles, almost three times those of the preceding period. The basic capital in the communications systems is scheduled to total 2.0 billion rubles in 1937 as compared with 721 million in 1932 and 431 million in 1928.

X.

MUNICIPAL CONSTRUCTION

In prewar Russia, of 1,063 towns of over 10,000 population scarcely a fifth had water supply systems, only 19 had sewage systems, and 35 street car services. Not over 15 per cent of the towns had electric lights; the remainder depended upon kerosene lamps. The few paved streets were mainly cobblestone. Even in Moscow and Leningrad less than half of the streets were paved. During the years of civil war and intervention many thousands of buildings were destroyed, reducing the housing space by at least 15 per cent. It is estimated that such losses amounted to over two billion rubles, while damages to municipal services totaled at least 700 million rubles. As a result, the country's municipal economy was at an extremely low level.

The Soviet Government on assuming power had nationalized land, city dwellings, municipal structures and services, and allotted the available dwelling space among the inhabitants. In the period prior to the introduction of the first Five-Year Plan, when the bulk of the country's funds and efforts were being expended for the restoration of industry and agriculture, municipal improvements were limited largely to restoring services to normal operation and to repairing dwellings and municipal structures. In the years 1924-1928 about 600 million rubles were expended on municipal services, 660 million rubles on repairing dwellings, and 1.3 billion rubles on new housing construction. The latter sum provided for about 7 million square meters of new housing space, an amount far from adequate to

meet the needs of an urban population which was growing at the rate of over one million persons a year. Rent was based on earnings and could not exceed 10 per cent of the latter.

As the industrialization program of the first Five-Year Plan got under way, the urban population increased at an unprecedented rate—over two million a year. Prior to 1914 the influx of population into the cities did not average more than 300,000 annually. From 1928 to 1933 the urban population rose from 27.6 to 39.7 million, a gain of 44 per cent. Such a growth in urban population necessitated a tremendous expansion in housing construction. During the course of the five years about five billion rubles was expended (chiefly by state organizations; also by housing co-operatives) in new housing and over 29 million square meters of new dwelling space were made available. This brought the total amount of housing in cities and industrial centers to 191.5 million square meters. In the entire period from 1917 to 1928 only ten million square meters of new housing had been made available. The largest share of the new housing went for workers in the basic industries, and accommodations were provided for more than five million persons. In 1934 the available housing area increased to 197.3 million square meters; 150,000 new apartments were provided during the year.

A feature of housing development in recent years has been the growth of cooperatives, both for the renting and construction of dwellings. The number of members of house-renters' cooperatives increased from 935,000 in 1928 to 2,860,000 in 1933, the housing area occupied—from 24.5 to 49.6 million square meters, and the share capital—from 4.1 to 81 million rubles. In 1933 these organizations expended 118,000,000 rubles for major repairs. The housing construction cooperatives had a total of 589,000 members in 1934, 41 per cent of which were occupying their own apartments. The paid up capital

on January 1, 1934 amounted to 224,000,000 rubles (381 rubles per member). In the past six years these cooperatives put up an average of 600,000 sq. m. of housing per year.

Municipal Services

During the first Five-Year Plan period a total of 1.9 billion rubles were invested in municipal services. Of this total over 400 million rubles went for water and sewage systems, about 120 million rubles for public baths and mechanized laundries; 420 million rubles for city transport; 240 million rubles for power supply; and about 600 million rubles for street paving, parks, fire protection, etc. These services have been provided not only in the European section of the U.S.S.R. but also in some of the larger towns of Siberia, Transcaucasia and Central Asia. The progress recorded during the period 1928-1934 as regards the principal municipal services is shown in the following table:

	1928	1932	1933	1934 (preliminary)
<i>I. Water Supply Systems</i>				
Number of cities with water systems	293	369	375	380
Number of buildings served (thous.)	128.5	182.6	—	—
Length of water conduits (km.)	8,288	10,570	10,715	11,420
Amount supplied annually (mill. cu. meters)	296.5	585.0	697.5	—
<i>II. Sewage Systems</i>				
Number of cities with sewage systems	35	55	58	64
No. of buildings served (thous.)	30.5	52.1	—	—
Length of conduits (km.)	1,831.8	2,596	3,500	3,900
<i>III. Public Baths</i>				
Number	737	1,082	1,288	1,500
Capacity (persons)	110,000	140,000	155,200	210,000

	1928	1932	1933	1934 (preliminary)
IV. Street-car Service				
Number of cities	39	50	57	63
Number of street-cars	4,800	7,795	8,782	9,400
Passengers carried (mill.)	1,640	5,200	5,260	—
V. Bus Service				
Number of cities	40	117	130	—
Number of buses	466	1,455	—	1,500
Passengers carried (mill.)	119.5	305	375	—
VI. Electric Supply				
Electricity consumed for domestic needs (mill. kw.-h.)	941	1,760	—	—

In 1933 and 1934 capital investments in municipal utilities totaled two billion rubles and resulted in a considerable increase in services. The number of cities with water-supply systems was increased by 11 and with sewage systems by nine. The length of water and sewer conduits was expanded by 850 and 1,304 km., respectively. Street car lines were opened in 13 cities and the total number of cars increased by 1,605. The number of municipal laundries rose from 65 in 1933 to 115 in 1934.

In pre-war Russia only 15 or 20 per cent of the towns had electricity; now 90 per cent have electric supply and street lighting has greatly improved. Gas supply in prewar Russia was confined to a few cities, and this service was completely destroyed during the civil war. The gas plants in Moscow, Leningrad, Kharkov, Odessa and Baku have now been completely restored and considerably expanded. The consumption of gas for domestic needs doubled during the first Five-Year Plan.

The number of cities with municipal electric stations totaled 620 in 1933 as against 178 in 1913. The installed capacity of such stations amounted to 292,000 kw. in 1934 (an increase of 18 per cent over 1933).

There has been an even more rapid expansion of central heating (thermo-electric) plants. The first such station was

built in 1924; by 1930 there were 40 plants with a capacity of 200,000 kw. and by 1934, 65 stations totaling 900,000 kw. The network of pipelines increased from 20 kilometers in 1931 to 200 km. in 1934. The Berezniki thermo-electric central heating station, of 93,000 kw., is rated as one of the largest plants of its kind in the world.

Much progress has been made in recent years in street paving, especially in Moscow, Leningrad, Rostov, Sverdlovsk and Ivanovo. A total of 10 million square meters of streets were paved during the first Five-Year Plan period, while another six million square meters were repaved. During these four years seven times as much street paving was done in Moscow as in the whole previous history of the city. In 1932 work was started on Moscow's subway, the first section (12 km.) of which was completed in February, 1935. The opening of the subway will ease the city's transport congestion, which has continued to be a serious problem, despite the growth of street-car and bus services. The number of persons employed on it reached at one time a total of 70,000. Work on the second section, 22 km. in length, commenced early in 1935.

In recent years much work has been accomplished in cleaning the cities, planting parks, repairing the buildings and improving the general appearance of the streets. Thousands of street committees are carrying on various activities in connection with the beautifying of towns, sanitation measures, etc.

Reconstruction of Old Towns and Building of New Cities

The planned allocation of industry—the policy of bringing industry in close proximity to sources of raw material and of stimulating the economic development of outlying regions and areas inhabited by minor nationalities—has involved a planned distribution of population. City planning in the Soviet Union embraces not only the reconstruction and future development

of the old industrial centers. In the case of districts (such as the Urals, Kuzbas and Kola Peninsula) where new industrial centers (Magnitogorsk, Stalinsk, Khibinogorsk) have arisen, it involves the conversion of small settlements into modern cities and even of building new cities on barren land. A number of scientific institutes specialize in this work, one of the most important being the State Institute for City Planning of the R.S.F.S.R. (Giprogor), which has over 1,000 specialists on its staff. A number of foreign experts have been engaged for this work. In 1934, about 240 cities and industrial settlements in the R.S.F.S.R. were included in the work of the city planning organizations. There are five higher educational institutions, 33 secondary technical schools and other schools devoted to the training of experts in municipal economy.

Among the many cities which have undergone extensive reconstruction in recent years are: Moscow, Leningrad, Kharkov, Baku, Cheliabinsk, Sverdlovsk, Stalingrad, Novosibirsk, Ivanovo, Rostov, Gorky, Nizhni Tagil, Grozny and many towns in the Donetz Basin. The population of some of these towns has doubled or even more than trebled since prewar times, the greatest part growth having taken place since 1928.

Of the new cities a few of the more important are:

Stalinsk—largest of the many towns constructed in connection with the development of the vast Ural-Kuznetz industrial combine. Its population already numbers about 250,000. It has water and sewage systems, central heating station, bus and street-car service, public baths and laundries, clubs, theaters, hospitals, kitchen factories, etc.

Bolshoye Zaporozhye—new industrial center built at the site of the Dnieper power plant, where formerly the tiny hamlet, Kichkas, was situated. Its population now exceeds the 200,000 mark set for 1937. Hundreds of apartments have been constructed with all modern conveniences—water and sewage

systems, electricity, central heating. Sixteen parks cover an area of 26 hectares. A street-car line connects the new city with the old Zaporozhye.

Kirovsk (formerly Khibinogorsk)—a town on the Kola Peninsula built in connection with the development of the apatite deposits. Construction of the city was begun in 1929; the population in 1933 was 40,000.

Stalinabad—formerly a hamlet (Dyushambe) of 600 inhabitants; now the capital of the Tadzhik S.S.R., with a population of 60,000. It has new modern apartment houses, paved streets, a water system, bus service, hospitals, theatres, etc.

Kounrad—new town in Kazakstan, of 50,000 inhabitants, being built in connection with the new copper smelter on Lake Balkhash. In 1932 alone 24 million rubles were expended on municipal construction work at Kounrad.

Other new towns built during the Soviet regime, all of which have populations of over 25,000 persons, include: Magnitogorsk, which reached a population of 230,000 in 1933, Berezniy (Urals), Cheremkhovo (East Siberia), Karaganda (Kazakstan), Igarka (a new port town at the mouth of the Yenisei), Kramatorsk (Ukraine), Frunze (administrative center of Kirghizia), Stalinogorsk (formerly Bobriky), etc. In July 1935 a decree was issued by the Council of People's Commissars providing for a basic reconstruction of the city of Moscow during the next ten years.

As a result of the great expansion of municipal construction, the total number of towns with a population of over 10,000 had reached 1,300 by the end of 1932, as against the 1,063 in prewar Russia, an increase of well over 200. The number of cities with a population of over 100,000 quadrupled, rising from sixteen in 1914 to 65 at the end of 1933. Despite the large amount of housing construction there is still an acute shortage of dwelling space, especially in some of the

principal industrial centers, such as Moscow and Leningrad. Consequently, an even more extensive program of housing construction is under way during the present five-year period.

In cities and industrial centers a total of 66 million square meters of new housing space is to be made available during the five years. The investments for this purpose are to total 12.72 billion rubles, as against 4.04 billion in the first Five-Year Plan. The available housing fund is to increase from 185 to 246 million square meters (deducting that put out of use). It is expected that the city population will increase by six million (45 million at the end of 1937) and that the average housing space per capita will expand from 4.78 to 5.47 square meters. The number of cities with water supply is to increase to 440 (from 369 in 1932), and the per capita daily norm from 63 to 95 liters. Sewer systems are to be built in 70 cities, bringing the total to 125. The number of mechanized laundries is to be increased from 77 to 700 and the proportion of city population served by them from 1.9 to 13 per cent. Public baths are to increase in number from 1,082 to 2,634 and tramways will be introduced in 20 cities. In all, investments in municipal services are to total seven billion rubles, almost four times those of the preceding period.

XI.

THE FOREIGN TRADE OF THE U.S.S.R.

Principles and Policies

THE foreign trade policy of the Soviet Union was characterized by Commissar for Foreign Affairs Litvinoff in a statement issued on April 23, 1933, as follows:

“Our foreign trade policy is based on firm foundations which have not been altered since the beginning of our foreign trade and which we have no intention of changing. This policy is based on: 1) Economic intercourse between the countries of the world, and particularly between major powers, irrespective of their social-political systems; 2) Advantages accruing to each country from trade with other countries, and confidence between contracting parties based on real solvency proven by the fulfillment of commercial and financial obligations; 3) The absence of political upheavals in the relations between trading countries as a condition for the stability of trade relations; 4) The liberty for official representatives of trading countries to fulfill the necessary formal functions connected with trade; 5) Lawful intercourse between the representatives of governments and the citizens of the trading countries; 6) The submission of foreigners to the jurisdiction of countries where they are resident.”

The foreign trade of the Soviet Union is carried on in accordance with a program which is an integral part of the general plan of economic development. Its purpose is to further the interests of national construction by supplying those products, chiefly equipment and raw and semi-manufactured materials, which the development of the country demands. For this reason, the leading part in foreign trade is assigned to imports, the export of goods serving only as a means for the fulfillment of the import program. It is to the extent only that the

U.S.S.R. requires imported goods that its internal resources are utilized for export.

All foreign trade operations in the U.S.S.R. are a government monopoly regulated through the Commissariat for Foreign Trade. The latter does not handle the sales and purchases on the foreign market directly, its rôle being confined to controlling their volume and general character. This is accomplished by means of the plan of imports and exports drawn up by the Commissariat and by a system of special licenses.

In fixing the program for foreign trade the planning organs are guided primarily, on the one hand, by the needs of the national economy for imported products and, on the other hand, by the available surplus of exportable goods. They take into account also the credits received and all other "invisible" items of international payment, such as receipts from remittances and tourists' expenditures.

After estimating the amount of foreign currency which will be received during the year through the export of Soviet products and from other sources, provision is made to cover the payments due on credits received in previous years, and the volume of imports for the coming year is set on the basis of this remainder, with allowance made for credits to become available during the year. Purchases in excess of this figure are made only if further credits are received. A study of prices and credits in foreign markets for products which the Soviet Union is interested in importing aids in determining the maximum quantities of the various classes of goods which can be brought in during the year. Quotas are established for the various branches of industry, agriculture, transportation, etc., in accordance with their requirements and with the policy of the government in this respect.

The actual export and import operations are carried on by a series of state-owned corporations, each serving a particular branch of the national economy or specializing in certain types

of products. Programs are assigned to the various importing organizations which specify the maximum amount of expenditures and the period of payments. Similarly, export organizations make shipments in accordance with a predetermined plan. Through this system the Commissariat for Foreign Trade controls export and import transactions with a view to assuring payment in accordance with the obligations undertaken and that the operations are in accordance with the general plan of foreign trade.

The principal export and import organizations are listed below (the addresses given are all in Moscow, U.S.S.R.):

SOYUZPUSHNINA (Fur Syndicate); Address: Ul. Kirova 47; Imports: breeding animals; Exports: animals for zoos, etc.; many varieties of raw, dressed, dyed and natural furs and skins; fur apparel (coats, furs, collars, trimmings, etc.).

SOYUZPROMEXPORT (Industrial Export Corporation); Address: Ploshchad Revolutzii 1; Exports: chemicals (soda, inorganic and organic chemicals, naval stores, coal tar products); rubber and asbestos products; fat and oil products; iron and manganese ores; textiles; miscellaneous industrial products.

MINERALSILICATEEXPORT (Corporation for Export of Minerals and Silicates); Address: Petrovka 3; Exports: silicates (china, porcelain, glassware, etc.), mineral building materials, and miscellaneous minerals; also matches.

TEKHNOPROMIMPORT (Technical Equipment Import Corporation); Address: Proezd Khudozhestvennovo Teatra 2; Imports: machinery for the chemical, textile, shoe, printing, paper, food and building materials industries; automobiles, farm implements, building equipment, roller bearings, office machinery, etc.

EXPORTLEN (Corporation for Export of Flax and Hemp Fiber and Manufactures); Address: B. Cherkassky per. 6/7; Exports: flax and hemp.

RAZNOEXPORT (Corporation for Export of Miscellaneous Products); Address: Ul. Kirova 47; Exports: casings, bristles horsehair, wool, feathers, down, raw leather, leather goods, brushes, rags.

- SOYUZMETIMPORT** (Corporation for Import of Metals and Export of Ores); Address: Ul. Kirova 47; Imports: iron, steel and ferro-alloys.
- KOVERKUSTEXPORT** (Corporation for Export of Rugs and Handicraft Products); Address: Ilyinka, 6; Exports: carpets and rugs, wooden articles, lacquer ware, notions, footwear, musical instruments, sport accessories, precious metals and jewelry, cut stone, semi-precious stones, utensils, domestic articles and miscellaneous articles; Imports: commercial diamonds.
- AVTOEXPORT** (Automobile Export Corporation); Address: Gogolevsky Bul. 8; Exports: motor cars and spare parts.
- SOVAFGHANTORG** (Corporation for Trade with Afghanistan); Address: Kuznetzky Most 22.
- SOVMONTUVTORG** (Corporation for Trade with Mongolia and Tannu-Tuva); Address: Kaliaevskaya 5.
- SOVSINTORG** (Corporation for Trade with Sinkiang); Address: Ilyinka 6.
- STANKOIMPORT** (Machine Tool Import Corporation); Address: Proezd Khudozhestvennovo Teatra 2; Imports: machine tools, small tools and measuring instruments.
- MASHINOIMPORT** (Machinery Import Corporation); Address: Miasnitskaya 47; Imports: equipment for metallurgical, mining and oil industries, power equipment, electrical apparatus, hoisting machinery, ships and ship equipment.
- CENTROSOYUS** (Central Union of Consumers' Co-operatives); Address: B. Cherkassky per. 15; Imports: colonial goods, groceries.
- SOYUZINTORGKINO** (Corporation for Import and Export of Motion Pictures and Equipment); Address: Maly Gnezdikovskiy per. 7.
- MEZHDUNARODNAYA KNIGA** (International Book Co.); Address: Kuznetzky Most 14; Exports: books, magazines, newspapers, stationery supplies, etc.; Imports: books, newspapers, magazines, typewriters, etc.
- SOVIET PHILATELIC ASSOCIATION**; Address: Nastisinsky per. 3; Exports: postage stamps and coins.
- SOVFRAKHT** (Corporation for Chartering of Foreign Ships); Address: Nikolskaya 5.

- EXPORTLES** (Timber Export Company); Address: Ploshchad Revolutzii 1/3; Exports: lumber, pulpwood, plywood, veneers, etc.
- SOYUZNEFTEXPORT** (Corporation for Export of Oil Products); Address: Kaliaevskaya 5.
- EXPORTKHLEB** (Grain Products Export Corporation); Address: Ulitza Gorkovo 1/2; Exports: grain products, oilcakes and meals, oilseeds and meat products.
- SOYUZUGLEXPOR** (Corporation for Export of Coal); Address: Gorky 26.
- RYBOPLODOEXPORT** (Fish and Fruit Export Corporation); Address: Ulitza Gorkovo 20/1; Exports: fish and caviar; Imports: breeding fish.
- TEXTILIMPORT** (Textile Import Corporation); Address: Proezd Khudozhestvennovo Teatra 2; Imports: raw textiles (jute, cotton, wool, etc.); non-ferrous metals (tin, lead, nickel, aluminum), and rubber.
- TEKHNOEXPORT** (Corporation for Export of Technical Products); Address: B. Cherkassky per. 6; Exports: agricultural machinery, technical equipment, bicycles, etc.
- LEKTEKHSYRIO** (Crude Drug Corporation); Address: B. Dmitrovka 23/8; Imports: flower seeds and seedlings; Exports: crude drugs, essential oils, seeds of essential oils, and pharmaceutical chemicals.

Ordinarily foreign trade is handled by the special corporations, which work on a commission basis through agreements with the organizations producing export goods or purchasing imported products abroad.

Selling and purchasing operations abroad are handled by trade delegations or by special corporations (such as the Amtorg Trading Corporation) organized for this purpose. In most of the countries which have normal relations with the U.S.S.R. there have been established Soviet trade delegations which supervise the work of the various trade organizations in those countries. The trade delegations are official representatives of the Soviet Government in all matters pertaining to foreign trade. They supervise and direct all foreign trade operations in the country to which they are sent; regulate the conditions under

which trade agreements and contracts by various Soviet organizations with foreign firms are made; ratify all such agreements and contracts; supervise the fulfillment of all contractual obligations entered into by Soviet organizations; conduct all negotiations for the investment of foreign capital in the U.S.S.R.; guarantee in specified instances the payment for goods and services rendered. The trade representatives are empowered to appear as plaintiffs in the courts of the Country to which they are sent; they may appear as defendants only in such suits as may arise out of specific contracts or obligations entered into by the delegation, and only in those countries with which the U.S.S.R. has entered into a specific agreement or to which the U.S.S.R. has made a statement permitting the trade delegation to be made defendant in an action in the courts of the country. The trade delegations are under the supervision of the Commissariat for Foreign Trade. The list and addresses of the principal trade delegations are as follows:

TRADE REPRESENTATIONS OF THE U.S.S.R. ABROAD

AUSTRIA, Seitzerstrasse 2-4, Vienna 1.

CZECHOSLOVAKIA, Lutzowowa ul. 21, Prague 11.

DENMARK, Vestre-Boulevard 4, Copenhagen.

ESTONIA, Pikk 19, Tallinn.

FINLAND, Albertinkatu 25, Helsingfors.

FRANCE, 25 Rue de la Ville l'Eveque, Paris.

GERMANY, Lietzenburger Strasse 11, Berlin W. 15.

GREAT BRITAIN, Bush House, Aldwych Strand, London W.C. 2.

GREECE, Patission Str. 137, Athens.

ITALY, Corso Vittorio Emanuele, Milan.

JAPAN, Azabuky Kotsai Tolo, Tokyo.

LATVIA, Albertstreet 11, Riga.

LITHUANIA, Laisves Aleja 6, Kaunas.

MONGOLIA, Ulan-Bator.

NORTHERN MANCHURIA, Kitaiskaia 217, Harbin.

NORWAY, Tordenskjolds plasse 5-1, Oslo.

PERSIA, Teheran.

POLAND, Marshalkovska 113, Warsaw.

SWEDEN, Kungagatan 4-A, Stockholm.

TANA-TUVA, Kizyl.

TURKEY, Grande Rue de Pera, Soviet-han, Stamboul.

TRADE AGENCIES OF THE U.S.S.R. ABROAD

SINKIANG: Khorgos, Kuldzha.

SINKIANG: Irkeshtan, Kashgar.

SINKIANG: Bakhty, Chuguchak.

AFGHANISTAN: Middle Asiatic Railway, Termes, Mazar and Sherif.

AFGHANISTAN: Kushka, Gerat.

FOREIGN CORPORATIONS HANDLING SOVIET FOREIGN TRADE

ARCOS, LTD., Bush House, Aldwych, London W.C. 2, England.

AMTORG TRADING CORPORATION, 261 Fifth Avenue, New York, U.S.A.

YUJAMTORG, Sarandi, 444, Montevideo, Uruguay.

The purchase order for foreign products usually originates in the individual factory or trust. After being ratified by the officers of this organization it is sent to one of the specialized importing companies. The order is then checked as to its conformity with the general import plan, after which a special license is issued. In the meantime, inquiries have been sent to the organizations in foreign countries asking for quotations. On the basis of these quotations, taking into consideration the factors of credits, price, quality, delivery, etc., the order is sent to one of the purchasing organizations for execution.

All payments by and to Soviet organizations for foreign trade operations are effected through the State Bank of the U.S.S.R. or through its subsidiary, the Bank for Foreign Trade. The special organizations engaged in the export trade sell their foreign currency to the State Bank. The Soviet currency received from the State Bank is used by the export organizations to effect their payments to the producing organizations. The organizations in charge of the import trade purchase from the

State Bank the foreign currency required to cover the imports. The State Bank is the only bank in the Soviet Union which handles foreign currency and the actual payments abroad are effected through its correspondents in various parts of the world. The State Bank has deposits in a large number of foreign countries.

Volume of Trade

The decree introducing the state monopoly of foreign trade was issued on April 27, 1918. In the following two years the blockade by foreign countries made it impossible to carry on trade to any appreciable extent. Only after the lifting of the blockade in 1920 was foreign trade started on a more or less normal basis. In the seventeen years from 1918 to 1934 the Soviet Union imported foreign goods to the value of 8.6 billion rubles (\$4.4 billion at the old parity of the dollar) and exported Soviet products to the value of 7.8 billion rubles (\$4.0 billion), leaving an unfavorable balance for the entire period of about 800 million rubles.

From the beginning of Soviet foreign trade operations up to 1930 there was a steady and rapid increase in the turnover. Exports rose from 82 million rubles in 1922 to 746 million in 1927 and over a billion rubles in 1930. Imports went from 270 million rubles in 1922 to 758 million in 1927 and more than a billion rubles in 1930 and 1931.

At their highest point, in 1930, Soviet exports (1,036 million rubles) did not exceed 70 per cent of the prewar average (1,487 million rubles average for 1909-1913). Since that time, owing to the contraction of world markets, the drop in prices and the rapidly increasing requirements of the home market, exports have shown a steady decline, shipments amounting to 418 million rubles in 1934. Imports in 1930 and 1931 were almost as great as before the war (average of 1,082 million rubles in 1930 and 1931, and 1,140 million

from 1909 to 1913). In 1932 imports dropped by more than a third and in 1933 and 1934 there were further drastic declines, receipts amounting to 232 million rubles in the latter year.

While the value of exports and imports has shown a sharp decline in the past few years this has not been the case as regards physical volume. Calculated at stable prices of 1926-27, exports in 1933 were actually 26.4, and in 1934, 3.1 per cent greater than in 1928. In 1932 imports were 44.0 per cent greater and in 1933, 24.3 per cent less than in 1929. The total turnover in fixed prices showed a decline of only nine per cent from 1928 to 1933, whereas in value the drop was 52 per cent.

The decline in exports as compared with the prewar figure has been due largely to the great reduction in exports of grain and other foodstuffs which have been held in the country for domestic consumption. In 1913 grain exports amounted in value to 595 million rubles and made up 39 per cent of total exports. In the peak years under the Soviet régime, 1930 and 1931, they amounted to only from a quarter to a third of that figure. The reduction in exports necessitated a corresponding drop in imports. In the twelve years 1923-1934 favorable balances were recorded in six years and unfavorable balances in six years.

The total turnover of Soviet foreign trade, as compared with the prewar trade, is given in the table below:

YEAR	EXPORTS	IMPORTS	TURNOVER	BALANCE
	<i>(in millions of rubles in prices of each year)</i>			
1909-1913 (av.)	1,487.2	1,140.2	2,627.4	+ 347.0
1918 ¹	8.1	105.2	113.3	- 97.1
1919 ¹	0.1	3.2	3.3	- 3.1
1920 ¹	1.4	28.7	30.1	- 27.3
1921 ¹	20.2	210.7	230.9	- 190.5
1922 ¹	81.6	269.8	351.4	- 188.2
1923 ¹	218.0	143.2	361.2	+ 74.8
1924 ¹	337.0	260.0	597.0	+ 77.0
1925	608.8	826.7	1,435.0	- 217.9

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YEAR	EXPORTS	IMPORTS	TURNOVER	BALANCE
	<i>(in millions of rubles in prices of each year)</i>			
1926	724.6	688.7	1,413.3	+ 35.9
1927	745.9	758.1	1,504.0	— 12.2
1928	803.4	953.1	1,756.5	— 149.7
1929	923.7	880.6	1,804.3	+ 43.1
1930	1,036.4	1,058.3	2,095.2	— 21.9
1931	811.2	1,105.0	1,916.2	— 293.8
1932	574.9	698.7	1,278.9	— 123.8
1933	495.7	348.2	843.9	+ 147.5
1934	418.3	232.4	650.7	+ 185.9

¹ From 1918 to 1924 foreign trade totals were calculated only in prices of 1913.

The decline in the foreign trade of the U.S.S.R. has been less than that for the world as a whole. Whereas the total foreign trade turnover of the 75 principal countries fell in 1932 to 39 per cent and in 1933 to 35 per cent of the 1929 total, the corresponding percentages for the Soviet Union were 71 and 47. As regards exports the U.S.S.R. has increased somewhat its share of the world total since 1929. Its share in world exports rose from 1.5 per cent in 1929 to 2.0 in 1934; its share in world imports rose from 1.3 per cent in 1929 to 1.5 per cent in 1933, declining again in 1934 to 1.0 per cent. As compared with before the war, however, the U.S.S.R. share in world trade has declined a half, amounting to 1.8 per cent in 1933 and 1.5 per cent in 1934 as compared with 3.9 per cent in 1913.

SHARE OF U.S.S.R. IN WORLD TRADE

	EXPORTS	IMPORTS	TURNOVER
	<i>in per cent</i>		
1913	4.2	3.6	3.9
1925	1.0	1.3	1.2
1929	1.5	1.3	1.4
1931	2.3	2.8	2.5
1932	2.3	2.6	2.4
1933	2.3	1.5	1.8
1934	2.0	1.0	1.5

Character of Imports and Exports

During the revolution and the period of disorganization and famine following it, large quantities of grain and other food

products were imported from other countries. In 1922, the Soviet Union started to bring in an increasingly large volume of raw materials and semi-finished products, such as cotton, wool and hides, as well as various types of equipment and machinery necessary for the restoration of light industry. During the five years previous to 1928 raw materials and semi-finished products constituted 58 per cent and equipment 24 per cent of the imports. In the period of the Five-Year Plan, larger quantities of equipment, especially for heavy industry, were purchased abroad. From 1929 to 1933 equipment made up 50 per cent of total imports and raw and semi-finished goods 39 per cent. In the three years 1931-1933 equipment made up 60 per cent of all imports, as compared with 20 per cent in the last five prewar years (1909-1913). The importation of products of general consumption, which in prewar years made up about 22 per cent of the imports, including a considerable volume of luxuries, was reduced to eight per cent of the total in 1929-1933.

The following table shows the structure of imports in the five years 1929-1933 as compared with the last five prewar years:

	1909-1913		1929-1933 ²	
	<i>In mill. rubles</i>	<i>In per cent of total</i>	<i>In mill. rubles</i>	<i>In per cent of total</i>
Total imports (annual average)	1,140.2	100.0	816.4	100.0
I. Means of Production	823.5	72.2	731.6	89.7
a) Raw and semi-finished goods	598.1	52.4	321.1	39.3
b) Equipment	225.4	19.8	410.5	50.4
II. Consumers' goods	248.8	21.8	64.8	7.9
III. Unclassified	67.9	6.0	20.0	2.4

² Beginning with the fiscal year 1928-29.

During the period of 16 years from 1917 to 1933 imports of raw and semi-finished products totaled 3.81 billion rubles, of equipment—3.15 billion, consumers' goods—1.13 billion, and unclassified goods—345 million rubles. Producers' goods made up 83 per cent of the total imports.

The character of exports has also undergone a marked change since the years before the war. While tsarist Russia exported mainly agricultural products and less than 30 per cent of industrial goods, the latter in the past few years have made up over 60 per cent of total exports and agricultural goods less than 40 per cent. Exports of grains, butter, eggs, flax, etc., have dropped to a small part of the prewar; on the other hand, shipments of such commodities as oil, timber, furs, etc., are considerably above the prewar.

The structure of exports during the past few years, as compared with before the war, is shown in the table below:

	1909-1913		1929-1933	
	<i>In mill. rubles</i>	<i>In per cent</i>	<i>In mill. rubles</i>	<i>In per cent</i>
Total Exports (annual average)	1,487.2	100.0	768.4	100.0
Agricultural Products	1,050.6	70.6	292.4	38.0
Industrial Products	436.6	29.4	476.0	62.0

In the past few years there has been also a tendency toward an increasing proportion of exports of finished or semi-finished industrial products, such as dressed furs, veneers, gasoline and textiles. Products of manufacturing industries, which in 1909-1913 constituted only seven per cent of Russian exports, in 1928 made up 15 per cent and, in 1933, 27 per cent of the total. The proportion of finished goods in total exports increased from 28 per cent in 1913 to 56 per cent in 1934.

The list of export products has been increased from 50 to about 800 items within the past eight years, and a number of export items developed which did not exist in prewar Russia. Thus, both imports and exports reflect clearly the process of industrialization.

Imports by Commodities

The change in the character of imports may be seen from the table on the next page giving the imports of 20 selected items during the past 12 years and the average for the last five prewar years:

SOVIET IMPORTS BY COMMODITIES (20 Selected Items)

(In 1,000 Rubles)

	AVERAGE													
	1909-13	1921-2	1922-3	1923-4	1924-5	1925-6	1926-7	1927-8	1929	1930	1931	1932	1933	1934
Rubber, raw	33,241	3,498	7,878	8,763	8,408	26,236	23,555	24,099	11,454	13,691	13,876	7,698	6,385	16,488
Tanning materials	6,712	547	2,259	3,026	8,820	11,454	12,251	15,721	6,649	6,850	371	197	177 [‡]
Paints and dyes	13,772	1,396	5,694	9,368	19,649	16,920	11,114	11,743	6,923	3,846	1,222	1,097	932	2,089
Ferrous metals	8,392	2,775	304	601	3,785	10,359	11,299	16,758	33,726	70,777	124,560	77,954	47,500	25,992
Nonferrous metals	30,397	1,637	3,780	9,499	18,875	29,666	45,444	58,032	59,552	53,967	49,269	29,268	21,732	21,825
Iron and steel products	17,309	10,281	6,129	6,989	5,395	12,274	22,831	48,633	29,330	61,694	90,870	43,003	28,566	17,217
Industrial machinery and equipment	76,412	40,035	12,601	16,205	28,467	43,074	71,705	90,315	86,159	173,580	240,713	215,958	87,784	39,231
Industrial machinery parts	11,952	1,802	3,394	1,735	12,627	18,712	13,846	28,196	24,069	77,047	90,447	59,789	21,472 [‡]
Agricultural machinery and parts	40,523	5,296	2,569	3,276	21,489	32,072	16,743	14,227	28,410	38,327	26,287	839	124	43
Tractors and parts [‡]	124	750	651	8,841	12,252	8,247	10,460	34,847	71,565	79,627	293	2,387	87
Automobiles, motorcycles bicycles and parts	11,473	2,633	2,803	2,861	6,921	14,399	7,781	9,732	16,132	27,245	37,556	8,296	3,312	1,753
Seagoing vessels	3,752	13	65	87	145	72	241	5,700	10,552	15,112	11,602	8,108	4,029	2,855
Precision instruments and apparatus	6,743	1,346	2,025	2,074	7,921	11,198	8,585	16,111	16,658	13,931	14,878	12,206	5,666	3,782
Electrical apparatus and appliances	14,908	5,283	5,588	6,212	11,948	16,798	24,998	47,470	33,956	48,771	53,481	64,888	47,471	8,137
Cotton	110,350	24	17,326	56,994	133,831	117,778	131,631	154,215	117,269	55,992	40,568	17,851	9,911	6,467
Wool	51,517	17	1,618	10,361	47,476	41,407	51,177	62,111	68,543	42,164	32,201	24,006	21,483	11,840
Rice	13,083*	2,097	1,662	4,472	18,293	9,999	10,969	15,572	12,047†	13,170	9,990	14,365	10,543	1,490
Tea	62,169*	654	943	6,638	17,297	26,072	27,966	36,959	29,592†	20,611	12,632	7,751	19,307	6,468
Hides and leather	42,987*	2,207	3,100	6,534	34,020	46,687	46,148	47,408	39,792†	20,964	14,036	7,303	3,684	7,817
Chemical products	19,597*	5,698	3,425	4,443	14,953	17,204	12,646	17,117	14,790†	18,551	14,133	4,200	2,560	5,601

[‡] Not reported separately.

* 1913 figures.

† 1928-29 figures.

‡ Included in industrial machinery.

This table shows the growth of imports of machinery and equipment and of metals during the period of intensive industrialization of the first Five-Year Plan (1929-1932). Imports of industrial machinery and parts, electrical equipment, precision instruments, ferrous and nonferrous metals and iron and steel products during this period were three times as large as before the war. Purchases of tractors and combines were also large, due to the demand brought about by the reorganization of agriculture to a basis of large-scale, mechanized cultivation. In the past three years imports of these products were drastically reduced, due primarily to the increase in domestic production. Similarly, purchases of many raw and semi-finished products have been greatly curtailed in the past few years as domestic output has begun to satisfy an increasing share of the demand. This has been the case with metals, tanning materials, chemical products, paints and dyes, coal, cotton, jute, hides and leathers, paper, etc.

Imports of some consumers' goods, such as tea and herrings, have also been cut down and luxury imports virtually eliminated. Purchases of coal abroad, which in 1913 totaled 90 million rubles, were practically dispensed with several years ago. Cotton imports, which before the war and from 1925 to 1930 averaged over a 100 million rubles annually, were cut to about a tenth of that figure in 1933.

The considerable drop in imports in the past two years has been accounted for in part by the increasing domestic output of mining and manufacturing industries and of agricultural raw materials, and by the establishment of many entirely new industries. It is also a reflection, in part, of unfavorable conditions on the world market, particularly with regard to credits for imports and the sale of Soviet products.

The U.S.S.R. as a Market for Industrial Products

The developments under the Five-Year Plan made the So-

viet Union a leading market for machinery and equipment and one of the most important purchasers of iron and steel. During the period it took from 20 to 30 per cent of world exports of machinery and about 20 per cent of iron and steel exports. Whereas in 1929 it took six per cent of the machinery exports of the seven principal exporting countries, by 1932 this had increased to 30 per cent. It took 80 per cent of British exports of machine tools in 1932 and 25 per cent of its total machinery shipments; 70 per cent of its exports of coal-cutters in 1931 and 56 per cent of steam turbines.

In the five years 1929-1933 it took 13.5 per cent of United States exports of industrial equipment, 31 per cent of metal-working machinery, four per cent of electrical equipment, 30 per cent of agricultural machinery, 45 per cent of tractors and 26 per cent of combines. In 1931 it took 27.5 per cent of total American industrial equipment exports and 66 per cent of agricultural machinery. In 1932, of total German shipments of machine tools, the U.S.S.R. accounted for 75 per cent, of cranes—85 per cent, excavators—70 per cent, pumps—54 per cent, etc. About 65 per cent of electrical equipment exports of Italy and 92 per cent of its ball-bearing exports went to the U.S.S.R. in 1932.

The efforts of the U.S.S.R. to attain a high degree of economic independence do not signify a policy of isolation and severing of trade relations with other countries, according to declarations of Soviet authorities. The declared aim is to reach a stage where the country is not dependent on the outside world as regards its basic requirements of machinery and raw materials. Under such circumstances trade will be carried on when the conditions are favorable, and on a basis of equality. While the Soviet Union, according to officials, is no longer compelled to buy most types of machinery and raw and semi-manufactured products abroad, it is able and ready to absorb

a large volume of foreign products provided acceptable credit and other conditions are established.

It is worthy of note that during the period of the Five-Year Plan, when the machine-building industries increased their output four-fold, imports of machinery (over two billion rubles from 1929 to 1933) were double those of the preceding five years as well as of the prewar period. At the same time, the percentage of foreign machinery in the total machinery supply of the country steadily declined. For instance, despite the large increase in imports of machine tools (70,000 machines during the period of the Five-Year Plan), domestic machine tools increased from 22 per cent of the total in the prewar period to 38 per cent in 1932. Of all new machinery put in operation, foreign machinery constituted 65 per cent in 1913 as against 10-12 per cent in 1932. This is accounted for by the fact that in 1932 domestic machine-building output was about ten times the prewar, making up about 25 per cent of world production as compared with 3.5 per cent in 1913.

The following table shows the rôle of the U.S.S.R. in world exports and imports of machinery and electrical apparatus for the four years 1929-1932:

IMPORTS OF MACHINERY AND ELECTRICAL EQUIPMENT INTO
U.S.S.R.

	1929	1930	1931	1932
	<i>in millions of dollars</i>			
Imports into U.S.S.R.	106.7	210.6	252.4	174.6
In per cent of 1929	100.0	197.4	236.6	163.6
Share of U.S.S.R. in Exports of Principal Countries ⁴	5.8	14.7	25.3	29.9
Share of U.S.S.R. in Imports of Principal Countries ⁵	13.7	26.7	40.2	41.6 ⁶

⁴ Includes exports from Germany, England, United States, France, Switzerland, Sweden and Italy.

⁵ Includes imports into England, Germany, France, India, Italy, United States, Argentina, Canada, Japan and U.S.S.R.

⁶ Not including Argentina.

The Soviet Union has also been one of the largest importers of metals. From 1930 to 1933 imports of ferrous metals and

iron and steel products averaged over a million tons annually, reaching a peak of 1,703,000 tons in 1931. In 1930 the U.S.S.R. accounted for 9.3 per cent and in 1932 for 19.7 per cent of the total iron and steel imports of the ten leading importing countries, being second only to England in 1931 and 1932. Likewise, it has been one of the important purchasers of nonferrous metals, imports of which averaged 95,000 tons a year from 1929 to 1933. Purchases of metals in the past few years have been several times as great as in the prewar years.

As regards chemical products, from 1925 to 1930 the U.S.S.R. took from five to six per cent of imports of the seven leading countries. In that period imports averaged 50 million rubles annually (including paints and dyes, tanning extracts, etc.). In the past three years the average fell to 12 million rubles a year, due primarily to increased domestic production.

Purchases of some raw materials, such as cotton, wool and rubber, have also been considerable in the past years. From 1925 to 1929 Soviet imports of cotton made up from 3.2 to 4.5 per cent of total world imports, as compared with six per cent before the war. In the past few years, in connection with the development of domestic cotton cultivation, imports have dropped markedly. From an average of 128,000 tons a year from 1925 to 1929 they fell to 56,000 tons average in 1930-31 and 24,000 tons in 1932-34. In 1930-32 considerable quantities of cotton also were exported (average of 23,000 tons a year).

Imports of wool by the U.S.S.R. have made up two or three per cent of world imports in the past few years (as against 4.2 per cent before the war). They rose from 18,700 tons in 1925 to 39,200 tons in 1929 and from 1930 to 1934 averaged 28,300 tons a year.

Imports of crude rubber have shown a steady increase, going from 6,400 tons in 1925 to 15,400 tons in 1928, 28,200 tons

in 1931 and 48,100 tons in 1934. The U.S.S.R. took 2.7 per cent of total world exports in 1931 and over three per cent in 1932.

The following table shows imports of the Soviet Union, both by value and tonnage, in the three years 1931-1933:

IMPORTS INTO THE SOVIET UNION

ITEMS	By Commodities					
	1933		1932		1931	
	In metric tons	In thous. rubles	In metric tons	In thous. rubles	In metric tons	In thous. rubles
(a) Food Products						
Grain	6,838	239	138,332	6,429	5,793	425
Rice	10,543	876	66,922	14,365	49,183	9,990
Dried fruits	1,459	242	11,101	2,773	5,452	1,121
Nuts	147	151	704	808	1,190	1,174
Spices	15	9	195	91	394	322
Coffee	58	29	237	105	1,178	632
Cocoa	905	163	315	83	4,198	1,121
Tea	19,307	5,764	15,949	7,751	20,708	12,632
Sugar	6,996	521	41,507	2,640	98	27
Herrings	18,508	793	60,249	4,428	38,083	3,660
Other food products	28,321	6,852	.....	.....	.....	.....
(b) Animal and Animal Products						
Cattle	27,029	3,815	46,324	6,929	56,104	10,697
Other livestock	39,041	8,704	46,526	9,638	47,552	10,163
Horses	4,300	1,038	7,671	1,700	4,541	1,032
Hides, raw	5,228	2,698	16,186	6,297	18,742	10,061
Hides, dressed	957	986	694	1,006	1,960	3,975
Hides, goats and sheep	3,266	3,373	3,917	3,309	10,229	8,279
Other fur	533	6,863	.....	.....	.....	.....
Footwear and leather products	33	200	52	297	27	204
(c) Wood, Glass, Coal, Rubber, Chemicals, Drugs and Their Products						
Wooden articles	19	51	17	12	420	192
Cork bark	1,879	123	1,591	149	2,166	573
Seeds	2,536	435	1,830	922	4,460	2,460
Copra	.....	.....	.....	.....	15	2
Abrasives	989	279	997	461	2,690	692
Glassware	49	13	12	35	61	206
Coal	15,403	81	52,511	465	106,603	1,215
Exotic resins	448	271	1,414	1,627	1,699	1,761
Caoutchouc and crude rubber	31,270	6,385	30,569	7,672	28,210	13,876
Rubber articles	56	61	116	167	597	818

IMPORTS INTO THE SOVIET UNION

ITEMS	By Commodities					
	1933		1932		1931	
	In metric tons	In thous. rubles	In metric tons	In thous. rubles	In metric tons	In thous. rubles
Sulphur and sulphur						
flowers	3,078	175	3,012	194	22,346	1,297
Chemical products	9,073	2,560	10,871	4,200	86,503	14,133
Fertilizers	.....	.....	1	.5	43,559	2,752
Salt-peter	501	65	2,166	310	2,330	437
Iodine	.....	.....	.....	.....	17	277
Quinine and its salts	88	1,568	.....	.....	.....	.....
Pharmaceutical preparations	2	22	.4	15	5	55
Vegetable oils	846	217	6,313	1,781	4,281	914
Ether oils	8	47	10	91	15	207
Tanning fluids	1,062	177	1,075	197	768	371
Dyes and paints	1,639	932	2,283	1,066	1,971	1,222

(d) *Metals and Metal Products*

Ferrous metals	506,316	47,500	893,497	76,660	1,417,952	124,560
Copper	7,882	2,150	11,969	4,400	25,253	10,573
Nickel	3,498	4,887	3,961	6,558	3,840	6,220
Aluminum	10,570	6,842	10,432	7,489	20,372	15,658
Bismuth	.....	.....	173	560	1,964	1,863
Tin	4,117	5,410	3,910	4,819	4,486	5,123
Lead	16,405	1,377	32,762	3,816	41,945	5,824
Zinc	5,809	675	10,599	1,416	23,660	3,790
Other nonferrous metals	255	391	6	8	47	215
Copper articles	236	504	672	1,534	869	2,159
Pig iron, iron and steel articles	110,978	28,566	109,456	42,660	242,352	90,870
Tin articles	5,450	1,070	680	378	1,840	1,520
Wire	9,581	2,736	22,127	5,619	38,519	9,131
Wire articles	533	310	1,201	775	5,227	2,560

(e) *Industrial, Agricultural, Automotive Machinery and Equipment*

Tools for handicraft work	46	93	66	226	410	1,134
Agricultural implements	1	1	.4	2	3	4
Industrial machinery	124,210	87,784	241,356	213,932	217,483	240,713
Agricultural machinery	91	87	245	227	23,453	17,907
Parts of industrial machinery	24,868	21,472	48,655	59,385	73,681	90,447
Parts of agricultural machinery	60	37	1,371	612	16,877	8,380
Tractors	134	147	246	293	76,134	69,047
Parts of tractors	2,592	2,240	82	81	6,213	10,580
Automobiles	989	1,304	1,588	2,415	8,285	12,319
Motorcycles	2	7	4	12	39	89
Parts of automobiles and motorcycles	4,597	1,707	10,860	5,841	26,511	24,982
Bicycles	13	20	12	17	70	151

THE FOREIGN TRADE OF THE U.S.S.R. 303

IMPORTS INTO THE SOVIET UNION

By Commodities

ITEMS	1933		1932		1931	
	In metric tons	In thous. rubles	In metric tons	In thous. rubles	In metric tons	In thous. rubles
Optical, physical and chemical apparatus	747	5,666	1,414	11,891	1,588	14,799
Ships and boats	19,423	4,029	29,896	8,108	.....	.....
Medical instruments	3	24	7	47	6	77
Electrical machinery, apparatus and supplies	21,231	19,359	47,239	64,888	35,902	53,481
Supplies for watch factories	4	357	10	313	6	394
(f) Paper and Paper Products						
Paper pulp	2,246	87	3,230	207	68,383	2,483
Cardboard	294	146	227	175	346	217
Paper	264	148	397	246	28,680	3,347
(g) Textiles and Manufactures						
Raw cotton	22,554	9,911	24,299	17,851	53,749	40,568
Raw jute and kenaf	10,489	1,231	6,430	935	24,501	3,589
Manilla hemp	13,068	1,522	5,559	642	.....	.....
Silk cocoons	261	402	133	702	138	867
Raw silk	4	94	52	883	1	40
Wool	28,536	21,483	25,748	23,944	30,730	32,201
Woolen rags	7,423	1,384	4,584	1,246	11,146	3,266
Cotton yarn	48	86	57	67	408	636
Silk, twisted and spun	1	4	.....	.....	.1	.4
Wool, combed, spun and twisted	46	179	48	124	35	83
Cotton fabrics	1	16	81	332	96	480
Hemp and flax fabrics	2,691	828	2,141	1,396	7,155	4,492
Silk and silk mixture fabrics	3	21	3	15	4	28
Woolen cloth	120	628	564	3,234	305	1,992
Technical cloth	9	36	40	117	183	524
Knitted articles	73	445	24	231	10	115
(h) Miscellaneous						
Diamonds and carbonates	.....	.....	.....	.....	0	6
Other imports	24,916	6,035	170,428.2	33,350.5	449,346.9	66,554.6
TOTAL IMPORTS	1,236,118	348,216	2,300,211	698,693	3,564,352	1,105,034

Exports by Commodities

For a period of several years the Soviet Union was entirely out of the world market. In 1922, when trade was resumed on a more or less regular basis, exports totaled only five per cent of the prewar. In the following years, despite cam-

SOVIET EXPORTS BY COMMODITIES (20 Selected Items)

ITEM	AVERAGE												
	1909-13	1922	1923	1923-4	1924-5	1925-6	1926-7	1927-8	1929	1930	1931	1932	1933
Wheat	293,159	.....	22,363	37,202	16,436	76,399	125,936	112,10	0.1	130,318	77,112	19,208	20,554
Rye	31,681	165	60,577	66,889	5,099	10,836	35,405	9,671	106	21,009	31,980	13,247	3,678
Barley	175,718	.....	10,589	15,645	15,578	50,426	17,559	394	8,775	36,714	26,865	11,958	11,178
Oats	56,513	4	5,567	7,519	220	1,545	4,553	2,704	391	11,243	12,036	639	1,928
Flax and flax tow	84,493	13,801	10,053	10,137	52,446	45,524	20,751	25,893	38,022	23,582	13,233	13,573	14,229
Cotton	.....	.....	.....	.....	.....	.....	.....	.....	2,291	6,981	18,005	5,495	182
Castings	2,634	366	1,176	665	7,345	9,280	9,664	10,659	15,293	16,068	7,075	5,525	3,702
Eggs	76,397	.....	2,498	9,120	25,657	22,629	28,954	40,462	23,955	3,740	5,691	1,632	245
Butter	62,278	3	4,565	20,579	27,579	30,872	34,224	39,120	31,004	10,513	24,282	15,872	12,221
Furs	16,550	5,597	5,396	18,717	67,833	72,006	86,103	119,207	106,623	76,840	56,199	42,300	38,557
Fish	4,262	11	14	3,192	6,682	6,987	6,081	10,367	8,202	8,918	10,383	3,708	3,063
Caviar	3,828	925	1,113	2,591	6,743	5,865	3,501	5,828	8,354	6,487	4,936	2,515	2,328
Lumber and lumber products	144,456	15,151	25,724	63,941	70,203	60,981	89,333	118,540	152,509	169,740	113,594	80,525	76,730
Sugar	40,935	.....	120	3,170	13,964	18,961	31,195	33,803	34,356	27,006	32,689	12,798	5,544
Manganese	9,695	453	1,246	5,940	17,891	21,285	24,090	13,781	20,440	12,896	9,774	3,771	4,512
Asbestos	1,560	254	550	789	1,460	1,705	2,533	3,165	4,571	4,417	2,485	2,381	2,651
Coal, anthracite and coke	955	72	4	907	4,159	5,630	6,749	7,482	12,396	16,788	14,182	12,432	10,390
Oil products	36,682	11,389	16,844	44,278	66,612	75,969	95,513	124,090	137,942	157,052	115,663	107,256	75,671
Cloth (cotton, woolen, linen, etc.)	32,448	791	184	650	5,214	14,726	41,673	103,163	43,953	49,335	48,375	51,460	31,523
Unmanufactured metals	62,233	7,794	3,598	3,553	2,803	1,819	1,420	69	2,261	4,195	2,135	9,585	39,609

In 1,000 rubles

* Not listed separately.

paigns and restrictions against Soviet commodities in a number of countries, exports increased steadily and many of the important products (oil, lumber, manganese, furs, etc.) regained their lost ground. In addition, many products, chiefly minerals and manufactures, which before the war were imported have been added to the list of exports.

The outstanding difference between the prewar and present-day export trade is the large decline in the importance of grain and other foodstuffs in exports and the increasing importance of industrial products. Whereas in the prewar years (1909-1913) grain products made up about 40 per cent of the total exports, in the four years 1930-1933 they constituted only 16 per cent of the exports. During the years of maximum postwar grain exports (1930-1931) the exports averaged 5,000,000 tons annually, about one-half the prewar total. This despite the fact that in some years (*e.g.*, 1930 and 1933) production was greater than before the war. Although the per capita consumption of wheat was among the lowest of all countries, tsarist Russia exported over 4,000,000 metric tons a year, about 25 per cent of the world exports. Postwar exports never exceeded 60 per cent of this figure, due to the increased domestic consumption of wheat.

Resumption of grain exports to any considerable extent began only in 1926. In that and the following year they averaged somewhat over two million metric tons a year. The following two years they were negligible but in 1930 and 1931, as a result of the good crop of 1930, they rose to about five million tons. In 1932-1933 exports again fell—to 1.8 million tons each year, and in 1934 they amounted to only 800,000 tons.

In 1930 the U.S.S.R. supplied 15 per cent and in 1931, 12 per cent of world wheat exports as compared with 25 per cent before the war. In 1933 its share dropped to five per cent. Its share of world rye exports was 61 per cent in 1931 and

30 per cent in 1932, as against 33 per cent in 1909-13. Soviet barley shipments made up 30 per cent of the world total in 1930 and 20 per cent in 1932. (Before the war Russia supplied 60 per cent.)

The following table shows the share of the U.S.S.R. in world wheat exports during the past few years and before the war:

	WHEAT (<i>in mill. centners</i>)					
	1909-13	1929	1930	1931	1932	1933
World exports	170.8	190.6	167.7	203.5	172.9	156.0
U.S.S.R. exports	42.4	0	25.3	25.0	5.4	7.1
Share of U.S.S.R. in total (per cent)	24.8	.....	15.1	12.3	3.1	4.6

Exports of flax have been considerably reduced since the prewar years, due in part to the loss of the Baltic States and Poland, which supplied a substantial part of the exports. Nevertheless, the U.S.S.R., with its shipments exceeding 80,000 tons a year, is one of the largest flax exporters. In the past few years the value of the exports has declined as a result of the drop in prices. The Soviet Union supplied 25 per cent of world exports in 1930 as against 53 per cent before the war. However, in the past few years, with the simultaneous drop in the area sown to flax in other European countries, and the large increase in the U.S.S.R., the share of the latter has increased considerably.

Whereas before the war raw products made up 98.5 per cent of flax exports, by 1932 this had been reduced to 59 per cent. At the same time, finished or semi-finished materials (combed flax, yarn and cloth) were increased to 41 per cent of the total exports.

As has been the case with grain, exports of butter, eggs and other foodstuffs have been drastically reduced since before the war. However, the U.S.S.R. is still a factor on the world markets as regards some of these products. Shipments of butter,

which in the last five prewar years averaged 68,000 tons a year, were reduced to less than 40 per cent of that figure in the past five years (average of 25,000 tons annually in 1929-1933). In the years from 1926 to 1929 and in 1931-32 the Soviet Union accounted for about five per cent of total world exports of butter, as compared with 21 per cent before the war. Exports of eggs, which in the prewar years exceeded 76 million rubles a year, averaged 28 million rubles from 1925 to 1929. In the three years 1932-1934 they averaged less than 750,000 rubles a year. From 1927 to 1929 the U.S.S.R. supplied from nine to 15 per cent of world exports. Among the other animal products the Soviet Union is a large exporter of bristles, hair, casings, raw skins, etc.

Exports of furs and fish products have shown a large increase since before the war. From 1925 to 1931 these averaged four times as much as during the prewar period (98 million rubles average in 1925-1931 as against 25 million in 1909-1913). In 1932-1934, owing in part to lower prices, shipments averaged only about a half of the preceding period but almost double the prewar.

In this group furs make up from 80 to 90 per cent of the total, the U.S.S.R. supplying from 20 to 25 per cent of the world exports. Since 1925 furs have made up from seven to fifteen per cent of total exports. From 1927 to 1929 fur shipments averaged 100 million rubles a year (six times the prewar), but in the four years 1930-1933 they dropped to an average of 53 million rubles a year. A feature of this trade has been the increasing proportion of dressed furs in total fur exports. These increased from six per cent of the total in 1925 to 17 per cent in 1929 and 42 per cent in 1933.

In 1931 the Soviet fur export organization organized the first international fur auction held in the U.S.S.R., at Leningrad. Previously these auctions had been confined principally

to Leipzig and London. The ninth Leningrad auction was held in July, 1935, with more than 100 foreign firms represented.

Among the fish products sturgeon, salmon and caviar are the principal items. Exports of fish (fresh, salted and smoked) and caviar averaged 11.7 million rubles from 1929 to 1933 as against 8.1 million rubles in 1909 to 1913.

The process of industrialization is reflected in the increasing proportion of industrial exports. Whereas before the war these made up only about 30 per cent of total exports, during the period from 1922 to 1924 the proportion had risen to 39 per cent, in 1929-1931 to 59 per cent and in 1932-1934 to 70 per cent.

Products of the mining industries (oil, coal, manganese, iron ore, asbestos, etc.) since 1925 have averaged from two to three times the prewar exports in value, and in volume even a higher ratio. This group accounted for about 20 per cent of total Soviet exports from 1929 to 1933 as against less than four per cent in 1909-1913.

The principal commodity in the mining group is oil, exports of which have averaged during the past four years almost six times the prewar (5.1 million tons from 1931 to 1934 and 0.9 million tons in 1909-1913). In 1928 and 1932 oil was the leader among Soviet exports; in the other years it was either second or third (after lumber or grain or both). In recent years there has been an especially large rise in exports of the more highly refined products. Gasoline now constitutes the principal export, having displaced kerosene. The U.S.S.R. is third among the oil exporting countries (coming after the United States and the Dutch West Indies). It supplies about five to seven per cent of total world exports and a fifth of European oil imports, the principal markets being France, Italy, Germany, England and Spain.

OIL PRODUCTS (*in mill. tons*)

	1909-13	1929	1930	1931
World exports	11.2	76.1	79.5	72.0
U.S.S.R. exports	0.9	3.8	4.8	5.3
Share of U.S.S.R. in total (per cent)	8.0	5.0	6.0	7.4

Since the U.S.S.R. exports only a small portion of crude oil its share in world exports of a number of refined products is considerably greater than for total oil exports. For instance, it accounted in 1930 for ten per cent of the gasoline exports of the six leading shippers and for 16 per cent of the kerosene exports of the five major producing countries. Of the total gasoline shipments of the twelve leading exporting countries in 1933, the U.S.S.R. accounted for 10.5 per cent; of kerosene exports—14 per cent and of lubricating oil shipments—16 per cent.

Whereas before the war oil exports made up only two or three per cent of total exports, from 1929 to 1933 they accounted for from 15 to 18 per cent of shipments and made up about a quarter of total industrial exports. Gasoline constituted about 30 per cent of total petroleum exports in 1931-1933 as compared with 28 per cent in 1928 and 16 per cent in 1913. On the other hand, the share of kerosene in total shipments has been reduced from 46 per cent before the war to 12 per cent in 1931-1933, and that of lubricating oils from 31 to four or five per cent. In addition to taking an increasing share of the old established markets, Soviet petroleum has penetrated into a number of new markets in the past few years. Sales were made in Southern China and Korea for the first time in 1931; in 1932 the U.S.S.R. started the exportation of oil to Canada, New Zealand and Uruguay; in the same year contracts were also concluded for sales of gasoline in Japan and India.

In the past few years the distributing apparatus of the Soviet oil export organizations has been greatly expanded. The fleet of tankers has been increased to 100,000 tons capacity. In England, Germany, Italy, Sweden and other countries a large chain

of storage tanks and distributing stations has been established. From 1928 to 1932 the share of oil exports marketed by Soviet organizations increased from 12.5 to 23 per cent. More than half the exports are sold to independent concerns or to state monopolies or semi-monopolies. The share marketed through the apparatus of the international concerns declined from 30 per cent in 1928-29 to 16 per cent in 1931. From 1928 to 1931 the U.S.S.R. increased its share in the oil imports of Italy from 19.7 to 33.3 per cent, of Germany from 12.4 to 18.4 per cent, of France from 12.0 to 17.3 per cent, and of England from 7.6 to 14.3 per cent.

The Soviet Union is the leading manganese exporter, accounting for about a half of the world's shipments. Exports approached the prewar level in 1929 (1,037 metric tons as against 1,194 in 1913) but since then, as a result of the slackened operations of the steel industry, have shown a considerable decline.

MANGANESE (*in thous. tons*)

	1913	1929	1930	1931	1932
World exports	2,134	2,497	1,948	1,389	683
U.S.S.R. exports	1,194	1,037	754	742	416
Share of U.S.S.R. in total (per cent)	56.0	41.5	38.7	53.4	60.9

Exports of asbestos in the five-year period 1930-1934 (averaging 20,100 metric tons) were about 75 per cent above the prewar average (11,400 tons) in 1909-1913. Coal and coke exports have averaged 1.8 million tons annually in 1930-1933, whereas before the war Russia was a large importer of coal.

Iron ore and chrome are other important items in this group. Exports of the former were over a million tons in 1931, and averaged 425,000 tons in 1932-1933 as against 677,000 tons a year before the war (1909-1913). Shipments of chromite, of which Russia formerly was one of the chief sources of supply, averaged over 35,000 tons a year in 1930-1933 as compared with 5,300 tons in 1929. The U.S.S.R. supplies at pres-

ent from three to five per cent of the world requirements of this mineral.

Lumber exports in the five years 1929-1933 made up about 15 per cent of total Soviet exports in value as compared with ten per cent in the last five prewar years. Shipments exceeded the prewar level for the first time in 1930 (12.2 million cubic meters in 1930 as against 10.4 in 1913), fell slightly below in the following two years and again rose above it in 1933 and 1934.

The U.S.S.R. is one of the principal timber exporting countries, accounting for about 18 to 20 per cent of world exports, as against 15 per cent before the war. Countries in Northern and Central Europe (England, Holland, Germany, France, Belgium, etc.) took from 83 to 89 per cent of the total exports in the past five years, England's share ranging from 33 to 46 per cent. The lumber exports are now distributed over a wider area than formerly. Whereas before the war the countries of Northern and Central Europe took 98 per cent of total exports, in 1931 their share amounted to 84 per cent and that of Mediterranean and Far Eastern countries to 13 per cent. The proportion of sawn lumber and lumber products (veneers, etc.) in total timber exports increased from 67 per cent in 1929 to 73.5 in 1932. Since 1930 the Soviet Union has been the leading exporting country in Europe.

LUMBER (*in mil. cu. meters*)

	1931	1929	1930	1931
World exports	68.0	82.0	73.0	56.0
U.S.S.R. exports	10.4	8.8	12.2	9.9
Share of U.S.S.R. in total (per cent)	15.3	10.7	16.7	17.7

Among the products of the food industries, exports of sugar averaged 32 million rubles from 1927 to 1931 as compared with 41 million from 1909 to 1913. In volume, shipments in 1931 (320,000 tons) exceeded those of prewar (266,000 tons in 1909-1913). In 1932-1934, however, exports dropped to

an average of 54,000 tons a year. Sales of canned goods abroad, which were negligible before the war (75,000 rubles in 1909-1913) have shown considerable development, corresponding to the growth of the canning industry. They averaged over 20 million rubles a year in 1930 and 1931. The principal items in this group are canned crabmeat, salmon and vegetables.

Exports of a number of manufactured products have been developed in the past few years, although in general these play a secondary rôle in the total trade. Shipments of miscellaneous industrial products (not including those mentioned above) have made up about 20 per cent of the exports in the past three years as against about six per cent before the war.

Chief among the items in this group is cotton cloth, exports of which, principally to eastern countries, have averaged about 40 million rubles annually in the past five years as compared with 32 million rubles in 1909-1913. It was fifth among Soviet export items in 1930-1931 and 1933 and third in 1932. The U.S.S.R. accounted for 5 per cent of the trade of the eight leading exporting countries in 1931. Exports of metal products (especially machinery) and electrical articles, also primarily to eastern countries, have averaged nine million rubles in the past three years.

Soyuzpromexport (The All-Union Industrial Export Corporation) exports about 150 industrial items (including more than 50 chemical products), over 95 per cent of which were imported before the war. The number of items increased fourfold from 1929 to 1933. Many of these export products, such as rosin, superphosphates, potassium salts, paraffin, calcined and caustic soda, electric lamps, etc., were formerly imported in substantial quantities. Shipments of this organization in 1933 of goods the export of which was started since 1929 totaled over 21 million rubles. Its exports trebled from 1929 to 1933, despite the large drop in total Soviet exports.

An interesting feature of the past few years has been the starting of exports of a number of artificial fertilizers. Shipments of potash from the Solikamsk deposits in the Urals, the largest in the world, began in 1933. Likewise, the opening up of the huge apatite deposits of the Kola peninsula, north of the polar circle, has provided a source of raw materials for the production of superphosphates, shipments of which abroad were started in 1933. Exports of Thomas slag powder, another type of fertilizer, were begun in 1932.

Another recent development has been the growth of exports of residues of the gold, platinum and nonferrous metals industries. For years there had been accumulating vast quantities of low-grade ores, analyses of which revealed large amounts of precious and rare metals (gold, silver, tungsten, iridium, molybdenum, etc.). By careful sorting and treating of these products Soyuzpromexport was able to build up a large export trade, shipments abroad, including partially refined gold ores (chlorides, precipitates, electrolytic slimes, etc.), increasing from 2.1 million rubles in 1931 to more than 15 million rubles in 1933. Other miscellaneous industrial items of some importance include matches, rubber articles, rugs, peasant and handicraft products, crude metals, rags, thread, combed flax and flax yarn, china and glassware, pharmaceutical products and jewelry and antiques.

EXPORTS FROM THE SOVIET UNION
(By Commodities)

ITEMS	1933		1932		1931	
	<i>In metric tons</i>	<i>In thous. rubles</i>	<i>In metric tons</i>	<i>In thous. rubles</i>	<i>In metric tons</i>	<i>In thous. rubles</i>
<i>1. AGRICULTURAL EXPORTS</i>						
(a) <i>Products of the Soil</i>						
Wheat	748,248	20,554	550,917	19,208	2,498,958	77,312
Rye	157,226	3,678	421,051	13,267	1,108,825	31,980
Barley	567,094	11,178	422,081	11,958	963,879	26,885
Oats	83,588	1,928	17,230	639	387,053	12,036
Corn	123,673	2,479	311,115	6,658	96,964	2,138
Other grain products	9,941	789	10,211	1,064	3,717	786
Beans, peas, etc.	79,838	5,440	85,737	5,256	122,203	6,407
Castor-oil plant	3,205	212	8,133	604	.....	.....
Oil seeds	61,720	2,350	220,677	9,032	75,056	3,144

	1933		1932		1931	
	<i>In metric tons</i>	<i>In thous. rubles</i>	<i>In metric tons</i>	<i>In thous. rubles</i>	<i>In metric tons</i>	<i>In thous. rubles</i>
Other seeds	6,987	303	19,964	910	12,067	626
Flax	59,294	14,229	55,253	13,573	57,209	13,121
Flax noils	1,205	185	232	39	779	112
Hemp	13	3	1,159	128	9	3
Hemp noils	29	5	99	11	163	21
Leaf tobacco	5,268	2,417	3,171	1,994	2,898	2,871
Licorice root	6,640	525	5,932	521	6,474	702
Medicinal herbs	5,675	771	4,092	1,100	4,189	1,166
Fruits, raw	1,845	307	4,869	591	6,162	885
Fruits, dried	7,151	982	12,659	2,410	4,632	1,054
Other vegetables	157	77	647	139	1,483	173
Mushrooms	135	150	131	143	360	604
Cotton	588	182	17,860	5,495	40,180	18,005
Others	7,598	1,594	5,383	1,689	12,238	3,724
<i>(b) Animal Products</i>						
Raw skins	8,254	2,787	14,615	3,295	12,460	6,308
Wool	5,983	1,044	5,272	766	7,529	1,403
Bristles	409	987	704	2,063	593	2,142
Hair	2,757	1,434	1,805	1,295	2,772	2,169
Casings	4,735	3,702	6,466	5,525	6,850	7,075
Eggs	1,970	245	7,181	1,632	20,437	5,691
Butter	37,205	12,221	30,934	15,872	30,855	24,272
Livestock	.....	.....	55	109	99	346
Bacon	2,207	635	1,813	380	1,849	734
Other meat products	103	19	458	98	304	74
Fowls, slaughtered	5,005	1,809	10,062	4,142	18,445	9,628
Fowls, live	.....	.....	.....	.....	6	9
Feathers and down	1,455	559	910	561	1,338	1,455
Silk products	616	1,656	431	1,162	915	2,955
Cheese	28	33	56	37	50	54
Bones	12	1	581	14	1,273	36
Honey	1,966	336	779	170	730	207
Others	1,713	739	1,246	680	2,191	1,841
<i>(c) Furs and Fish Products</i>						
Furs	3,500	38,557	3,108	42,300	2,964	56,199
Fish	29,168	3,063	26,937	3,708	48,533	10,383
Caviar, black	293	1,952	297	2,276	375	4,344
Caviar, red	1,031	376	386	239	1,094	592
Other products of fishing and hunting	5,950	735	3,750	675	3,114	783
Total agricultural exports	2,051,478	143,228	2,296,449	183,428	5,570,274	342,255

1. INDUSTRIAL EXPORTS

(a) *Timber and Timber Products*

Lumber	2,926,128	45,144	2,680,967	44,532	2,762,158	67,507
Veneer	99,050	6,200	102,238	9,033	61,151	6,961
Other timber products	3,255,961	25,386	2,905,550	26,960	3,259,913	39,125
Products of wood distillation	15,052	1,588	20,631	1,646	16,176	1,609

THE FOREIGN TRADE OF THE U.S.S.R. 315

	1933		1932		1931	
	<i>In metric tons</i>	<i>In thous. rubles</i>	<i>In metric tons</i>	<i>In thous. rubles</i>	<i>In metric tons</i>	<i>In thous. rubles</i>
<i>(b) Food Products</i>						
Sugar	38,388	5,544	76,121	12,798	319,789	32,689
Sunflower oil	13,356	1,832	34,951	4,046	22,151	3,924
Cotton seed oil	11,896	1,312	2,692	310	4,755	877
Other vegetable oil	835	91	261	47	86	25
Oil cakes	410,511	12,597	431,877	14,166	328,610	14,148
Flour	31,517	3,929	31,917	4,602	31,367	5,349
Bran	7,411	136	18,278	379	2,093	61
Canned goods	23,572	6,090	18,703	8,442	28,385	15,940
Macaroni	150	38	288	190	208	132
Tobacco products	4,595	2,434	3,483	2,217	1,789	2,217
Starch products	33,362	1,641	29,759	1,903	36,817	2,540
Wines	5,676	371	6,068	444	3,896	789
Confectionery	2,703	1,596	2,017	1,447	5,312	2,664
Other food products	11,368	1,049	5,119	875	17,639	2,077
<i>(c) Products of Mining Industries</i>						
Iron ore	509,058	2,344	342,272	1,632	1,119,108	6,564
Manganese	655,007	4,512	415,609	3,771	741,705	9,774
Asbestos	21,458	2,651	16,551	2,381	13,239	2,485
Salt	155,511	847	107,152	796	64,300	650
Coal, anthracite and coke	1,817,534	10,390	1,795,183	12,432	1,674,811	14,182
Magnesite	7,053	210	2,685	85	15,185	563
Oil products	4,894,452	75,671	6,106,003	107,256	5,224,302	115,663
Zinc ores	13,230	348	6,343	192	46,759	2,157
Other products of mining industries	395,379	4,663	167,884	2,723	75,605	1,717
<i>(d) Miscellaneous Industrial Products</i>						
Soda	71,033	3,129	42,918	2,348	58,339	4,428
Perfumes	408	463	396	386	476	511
Matches	10,645	1,974	8,562	1,539	5,925	1,386
Cement	87,453	1,899	38,448	551	46,732	647
Coal tar pitch	49,558	1,110	45,961	855	28,016	447
Pottery, china and glass	20,554	3,116	20,897	4,414	13,514	4,358
Rubber articles	1,213	1,570	1,578	2,408	1,665	3,529
Cotton cloth	16,044	31,523	19,402	51,402	16,670	48,375
Linen, hemp and jute cloth	884	695	1,470	799	1,132	973
Rugs	491	1,861	619	2,554	529	3,682
Handicraft and peasant work	3,710	2,822	1,665	2,254	516	1,401
Metallic and electrical articles	42,831	9,445	17,084	9,880	14,062	8,502
Unmanufactured metals	11,127	39,609	6,277	9,585	11,786	2,135
Metal scrap	4,138	109	12,740	211	20,238	599
Rags	18,703	1,552	18,162	1,757	19,668	2,055
Bone glue and bone flour	4,184	380	5,687	732	7,196	1,327
Glycerine	1,943	277	2,713	425	1,588	357
Combed flax and flax wastes	27,519	6,107	26,951	7,712	21,981	4,780
Flax yarn	2,716	1,405	2,346	1,298	1,306	720
Thread	846	1,411	643	1,836	498	1,720

	1933		1932		1931	
	In metric tons	In thous. rubles	In metric tons	In thous. rubles	In metric tons	In thous. rubles
Potash	1	1	.3	.3	517	77
Coke and benzol products	6,562	616	1,589	122	2,082	233
Chemical and pharmaceutical products	39,692	3,132	22,533	1,867	21,964	2,152
Animal glue (from hides)	757	126	1,191	253	1,236	399
Antiquarian and jewelry goods	55	662	69	1,210	105	2,675
Motion picture films	1	28	4	126	1	44
Miscellaneous	81,766	18,794	40,937.7	19,612.7	33,581	19,054
Total industrial exports	15,865,047	352,430	15,671,445	391,500	16,208,632	468,955
Total agricultural exports	2,051,478	143,228	2,296,449	183,428	5,570,274	342,255
GRAND TOTAL	17,916,525	495,658	17,967,894	574,928	21,778,906	811,210

Soviet Foreign Trade by Countries

There have been considerable changes since the prewar period in the distribution of foreign trade by countries. Whereas before the war Germany and England supplied about 60 per cent of Russian imports, from 1929 to 1931 their share ranged from 28 to 44 per cent. The difference was taken up largely by the United States, which before the war accounted for only about six per cent of total imports but increased this to 18-25 per cent in 1929-1931. In those years this country was either first or second among exporters to the U.S.S.R. In the past two years, however, in connection with the sharp drop of Soviet purchases in the United States, the proportion of imports from the United States dropped markedly—to about five per cent in 1932-1933. In the latter year the United States was sixth among the countries exporting to the Soviet Union.

The high level of purchases in Germany up to 1934 as well as the steadily increasing rôle played by Italy in the Soviet import trade—from one per cent in 1929 to 4.9 per cent in 1933—have been largely due to the credit agreements with those countries whereby the governments guaranteed large long-term credits on exports to the U.S.S.R. It is interesting to note that between 1930 and 1932 imports of the U.S.S.R. from the principal countries with which trade agreements were in effect

(Germany, England, Italy, Sweden, and Persia) showed an increase of over 25 per cent in spite of a decline of more than a third in total imports. On the other hand, purchases from countries with which there were no trade agreements (United States, France, etc.) dropped sharply. Imports from China and Mongolia made up 11.2 per cent of the total in 1933 as compared with 6.1 per cent in 1913.

Aside from Germany and Italy, various schemes of government-guaranteed export credits for shipments to the U.S.S.R. have been set up in England, Norway, Denmark, Japan, Austria, Poland, Czechoslovakia, Finland and Latvia. These arrangements provide for long-term credits on Soviet purchases, with the government guaranty usually covering from 60 to 75 per cent of the value of the order. Details of the most important of these credits are given in the sections devoted to the respective countries.

SHARE OF PRINCIPAL COUNTRIES IN IMPORTS OF U.S.S.R.

	1913	1929 ⁷	1931	1932	1933	1934
	<i>In per cent of total</i>					
Germany	47.5	22.5	37.2	46.4	42.5	12.4
Great Britain	12.6	5.3	6.6	13.0	8.8	19.9
China ⁸	6.1	4.1	1.5	2.6	6.2	1.5
Mongolia	....	1.6	2.6	2.7	5.0	8.8
Italy	1.2	1.0	2.7	3.9	4.9	5.1
United States	5.8	18.3	20.8	4.5	4.8	7.7
Poland	....	2.0	2.8	0.8	3.7	2.3
Persia	3.2	7.6	4.2	7.2	2.4	6.2
France	4.1	3.6	1.4	0.6	1.5	5.0
Sweden	1.2	2.0	1.4	3.1	1.3	2.1

⁷ Fiscal year 1928-29.

⁸ 1913 total includes Mongolia; in other years percentages for China and Western China combined are given.

IMPORTS INTO THE SOVIET UNION

(By Countries)

COUNTRY OF ORIGIN	<i>in thousand rubles</i>				
	1934	1933	1932	1931	1930
Afghanistan	2,753	5,623	11,782	11,615	9,628
Argentine	674	223	1,817	7,210	17,366

COUNTRY OF ORIGIN	1934	1933	1932	1931	1930
	<i>in thousand rubles</i>				
Australia	1,053	110	5,861	3,061	12,165
Austria	1,549	1,280	4,012	12,028	14,844
Belgium	7,233 *	1,538	591	3,453	6,557
Brazil	238	16	117	693	1,397
Canada	407	761	2,058	144	1,437
Eastern China	3,440	2,639	5,888	6,931	8,432
Czechoslovakia	1941	4,868	10,306	35,736	27,143
Denmark	1,436	1,725	2,760	4,736	7,272
Egypt	0	....	946	19,810	18,432
England	46,265	30,590	91,928	73,381	80,129
Estonia	588	373	39	2,128	2,871
Finland	2,892	2,888	2,890	5,216	12,430
France	11,636	5,237	4,335	14,998	29,710
Germany	28,758	148,061	327,700	410,645	250,828
Greece	913	517	481	1,045	889
Holland	15,751	5,974	3,560	2,140	4,712
India	629	2,935	5,184	9,140	18,317
Italy	11,819	16,901	27,144	29,755	10,876
Japan	6,905	7,349	4,786	12,668	16,784
Latvia	753	336	5,775	14,549	14,761
Lithuania	1,360	546	1,178	1,363	1,009
Mongolia	20,561	17,269	19,278	28,833	19,745
Norway	2,921	8,510	14,137	18,910	16,555
Persia	14,326	8,359	49,940	46,453	44,392
Poland	5,249	12,973	5,646	31,172	38,760
Spain	346	1,192	153	2,068	3,283
Sweden	4,895	4,591	21,554	15,598	19,538
Switzerland	2,236	3,414	4,970	6,325	5,639
Tannu-Tuva	2,019	1,727	2,191	895	917
Turkey	2,870	4,657	5,762	6,961	11,382
United States	17,875	16,580	31,665	229,915	264,393
Uruguay	2,092	1,032	2,080	1,644	2,811
Western China	5,945	18,822	12,305	10,212	16,033
Other countries	2,098	10,655	14,293	28,101	54,924
TOTAL	232,426	348,216	704,040	1,105,034	1,058,825

* Includes also Luxemburg.

From a third to a half of all Soviet exports have gone to England and Germany, the former usually being the leading market. Only three or four per cent of exports have gone to the United States in the past few years. A feature of the export trade has been the increase in shipments to Eastern coun-

tries, especially Mongolia. Exports to China and Mongolia made up 11 per cent of the total in 1932-1933 as compared with two per cent in 1913. Besides supplying them with manufactured products the U.S.S.R. is now furnishing technical assistance to a number of Eastern countries.

SHARE OF PRINCIPAL COUNTRIES IN EXPORTS OF U.S.S.R

	1913	1929 ⁹	1931	1932	1933	1934
	<i>in per cent of total</i>					
Great Britain	17.6	21.9	32.8	24.1	17.6	16.6
Germany	29.9	23.8	15.9	17.5	17.3	23.5
Mongolia	....	1.1	4.6	7.2	7.8	10.7
Belgium	4.3	1.8	2.2	3.4	5.5	4.1
Holland	11.7	3.0	3.6	3.7	5.2	5.3
France	6.6	4.9	3.5	5.0	4.6	0.6
Italy	4.8	3.4	4.9	4.7	4.5	4.5
China ¹⁰	2.1	3.1	3.1	4.1	3.6	0.5
United States	1.0	4.4	2.8	3.0	2.8	3.4
Persia	3.8	8.4	4.0	4.4	2.4	2.8

⁹ Fiscal year 1928-29.

¹⁰ 1913 total includes Mongolia; in other years percentages for China and Western China combined are given.

EXPORTS FROM THE SOVIET UNION

COUNTRY OF DESTINATION	1934	1933	1932	1931	1930
	<i>in thousand rubles</i>				
Afghanistan	3,103	7,066	14,579	11,523	7,850
Argentine	2,309	889	675	3,139	3,891
Australia	21	1	76	6	277
Austria	406	876	1,307	2,214	3,565
Belgium	17,230*	27,340	19,301	18,238	26,904
Brazil	4	.....	46	62	71
Canada	234	23	1,011	1	1,169
Eastern China	2,055	7,171	8,086	11,064	12,493
Czechoslovakia	837	1,095	1,380	5,134	4,145
Denmark	7,576	9,350	6,612	13,655	14,170
Egypt	3,107	4,044	6,165	3,681	9,063
England	69,182	86,983	138,485	266,071	279,909
Estonia	860	1,959	7,398	8,352	6,433
Finland	4,703	5,426	5,338	4,616	3,733
France	21,879	22,893	28,698	28,330	44,146
Germany	98,431	85,747	100,499	129,338	205,702
Greece	3,110	6,545	9,435	10,081	10,473
Holland	22,224	25,890	21,517	29,265	34,845

* Includes also Luxemburg.

COUNTRY OF DESTINATION	1934	1933	1932	1931	1930
	<i>in thousand rubles</i>				
India	2,769	3,421	5,219	10,152	6,778
Italy	18,993	22,226	27,031	39,749	53,150
Japan	5,782	9,124	10,099	19,817	16,025
Latvia	645	2,395	9,776	27,810	32,207
Lithuania	1,197	2,728	4,151	4,165	2,586
Mongolia	44,806	38,562	41,395	37,343	17,819
Norway	3,127	3,830	3,943	3,968	6,259
Persia	11,785	12,008	25,368	32,476	60,284
Poland	3,641	5,056	4,801	7,510	14,131
Spain	7,464	5,531	7,955	3,469	12,057
Sweden	5,634	5,920	6,209	6,681	5,139
Switzerland	491	241	3	44	151
Tannu-Tuva	7,049	5,495	4,388	2,652	2,092
Turkey	5,438	3,798	5,498	12,575	16,195
United States	14,277	13,965	17,194	22,690	40,932
Uruguay	1,267	1,741	1,540	743	981
Western China	4,730	10,856	15,698	13,954	16,027
Other countries	21,979	55,487	15,455	20,711	66,236
TOTAL	418,345	495,658	574,928	811,210	1,036,371

EUROPEAN COUNTRIES

Germany

Trade with Germany began to gain rapidly on the basis of the trade agreement signed in 1925 and a number of later accords. On Feb. 25, 1926, a law was passed providing for government-guarantees on credits to the Soviet Union totaling 300 million marks, the guaranty covering 60 per cent of the amount of the credits. The amount was increased to 360 million marks in 1927. The credits ranged from two years on light equipment to four years on heavy equipment.

On April 14, 1931, a new credit agreement was signed in Berlin by representatives of the Supreme Economic Council of the U.S.S.R. and of German industries, providing additional credits to the amount of 300 million marks on orders placed between April 15 and August 31, 1931. On June 15, 1932, another agreement was concluded making certain changes in the conditions of trade. In the 1931 and 1932 agreements the final payments on the credits ranged up to 29-33 months. Ini-

tial cash payments were required usually about a year after date of delivery. The average credits in the 1932 agreement ranged from 14 to 29 months, depending on the type of equipment. The interest rates ranged from 7 to 10 per cent in the last agreement. A tariff agreement was also signed in May, 1932, which reduced the duty on a number of Soviet products and put some of them on the free list.

Under these conditions imports from Germany increased from 103 million rubles in 1924-25 to 249 million in 1927-28, 411 million in 1931 and 324 million rubles in 1932. In the three years 1931-1933 Germany supplied from 32 to 46 per cent of Soviet imports. In 1931 the U.S.S.R. was fourth and in 1932 second among German export markets, taking 7.9 and 11.9 per cent, respectively, of total exports. In 1934 attacks on Soviet organizations in Germany contributed to a drastic decline in Soviet imports to only 29 million rubles. In April, 1935, the signing of a new agreement providing for long-term (five-year) credits to the U.S.S.R. to the value of 200,000,000 marks was announced.

The principal products imported are machinery and metals, for which the U.S.S.R. has been Germany's leading market. The following table shows the shipments of the principal types of equipment and metals to the U.S.S.R. and the proportion of total German exports (in thousands of reichsmarks):

PRODUCT	1930		1931		1932	
	<i>Exports to U.S.S.R.</i>	<i>per cent of total</i>	<i>Exports to U.S.S.R.</i>	<i>per cent of total</i>	<i>Exports to U.S.S.R.</i>	<i>per cent of total</i>
Boilers and parts of machines	33,637	13.7	46,494	25.0	27,864	24.3
Machine tools	51,619	22.8	132,052	51.1	159,699	74.6
Electrical equipment	12,923	12.0	21,352	24.1	33,360	46.5
Other machinery	79,956	12.0	131,121	24.2	108,021	33.7
Iron bars and shapes	4,591	2.6	50,439	33.1	49,768	54.0
Pipes and cylinders	12,425	9.0	36,449	30.4	17,599	29.8
Iron plate, wire	13,704	7.5	42,057	26.6	45,742	42.2
Copper	3,611	4.4	9,770	19.0	7,634	25.1

Exports from the U.S.S.R. to Germany went from 87 million rubles in 1924 to 206 million in 1930; in the last few years they have declined considerably, amounting to 98 million rubles in 1934. Germany usually ranks second among Soviet markets, taking about 20 per cent of total exports.

The principal items exported to Germany are furs, oil, timber, grain, oilseeds, hides and skins, casings and dairy products. About 15 per cent of the lumber exports and 10-12 per cent of oil shipments have gone to Germany in the past few years, 45 per cent of fur exports, 10 per cent of grain exports, 30 per cent of butter, 20 per cent of flax and hemp, 70 per cent of casings, and 85 per cent of hides and skins.

Great Britain

Trade with Great Britain has followed a somewhat uneven course, being punctuated by a number of political developments which have greatly influenced the growth of trade. At such times as normal conditions have prevailed this has been reflected in the trade figures. After the establishment of diplomatic relations in 1924 the trade between the two countries developed rapidly. Imports by the Soviet Union from Great Britain increased from 49 million rubles in 1923-24 to 101 million in 1926-27; exports to Great Britain increased from 81 million to 199 million during the period. The severance of relations in 1927 gave a serious setback to the trade relations. Exports to the U.S.S.R. suffered especially, declining by more than half in the following two years. In 1929 relations were again resumed and the Soviet Union was included among the countries to which credits for exports could be guaranteed by the British Government under the Overseas Trade Act of 1920. A temporary trade agreement was signed on April 16, 1930. In 1931 government-guaranteed credits totaling six million pounds were extended to the U.S.S.R. The credits were of

24 months' duration; the government guaranty covered 75 per cent of the amount.

As a result of these developments imports from Great Britain increased from 47 million rubles in 1927-28 to 92 million in 1932, during a period when British exports to other countries showed a sharp drop. Soviet exports to England rose from 151 million rubles in 1928 to 266 million in 1931, recording a drastic decline in the following year. The U.S.S.R. rose from 16th among British markets in 1930 to seventh in 1932, its share of the total exports doubling. The U.S.S.R. became one of the principal purchasers of equipment and metals of British production, imports of which totaled 51 million rubles in 1931 and 73 million in 1932. Exports of machine tools to the U.S.S.R. in these two years made up 64 and 80 per cent, respectively, of total shipments. The Soviet Union is also a large purchaser of colonial products re-exported from Great Britain, such as rubber, jute and nonferrous metals.

The following table shows the share of the Soviet Union in exports of certain products from Great Britain during 1929-1931 (in thousands of pounds sterling):

	1929		1930		1931	
	<i>Exports to U.S.S.R.</i>	<i>per cent of total</i>	<i>Exports to U.S.S.R.</i>	<i>per cent of total</i>	<i>Exports to U.S.S.R.</i>	<i>per cent of total</i>
Machine tools	101.0	4.7	225.0	12.2	1,434	64.2
Ferro-tungsten	59.3	42.2	83.3	60.1	151.7	87.5
Generators	107.2	15.3	89.7	10.2	194.2	25.4
Equipment for gas & chemical plants	.....	.....	111.0	29.0	86.8	36.2
Drilling tools	18.4	5.4	42.1	15.9	293.0	70.8
Air compressors	0.1	0.06	8.2	3.9	91.2	46.2
Grinding tools	13.4	5.9	32.7	16.5	157.9	62.7
Flour mill equipment	14.2	10.5	19.6	18.7	180.4	76.8
Forming tools	0.4	0.3	15.7	10.3	85.9	62.0
Mining machinery	2.3	2.5	7.6	7.6	140.8	70.3
Steam and hydraulic engines	198.2	21.9	173.8	24.0	462.3	56.0

In October, 1932, it was announced in the House of Commons that in the three years from August, 1929, the amount

of credits to the U.S.S.R. covered by the Export Credits Guarantee Department had totaled £17,000,000 of which the liability assumed by the government was approximately £12,000,000. In March, 1933, it was stated that of this liability about £5,000,000 had been paid off by the Soviet Union.

In the past five years Great Britain has taken from 18 to 33 per cent of total Soviet exports, being the leading market. The principal commodities exported are lumber, of which from 33 to 45 per cent of the total has been shipped to England in the past few years, grain—from 40 to 60 per cent, oil—from 10 to 20 per cent, and furs—about 35 per cent. Other important items have been butter, of which England took over 60 per cent in 1931-1933, oilcake—39 per cent, and canned goods—70 per cent.

In October, 1932, as a consequence of obligations entered into at the Ottawa Conference, the British Government gave six months' notice of termination of the trade agreement. On March 6, 1933, following agitation over the arrest and trial of some British engineers in the U.S.S.R., the English Parliament passed a law authorizing an embargo on the importation of Soviet products. An embargo on the principal products imported from the U.S.S.R. was declared on April 19, 1933. In reply the Soviet Government issued an order to cease purchasing operations in Great Britain, chartering of English steamers, etc.

During the World Economic Conference (on July 1, 1933) the British Government lifted the embargo, following which the retaliatory measures of the Commissariat for Foreign Trade were revoked and the sentences of the British engineers commuted.

Imports of the U.S.S.R. from England in 1933 were reduced to about a third of those of the preceding year. Exports to Great Britain showed a much smaller decline—37 per cent—amounting to 87 million rubles in 1933.

On Feb. 16, 1933, a new trade agreement was signed at London between the two countries. This provides for reciprocal most-favored nation treatment for the goods, ships and citizens of both countries (with certain exceptions) and for credits to the U.S.S.R. on the same basis as to other countries. The Soviet Union agrees gradually to bring its expenditures in Great Britain (for goods, shipping, etc.) closer to the amount of the proceeds from its sales to England. Expenditures are to bear the following ratios to proceeds in England: in 1934—1:1.7; 1935—1:1.5; 1936—1:1.4; 1937—1:1.2; thereafter approximately 1:1.1. It is expected that this agreement will pave the way for a further growth of trade between the two countries. In 1934 imports from Great Britain increased by more than 50 per cent, amounting to 46,265,000 rubles; exports declined to 69 million rubles.

At the end of 1934 the trading organizations of the U.S.S.R. in Great Britain announced that, in view of the excessive cost of government-guaranteed credits, they had adopted a policy of placing orders for cash. It was stated that this policy would be continued as long as credits were unavailable at a rate in accord with conditions prevailing on the money market.

Italy

Trade between the Soviet Union and Italy began to show a steady development on the basis of the trade agreement concluded between the two countries in 1924 and subsequent accords. Exports to Italy increased from 15 million rubles in 1923-24 to 53 million in 1930. Imports from Italy were much smaller but nevertheless increased from a little over one million to 11 million rubles during the period. The Soviet-Italian credit agreement in 1931 gave a great stimulus to purchases of Italian products for the U.S.S.R.

Government-guaranteed credits to the U.S.S.R. were au-

thorized under a general export credit scheme enacted in 1927 (the government guarantee covering 65 per cent), but these credits were limited in extent. In August, 1930, a law was passed in Italy providing credits to the U.S.S.R. to the amount of 200 million lire annually, with the government guaranteeing 75 per cent. On April 18, 1931, an agreement was signed at Rome providing for credits to the amount of 350 million lire on orders to be placed in 1931. The average credits ranged from nine to 42 months, depending on the type of goods, with a general average for all goods (except ships) of about 25 months. The average for various types of machinery and equipment ranged from 21 to 28 months. The final payment on equipment purchases were generally due in 36 months and for ships in 54 months. The insurance premiums ranged from one to 1.4 per cent.

A new credit agreement was signed on May 6, 1933, providing for credits of 200 million lire during 1933. The terms were in general similar to those of the earlier agreement, except that average credits were set at about 19½ months, with final payments on machinery and equipment due in 27 months from the date of delivery.

Under these arrangements imports from Italy increased from 11 million rubles in 1930 to 30 million in 1931 and 27 million in 1932, declining to 17 million rubles in 1933. Italy rose from 21st among the countries exporting to the U.S.S.R. in 1930 to seventh and fifth, respectively, in the following two years. Whereas in the earlier year exports to Italy were almost five times the imports, in the three years 1931-1933 exports were only about 20 per cent larger than imports from Italy. The principal products purchased in Italy are electrical equipment, ships, bearings, machinery, and electric locomotives. The U.S.S.R. took 48 per cent of total Italian shipments of machinery and electrical apparatus in 1931 as compared with four per cent in 1929. In 1932 65 per cent of the electrical equip-

ment and 92 per cent of the ball-bearing exports of Italy went to the U.S.S.R., and in 1931 22.5 per cent of the automobile exports.

The Soviet Union ships to Italy principally wheat, oil, coal, lumber and various ores. About 15 per cent of total oil exports, four per cent of lumber shipments, six per cent of grain and one-third of coal shipments go to Italy.

On the same day that the 1933 credit agreement was signed a new customs convention was concluded between the two countries, replacing the one of 1924. The new agreement grants each country most-favored-nation treatment. A non-aggression treaty, covering economic as well as political matters, was signed on Sept. 2, 1933.

France

The development of trade with France had been hampered by the lack of a trade agreement, which was signed only early in 1934, and of facilities for financing exports to the U.S.S.R. Nevertheless, imports from France increased from nine million rubles in 1924-25 to 30 million in 1930. In the following three years, partly because of the absence of suitable credit arrangements, there was a sharp decline, France dropping from sixth place among the countries exporting to the U.S.S.R. in 1930 to 13th in 1933.

Exports from the Soviet Union increased from 22 million rubles in 1924-25 to 44 million in 1930, declining again to 23 million rubles in 1933. In October, 1930, the French Government issued a decree providing that certain of the most important commodities imported from the U.S.S.R. could be brought in only by means of special licenses. These discriminatory restrictions were answered by orders of the Soviet Government to reduce to the utmost trade with France. The decree was rescinded by the French Government on July 11, 1931, and the Soviet counter-measures revoked a few days later.

Whereas before the war imports from France consisted principally of consumers' goods and luxuries, they now consist mainly of machinery, metals and automotive equipment. The exports from France to the U.S.S.R. of some of the principal items in 1929-1931 were as follows:

	1929	1930	1931
	<i>(in million francs)</i>		
Wool	54.0	37.2	.....
Metals & Alloys	11.6	24.9	19.4
Machinery & parts	33.3	34.0	17.4
Aviation equipment & Auto- mobiles	23.1	38.4	13.3
Ships	88.5	.....	.....

The chief commodities exported to France are flax, manganese ore, timber and oil. In the years 1931-1933 from three to five per cent of the timber shipments, about 18 per cent of the oil and eight per cent of the fur exports went to France. Contracts signed in 1932 between the *Société des Produits du Naphte Russe* and *Petrofina Française* call for the delivery of large quantities of Soviet oil for a period of five years. Considerable oil is supplied for the French Navy. In the past five years the U.S.S.R. has supplied about 14 per cent of the oil products, seven per cent of the lumber and from 17 to 50 per cent of the flax imported by France.

On Jan. 11, 1934, a Franco-Soviet trade agreement was signed after protracted negotiations. This provided for raising the quotas on Soviet products imported into France as well as for increased purchases in France by the U.S.S.R., for which credits were to be extended. The credits were to be secured by stocks of the Soviet oil marketing organization in France. This agreement was of a temporary character and a protocol concluded between the two countries on December 9, 1934, provided for the starting of negotiations for a permanent trade agreement. In the meantime the temporary accord was to remain in force.

The signing of the agreement had an immediately beneficial effect on trade. Imports from France in 1934, totaling 11,636,000 rubles, were more than double those of the preceding year. Exports, at 21,879,000 rubles, were four per cent less than in 1933.

Scandinavian Countries

A law passed by the Norwegian Storting provides for government guarantees on Soviet orders. Up to 1929 this applied only to fish and herring but later it was extended to cover other products. Before 1929 the government guarantee covered 66 per cent of the cost of the goods, the remainder being paid in cash. Since 1929 the guarantee extends to 75 per cent of the cost, while credits are also extended for the remaining 25 per cent. In the four years 1929-1932 the amount of government-guaranteed credits extended to the U.S.S.R. in Norway totaled 77.5 million kroner. The agreement of May 29, 1933 provided for credits of one year.

Every year an agreement regulating trade is concluded between the two countries and the government guarantees started in 1922 have been renewed by the Norwegian Government from year to year. Aside from herring and other fish, of which Russia has been the principal Norwegian market for many years, a considerable quantity of nonferrous metals and ferro-alloys is exported to the U.S.S.R. The Soviet Union took 48 per cent of total aluminum exports from Norway in 1931 and 60 per cent in 1932; 22 per cent of the nickel exports in 1932; and 25 per cent of chrome iron exports in 1931 and 50 per cent in 1932. Grain and timber make up about 80-90 per cent of total Soviet exports to Norway. The former accounted for 41 per cent of total Norwegian imports in 1931 and 28 per cent in 1932; the latter for 27.5 and 60 per cent.

Imports from Norway in the past few years have been considerably greater than before the war. They increased from

five million rubles in 1928 to 19 million in 1931, declining by more than a half in the following three years on account of the reduction in purchases of herring. Exports have been much less, averaging a little over four million rubles annually in the past five years.

In Denmark the government guarantees credits on exports to the U.S.S.R. to the extent of 85 per cent under the general scheme of export credits. The premium charged for such guarantees amounts to three per cent for two-year credits and six per cent for four-year credits (*i.e.*, 1½ per cent annually).

Both imports from and shipments to Denmark have been considerably smaller than before the war, the former averaging four million and exports twelve million rubles a year from 1929 to 1933. The principal exports are grain, timber and oil and principal imports industrial and electrical machinery, and iron and steel.

From 1929 to 1932, Soviet imports from Sweden averaged over 18 million rubles a year, slightly more than the prewar. In 1933 they dropped to less than a third of the average for the preceding years. Exports to Sweden averaged five million rubles annually from 1929–1933, about a half of the prewar. The imports consist principally of industrial and electrical equipment and precious metals. Shipments to Sweden are chiefly of oil, timber, coal and oil cake.

Baltic Countries

From 1928 to 1932 Soviet purchases from Latvia comprised from ten to 20 per cent of the total Latvian exports, and an even greater part of the export of specific commodities, such as woolen and cotton textiles, leather articles, machines, railroad cars, etc. (from 80 to 100 per cent in 1931). Imports from Latvia rose from 4.4 million lats (1 lat = \$0.326) in 1925–26 to 40.1 million in 1929, declining again in the following years. Soviet exports to Latvia amounted to 18,319,000 lats

in 1927, dropping to 8.5 million in 1932. The proportion of Latvian imports from the U.S.S.R. to its total imports increased, however, from six per cent in 1928 to ten per cent in 1932.

Exports to Lithuania exceeded four million rubles in 1931 and 1932 and imports averaged 1.3 million rubles in those years. Purchases from the U.S.S.R. have comprised from three to seven per cent of total Lithuanian imports, while exports to the Soviet Union made up about four per cent of the total in 1931-1932.

Under the stimulus of a trade agreement signed in 1929 trade with Estonia for a time showed considerable increase, in 1931 exports amounting to 8.4 and imports to 2.1 million rubles. The principal product imported from Estonia is paper, of which the U.S.S.R. formerly took from 40 per cent (1929) to 60 per cent (1931) of the total Estonian exports. The principal commodities purchased by Estonia from the U.S.S.R. are oil products, grain and sugar.

Soviet-Finnish trade turnover at its peak in 1929-1930 averaged 17 million rubles, of which exports to Finland totaled 5.4 million and imports 11.6 million rubles. During 1932, the U.S.S.R. supplied 5.2 per cent of Finland's imports and took 1.5 per cent of its exports. Oil, lumber and grain are the principal commodities shipped to Finland, while paper and metal products are the chief imports from Finland.

Netherlands

Trade with the Netherlands has averaged 33 million rubles annually in the past five years, exports to that country making up 26.5 million rubles of this sum. In 1934 imports from Holland rose to 15.8 million rubles, that country ranking fifth in Soviet imports and fourth among the markets of the U.S.S.R.

A considerable proportion of the Dutch imports from the U.S.S.R. is re-exported, sometimes after undergoing further processing. Among the Soviet products imported primarily for domestic use are grain, vegetable oils, coal and oil. The U.S.S.R. supplies a substantial share of total imports of some of these commodities—12.5 per cent of the wheat, 20 per cent of the rye and barley, 28 per cent of the soy beans, practically 100 per cent of the sunflower oil and 42 per cent of the petroleum imported by the Netherlands in 1932 were of Soviet origin. Of total Dutch exports in 1932 the Soviet Union took 46 per cent of the precision instrument shipments, 6.7 per cent of tools and machinery, 5.6 per cent of tin and 11 per cent of quinine.

Belgium

Soviet exports to Belgium consist principally of wheat, flax, coal, lumber and oil, and imports of non-ferrous metals, chemicals and machines. In the five years 1930-1934 shipments to Belgium averaged 27 million rubles a year while imports from Belgium averaged four million rubles.

Greece

Trade with Greece increased considerably after the signing of a trade treaty in June, 1929. From 1930 to 1934 exports averaged eight million rubles (mainly wheat, coal and oil). Imports averaged less than one million rubles (principally fruits, tobacco, olives, etc.).

Austria

In October, 1927, an agreement between the Soviet trade delegation in Austria and the municipality of Vienna provided for a guaranty by the latter for credits extended on Soviet orders placed with Vienna firms and executed mainly in that city. The guaranty covered 70 per cent of the amount of the

orders of a total value up to 100 million Austrian schillings (about \$15,000,000). Partly under the stimulus of such credits, imports from Austria increased from 11 million rubles in 1924-25 to 23 million in 1929. Austria was eighth among the countries exporting to the Soviet Union and the U.S.S.R. became one of the most important markets of Austria for machinery and equipment and iron and steel. Exports to Austria were much less, totaling only eight million rubles at their highest in 1929. During the past few years various discriminatory restrictions by the Austrian Government affecting Soviet products have resulted in very nearly wiping out the trade between the two countries. Such measures include: preferential treatment to competitors of the U.S.S.R. in supplying agricultural products to Austria; the raising of the duties in 1931 on the principal commodities exported by the Soviet Union, in the majority of cases by 100 per cent; the prohibition of the importation of many items (by a decree issued in March, 1933) making up about 50 per cent of total Soviet exports to Austria.

Poland

Imports from Poland have exceeded exports by a substantial amount in recent years. This has been due in part to restrictions and high tariffs affecting a number of the most important Soviet exports. The continuance of such measures caused the U.S.S.R. greatly to reduce imports in recent years, which fell from a yearly average of 30 million rubles in 1929-1931 to nine million in the following two years. However, in the past years, with the visit of a Polish trade delegation to the U.S.S.R., the conclusion of a non-aggression pact, and modifications in the restrictions and duties on Soviet products, the relations have been considerably improved. Aside from the large favorable balance of trade, Poland receives considerable sums in payment for transit Soviet goods shipped on Polish railways.

The principal products bought by the U.S.S.R. in Poland

are metals (mainly iron and steel) and metal products, of which the U.S.S.R. in the past few years has taken from about 45 to 80 per cent of total Polish shipments. The chief exports from the Soviet Union are furs, iron and manganese ores, tobacco, fish, rags, chemicals, thread and oil cake.

ASIATIC COUNTRIES

Turkey

Imports from Turkey increased from three million rubles in 1924 to 11 million in 1930; exports from 10 to 16 million rubles. In September, 1931, a new trade agreement went into effect which replaced the agreement of 1927. The development of trade was hampered by the condition of the Turkish national economy, necessitating a drastic limitation of imports into Turkey. A supplementary accord signed on April 17, 1932, provides for an equality of exports and imports between the two countries. The relations between the two countries were strengthened as a result of an exchange of visits by leading officials of the respective governments in 1932 and 1933. The visit of the Turkish delegation, headed by the Premier, to Moscow in 1932 resulted in an agreement whereby the U.S.S.R. granted long-term credits to Turkey to the value of \$8,000,000. This is to be expended for supplying machinery, equipment and technical assistance for a series of industrial enterprises to be constructed in Turkey. The first of these factories, a large textile mill, is being designed by Soviet specialists and will be equipped with Soviet machinery.

The U.S.S.R. exports to Turkey principally consumers' goods (cloth, etc.), oil, and building materials. It is expected that the rôle of the Soviet Union as a supplier of machinery and technical assistance to Turkish industry and agriculture will develop. The Soviet Union buys mainly agricultural products, such as cotton, dried fruits and cocoons, from Turkey.

Persia

The Soviet Union has carried on a large trade with Persia, in some years the turnover exceeding the substantial prewar trade. Whereas the turnover in 1913 totaled 101 million rubles, the average for the three years 1928-1930 was about 125 million. From 1924 to 1932 Persia was either third or fourth as a supplier to the U.S.S.R. and ranked from third to sixth as a market for Soviet products. In 1933, as a result of some difficulties in the trade relations, it dropped to ninth place both in Soviet exports and imports, but in 1934 the turnover increased again.

Imports from Persia increased from 52 million rubles in 1924-25 to 64 million in 1928-29; exports from 28 to 74 million rubles during the same period. In 1929 the trade agreement which had been entered into on Oct. 1, 1927, expired. The unregulated nature of the relations that followed, the attempts on the part of hostile interests to keep out Soviet products, but principally the depression in Persia, led to a decline in the trade. The Persian Government established a state monopoly of foreign trade in connection with which quotas were set up for some imports and others prohibited with the aim of effecting a balance of imports and exports. Exports to Persia from the U.S.S.R. dropped from 60 million rubles in 1930 to 32 million in 1931. Nevertheless, the drop in trade between the two countries was less than the general decline in Persian foreign trade.

A new trade agreement was signed on Oct. 27, 1931, the U.S.S.R. being the first country to recognize the Persian trade monopoly, which aroused considerable opposition from other countries, and to do business on that basis. Contingents were established for Soviet exports in accordance with which the U.S.S.R. was to supply from 54 to 100 per cent of total Persian imports of such products as sugar, matches, oil, rubber, porcelain and glassware, cement, metals, cotton cloth, paper,

machinery and equipment. In the following year the trade was maintained at a fairly high level but some points of dispute led to a drop of 73 per cent in the trade turnover in 1933. An exchange of notes in October, 1933, settled the matters at issue and a new agreement was signed early in 1934 which resulted in a 28 per cent increase in the turnover that year. The principal items imported from Persia are cotton, wool, rice, dried fruit, cocoons, skins, leather and cattle.

Japan

Trade with Japan has been greater than before the war. An agreement regulating the relations between the two countries was signed on Jan. 20, 1925. Later the Soviet Union granted large concessions to Japanese interests for the exploitation of the oil and mineral resources of Northern Sakhalin. A fishing convention entered into in 1927 and supplemented by several subsequent agreements gave Japan the right to carry on fishing operations in the waters off the Pacific Coast of the U.S.S.R.

For a number of years after the conclusion of the treaty between the two countries there was a steady growth of trade. Imports from Japan increased from less than three million rubles in 1926 to 17 million in 1930 and shipments to Japan from 13 million in 1926 to 20 million rubles in 1931. (In 1913 exports and imports combined were only six million rubles.) If the exports and imports of the Japanese concession and fishing enterprises in Soviet territory are added, the actual turnover would come to several times the totals shown in the customs figures.

From 1928 to 1930 timber made up from 43 to 62 per cent of Soviet exports to Japan and fish products from 13 to 23 per cent. Later oil products became the most important item, constituting almost 50 per cent of the total exports in 1932-1933. In September, 1932, a contract was signed for the sale of a large quantity of Soviet gasoline in Japan for a period of five

years. Other products shipped from the U.S.S.R. in substantial quantities include platinum, asbestos and manganese ore. The principal imports from Japan in the past few years have been tea, hemp seines and nets, iron and steel products and nonferrous metals.

On August 1, 1930, a law was passed in Japan providing for government guarantees for export credits to the U.S.S.R. and other countries. In 1930 such guarantees covered the amount of 350,000 yen—37 per cent of the amount of the credits; in 1931—1,000,000 yen, 53 per cent; in 1932—2,410,000, 85 per cent of the amount of the credits. Nevertheless, in the past few years, as a result of discriminatory measures against Soviet products and other factors, there has been a decline in both exports and imports.

The consummation, in March, 1935, after negotiations lasting almost two years, of the sale of the Chinese Eastern Railway to Manchukuo by the U.S.S.R. settled one of the chief points of dispute between the Soviet Union and Japan. Of the sale price of 140 million Japanese yen (exclusive of retirement payments to Soviet employees amounting to approximately 30 million yen), one-third is to be paid in cash and the remaining two-thirds in the form of goods to be delivered by Japanese and Manchukuoan firms in accordance with orders to be placed by the Trade Representation of the U.S.S.R. in Japan over a period of three years. The Japanese Government guarantees all payments due to the Soviet Union under the agreement.

Sinkiang (Western China).

Trade with Sinkiang in the past few years has exceeded the prewar turnover. As against 18 million rubles in 1913 it totaled 24 million in 1931 and 30 million rubles in 1933. Sinkiang was one of the few countries whose imports from U.S.S.R. rose in 1933, it ranking third as against ninth in 1932 and 17th in

1931. Among the countries exporting to the U.S.S.R. it was tenth in 1932 and 1933.

Cotton cloth makes up about 70 per cent of the sales to Sinkiang, followed by metals, metal products and sugar. The U.S.S.R. imports chiefly wool (about 45 per cent), cattle, hides and furs. The bulk of Sinkiang's foreign trade is carried on with the Soviet Union, accessibility to which is much greater than to Eastern China or India. Recently an increased demand has developed for Soviet machinery and for technical assistance in cattle raising and cultivation of technical crops.

China

The U.S.S.R. was the first country to renounce extra-territoriality and all special privileges in China, this being effected by the Peking Agreement of 1924. For a number of years thereafter there was a considerable development of trade between the two countries. Imports from China reached a total of 32 million rubles in 1927-28 and exports 17 million rubles in 1929. However, the events of 1927 and 1929 (the breaking off of diplomatic relations and the conflict on the Chinese Eastern Railway), and the economic crisis and civil war in China led to a sharp reduction in trade. By 1933 imports fell to less than three million rubles and exports to seven million. The principal products shipped to China are cotton cloth, oil, coal, lumber and fish. The chief imports from China are tea (about 80 per cent of the total), grain, hides, fats and oils. The resumption, in December, 1932, of diplomatic relations furnished a basis for regulating and expanding the trade between the Soviet Union and China.

Outer Mongolia and Tannu-Tuva

In recent years the U.S.S.R. has taken an increasingly important part in the foreign trade of these two young republics, the trade with which was formerly dominated by China. The

proportion of Mongolian exports going to the U.S.S.R. increased from 13 per cent in 1924 to 50 per cent in 1927 while that to China dropped from 86 to 50 per cent. Since then, especially with the strengthening of the state monopoly of foreign trade in Mongolia, the U.S.S.R. has taken a considerably larger share. Similarly, the bulk of the imports now come from the Soviet Union as against only 13 per cent in 1924.

Exports from the U.S.S.R. to Mongolia increased from less than three million rubles in 1924-25 to 17 million in 1930 and 45 million rubles in 1934. In 1932-33 it was third and in 1931 fourth among Soviet export markets as against tenth in 1930. Imports from Mongolia also showed a rapid growth, going from less than four million rubles in 1924 to about 20 million in 1930, 29 million in 1931, and 18 million rubles in 1934. It was fourth among the supplying countries of the U.S.S.R. in 1933-1934, seventh in 1932, and eighth in 1930-1931.

The Soviet Union exports a wide variety of goods to Mongolia, the most important of which are cotton cloth, sugar, oil products, flour, grits, cigarettes, matches and metal products. Exports of the latter group have shown an especially large growth in connection with the program of industrial construction undertaken by the Mongolian Government with the technical assistance of the U.S.S.R. Imports consist principally of wool, cattle, hides and furs.

Trade with the neighboring republic of Tuva increased from three million rubles in 1930 to more than nine million in 1934. The U.S.S.R. supplies Tuva with practically all of its import requirements and takes virtually its entire exports. The main exports from the U.S.S.R. are cotton cloth, tobacco, sugar, metals and metal products. The chief import products are cattle, wool, hides and skins.

Afghanistan

While trade with Afghanistan showed rather steady development up to 1932, it has been hampered by the absence of a trade agreement. Soviet trading organizations are thus prevented from establishing offices in Afghanistan, the trade being confined to a few border points. The growth of trade in the face of these and other obstacles has been due to the proximity of the Soviet Union to the principal centers of North Afghanistan and to preferential treatment granted by the Soviet Union as respects licenses and duties.

Imports from Afghanistan increased from four million rubles in 1926-27 to 12 million in 1932 and exports from three million to 15 million rubles. The prewar turnover (12 million rubles) was exceeded by 1928. In 1933-1934 the trade turnover dropped off considerably. The Soviet Union ships sugar, textiles, oil, rubber, matches and metal products and receives mainly wool, cotton and raw hides in return.

Egypt

While the value of Soviet exports to Egypt declined considerably during the period from 1929 to 1932, there was an increase in the total tonnage. Total exports to Egypt in 1932 amounted to 716,000 pounds sterling, an increase of 63 per cent over the previous year. The principal products shipped were coal and oil. Imports from Egypt, consisting almost entirely of cotton, totaled £136,000, showing a considerable decline from 1931 (£1,701,000). In the following years the trade turnover recorded a further drop.

India

Soviet imports from India have declined considerably in recent years, largely because of increasing domestic production. In 1929, imports, consisting chiefly of tea, rubber and jute, totaled more than 28 million rubles, declining to 9,140,000 in

1931 and only 629,000 rubles in 1934. Exports to India, consisting almost exclusively of oil products, have likewise declined, amounting in 1934 to 2,769,000 rubles as compared with 10,152,000 rubles in 1931.

NORTH AND SOUTH AMERICA

Canada

For a number of years treaty relations between the U.S.S.R. and Canada followed somewhat the course of Anglo-Soviet relations. An exchange of notes between the U.S.S.R. and Great Britain on July 3, 1922, provided for extending the trade agreement between those two countries to Canada, in view of the desire to this effect expressed by the Canadian Government. Following the annulment of the Anglo-Soviet trade agreement, diplomatic relations between the U.S.S.R. and Canada were severed on June 3, 1927. The temporary trade agreement concluded with England in 1930 was not extended to Canada.

Imports by the Soviet Union from Canada increased from 2.4 million rubles in 1924-25 to 11.4 million in 1927-28. Exports were much less and in the ten years from 1921 to 1930 Canada accumulated a favorable balance of \$25,000,000. Purchases in Canada consisted principally of machinery and equipment and nonferrous metals. It was only in 1930, with the development of imports of Soviet anthracite coal by Canada, that a parity of imports and exports was reached.

On Feb. 27, 1931, an order-in-council of the Canadian Government prohibited the importation into Canada of coal, pulpwood and lumber, asbestos and furs from the Soviet Union. The grounds given were the alleged existence of "forced labor" in Soviet industries. The order affected principally coal, since none of the other products specified, except a small quantity of furs, was being exported to Canada, and a subsequent

ruling removed furs from the list of banned products. The Soviet Government retaliated by issuing a decree ordering the reduction to the utmost of purchases in Canada and the use of Canadian shipping. Imports have averaged only about a million rubles a year in the past three years, the only substantial transaction being one involving a partial exchange of Soviet petroleum for Canadian aluminum, in 1932.

South America

Yuzhamtorg, the Soviet commercial organization in South America, was organized at Buenos Aires, in Argentina, in the Fall of 1925. During the five years 1925-26—1929-30 Soviet-South American trade totaled over \$80,000,000, of which purchases by the U.S.S.R. made up almost 90 per cent and exports of Soviet products only 10 per cent. Trade with Argentina made up 52 per cent of the total, with Uruguay, 22 and Brazil, 14 per cent. The chief purchases in Argentina were of leather, tanning materials, sheep and wool; in Uruguay, wool and leather; in Brazil, leather, and in Chile, nitrates, iodine and wool. Of the Soviet exports to South America, lumber made up 40 per cent and petroleum about a third. Other products included salt, anthracite coal, platinum, caustic soda and carbonates. In the four years ended with 1929-30 imports from South America averaged 27.5 million rubles annually, while the maximum exports (in 1929-30) totaled 9.4 million rubles.

In the Summer of 1931 police raids were made on the offices and warehouses of Yuzhamtorg and many employees were arrested. These acts, declared to be based on charges that employees of the organization were engaging in political activity, made the continuance of business impossible and the offices were closed. As a result, trade with Argentina dwindled to almost negligible proportions. Imports from Argentina fell

from 28 million rubles in 1929 to an average of about one million rubles in the last three years.

The Yuzhamtorg was organized anew in 1931 at Montevideo, Uruguay, the first country in South America to have diplomatic relations with the U.S.S.R. So far, however, the trade turnover has been small, averaging about three million rubles annually in 1932—1934.

CREDITS AND FOREIGN INDEBTEDNESS

In the early years of Soviet foreign trade the U.S.S.R. was unable to make purchases abroad except for cash or with only minor credits. The growth of exports and imports, however, stimulated interest abroad in the possibility of expanding trade with the U.S.S.R. This, in turn, led to the extension of the large government-guaranteed credits described above and to some substantial private credits.

The foreign indebtedness of the Soviet Union was reduced from 1,400,000,000 gold rubles in 1931 to 450,000,000 rubles at the end of 1933. The remainder was due to be paid off mainly by the end of 1935. In the 4¾ years from April 1, 1928, to Dec. 31, 1932, the amount of money paid out by Soviet organizations for imported merchandise totaled 3,533,900,000 gold rubles (\$1,820,000,000 at the old parity of the dollar). In addition, large sums were expended for transportation, warehousing, and administrative expenses of the trading organizations abroad.

Every obligation entered into by Soviet organizations has been fulfilled. There have been no defaults or declarations of moratoria. Payments to foreign countries are carefully planned in advance in accordance with the plan of foreign trade. Aside from the proceeds from the sale of its products abroad, the U.S.S.R. obtains considerable foreign currency or precious metals through the tourist trade and remittances. It is

estimated that since the beginning of development of tourist travel in 1929, about 100,000 foreign tourists have visited the U.S.S.R. The Torgsin (State Company for Trade with Foreigners) operates a large chain of stores in hundreds of localities in the Soviet Union which sell only for foreign currency or for certificates given in exchange for precious metals, gold, jewelry, etc. The turnover of this organization has amounted to many millions of gold rubles annually.

The Soviet Union, being a leading gold producing country, is able to redress unfavorable balances of payment by means of shipments of gold of its own production. For instance, gold shipments to Germany from 1931 to 1933 totaled \$146,000,000. Gold production in 1933 was estimated at over 100,000,000 rubles and in 1934 an increase of about 50 per cent was recorded. Besides, the U.S.S.R. is the leading producer and exporter of platinum, the exports of which are not included in the customs statistics. It is estimated that the Soviet Union accounts for about a half of the world output of platinum.

Aside from the rapidly increasing receipts of gold and foreign exchange, the large favorable balance of trade accumulated by the Soviet Union in 1933 and 1934 (333 million rubles) has been an important factor in bringing about its greatly improved international financial position. As a result of this situation a policy was recently inaugurated of making a considerable part of the purchases abroad in cash, when the credit conditions are not considered sufficiently favorable. On several occasions (notably in England and Germany) the right to utilize available credits has been renounced because of their excessive cost. In recent negotiations and in statements by Soviet authorities the importance of long-term financial credits as an essential prerequisite for a large development of trade has been emphasized. The first large credit of this character was that of 200,000,000 marks extended by German banks in April, 1935.

On June 3, 1935, negotiations were concluded providing for a credit to the U.S.S.R. of 250,000,000 kroner (about \$10,000,000) by a consortium of Czechoslovakian banks. In both cases the credits were for five years.

THE U.S.S.R. CHAMBER OF COMMERCE

The U.S.S.R. Chamber of Commerce was organized with the object of promoting and facilitating trade between foreign countries and the Soviet Union. The Chamber, whose membership consists of officials of export and import organizations of the U.S.S.R., maintains offices in Leningrad (Naberezhnaya Krasnovo Flota, 10) and in Moscow, (Kuibysheva, 6).

The Chamber supplies foreign firms with data regarding economic conditions, trade legislation, transport and postal regulations, etc., in the U.S.S.R. and performs a like service for Soviet organizations with regard to conditions abroad. It maintains contact with foreign commercial and industrial organizations, organizes fairs and exhibits of Soviet goods, receives and assists delegations of businessmen from abroad and, when commissioned to do so, files applications for patents, registered trade marks, etc., from foreign countries.

The Chamber also exercises supervision over the Maritime Arbitration Commission, organized in 1930, the duty of which is to arbitrate differences mainly concerning remuneration arising from salvage and assistance at sea. The Commission deals almost exclusively with cases of salvage, etc. in Soviet waters, which previous to its organization had been settled by Lloyd's Commission or the German Maritime Arbitration Court.

FAIRS AND EXHIBITS

A number of permanent expositions of both export and import products have been organized in the Soviet Union. Participation in some of these is open to foreign firms. These include

exhibits of machine tools, office equipment and other types of machinery and equipment. Arrangements for such participation by American firms may be made through the Amtorg Trading Corporation.

Soviet export organizations have participated in a large number of international fairs held in foreign countries. In 1933 the U.S.S.R. Chamber of Commerce organized the participation of the Soviet Union in the Leipzig and Koenigsberg Fairs, the XXV International Paris Fair, the Colonial Exhibition at Marseilles and the Milan Fair. Permanent exhibits were also organized at Kabul (Afghanistan) and Istanbul.

SHIPPING

In spite of the rapid development of the Soviet merchant marine (from 336,000 tons in 1929 to 860,000 tons in 1933), a considerable part of the goods exported and imported is still carried in foreign bottoms. The proportion of exports carried by Soviet vessels increased from seven per cent in 1929 to ten per cent in 1933, of imports from 41 to 88 per cent. The sums expended for chartering foreign ships totaled \$50,000,000 in some years. From 1930 to 1932 the number of vessels chartered averaged 3,600 a year and the annual tonnage 14,200,000 tons.

CONCESSIONS AND TECHNICAL ASSISTANCE CONTRACTS

The number of foreign concession enterprises in the Soviet Union has declined in recent years. In 1929 there were 59 in operation and 27 in 1931, while a further reduction took place in later years. In most cases the enterprises were bought up by the government. The most important existing concessions are those held by Japanese interests in the fishing and mining industries in the Far East. The Chief Concessions Committee of the Council of People's Commissars, which formerly directed this field, no longer functions and all matters connected

with concessions now come under the jurisdiction of the respective commissariats.

Likewise, the number of contracts with foreign firms providing for technical assistance in Soviet industries has greatly declined. The greater number of these agreements, which totaled 134 at the beginning of 1931, were concluded in the period from 1928 to 1931 and have since expired. About two-thirds of the contracts were with American and German firms, the remainder being scattered among France, Sweden, England, Italy and other countries. Many individually engaged foreign engineers, foremen and skilled mechanics are still employed in Soviet industries, mainly in enterprises under the control of the Commissariat of Heavy Industry. In April, 1932, the number of foreign employees in heavy industry alone totaled 6,800.

PROSPECTS OF SOVIET FOREIGN TRADE

The following statement, from an address of A. P. Rosen-goltz, Commissar for Foreign Trade, on April 23, 1933, in connection with the fifteenth anniversary of the state monopoly of foreign trade, indicates the policy of the Soviet Government with regard to the future development of foreign trade:

The first Five-Year Plan freed the Soviet Union from dependence on foreign countries in the decisive sectors of our economy. Due to the extraordinarily rapid rate of construction in the first five-year period and our almost complete inability in the preceding period to produce ourselves sufficient quantities of the necessary semi-manufactured products and equipment, we were forced, in many cases, to resort to the purchase of these essential means of production abroad on terms very unfavorable to us. Often we had to make purchases on relatively short credit terms and to reconcile ourselves to considerable overpayment in the credits extended—overpayments which were often concealed in artificially raised prices. That was the situation in the past period.

Under present conditions, we have an entirely different set-up. We are no longer dependent on foreign sources. Now that our hands are freed, we can either expand or contract our imports, depending on the terms our foreign suppliers propose to us for the placing of orders, and depending on the relations in the sphere of trade policy with countries in which these orders will be placed.

In our foreign trade operations during the Second Five-Year period, we shall undertake an expansion of our imports only on the basis of a considerable change in the financial-credit conditions for the placing of our orders, a lengthening of the terms and changing of the form of credit, and the conversion of these from commercial into financial credits, the entire proceeds of which will be employed for the purchases in the countries where such credits are opened. . . . We shall take into account the conditions established in one or the other country for our exports and the existence of normal trade and political relations. With the existence of such conditions, we could expand our purchases, and to such a considerable degree that they could become a very substantial factor in the economy of the countries trading with us; but in the absence of these conditions our imports, naturally, will be contracted.

XII.

AMERICAN-SOVIET TRADE RELATIONS

Organizations Carrying on Trade

TRADE between the United States and the Soviet Union is conducted mainly by the Amtorg Trading Corporation, 261 Fifth Avenue, New York City. The Amtorg was organized on May 27, 1924, under the laws of the State of New York, as the result of the consolidation of two previously existing corporations, the Products Exchange Corporation and Arcos America, Inc. Its paid up capital was originally \$1,000,000, but was later increased to \$3,000,000. The Amtorg purchases the bulk of the products exported from this country to the U.S.S.R., sells the greater part of the goods imported into the United States from the Soviet Union, and arranges for technical assistance by American firms or individual technicians in Soviet industries. It is the sole representative in this country of most of the industrial and trading organizations of the U.S.S.R. Its main office in the U.S.S.R. is in Moscow (Sovietskaya Ploshchad 1).

Purchases of cotton and textile machinery for the Soviet Union were formerly handled by the All-Russian Textile Syndicate, 39 Broadway, New York City, which was organized in December 1923. Other concerns, all in New York City, representing Soviet organizations in this country in specialized fields are: Am-Derutra Transport Corporation, 261 Fifth Avenue, which represents Soviet shipping organizations in the United States; Amkino Corporation, 723 Seventh Avenue, which distributes Soviet films in this country and purchases American films for the U.S.S.R.; Soviet Photo Agency, 723 Seventh

Avenue, distributors of Soviet news photographs, and Intourist, Inc., 545 Fifth Avenue, representative of the Soviet state travel bureau. There are also a number of special technical bureaus connected with the Amtorg Trading Corporation whose function it is to supply Soviet industries with engineering information and to arrange for technical assistance.

From 1924 to 1930 about 53 per cent of the total trade between the two countries was handled by the Amtorg, 35 per cent by the All-Russian Textile Syndicate, 5 per cent by Centrosoyuz and Selskosojuz (representatives in this country of consumers' and agricultural cooperative organizations of the Soviet Union, now inactive), and the remainder by other representatives of Soviet organizations and by a few American firms under special concession agreements. Since 1931 the Amtorg has conducted the great bulk of the trade.

Russian-American Trade Up to 1924

Before the war the trade between the United States and the Russian empire was relatively small. From 1910 to 1914 annual exports averaged \$24,604,000¹, the principal products shipped to Russia being cotton, copper and other non-ferrous metals, rosin, mining and other equipment, and agricultural machinery. Imports from Russia averaged \$20,865,000 a year. In 1913 furs, hides and leather made up 68 per cent of the total imports and wool 12 per cent, the remaining items of importance being flax, manganese ore, licorice root, lumber and fish. Both exports to and imports from Russia made up a little over one per cent of the total American trade.

During the war heavy shipments of war materials were made to Russia, mainly through the Far East, inasmuch as the western border of the country was practically closed to foreign trade. Likewise, imports from Russia, which were

¹ In this chapter United States customs statistics are used throughout.

greatly reduced, came largely by way of the Pacific. During this period a series of loans, totaling about \$86,000,000, was extended to the Czarist government through leading American banks.

After the advent of the Provisional Government, in March 1917, the United States Government opened up credits (June-November, 1917) amounting to about \$187,000,000. These sums were in part expended after the collapse of the Kerensky Government by its still recognized representatives in the United States. In the period from 1917 to 1920 the trade between the two countries was confined almost exclusively to those sections occupied by the White armies. There was a virtual embargo on trade with Soviet Russia, although the United States did not officially participate in the blockade against that country.

In 1921 and 1922 the shipments to Soviet Russia consisted almost entirely of foodstuffs and other materials sent to the regions stricken by the drought and famine of 1921 and handled largely by the American Relief Administration and the Nansen Committee. A part of these goods was paid for in gold. During this period imports from Soviet Russia were almost negligible.

American-Soviet Trade Turnover from 1924 to 1934

Trade between the United States and the U.S.S.R. on a regular basis began to develop at the end of 1923 and the beginning of 1924, with the organization of the All-Russian Textile Syndicate and the Amtorg Trading Corporation. For about seven years after the resumption of regular trade relations the turnover increased fairly steadily and rapidly. Exports to the U.S.S.R. increased from \$42,100,000 in 1924 to a peak of \$114,400,000 in 1930; imports rose from \$8,200,000 to \$24,400,000 in the same period. For the five years 1927-

1931 shipments to the Soviet Union averaged over $3\frac{1}{2}$ times the pre-war (1910-1914); imports were about 16 per cent less than before the war. In the three years 1929-1931, 47 per cent of the total exports and 38 per cent of the imports for the eleven year period 1924-1934 were recorded. Beginning with 1931 both exports and imports began to decline sharply, and by 1933 the turnover was less than a sixth of that recorded three years before. The year 1934 marked a reversal of this process, the trade showing a rise of 30 per cent.

In the eleven years from 1924 to 1934 exports totaled \$639,700,000 and imports \$156,800,000, the favorable balance of trade thus recorded by the United States amounting to \$482,900,000. In 1930 and 1931 the favorable balance exceeded \$90,000,000 each year, making up more than a quarter of the total American favorable balance in the latter year. The relationship between exports and imports has been more favorable for the United States than in the case of its trade with any other large country. Only in 1933 did imports exceed exports, in that year by about \$3,100,000. The following table shows exports to and imports from the U.S.S.R. for the years 1924-1934:

	Imports from U.S.S.R.	Exports to U.S.S.R.	Total Trade	Balance in Favor of U.S.
1910-14 (average)	\$ 20,865,000	\$ 24,604,000	\$ 45,469,000	\$ 3,739,000
1924	8,168,801	42,103,713	50,272,514	33,934,912
1925	13,236,673	68,906,060	82,142,733	55,669,387
1926	14,121,992	49,905,642	64,027,634	35,783,650
1927	12,876,791	64,921,693	77,798,484	52,044,902
1928	14,024,525	74,091,235	88,115,760	60,066,710
1929	22,551,434	85,011,847	107,563,281	62,460,413
1930	24,385,786	114,398,537	138,784,323	90,012,751
1931	13,206,392	103,716,832	116,923,224	90,510,440
1932	9,735,411	12,640,891	22,376,302	2,905,480
1933	12,120,148	8,971,465	21,091,613	3,148,683 ²
1934	12,337,647	14,997,308	27,334,955	2,659,661
TOTAL ³	\$156,765,600	\$639,665,223	\$796,430,823	\$482,899,623

² Unfavorable balance.

³ Totals are for years 1924-1934 only.

Machinery and equipment of various kinds made up about half of the total exports to the U.S.S.R. during the decade starting with 1924, cotton somewhat less than 40 per cent and other raw and semi-manufactured products (iron and steel, non-ferrous metals, chemicals, etc.) the remainder. In the past few years, however, with shipments of cotton reduced to a small fraction of the former totals, exports of machinery and equipment have made up the great bulk (over 90 per cent) of the shipments. The imports from the Soviet Union consist mainly of raw materials and foodstuffs, the principal items being manganese ore, furs, lumber and pulpwood, sausage casings, caviar, crabmeat, fresh or frozen fish, flax and hemp, platinum, iron ore, and anthracite coal.

SHARE OF SOVIET UNION IN U. S. FOREIGN TRADE

	<i>Exports to U.S.S.R.</i>	<i>Imports from U.S.S.R.</i>
	(in per cent of total)	
1910-14	1.1	1.2
1928	1.4	0.3
1929	1.6	0.5
1930	3.0	0.8
1931	4.3	0.6
1932	0.8	0.7
1933	0.5	0.8
1934	0.7	0.7

As shown by the table above, up to 1932 the Soviet Union played a much more important role in the American export trade than did Russia before the war. Although total American exports declined by more than 50 per cent from 1929 to 1931, those to the U.S.S.R. showed an increase of 22 per cent. The Soviet Union in 1931 took 4.3 per cent of total American exports, almost four times the proportion recorded before the war. It became the seventh largest foreign market of this country in 1931 as compared with eighth in 1930 and 17th in 1929. In 1934 it was 24th in rank. The United States was for a number of years second (in 1930 first) among the

countries exporting to the Soviet Union. In 1932 and 1933 it dropped to sixth place and in 1934 it was fourth. In the period from 1927 to 1931 the United States supplied 20-25 per cent of Soviet imports; in 1932-1934, the proportion was reduced to from five to eight per cent.

Imports from the U.S.S.R. have made up a smaller share of the total American imports than before the war. In the years from 1929 to 1934 they fluctuated between 0.5 and 0.8 per cent as against 1.2 per cent in 1910-1914. In 1930, when imports were at their highest level, the Soviet Union ranked 26th among the countries exporting to the United States; in 1931 it was 23rd, and in 1934—26th. From 1925 to 1930 the United States took about four per cent of total Soviet exports. From 1931 to 1934 the proportion was reduced to about three per cent. In 1932 the United States was ninth and in 1933 and 1934 eighth among the markets of the Soviet Union.

Reasons for Growth in Trade and Later Decline

The two outstanding features of the trade between the United States and the Soviet Union have been: 1) the steady growth of trade, particularly of purchases for the U.S.S.R., up to 1930, and the sharp decline in the past few years, and 2) the wide disparity between exports to and imports from the Soviet Union. The substantial growth in exports to the U.S.S.R. reflected the high regard among Soviet engineers and executives for American technical methods and the distinct preference for American machinery for many branches of industry. It was considered that in many fields the character and scope of the developments in the U.S.S.R. were such as to make the type of mass-production machinery developed in this country better adapted for Soviet requirements than European products. The program of intensive industri-

alization and of the reorganization of agriculture opened up, particularly in the period of the first Five-Year-Plan, a large new market for industrial and electrical equipment, agricultural machinery, transportation equipment, etc.

Many Soviet engineering commissions were sent to this country to study American industries, technical assistance contracts were concluded with a large number of leading American firms and individual engineers, and purchases rose steadily. The Soviet Union became the most important market for American industrial and agricultural equipment, in 1930 and 1931 taking 18.3 and 27.5 per cent, respectively, of total industrial equipment exports and 36.3 and 66 per cent of all agricultural machinery shipments. A substantial, though irregular, expansion of imports from the Soviet Union was also recorded—from an annual average of \$12,500,000 in 1924-1928 to an average of \$23,500,000 in 1929-1930. The growth of exports to the U.S.S.R. in the face of a large general decline in American foreign trade and the generally unfavorable conditions existing for carrying on trade with the Soviet Union, owing to the absence of normal diplomatic relations, was a strong indication of the basic economic factors underlying the trade between the two countries.

The drastic decline in exports beginning with 1932, by about 90 per cent, was due primarily to the cumulative effect of difficulties which had begun to make themselves felt in earlier years. They were mainly of two kinds: the lack of satisfactory facilities for financing American exports to the U.S.S.R. and the various restrictions imposed on the importation of Soviet products into this country. Commercial bills and acceptances of the Amtorg Trading Corporation could not be discounted and rediscounted in banks of the Federal Reserve system. This led to the purchase of such bills at usurious rates of discount. Long-term credits (with maturi-

ties of two or more years), such as had become the common practice in certain European countries (Germany, Italy, England, etc.), under the extension of government guarantees established in those countries, were virtually non-existent here. Only a few of the largest companies were able or willing to extend such credits without assistance from the banks. As a result, American manufacturers were unable to compete on an equal basis for Soviet business with European firms.

The other principal factor in the trade decline were the campaigns launched against the admission of Soviet goods into this country. Beginning with 1930, charges were frequently made to the effect that Soviet goods were the product of convict or forced labor or that they were being sold on the American market at dumping prices. Although whenever such charges were subjected to investigation they were eventually dismissed as unfounded, they resulted in delays, litigation, temporary embargoes, and an atmosphere of uncertainty and risk which made it impossible to develop trade in a normal manner.

In the case of lumber and pulpwood, for instance, some cargoes were held up before being finally admitted. Hearings on "unfair practice" charges with regard to Soviet asbestos resulted in a temporary embargo, lasting from April, 1931 to April, 1933, before the charges were eventually dismissed by the Tariff Commission. Similar difficulties were encountered with respect to manganese ore and anthracite coal imported from the U.S.S.R. Charges of dumping of manganese were disposed of in February, 1931 by the Treasury Department, which announced that "the issuance of a finding of dumping covering manganese imported from the U.S.S.R. is not justified." An anti-dumping finding on Soviet safety matches issued in May, 1930, was vacated by the Secretary of the Treasury in January, 1934, on the ground that it was "not

supported by evidence at all sufficient to warrant it." At the same time, a finding of the Treasury Department as of February, 1931, stating that convict labor was used in the production of lumber and pulpwood in the northern regions of the U.S.S.R., was also vacated on similar grounds.

A ruling of the Department of Agriculture in November, 1930, required that casings imported from the Soviet Union undergo a special process of disinfection in this country since, in the absence of consular authorities, the certificates of sanitation issued by the Soviet authorities were not considered acceptable. A similar ruling required that feed materials of Soviet origin be quarantined for 90 days at the port of entry before being admitted. These restrictions, which put the U.S.S.R. at a considerable disadvantage in competing with other exporting countries, are still in effect.

The importation of apatite (phosphate fertilizer) from the Soviet Union was stopped for a period of about two years until a charge of alleged unfair competition was dismissed by the Court of Customs and Patent Appeals (in February, 1935).

The Soviet authorities took the position that these and other restrictions, which greatly hampered the sale of their products on the American market, were all the more unwarranted in view of the fact that in the past eleven years imports from the U.S.S.R. amounted to less than a quarter of the purchases of American goods for the Soviet Union. They pointed out that these products are largely non-competitive with domestic industry, consisting mainly of items which the United States imports in large quantities from abroad. The recent tendency of most countries to balance as closely as possible their trade with other countries, the many restrictions on the transfer of foreign exchange, the systems of quotas set up in some countries—all made the problem of restrictions more acute, as it became

increasingly unfeasible to redress an unfavorable balance by means of favorable balances in other countries.

The obstacles put in the way of the importation of Soviet products to the United States and the absence of satisfactory facilities for financing exports to the Soviet Union were accompanied by many other restrictions and difficulties brought about by the status of non-recognition. The Soviet Government had little or no protection in American courts. Gold of Soviet origin could not be shipped to this country for deposit, according to Treasury Department rulings of November and December, 1920, which were eventually rescinded in January, 1934, after the resumption of diplomatic relations. Discriminatory taxes were imposed by both countries on the vessels of the other country. Such excess charges were also suspended early in 1934. The flotation on the American market of bonds issued by the Soviet Government was prohibited and long-term private loans or credits were not encouraged. Visitors on business missions from the Soviet Union frequently encountered difficulty in obtaining visas.

The lack of authoritative information, because of the absence of consular representatives, made it possible for interested parties to spread unfounded rumors and reports regarding alleged conditions in the Soviet Union, which had a detrimental effect on trade. Attacks were made on the Amtorg and other organizations carrying on trade for the Soviet Union, culminating in the hearings of the Congressional investigating committee in 1931, which declared unfounded the charges that these companies were carrying on political activity.

The cumulative effect of these difficulties, coupled with the more favorable credits and other conditions of trade prevailing in Europe, finally led to the diversion of considerable business formerly placed in this country to European countries. The share of the United States in total Soviet imports dropped from

25 per cent in 1930 to 5 per cent in 1932 and 1933. While the total imports of the Soviet Union declined by 67 per cent from 1930 to 1933, those from the United States showed a drop of 93 per cent. To some extent the decline in purchases here was also due to the fact that the Soviet Union had reached a stage in its economic development where it was able to produce a part of the equipment and raw materials formerly purchased abroad.

The development of imports of Soviet products into the United States has been rather irregular. From slightly more than \$8,000,000 in 1924 they fluctuated between \$12,000,000 and \$14,000,000 during the following four years and averaged \$23,500,000 in 1929-1930. From 1931 to 1934 they averaged slightly under \$12,000,000 a year. This uneven development has been due in part to the many restrictions and obstacles mentioned above. The fact that in the face of these difficulties the imports nearly trebled between 1924 and 1930 indicates that under normal conditions the possibilities in this direction are considerable.

With the establishment of diplomatic relations between the two countries in November, 1933, the way was paved for the solution of the problems which had brought about the sharp decline of trade. A number of the restrictions imposed by former administrations on the importation of Soviet products were removed. On February 8, 1934 the Export-Import Bank was organized by the government, primarily for the purpose of expanding trade between the United States and the U.S.S.R. The primary function of the bank was to extend credits to American manufacturers exporting their products to the U.S.S.R. Subsequently, however, a resolution of the Export-Import Bank passed in connection with the Johnson Act and an interpretation of this law by the Attorney General, made the extension of credits dependent on the adjustment of

the debt question. Negotiations on this matter had not led to an agreement by the middle of 1935. Principally as a result of the absence of credit facilities, the trade remained on a low level, although in 1934 exports to the U.S.S.R., amounting to \$14,997,000, recorded an increase of 67 per cent.

U. S.-U.S.S.R. Trade Agreement

An agreement to facilitate and increase trade between the United States and the Union of Soviet Socialist Republics was concluded at Moscow July 13, 1935, in an exchange of identical notes between Ambassador William C. Bullitt and the Commissar for Foreign Affairs, Maxim Litvinoff.

The identical notes read as follows:

I have the honor to refer to recent conversations in regard to commerce between the Union of Soviet Socialist Republics and the United States of America and to the trade agreements program of the United States and to confirm and to make of record by this note the following agreement which has been reached between the governments of our respective countries:

1. The duties proclaimed by the President of the United States of America pursuant to trade agreements entered into with foreign governments or instrumentalities thereof under the authority of the act entitled "An Act to Amend the Tariff Act of 1930," approved June 12, 1934, shall be applied to articles the growth, produce or manufacture of the Union of Soviet Socialist Republics, as long as this agreement remains in force. It is understood that nothing in this agreement shall be construed to require the application to articles the growth, produce or manufacture of the Union of Soviet Socialist Republics of duties or exemptions from duties proclaimed pursuant to any trade agreement between the United States of America and the Republic of Cuba which has been or may hereafter be concluded.

2. On its part, the Government of the Union of Soviet Socialist Republics will take steps to increase substantially the amount of purchase in the United States for export to the Union of Soviet Socialist Republics of articles the growth, produce or manufacture of the United States of America.

3. This agreement shall come into force on the date of signature thereof. It shall continue in effect for twelve months. Both parties agree that not less than thirty days prior to the expiration of the aforesaid period of twelve months they shall start negotiations regarding the extension of the period during which the present agreement shall continue in force.

An elucidation by Mr. Litvinoff stated that it was the intention of the Soviet Union to place orders in the United States to the value of \$30,000,000 during the twelve months following the signing of the agreement. This represents an increase of 100 per cent over American exports to the U.S.S.R. in 1934.

Statements issued by both American and Soviet authorities in connection with the accord pointed out that the signing of this agreement provides a sound basis for a mutually beneficial expansion of trade between the two countries.

EXPORTS TO THE U.S.S.R.

Industrial and Electrical Equipment

In 1930 the U.S.S.R. was the second and in 1931 the leading foreign market for industrial machinery and equipment of American manufacture. It rose from 14th place in 1925, tenth in 1926 and fifth in 1928. Its share in total United States exports increased from 5 per cent in 1929 to 27.5 per cent in 1931. Even with the drastic decline in 1932 it still accounted for 10 per cent of total shipments. In 1930-1931 exports of industrial equipment to the Soviet Union averaged more than \$40,000,000 a year and made up 22 per cent of the total. In the following three years the exports were reduced to an annual average of \$3,724,000.

The principal class of machinery in this group has been metal-working machinery, largely for tractor, automobile and ball-bearing plants in the U.S.S.R. In 1930-1931 the U.S.S.R. took equipment of this type to the value of \$35,731,000, more than 52 per cent of the total American shipments. The percentage of total exports shipped to the Soviet Union in 1930 and 1931, respectively, of some of the principal types of equipment was as follows: foundry and molding equipment—58 and

74; forging machinery—52 and 68; lathes—51 and 65; milling machines—42 and 70; drilling machines—52 and 78; grinding machines—30 and 58; sheet and plate metal-working machines—31 and 54. In 1932-1934 the exports were reduced to about one-seventh of the average for the preceding two years.

Among the other types of American industrial equipment for which the U.S.S.R. has been one of the leading markets are oil drilling equipment, of which it took 27.5 per cent in 1930 and 22 per cent in 1931, and oil refining equipment—40 and 16 per cent; purchases of these two groups totaled \$8,401,000 in 1930. Mining and quarrying equipment exported to the U.S.S.R. exceeded \$2,000,000 a year in 1930 and 1931, making up 15 and 26 per cent of total shipments. The U.S.S.R. took 62 per cent of exports of stationary engines in 1930-1931, 92 per cent of the water wheels and turbines, 16 per cent of the excavators and road-making machinery, 36 per cent of the cranes and hoists and conveying equipment, and 11 per cent of the pumps exported.

In the four years from 1928 to 1931 exports of construction and conveying machinery averaged \$2,808,000 annually. Other varieties of industrial and miscellaneous equipment exported in considerable quantities to the Soviet Union include textile and sewing machinery (\$606,000 average annually in 1928-1930); paper and pulp machinery (\$449,000 average in 1929-1930); woodworking machinery (\$267,000 average in 1928-1930); refrigerating equipment (\$247,000 average in 1928-1930); ball and roller bearings (\$869,000 average in 1929-1931); air compressors (\$496,000 average in 1928-1932); office machines and typewriters (\$385,000 average in 1928-1931); typesetting machines (\$72,000 in 1933); and scientific instruments and apparatus (\$458,000 average in 1928-1934). Large purchases of food and canning machin-

ery, marine equipment, and watch and clock factory equipment also were made.

The U.S.S.R. has also been a substantial purchaser of electrical apparatus, particularly power plant equipment. Such purchases averaged almost \$6,000,000 a year in 1930-1931, making up 5.8 per cent of the total U. S. exports.

The following tables show the exports of industrial and electrical equipment to the U.S.S.R. in 1929-1934 and the proportion of total exports:

INDUSTRIAL EQUIPMENT			
<i>Year</i>	<i>Total U. S. Exports</i> (in thousand dollars)	<i>Exports to U.S.S.R.</i>	<i>Share of U.S.S.R. in total exports</i> (in per cent)
1929	277,765	14,785	5.3
1930	228,291	41,890	18.3
1931	141,835	38,995	27.5
1932	58,679	5,925	10.1
1933	55,283	1,392	2.5
1934	98,348	3,878	3.9
POWER-DRIVEN METAL WORKING MACHINERY			
1929	40,804	2,594	6.3
1930	33,145	13,239	40.0
1931	34,789	22,492	64.7
1932	13,867	3,468	25.0
1933	9,369	952	10.2
1934	19,435	2,799	14.4
ELECTRICAL EQUIPMENT			
1929	121,357	2,606	2.2
1930	118,260	5,062	4.3
1931	85,080	6,693	7.8
1932	43,382	2,100	4.8
1933	43,580	186	0.4
1934	66,525	365	0.5

Transportation Equipment

Large exports of transportation equipment, such as automobiles, locomotives, and aviation engines and accessories, have been made to the U.S.S.R. in recent years. During the three years 1929-1931 shipments of automobiles, parts and acces-

sories averaged \$6,919,000 annually. In 1931, the Soviet Union was third among the markets for automobiles, taking eight per cent of the total. In the same year it imported a half of the locomotives and freight cars sold by this country. For a number of years it has been one of the leading markets for aviation engines, parts, and accessories, purchasing 22 per cent of this group of products in 1931 and 35 per cent in 1934. In the latter year shipments amounted to \$3,276,000.

AUTOMOBILES AND PARTS

<i>Year</i>	<i>Total U. S. Exports (in thousand dollars)</i>	<i>Exports to U.S.S.R. (in thousand dollars)</i>	<i>Share of U.S.S.R. in total exports (in per cent)</i>
1929	539,298	3,280	0.6
1930	277,425	5,880	2.1
1931	146,693	11,597	7.9
1932	76,274	2,702	3.5
1933	90,631	1,117	1.2
1934	190,208	758	0.4

Agricultural Machinery

In the three years 1929-1931 exports of farm equipment to the Soviet Union totaled \$101,000,000, and made up 32 per cent of the entire shipments of this country. Tractors accounted for \$77,536,000, 49 per cent of all American exports. Combines accounted for \$8,222,000, 27 per cent of total shipments. Other agricultural implement shipments of importance include plows (\$655,000 average annual exports from 1928 to 1931); harrows (\$147,000 average in 1928-1930); and grain harvesters and binders (\$355,000 average in 1928-1930).

In 1932-1934 exports of agricultural equipment practically ceased. Nevertheless, for the five years 1929-1933, the share of such exports going to the U.S.S.R. was 30 per cent and of tractors alone 46 per cent.

Year	AGRICULTURAL EQUIPMENT		Share of U.S.S.R. in total exports (in per cent)
	Total	Exports	
	U. S. Exports (in thousand dollars)	to U.S.S.R.	
1929	140,800	20,715	14.7
1930	116,036	42,131	36.3
1931	57,402	37,885	66.0
1932	10,548	120	1.1
1933	12,215	109	0.9

In the six-year period from 1929 to 1934 the exports of industrial, electrical, and agricultural equipment and automobiles and parts to the Soviet Union amounted to \$250,000,000, more than eight per cent of total United States shipments. During 1930-1931, however, the U.S.S.R. took 16 per cent of the total imports of these four groups, 76 per cent of the purchases for the six years having been made in this period.

Raw and Semi-Manufactured Materials

Cotton: Up to 1930 the U.S.S.R. was one of the principal markets for American cotton; in the five years 1925-1929 shipments averaged \$37,600,000 a year. In 1930 they dropped to \$7,300,000, in 1931-1932 ceased entirely, and in 1933 totaled \$3,500,000. The latter shipments were financed in part through credits extended by the Reconstruction Finance Corporation, the first transaction of its kind recorded in the trade between the two countries. The decline in exports was due primarily to increased domestic production in the U.S.S.R. In 1933 and 1934 negotiations were carried on for large purchases of American cotton for the Soviet Union on a long-term credit basis but did not materialize. Purchases in the latter year were a little under \$2,000,000. In the spring of 1935 cotton purchases were made here for the U.S.S.R. to the value of about \$8,500,000.

Non-Ferrous Metals: Exports of non-ferrous metals averaged \$3,400,000 annually from 1927 to 1930 and amounted

to \$941,000 in 1931. Copper made up the bulk of the shipments. Shipments of aluminum totaled \$163,000 in 1932.

Iron and Steel: Shipments of iron and steel and manufactures (structural shapes, bars, pipes, sheets, etc.) averaged \$2,230,000 a year from 1929 to 1931 and totaled \$931,000 in 1934. Shipments of tin plate averaged \$309,000 from

MAJOR EXPORTS OF U. S. TO SOVIET UNION

Commodity	(in thousands of dollars)									
	1924	1926	1928	1929	1930	1931	1932	1933	1934	
Cotton	36,738	32,783	44,537	30,506	7,341	.....	.....	3,534	1,832	
Abrasives	65	32	141	.....	59	204	77	156	178	
Electrodes	16	34	39	70	37	59	.....	346	729	
Iron and steel and manufactures	271	787	1,073	2,735	2,965	990	183	210	1,132	
Ferro-tungsten and other ferro-alloys (total)	14	.....	.....	30	46	458	50	438	422	
Ferro-tungsten, tungsten, metal and wire	14	.....	.....	28	44	404	42	251	220	
Other ferro-alloys, ores and metals	.....	.....	.....	2	2	54	8	187	202	
Aluminum and manufactures	.....	.....	57	1	16	243	163	7	.....
Machinery and vehicles (total)	2,570	12,699	19,685	42,537	97,089	97,891	11,352	3,414	9,095	
Electrical machinery and apparatus	60	615	1,399	2,606	5,062	6,693	2,100	186	365	
Electric generators and parts	3	1	128	71	546	297	536	1	4	
Power and other transformers	.....	6	172	61	709	533	353	.....	13	
Electric railway locomotives	.....	.....	25	17	14	.....	787	.....	.....
Ind'l motors and parts and controlling equipment for ind'l motors	.....	61	355	438	993	864	115	52	38	
Industrial machinery (total)	1,065	4,913	9,034	14,785	41,890	38,995	5,903	1,392	3,881	
Steam turbines and parts	.....	4	119	83	645	1,535	404	15	6	
Internal combustion engines and parts	411	1,332	389	827	1,759	1,754	99	21	21	
Water wheels, water turbines and parts	.....	.....	.....	.....	605	1,406	370	1	.....
Construction and conveying machinery	7	150	1,902	1,869	3,792	3,668	154	9	78	
Mining and quarrying machinery	6	745	1,287	1,266	2,334	2,306	202	54	15	
Petroleum, gas and other well and refining machinery	194	316	1,114	2,571	8,401	1,867	489	31	434	
Metal-working machinery (total)	228	433	2,109	2,594	13,239	22,492	3,468	932	2,799	
Lathes	42	119	287	365	2,460	2,644	476	45	546	
Sheet and plate metal-working machinery	.....	.....	35	118	1,430	2,995	14	.....	132	

1927 to 1930. Exports of ferro-alloys (principally ferro-tungsten) averaged \$430,000 a year in 1933 and 1934.

Non-Metallic Minerals: In this group the principal items have been abrasives (average of \$124,000 a year from 1930 to 1933 and \$1,422,000 in 1934) and electrodes for electric furnaces (\$346,000 in 1933 and \$931,000 in 1934).

MAJOR EXPORTS OF U. S. TO SOVIET UNION (Continued)

Commodity	(in thousands of dollars)									
	1924	1926	1928	1929	1930	1931	1932	1933	1934	
Milling machines	69	140	119	481	1,682	2,833	416	36	255	
Gear-cutting machines	.....	10	44	47	384	1,189	64	224	305
Drilling machines	9	13	125	227	1,055	2,014	323	34	199	
Metal-grinding machines	67	43	225	306	1,403	2,775	452	160	757	
Forging machinery	.....	4	44	412	959	2,691	336	21	34
Rolling mill machinery	.....	.....	20	.....	90	149	182	.....	.....
Foundry and molding equipment	.....	5	12	202	2,066	1,692	74	197	46
Other power-driven metal-working machinery	5	60	189	240	1,399	1,434	671	321	246	
Other metal-working machinery	.....	42	176	67	411	1,763	270	69	85
Stationary air compressors	45	111	388	572	810	189	469	122	.....
Office appliances	152	237	526	682	292	193	55	40	69	
Agricultural machinery and equipment	991	6,599	7,387	20,715	42,131	37,885	120	109	13	
Tractors and parts	259	5,125	6,082	17,869	35,920	29,340	94	102	3	
combines	167	5	6	705	1,929	5,588	.....	.....	.....
Other agricultural equipment	565	1,469	1,299	2,141	4,282	2,957	26	7	10	
Automobiles and other vehicles	454	572	1,865	4,431	7,466	14,318	3,173	1,614	4,760	
Automobiles, parts and accessories	186	183	924	3,280	5,879	11,597	2,698	1,117	1,208	
Aircraft engines, parts and accessories, except tires	9	271	155	245	542	507	407	380	3,276	
Freight cars	.....	.....	207	62	62	552	46	92	.....
Scientific, laboratory and professional instruments and apparatus	49	79	358	434	988	692	201	153	377	
Refined copper	32	1,382	2,740	3,316	1,641	821	.....	.....	.....

Miscellaneous: Other products shipped in substantial amounts include gum rosin, shipments of which averaged \$650,000 a year from 1925 to 1929 but which has not been exported since that time; binder twine (\$730,000 in 1928 and \$274,000 in 1931); chemicals and related products (average of \$235,000 from 1925 to 1929); and crude rubber, of which large amounts were formerly purchased (over \$2,000,000 in 1928) but which does not appear in the customs statistics since the shipments were made from the Orient.

Purchases by States

Purchases for the Soviet Union in the United States have embraced virtually all parts of the country. However, since in recent years machinery and equipment have made up the bulk of the exports, the machinery producing states of the Middle West have contributed the largest share of the total. In 1930 and 1931, two of the years in which purchases of the Amtorg were at their peak, Illinois, Michigan, Ohio, Iowa and Wisconsin supplied products to the value of \$100,763,000, 60 per cent of the total purchases in those years.

The following table shows the distribution of Amtorg purchases by states in 1930 and 1931 (not including purchases of cotton for the U.S.S.R.):

AMTORG PURCHASES BY STATES

<i>State</i>	1930	1931
	(in thousand dollars)	
California	2,066	651
Colorado	237	54
Connecticut	1,383	1,495
Delaware	160	10
Illinois	35,844	2,965
Indiana	792	678
Iowa	12,999	326
Kansas	1,669	4
Kentucky	427	59
Maryland	206	158
Massachusetts	1,488	1,923

<i>State</i>	1930	1931
	(in thousand dollars)	
Michigan	8,313	12,487
Minnesota	155	65
Missouri	276	174
New Jersey	3,526	1,757
New York	9,181	9,917
Ohio	7,155	7,905
Oregon	178	88
Pennsylvania	5,845	4,496
Rhode Island	170	172
Texas	320	114
Utah	98	41
Vermont	614	650
Virginia	1,286	328
Washington	812	9
West Virginia	208	4
Wisconsin	11,047	1,722
Non-classified	7,580	2,980
	<hr/>	<hr/>
<i>Total U. S.</i>	114,035	51,232
Canada	217	270

IMPORTS FROM THE U.S.S.R.

Foodstuffs

Fish: (fresh, frozen, or salted); Imports of fish, principally sturgeon, totaled \$618,000 in 1931 and \$338,000 in 1934. In 1930-1933 they made up four per cent of total American imports.

Caviar: Imports of caviar totaled \$674,000 in 1929, \$451,000 in 1932 and \$253,000 in 1934. In value they make up more than 90 per cent of total American imports.

Crabmeat: The U.S.S.R. accounted for 27 per cent of total United States canned crabmeat imports in 1933 as compared with 23 per cent in 1931 and only 0.3 per cent in 1929. Imports totaled \$923,000 in 1931, declining to \$481,000 in 1934.

Imports of other canned fish (sardines, sturgeon, sprats, etc.) amounted to \$44,000 in 1932 and \$14,000 in 1933.

Sausage Casings: Imports of casings from the U.S.S.R. dropped from \$2,823,000 in 1929 to \$498,000 in 1934. In the earlier year they made up 18 per cent and in 1934, six per cent of total American imports.

Lentils: Imports of lentils totaled \$76,000 in 1932 but dropped to one-tenth that total in 1933. In 1931-1932 they accounted for 24 per cent of total American imports.

Sunflower Seed Oil: Imports of this item were started only a few years ago. They amounted to \$360,000 in 1932 and \$444,000 in 1933, making up 59 per cent of total receipts in the latter year. In 1934, largely as a result of the imposition of a new excise tax on edible oils, imports were virtually eliminated.

Mushrooms: Imports of mushrooms totaled \$161,000 in 1929 and \$246,000 in 1931, 46 per cent of total imports of the United States. None was imported in 1932-1934.

Other items in this group are confectionery (\$45,000 in 1929 and \$40,000 in 1934), jams, nuts, coriander seed, canned vegetables, mustard seed, mineral water, and wines and vodka, the importation of which was started in 1934 (imports in 1934 totaled \$49,000).

Animal Products

Furs: Imports of furs, which exceeded \$5,000,000 in 1929, averaged \$2,323,000 in 1933-1934. Aside from direct shipments, large quantities of Soviet furs are re-exported to the United States from other countries, principally Germany and England. Direct imports of Soviet undressed furs made up four per cent of total receipts in 1933; of dressed furs—29 per cent. Of the furs received from the U.S.S.R. in 1933, dressed furs and manufactures made up \$850,000 but in 1934 this figure was greatly reduced.

Bristles: Sales of Soviet bristles fell from \$618,000 in 1929

to \$184,000 in 1932, in each case making up between seven and eight per cent of total American imports. Direct imports were practically eliminated in 1933-1934. A part of the Soviet bristles shipped to England is re-exported to the United States.

Leather and Hides and Skins: Imports of these products, which were begun only in 1930, have shown rapid development. From \$53,000 in 1930 they rose to \$318,000 in 1933, of which leather made up \$224,000. The U.S.S.R. accounted for two per cent of the total leather imports of this country in 1933-1934.

Animal Hair: Sales of horsehair and other animal hair rose from \$72,000 in 1929 to \$273,000 in 1931, dropping to \$50,000 in 1934. In 1931-1934 the Soviet Union supplied 13 per cent of total American imports of this item.

Other products in this group include stearic acid (\$53,000 in 1931 and \$19,000 in 1933), of which the U.S.S.R. furnished 12 per cent in 1931-1932; bones (\$418,000 average in 1929-1930); and glue (\$27,000 in 1933).

Mineral Products

Manganese Ore: For about half a century the Chiatyry mines in Transcaucasia have supplied a considerable part of the manganese ore consumed by the American steel industry, which ordinarily imports about 90 per cent of its requirements. Imports of manganese from the U.S.S.R. have been drastically reduced in the past few years—from \$5,452,000 in 1929 to \$1,897,000 in 1931 and \$903,000 in 1934—owing mainly to the greatly curtailed operations of the steel industry. The Soviet Union furnished 64 per cent in value of total American imports in 1929 and 37 per cent in 1932-1934.

Iron Ore: Imports of iron ore from the Soviet Union were started only in 1930. They amounted to \$571,000 in 1931,

dropping to \$177,000 in 1934. The U.S.S.R. accounted for 16 per cent of total imports in 1931-1933. The ore is consumed on the eastern seaboard.

Chrome Ore: This is another new item among imports from the U.S.S.R., dating also from 1930. Receipts totaled \$292,000 in 1931 and \$256,000 in 1934, the Soviet Union supplying 11 per cent of the total imports in 1933 and 1934.

Precious Metals: Imports of platinum and allied metals totaled \$994,000 in 1929 and \$453,000 in 1934. They made up 12 per cent of the total direct imports in the earlier year and 11 per cent in 1934.

Gold Ore: In 1934 shipments were started to the United States of low-content gold-bearing ore. During the latter part of the year several shipments were made, mainly to the port of Tacoma, Washington. In addition, early in 1935, importation was started of considerable quantities of various gold concentrates (precipitates, chlorides, electrolytic slimes). The first sales (\$300,000) of Soviet silver were also made by the Amtorg, for delivery in London.

Anthracite Coal: In the past six years (1929-1934), the U.S.S.R. has supplied, exclusively to the New England States, about 44 per cent of the high-grade anthracite imported by the United States. Receipts of Soviet anthracite, which commands a high price because of its high heating value and low ash content, rose from \$737,000 in 1929 to an average of \$1,757,000 in 1932-1934. The shipments, averaging 229,000 tons a year in 1931-1934, make up less than 1/2 of one per cent of total American anthracite production and about four per cent of total New England consumption.

Asbestos: Direct imports of asbestos from the U.S.S.R. were started only a few years ago, amounting to \$661,000 in 1930, \$104,000 in 1931 and \$89,000 in 1934. They made up about nine and three per cent of total imports in 1930 and

1934, respectively. The development of imports was hampered by a temporary embargo, lasting from April 1931 to April 1933, imposed while charges of unfair practice, eventually dismissed as unfounded, were pending before the Tariff Commission.

Magnesite: Shipments of magnesite, a new item on the import list, totaled \$90,000 in 1931, 27 per cent of total American imports; in 1933 and 1934 they fell to an average of \$31,000.

Among the products of potential importance in this group are potash, of which the first shipments, totaling \$323,000, were received from the U.S.S.R. in 1934; apatite (phosphate fertilizer), imports of which were temporarily halted while a case was pending before the Tariff Commission but were resumed again in 1935; mica, diatomaceous earth, paraffin, kaolin, pyrites, marble, glaziers' and engravers' diamonds (\$48,000 in 1932), etc.

Crude Drugs and Chemicals

Licorice Root is the largest item in this category, imports totaling \$889,000 in 1929, \$443,000 in 1931, and \$214,000 in 1934. In 1929 the U.S.S.R. supplied 38 per cent and in 1933-1934, 27 per cent of the total.

Gum Tragacanth: Imports of this item totaled \$87,000 in 1932 (26.5 per cent of American imports) and \$48,000 in 1933.

The other main products in this group include ergot, imports of which in 1933 totaled \$33,000; miscellaneous drugs (\$34,000 in 1933 and \$26,000 in 1934); poppy seed (\$19,000 in 1933); inedible sunflower seed oil (\$41,000 in 1933); essential or distilled oils (\$67,000); peat moss (\$17,000); alkaloids, chiefly nicotine, (\$10,000); santonin (\$62,000); crude glycerine (\$34,000); barytes (\$84,000 in 1931, 27 per cent of total American imports).

Textiles

Flax (unmanufactured): Imports of flax increased from \$179,000 in 1929 (five per cent of total imports) to an average of \$501,000 in 1933-1934 (33 per cent).

Linens: Imports of linen cloth and manufactures (towels, table cloths, embroidered articles, etc.) amounted to \$114,000 in 1932 and \$572,000 in 1934. In the latter year they made up about 2.5 per cent of total United States imports of these products.

Raw Silk: This item has appeared on the import list only in the past few years. Imports totaled \$453,000 in 1931 and \$178,000 in 1934. In 1931-1934 these shipments made up only 0.2-0.3 per cent of total imports.

Oriental Rugs: The importation of hand-made oriental rugs (mainly Caucasian and Turkestan) was resumed a few years ago. Receipts amounted to \$219,000 in 1932 and \$109,000 in 1934. They made up four per cent of total American imports in 1932-1934.

Wood and Paper Products

Lumber: Imports of soft woods from the Soviet Union (almost entirely spruce) were started in 1927. In 1929 imports totaled \$819,000, in 1932—\$296,000 and 1933—\$559,000. Spruce imports totaled \$316,000 in 1934. The development of imports of lumber and pulpwood was hindered by adverse regulations of the Treasury Department, later rescinded. In 1931-1932 the U.S.S.R. supplied only two per cent of total United States lumber imports.

Pulpwood: Importation of spruce pulpwood from U.S.S.R. was started in 1929. Shipments totaled \$1,580,000 in 1930, \$481,000 in 1932 and only \$71,000 in 1934. The Soviet Union, which has been virtually the only source of supply aside from Canada, accounted for seven per cent of pulpwood imports into this country in 1930-1933.

Rags (for paper stock): Imports of rags totaled \$865,000 in 1930 and \$394,000 in 1934. They made up 23 per cent of total imports in 1933-1934.

Safety Matches: Imports of safety matches from the Soviet Union, one of the few countries offering competition to the Swedish match trust, were started in 1928. In 1929 imports totaled \$353,000, slightly more than 10 per cent of total receipts by the United States. An anti-dumping duty imposed by the Treasury Department in May, 1930, virtually put an end to imports. This ruling was rescinded in January, 1934, and imports that year totaled \$94,000, 18 per cent of the total.

Other lumber items include oak staves and headings, the importation of which has been considerable since the lifting of the prohibition against the sale of beer (\$223,000 in 1933 and \$110,000 in 1934); veneers and plywoods (\$43,000 in 1931 and \$6,000 in 1933); and miscellaneous woods and manufactures (\$26,000 in 1933 and \$31,000 in 1934).

Miscellaneous: Among the other products imported from the U.S.S.R. not included in the above categories are books and other printed matter (\$42,000 in 1933 and \$46,000 in 1934), works of art (\$34,000), gold and silver articles and jewelry (\$21,000), motion picture films, handicraft articles, etc.

Technical Assistance Contracts

Beginning with 1928, more than two-score contracts were concluded with American engineering concerns providing for the cooperation of the latter in the design, construction and operation of mines, electrical plants and installations, and industrial enterprises in the U.S.S.R. About a third of the total number of contracts for technical assistance entered into by Soviet organizations were made with American firms. In addition, hundreds of individual engineers and technicians were engaged for various Soviet industries. Most of the contracts

U. S. IMPORTS OF MAJOR PRODUCTS FROM RUSSIA AND THE SOVIET UNION									
Commodity	1926	1927	1928	1929	1930	1931	1932	1933	1934
	(in thousands of dollars)								
Furs (undressed and dressed)	4,459	2,450	3,199	5,238	4,252	1,096	1,690	2,272	2,315
Anthracite coal	.....	.....	.....	737	1,232	1,611	1,498	1,332	2,442
Manganese ore	5,046	5,000	3,067	5,452	2,446	1,897	522	499	903
Chrome ore	.....	.....	.....	.....	238	292	52	153	256
Iron ore	.....	.....	.....	.....	136	571	357	298	177
Asbestos	.....	.....	.....	111	661	140	.....	57	89
Sausage casings	837	1,696	2,307	2,823	3,574	600	706	956	498
Pulpwood	.....	.....	.....	101	1,580	744	481	236	71
Lumber and wood manufactures	31	357	535	872	1,605	344	324	814	482
Rags (for paper stock)	88	46	132	413	865	80	86	217	394
Flax	665	364	216	179	438	.....	43	551	451
Caviar	50	349	795	674	655	327	451	213	258
Fish (fresh, frozen or salted)	173	335	382	454	655	618	389	239	282
Crabmeat	.....	.....	.....	15	854	524	601	759	481
Licorice root	978	604	344	889	427	443	266	256	214
Bristles	692	918	988	618	1,129	468	184	23	7
Matches	.....	.....	141	353	233	.....	.....	.....	94
Mushrooms	122	93	284	161	313	246	.....	.....	.....
Candy and confec'y	.....	3	21	45	165	171	13	18	40
Wool carpets and rugs	.....	.....	107	153	31	204	219	163	109
Leather, hides and skins	331	7	.....	2	53	44	143	318	139
Animal hair	80	86	40	72	101	273	102	149	50
Raw silk	.....	.....	7	8	13	453	354	214	178
Sunflower seed oil	.....	.....	.....	.....	.....	.....	360	444	38
Manufactures of flax and hemp	1	6	66	43	131	333	114	381	572

were concluded in 1928-1930 and the majority of them have now expired. In the past few years, corresponding to the drastic decline in trade, relatively few American engineers have been engaged for work in the U.S.S.R.

Among the more important technical assistance contracts with American firms were the following: Hugh L. Cooper & Co. (Dnieper River hydroelectric station); International General Electric Co. and Radio Corporation of America (electrical industry); the Austin Co. and Ford Motor Co. (Nizhni Novgorod—now Gorky—automobile plant); Electric Auto-Lite Co. (electrical equipment for automobiles and tractors); Ogle-

bay, Norton & Co. (iron ore); Freyn Engineering Co. and Arthur G. McKee & Co. (steel industry); Stuart, James & Cooke and Allen & Garcia (coal industry); Nitrogen Engineering Corp., Du Pont de Nemours & Co. and Westvaco Chlorine Products Co., Inc. (chemical industry); Koppers Construction Co. (coke); Newport News Shipbuilding and Dry Dock Co. (turbines); Goodman Mfg. Co. (manufacture of coal cutters); Albert Kahn, Inc. (industrial construction); Curtiss-Wright Corporation (aviation industry); Sperry Gyroscope Co. (marine instruments); Archer Wheeler and Southwestern Engineering Co. (non-ferrous metals).

Shipping

In accordance with contracts concluded several years ago with the Am-Derutra Transport Corporation, regular sailings were started by vessels of the American Export Line to Black Sea ports and of the Scantic Line to Leningrad and Murmansk. In the peak year for exports (1930) the Am-Derutra chartered 95 vessels to carry American goods to the Soviet Union, of which 70 were American-owned. In the beginning of 1934 a freight service was started by Sovtorgflot (Soviet Mercantile Fleet) between the Black Sea ports and Leningrad and the eastern seaboard of the United States. The KIM, the first vessel to enter an American port flying a Soviet flag, arrived in New York harbor on April 2, 1934, having sailed from Odessa on March 10. In the subsequent months, arrivals of Soviet steamers averaged almost two a month.

Soviet Bonds

For a number of years a small number of bonds of the Soviet Government were bought by Americans through direct correspondence with the foreign department of the State Bank of the U.S.S.R. in Moscow. In the latter part of 1932 and the beginning of 1933 a small issue of Soviet bonds was mar-

keted by the Soviet American Securities Corporation of New York City. In 1933 this company offered for sale in the United States an issue of seven per cent bonds in the amount of 10,000,000 gold rubles, the first important public offering of Soviet securities in the United States. These bonds, in common with all Soviet bonds sold abroad, are written in terms of a definite quantity of gold (.774234 grams of pure gold per ruble). Both principal and interest are payable in American currency in the dollar equivalent of this fixed quantity of gold. The Chase National Bank in New York City is the paying agent. An unusual feature of the bonds is a guarantee of the State Bank of the U.S.S.R. to repurchase them at any time upon request of the holder at par and accrued interest. The bulk of this issue has already been sold.

Torgsin Orders

Orders on stores operated by Torgsin (State Company for Trade with Foreigners) in the U.S.S.R. may be transmitted through banks or other companies permitted to accept currency for transfer abroad. Among some of the banks or agencies handling these orders are: Manufacturers Trust Company, Amalgamated Bank, Am-Derutra Transport Corporation, American Express Company, Gdynia-America Line, R.C.A. Communications, Inc., etc.

The office of the general representative of Torgsin in the United States is located at 261 Fifth Avenue, New York.

Perspectives of Soviet-American Trade

Many leaders of industry, finance, and statecraft, both in the United States and in the Soviet Union, have on recent occasions expressed the opinion that the possibilities exist for a large expansion of commerce between the two countries, given favorable conditions of trade. The interest of the Soviet Union in the United States as a source of supply for imports, especially

equipment and raw and semi-manufactured materials, has been indicated in a number of official pronouncements by prominent officials. Maxim M. Litvinoff, Commissar for Foreign Affairs, in a speech in New York City on November 24, 1933, at a banquet given in his honor under the auspices of the American-Russian Chamber of Commerce, said:

"Enjoying the lowest foreign indebtedness in the world, the Soviet Union has the greatest capacity for absorbing the raw materials and products of other countries. On this question I presented data at the London Economic Conference, a study of which will show that the United States could make use of this capacity to the extent of 60 or 70 per cent."

This referred to the following statement made on June 14, 1933:

"The Soviet government as a rule draws up its import plans in strict accordance with its export possibilities and credit facilities. But the Soviet delegation could conceive of conditions, such as lengthened credits, normal conditions for Soviet exports and other favorable factors, which might induce its government to extend these plans to a degree which would have no small influence in the alleviation of the crisis. According to the calculations of the Soviet delegation, the Soviet government, given such conditions, might agree to place orders abroad in the near future to the sum of about one billion dollars. To be still more definite, the Soviet Union could in the near future absorb about 200 million dollars' worth of ferrous metals, 100 million dollars' worth of raw materials for the textile, leather and rubber industries, 400 million dollars' worth of machinery, including railway equipment to the value of 100 million, 35 million dollars' worth of agricultural goods, including breed stock, 50 million dollars' worth of consumers' goods, such as tea, cocoa, coffee, herring, 50 million dollars' worth of new ships, chiefly for industrial purposes such as fishing, seal hunting, dredging, and so on.

"The significance of these figures will be more evident if it is realized that they amount to from 25 to 66 per cent of existing world stocks in respect to such metals as aluminum, nickel, copper and lead, to 100 per cent in the case of some of the

consumers' goods mentioned, to one-third of the annual world export of machinery and 100 per cent of last year's total ship-building output.

"It should be clearly understood that the figures I have quoted would be in excess of any plan already drawn up by the Soviet government and do not apply to goods urgently required by it, and to be ordered under present conditions."

A. P. Rosengoltz, Commissar for Foreign Trade, in a speech on April 23, 1933, stated:

"One could hardly find any other country which has such great possibilities of developing its exports to the U.S.S.R. as the United States; and on its part, the United States could become a large market for the sale of Soviet products. For this, of course, the necessary prerequisites must be created."

Ambassador A. A. Troyanovsky, in a statement to the press on January, 1934, said:

"Like the United States, the U.S.S.R. is a country of great distances, of rich and multiform natural resources. Our physical problems are in many respects similar to yours. We approach our problems of developing our resources later than you, and we have availed ourselves and will continue to avail ourselves of American technical skill and of American machinery. We have found that generally speaking, of all foreign technical men, Americans are best equipped to give advice on our development projects and American type machinery is in most cases best adapted to our needs. In this respect we have the basis for a steady and profitable commercial development."

In an address before the American-Russian Chamber of Commerce in April, 1935, I. V. Boyeff, Chairman of the Board of the Amtorg Trading Corporation, stated that Soviet imports from the United States would continue to increase in 1935 but that a large development of trade, commensurate with the possibilities, could be realized only in the event of the establishment of financial credits for exports to the U.S.S.R.

In a recent memorandum prepared for its members, the American-Russian Chamber of Commerce pointed out that

there are also ample possibilities for increasing imports from the U.S.S.R. Of the principal commodities imported from the Soviet Union, the United States bought from all countries over \$1,200,000,000 worth in 1929 and \$334,000,000 in 1932. The U.S.S.R. supplied only 1.7 per cent of this total in 1929 and 2.5 per cent in 1932. Virtually all of the items are non-competitive with American industry. In addition, the memorandum points out the potential importance of a number of items not yet brought in from the U.S.S.R. (such as wood-pulp and oilseeds) and imported by the United States in large quantities, and of increasing gold shipments to this country.

Doing Business with the U.S.S.R.

The following statement, from the *Economic Review of the Soviet Union* (published by the Information Department of the Amtorg Trading Corporation) of March, 1934, gives some information regarding methods of promoting trade with the U.S.S.R.:

“Experience has shown that as regards those products which the Soviet Union is primarily interested in purchasing at the present time, that is, capital goods, there is no reason why all legitimate means should not be employed to call them to the attention of executives and technicians in the U.S.S.R. Technical publications, catalogs, etc. are read avidly by the people engaged in designing and operating industries in the Soviet Union.

“Purchases abroad are and will continue to be carried on by centralized organizations such as the Amtorg Trading Corporation. All commercial matters (prices, credit terms, etc.) in connection with business in this country are negotiated by the Amtorg. While its executives are the final authority in the placing of orders, the initial impetus arises in the factory or the importing organization in the U.S.S.R., and advertising material, technical literature, exhibits of machinery, etc., undoubtedly have an educational value in this connection. For the convenience of American firms who wish to advertise in periodicals or newspapers published in the Soviet Union, a

central office (Inreklama) has been established here for the handling of such advertising. The Amtorg also publishes in the Russian language a monthly technical periodical, *American Engineering and Industry*, as well as a biennial catalog of American products, which are widely distributed among Soviet executives and engineers. Of the last edition of the catalog, a volume of about 1,000 pages, 25,000 copies were circulated in the Soviet Union.

"Participation in machinery and equipment exhibits is another method by which American firms can familiarize industrial circles in the U.S.S.R. with their products. There are several permanent exhibits in Moscow which are visited by many thousands of technicians and managers.

"When representatives are sent to the Soviet Union it is advisable that they have sufficient technical knowledge to be able to discuss the particular equipment involved in detail. The best results are obtained by those representatives who can be helpful in furnishing technical information. For this reason the advisability of sending one man to handle the products of a number of different companies in diversified fields is highly questionable.

"Recently a number of companies have been organized which represent themselves to be in a specially advantageous position to obtain Soviet business. Such organizations serve no useful purpose, and far from helping are more likely to be a hindrance. The Amtorg is averse to doing business with any firms except those directly concerned with the manufacture of the product. This policy of working without unnecessary intermediaries is of benefit to both sides."

XIII.

DOMESTIC TRADE ¹

DURING the first Five-Year Plan there was recorded a rapid growth in domestic trade turnover and an almost complete socialization of retail trade. While private enterprise had been eliminated from wholesale trade by the outset of the first Five-Year Plan, it still accounted for one-fourth of the retail trade turnover. By 1932 state and co-operative organizations handled virtually the entire trade turnover.

A brief outline of the history of domestic trade in the U.S.S.R. will be of aid in understanding the more recent developments. Immediately after assuming power the Soviet Government took measures to establish a more satisfactory system of goods exchange between city and country. Such measures included state supervision over the distribution of goods and the organization of state monopolies for certain of the most important products. However, as early as 1918 the exigencies of the civil war, intervention and blockade rendered the normal development of trade impossible. The government set up a centralized distribution of products requisitioned by the state, trading being prohibited. This system was in force for about three years, from the middle of 1918 to March, 1921, a period known as that of "war communism."

In the spring of 1921 the so-called "New Economic Policy" (NEP) was adopted, whereby requisitions were replaced by a tax in kind and trade was stimulated between the small

¹ Under "domestic trade" is included trade only in those manufactured goods and food products which are obtained by the population through the retail trade system or public catering network (restaurants and kitchen factories) for individual consumption. It does not include distribution of means of production, raw materials, fuel, etc. among socialized enterprises.

agricultural producers and the town. In the first months this trade was limited largely to local barter of goods, but soon it developed on a larger scale with the use of money.

In the early years of the reconstruction period private merchants accounted for a large percentage of wholesale trade and predominated in retail trade, but gradually the state and co-operative trading organizations gained ground until in 1927-28 they accounted for all of wholesale trade and 75 per cent of retail trade. The share of the rural districts in the total retail trade turnover grew during the same period from 18.3 per cent in 1923-24 to 31 per cent in 1927-28, due primarily to the wide extension of the network of co-operatives in the villages.

The basis for the increases in domestic trade during the first Five-Year Plan period was provided by the increased quantity of industrial and agricultural commodities available. The output of consumers' goods recorded a gain of 87 per cent during the period; state grain collections almost doubled, going from 12 million tons in 1928-29 to 23 million tons in 1931-32; meat collections increased by nearly 60 per cent; suburban farms operated by the consumers' co-operatives and the development of collective farm trade provided additional supplies of agricultural products for the market. In 1932 the retail trade turnover of socialized trade, including the public catering service, reached a total of 40.3 billion rubles, as compared with 15.5 billion rubles in 1928.

The total volume of sales of articles of individual consumption by state and co-operative stores in 1932 exceeded that in 1928 by 98.7 per cent for the urban population and 65.7 per cent for the rural population.

The Five-Year Plan called for a 40 per cent reduction in the relative importance of private trade by 1932-33. But the process of replacing private by socialized trade developed at a

much more rapid pace than was anticipated. The number of state and co-operative trading units increased greatly during the five-year period, reaching by January 1, 1933, a total of 295,600. By January 1, 1935 the number totaled 313,000, of which 185,000 were located in rural districts. The number of persons employed in state and co-operative trade increased from 549,000 in 1926-27 to 800,000 in 1928-29 and 1,300,000 at the beginning of 1933.

Further rises in the volume of retail trade were reported in 1933 and 1934, the first two years of the second Five-Year Plan. Trade turnover in the former year amounted to 49.1 billion rubles (including the public catering services), while in 1934 the turnover rose to 60 billion rubles, an increase of 23 per cent over the previous year and of 52 per cent over 1932. Of the total turnover in 1934, the consumers' cooperatives accounted for 20.5 billion rubles, the Commissariat for Internal Trade—14.7 billion, the factory supply departments—8.5 billion, the retail trading units of the industrial commissariats—6.5 billion, and public catering establishments—6.6 billion rubles.

The data in the following table records the rate of socialization of Soviet retail trade during the past twelve years:

	SHARE IN TOTAL RETAIL TRADE TURNOVER				SHARE IN TOTAL NUMBER OF RETAIL TRADING UNITS, ACCORDING TO SECTORS	
	STATE	TOTAL		PRIVATE	TOTAL	
		CO-OPERA- TIVE	SOCIAL- IZED		IZED	PRIVATE
	<i>(in per cent)</i>			<i>(in per cent)</i>		
1922-23	14.4	10.3	24.7	75.3	5.0	95.0
1926-27	16.0	48.5	64.5	35.5	25.5	74.5
1930	17.4	76.8	94.2	5.8	77.5	22.5
1933	48.0	52.0	100.0	0.0	100.0	0.0
1934	58.0	42.0	100.0	0.0	100.0	0.0

An important development in the system of internal trade has been the increasing growth of state as compared with co-operative trade. In 1930 the co-operatives handled 77 per

cent of the total retail trade and state organizations only 17 per cent. It was considered that the virtual monopoly position enjoyed by the former led to a tendency to neglect the quality of the service and slight the needs of the consumers. The increase of state commercial trade has introduced an element of competition which is said to have had beneficial results. The turnover of the Commissariat for Internal Trade (which was formed in 1934 when the Commissariat for Supply was split up into two commissariats—one for the food industry and one for domestic trade) now exceeds that of the consumers' co-operatives. In 1934, state trade accounted for 58 per cent of the total internal trade, while the share of co-operatives was reduced to 42 per cent. At the same time, the co-operative stores remain the dominant trading organizations in the rural areas, accounting in 1934 for 58.2 per cent of the village trade turnover. The total trade turnover of the co-operatives in 1934 was 25 billion rubles, exceeding that of the previous year by 11 per cent.

The consumers' co-operatives now embrace about three-fourths of the adult population of the U.S.S.R., having risen from 24.7 million on January 1, 1929, to 73.1 million on January 1, 1933. Of the latter total the rural population accounted for 49.6 million, or over two-thirds. The share capital of the consumers' co-operatives increased from 183.3 million rubles on October 1, 1928, to 2,006.5 million rubles on January 1, 1933, 40 per cent above the Five-Year Plan schedule for the end of 1933. The co-operative trade network (stores and stands) grew from 94,200 units on January 1, 1929, to approximately 199,000 units on January 1, 1934.

In addition to their regular trade network the consumers' co-operatives operate a number of auxiliary enterprises, such as restaurants, kitchen factories, bakeries, truck gardens and dairy and small livestock farms. The progress made in the develop-

ment of certain of these auxiliary enterprises is set forth in the table below:

	1930	1932
Area under vegetables (thous. ha.)	44.7	466.8
Vegetable harvest, exclusive of potatoes (thous. tons)	145.8	1,830.2
Potato harvest (thous. tons)	112.5	700.0
Hothouse frames (thousands)	300.0	2,878.1
Vegetable and fruit preserving (thous. tons)	102.5	526.6
Number of mechanized bakeries	180	298
Output of mechanized bakeries (thous. tons)	3,512.0	6,257.0

The rapid development of the consumers' co-operatives was made possible by large capital investments, which totaled 1.1 billion rubles during the first Five-Year Plan period. Overhead trading and distributing expenses dropped from 17.1 per cent of the total turnover in 1929 to 13.4 per cent in 1932.

"Closed" Stores and Workers' Supply Departments

A special type of retail store which has been developed in the Soviet Union is the "closed" store, *i.e.*, a store closed to all but a definite clientele, such as workers of a certain industrial plant or state farm. In 1932 such stores made up over 40 per cent of the entire urban trade network of the consumers' co-operatives. They embrace particularly the workers in the basic industries and at the new large plants, and also to a considerable extent the workers engaged in transport, in the peat and fishing industries, at lumber camps and on state farms. The state trading system likewise includes in its network closed stores which serve separate enterprises or group of enterprises or special categories of workers. For example, there has been established a special network of closed stores for foreign engineers and technicians, operated by "Insnab" (Foreigners' Supply Company).²

With the aim of improving the organization of the food and commodity supply of the personnel in the basic industries, a

² The necessity for such stores having been eliminated by the increased supply and variety of commodities on the market, they were abolished in the Summer of 1935.

decree was issued in December, 1932, whereby the closed stores in 260 of the most important of the plants were turned over, together with all subsidiary enterprises, to the factory managements. This is reported to have made for efficiency, closer co-ordination between the stores and the specific needs of each plant, and greater initiative in the development of local subsidiary agricultural enterprises. The latter constitute an important supplementary source of food supply for the factory workers. Many industrial plants conduct vegetable and dairy farms and rabbit, poultry, and hog-breeding enterprises. Factories and plants of heavy industry invested in 1932 a total of 70 million rubles in subsidiary agricultural enterprises. These departments, termed "workers' supply departments", served about 16,500,000 employees in 1934.

The system of "closed" stores was regarded as necessitated by the program of intensive industrialization. The addition of millions of new workers in industry and the rapid growth of cities, at a time when the system of agriculture was undergoing a basic transformation and private trade being eliminated, made it necessary for the state to take measures to insure the distribution of the available supplies of foodstuffs and other products in such a manner as to enable every usefully employed person and his family to obtain the requisite supplies at low prices. This was accomplished through the system of rationing. At a time when open market prices were very high the card system enabled the city population to purchase the basic necessities at low fixed prices. It also enabled the state to give preferential supplies to the most important centers and to the so-called "shock workers" in industry. In 1934 about fifty million workers, employees, students, etc. and their families received supplies from such centralized sources. However, this system has involved a huge, unwieldy and expensive apparatus, and with the increasing stocks of foodstuffs and manufactured

products available for the market and the steady strengthening of commercial trade, it will be abolished in the near future. The aim is to have, as soon as it is considered feasible, a single system of trading units open to all purchasers and with a uniform scale of prices.

An important step in this direction was the decision at the end of 1934 to abolish the card system through which bread was sold in rationed quantities. State and co-operative stores now sell bread to all purchasers in unlimited quantities and at fixed prices. The good grain crops of 1933 and 1934 have been the principal factor making possible this development, which is viewed as laying the foundation for the progressive abolition of the ration system for all products in the near future.³

State Commercial Trade

Another important development in this direction has been the rapid growth of state "commercial" trade. In 1931 trade in "commercial" stores (those open to the general public and selling on a non-rationed basis, in contrast to the "closed" stores) constituted only about three per cent of the total trade turnover. By 1933, the share of such commercial trade had risen to 15 per cent and in 1934 it constituted 24 per cent of the total turnover. A large factor in this growth was the opening of thousands of commercial bread stores, in preparation for the abolition of the card system. By the end of 1934, these stores numbered more than 8,000; in addition unrestricted sale of bread is carried on by some 9,000 general food shops.

A feature of the new trends in internal trade has been the

³ At the end of September, 1935, a decree was announced abolishing, as of October 1, the rationing system for meats, fats, sugar and fish, the only important products still restricted, and the ending of the system of "closed" stores. At the same time, general price declines, ranging from 20 to 45 per cent for various items, were decreed, the new prices being in between those of the "closed" and commercial stores.

opening of many new model stores dealing in high grade merchandise. For instance, during 1934 the "Gastronom" Trust opened 120 delicatessen shops in the larger cities, each employing 25 or 30 persons. The "Bakalei" Trust recently established 70 large model grocery stores. Four large department stores have been opened, one each in Moscow, Leningrad, Kharkov and Vladivostok. The number of employees in these stores averages 4,800. In addition, there have been organized ten regional department stores, each with an average of 175-200 workers. Since the middle of 1933 thousands of other specialized stores dealing in foodstuffs and manufactured goods have been opened. The industrial co-operatives alone operated more than 7,600 stores on August 1, 1934. Both in the city and in the village there is now a lively trade in such items as high-grade woolen and silk fabrics, ready-made clothing, music instruments, sports goods, bicycles, phonographs, electrical appliances, sewing machines, radios, cameras, etc. Mos-torg (the Moscow Trading Trust) has increased the number of items sold in its stores from 1,500 to 17,000 within the past few years.

An important result of the development of state commercial trade has been the steady and considerable lowering of prices of foodstuffs and manufactured products on the open market. Commercial prices on such items as butter, milk, soap, thread, cotton, woolen cloth and shoes were officially reported as from 15 to more than 50 per cent lower in 1934 than in the previous year. In this way, one of the principal prerequisites for a transition to normal, unrationed trade, i.e., the lowering of prices and the reduction of the gap between prices on the open market and in closed stores, is being realized.

The progressive abolition of rationing and the establishment of a single system of prices is expected to lead to a corresponding strengthening of the ruble. It also is expected to result

in increasing the importance of wages, since under the ration system wage differentials are to some extent nullified by the inability of those in the higher brackets to purchase the requisite amount of goods except at the higher prices on the open market.

Collective Farm Trade

Collective farms in the vicinity of a factory constitute another source of local supply. Special agreements are entered into between the factory and the collectives whereby, in return for manufactured goods and services furnished the latter, their surplus produce is delivered to the factory store.

Collective farm trade was first set in operation in May, 1932. At that time the Government issued a number of decrees lowering the amount of grain, meat, fruit and vegetables to be delivered by the collective farms to the state and providing for the unrestricted sale of all surplus produce after the fulfillment of the new schedules and the setting aside of adequate seed funds. The main aims of the new trade were: (1) to provide the collective farmers with a supplementary source of income and thus strengthen their economic position; (2) to furnish an additional stimulus for improvement in the work on collective farms; (3) to provide another channel for goods exchange between city and country. By the end of 1932 from one-fifth to one-fourth of all collective farms had been drawn into regular participation in collective farm trade. The permanent trade network comprised approximately 20,000 booths and stands. In addition, numerous bazaars and dozens of large fairs had been held, the latter sometimes lasting for weeks and involving turnovers of millions of rubles.

While in the early period the bazaar type of trade, *i.e.*, trade directly from peasant carts, prevailed, this is gradually giving way to trade from permanent booths or stands. In addition to trade through their own trade network, the collective

farms may enter into agreements with nearby factories or co-operative stores or large markets, such as the Arbat market in Moscow, to supply them regularly with agricultural produce. In such cases the latter in their turn agree to assist the collective farm in various ways. For instance, the market may take care of the transport of the produce from the railway station to the market, provide booths, warehouse space, tools and equipment, and assist collective farms and their members to obtain manufactured consumers' goods.

This new form of internal trade has proved to be an important means of bringing a large and increasing volume of agricultural produce into the markets. The introduction in 1933 of fixed quotas to be turned over by the peasants to state procuring organizations made it possible for the peasants to bring a greater quantity of surplus produce to market, and considerably earlier in the season, than formerly. While means are being taken to assist the development of the collective farm trade, the opening of private stores and speculation are forbidden.

The consumers' co-operatives play a two-fold rôle in connection with the development of collective farm trade: first, as middlemen and distributors for certain products; second, as organizers and instructors. The co-operatives watch the collective farm market and when there is a surplus of grain, meat, or vegetables, buy the surplus supplies and store them for sale in the slack season. They sign contracts with the collective farms for the delivery of staple products, such as potatoes, carrots, cabbage, etc., and act as distributors of these goods as well as those supplied by the state. In their rôle as organizers the co-operatives assist the collectives in developing trade, in locating and equipping stores and stalls, in improving methods of trade, etc.⁴

⁴A decree issued on September 30 provided for the liquidation of the consumers' cooperative societies in the cities and the turning over of their trading facilities to state trading organizations. The cooperatives will henceforth devote themselves entirely to village trade. The decree also called for the opening of 5,000 large new village department stores and the elimination of about 22,000 small, "crossroads" general stores.

Public Catering Services

The network of public catering enterprises—such as restaurants, kitchen factories, dietetic institutes, and departments in industrial plants, lunch-rooms for school children, etc.—has recorded rapid growth during the past few years. The aim of these institutions is to serve balanced, wholesome meals at the lowest possible cost. By the end of 1932 the number of restaurants and kitchen factories in towns, operated by the Commissariat for Supplies and consumers' co-operatives,⁵ totaled 13,982 (106 kitchen factories), as compared with 1,500 (3 kitchen factories) in 1928. The number of persons served by them increased from 750,000 in 1928 to 19.8 million at the end of 1933, 8.6 times the figure set by the Five-Year Plan for 1933 (2.3 million). According to the Plan, 20 per cent of the total number of factory workers were to have been served by public catering establishments; actually over 70 per cent of all workers (miners, transport and building trades workers, as well as factory workers) and 90 per cent of the workers in the basic industries were so served by 1933. Seventy per cent of the school children receive hot lunches at school and 75 per cent of the university students obtain their meals at university lunchrooms. In 1934 the total number of public catering establishments in the U.S.S.R. rose to nearly 60,000, as compared with 55,000 on Jan. 1, 1933.

As an example of public catering at large industrial plants may be taken the "Red Putilov" factory in Leningrad. In 1932 the system of public catering at this plant was reorganized. Instead of the former buffets fifteen new, well-equipped restaurants were established. These restaurants receive semi-prepared food from a large mechanized kitchen factory near the plant. Meat is included in the menus not less than 20 times

⁵ While the bulk of the public catering enterprises are operated by these two organizations, a growing number are operated by the producers' co-operatives and the industrial commissariats.

per month. Workers in need of special diets receive three meals per day in a special dietetic restaurant, serving about 550 persons, under the direct supervision of the factory physician.

The public catering network serves not only the city workers but the workers in lumber camps, peat bogs, machine-tractor stations and on state and collective farms. In 1932 there were 12,500 communal dining rooms and restaurants for these workers (exclusive of collective farms) operated by the consumers' co-operatives, and from 85 to 90 per cent of the workers, both permanent and seasonal, were served.

The total turnover of the public catering system, in both urban and rural districts, rose from 102 million rubles in 1928 to 6,670 million rubles in 1934. The number of workers employed in the establishments operated by the Commissariat for Supply and the consumers' co-operatives amounted to 549,000 in 1933. Ten scientific-research institutes are engaged in studying the problems of public catering. Three higher and twenty-three secondary schools train engineers, chemists, managers and accountants for work in the public catering service.

Public restaurants and kitchen factories play an important role in facilitating the participation of women in productive labor. Soviet economists have estimated that the release from housekeeping burdens will increase the total number of adult urban workers by about one-third. Of these about half will be released for industry. Partly as a result of this development, the average number of wage-earners in a family of an industrial worker rose from 1.2 at the end of 1928 to 1.5 at the end of 1932, and the average wage income per family increased by 75-77 per cent.

Second Five-Year Plan

One of the objectives announced for the second Five-Year Plan is to effect a substantial rise in the standard of living.

In line with this objective there is to be a great increase in retail trade turnover—from 40.3 billion rubles in 1932 to 92.5 billion in 1937. Textile, clothing, shoes, household utensils, foodstuffs, soap and other manufactured goods of general consumption are expected to show gains ranging from 100 to 300 per cent. The share of rural trade in the total turnover is scheduled to increase from 28 to 31 per cent. It is planned to reduce retail prices 35 per cent on the average during the period. At the same time, the aim is to effect marked improvements in the efficiency of the distribution system, to introduce much new equipment, to improve the quality and assortment of merchandise. The number of retail trading units is scheduled to increase from 295,600 at the end of 1932 to 405,000 at the end of 1937.

There is also to be a considerable extension of the network of restaurants and dining rooms. In the urban centers 27 million people are to be served by these enterprises in 1937 as compared with 13 million in 1932. If kindergartens, nurseries, sanitariums, etc., are included, about 33 million people, or almost three-fourths of the urban population, will take at least one meal a day in the public feeding establishments in 1937. Prices are scheduled to be reduced 25 per cent during the five years.

The total turnover of the state and cooperative catering enterprises is to increase by 165 per cent (to 12.7 billion rubles), the number of courses prepared from 9.7 billion in 1932 to 25.15 billion in 1937. The number of dietitians and other trained specialists is to increase from 16,000 to 30,000 and a wide network of laboratories is to be set up to control and test the quality of food served as well as the hygienic and sanitary facilities maintained by the restaurants and factory kitchens.

XIV.

FINANCE

The Currency System

THE present-day Soviet currency was established as a result of the currency reform of 1924, which consolidated the partial stabilization of currency of the previous year and stopped the large issue of paper money that characterized the post-war inflation period. The amount of money in circulation on December 1, 1921 had reached the sum of 9,800 billion rubles, with a consequent depreciation in the purchasing power of the rubles to one-138,000th of the 1913 level. In 1923 the amount of paper money in circulation reached the stupendous sum of 1,994,464 billion rubles.

Prior to the currency reform, partial stabilization of the currency had been accomplished by the issue, at the end of 1922, of State Bank notes, in denominations of 1, 2, 3, 5, 10, 25 and 50 chervontzi (one chervonetz equals 10 gold rubles) with a backing of precious metals and stable foreign currency of not less than 25 per cent of the amount of the issue. The continued issuance of treasury notes during the ensuing year, having no established value and circulating side by side with the chervontzi, resulted in an abnormal situation which was only solved by the decrees of 1924.

The currency reform decrees established two types of currency, the notes of the State Bank and treasury notes (in denominations of 1, 3 and 5 rubles). The issue of treasury notes originally was limited to 50 per cent of the State Bank issue but subsequently the limit was raised to 75 and later to 100 per cent. The decrees likewise provided for the redemp-

tion of the old treasury notes at the rate of one ruble of the new issue for 50,000 of the 1923 issue, and proportionate rates for earlier issues. In addition, there are two different kinds of silver coins—those with a lower proportion of alloy (in denominations of one ruble and 50 kopeks) and those with a higher proportion of alloy (in denominations of 20, 15 and 10 kopeks)—and copper coins in 1, 2, 3 and 5—kopek denominations.

On April 1, 1935, the total currency in circulation amounted to 7,879 million rubles. Of this sum about half (3,978 million rubles) was made up of notes of the State Bank and the remainder of treasury notes (3,501 million rubles), silver and nickel coins (345 million rubles), and copper and bronze coins (56 million rubles). The gold reserve of the State Bank increased from 20,370,000 chervontzi on April 1, 1928 to 85,835,583 chervontzi on April 1, 1935 (\$747,886,000 at the present gold parity of the ruble—1 ruble = 87.13 cents). The growth in Soviet currency circulation since 1924, which accompanied the development of the country, is shown in the following table:

CURRENCY IN CIRCULATION
(in million rubles)

DATE	STATE BANK NOTES	TREASURY NOTES AND SILVER, COPPER, AND BRONZE COINS		TOTAL
October 1, 1924	346.5		280.7	627.2
October 1, 1925	652.0		490.9	1,142.9
October 1, 1926	780.6		562.5	1,343.1
October 1, 1927	989.8		638.5	1,628.3
October 1, 1928	1,063.4		907.4	1,970.8
October 1, 1929	1,428.2		1,214.0	2,642.2
October 1, 1930	2,130.3		2,133.6	4,263.9
September 1, 1931	2,362.2		2,500.7	4,862.9
September 1, 1932	3,430.3		3,062.7	6,493.0
January 1, 1934	3,432.0		3,429.0	6,861.0
January 1, 1935	3,838.4		3,895.4	7,733.8
April 1, 1935	3,978.0		3,901.4	7,879.4

Soviet currency has circulation only within the U.S.S.R., both exports and imports thereof being prohibited by law. All payments abroad are made in foreign currency.

Banking System of the U.S.S.R.

The development of the banking system of the U.S.S.R. dates from the organization of the State Bank in the latter part of 1921, soon after the introduction of the New Economic Policy. During the period 1917 to 1920, subsequent to the decree of 1917 nationalizing all banks, the latter had confined their activity solely to economic accounting or statistical work and during 1918 and 1919 had practically ceased to exist, the former State Bank having practically been merged with the Commissariat for Finance.

The introduction of the New Economic Policy, the revival of industry and trade, the introduction of private enterprise, and the consequent stabilization of the currency necessitated the establishment of banks and other credit institutions. During the ensuing period of rehabilitation the banks were largely instrumental in stabilizing the depreciated currency, in introducing economic accounting in state enterprises, in establishing needed credits for important industries and in strengthening the economic bonds between the various regions of the Soviet Union. During this period, in addition to the government and cooperative banks, there also existed a number of privately-owned mutual credit associations which furnished private enterprises with required funds and credit. From October 1, 1923 to October 1, 1925, the total number of banking institutions and branches rose from 516 to 1,201. The growth of their operations is evident from the increase in the total amount of loans made, from 586 to 2,745 million rubles, and in the amount of deposits and current accounts, from 178 to 1,214 million rubles.

The year 1926 marked a change in the activities of the banks; in the previous years almost no capital investments had been made by the state or individual enterprises and this led to a rapid growth in the amount of deposits and current accounts in the banks. Beginning with 1926, however, marking the inauguration of the reconstruction period, large sums were invested in capital construction and enterprises began to draw on their accumulated funds. During this and the subsequent years the main source of the banks' funds became the government budget. At the same time state-owned industry had gradually been becoming the dominant form of enterprise. As a result of the gradual elimination of private organizations the mutual credit associations began to disappear, their place being taken by government and cooperative institutions. The banks began to take on more and more the function of a controlling lever in the hands of the state, their operations being intimately bound up with its general economic policy.

There are at present no private banks in the Soviet Union. The state and cooperative banks play an important role in the execution of the state budget, in the accumulation and redistribution of the national income, and in the control of financial operations in state-owned enterprises.

The growth of the banking system of the U.S.S.R. during the past ten years is shown in the following table:

	BANKS AND BRANCHES IN THE U.S.S.R.				
	OCT. 1, 1923	OCT. 1, 1928	JAN. 1, 1932	JAN. 1, 1933	JAN. 1, 1934
State Bank	252	599	2,465	2,199	2,140
Joint Stock Short-term Credit Banks	50	16	3	3	—
Cooperative Short-term Credit Banks	65	87	—	—	—
Long-term Credit Bank for Industry and Elec- trification	—	7	34	96	108

	OCT. 1, 1923	OCT. 1, 1928	JAN. 1, 1932	JAN. 1, 1933	JAN. 1, 1934
Cooperative Long-term Credit Banks	—	—	3	33	26
Municipal Credit Banks	27	125	98	134	182
Agricultural Credit Banks	24	237	—	488	493
Mutual Credit Asso- ciations	53	236	—	—	—

Credit Reform Act of 1930

One of the outstanding features of the Soviet banking system is the separation of short-term and long-term credit operations, which has gradually been put into effect. The former were to a large degree concentrated in the State Bank ever since its organization, but not until the credit reform of 1930 did this bank become practically the sole source of these credits. Long-term credits were handled by the Long-Term Credit Bank for Industry and Electrification.

When the New Economic Policy was introduced in 1921 the immediate problem was the restoration of the financial system. The general state of affairs was then too chaotic to allow of the initiation of a new method, designed to cover the peculiar economic needs of a country with state ownership of industries, etc. Bills of exchange and in general the mechanisms employed in the financial systems in other countries were adopted as the general method for the circulation of commodities. This was found to be inadequate in a system where the production and the transfer of commodities are regulated by state plan and not by prices or by the credit of the purchaser. In the opinion of the planners and economists of the U.S.S.R., the Five-Year Plan could not have been carried out effectively as long as the old credit system, which had as its outstanding feature the bill of exchange, was maintained.

To meet the exigencies of the situation, the Credit Reform

Act was enacted on January 30, 1930. This act, which became operative April 1, 1930, decreed: 1) the abolition of the commercial credit system between different state enterprises and the substitution therefor of bank credit; 2) changes in the methods of financing state industry and the cooperatives; 3) the reorganization of the cooperative banks; 4) the reorganization of the agricultural banking system. The State Bank provided short-term credits not to the sellers, as was the case under the system of discounting bills, but to the buyers of goods.

The credit reform was a step in the direction of the establishment of one unified bank for the entire country. It undertook to rationalize and centralize the short-term credit facilities. It made the State Bank the accounting center of the national economy by giving it control over the finances of state-owned enterprises. It facilitated the transfer of commodities, which could now be bought and sold through a simple entry on the books of the State Bank—debiting the purchaser and crediting the account of the seller.

In practice, however, certain weaknesses or distortions of the Credit Reform Act were cited by government economists, such as, on the one hand, the granting of lump credits to various economic organizations in accordance with their financial and production programs without considering the fulfillment of this program, resulting in an actual overcrediting of some and undercrediting of other industrial enterprises; and, on the other hand, the automatic payment by the State Bank for goods shipped irrespective of the wishes of the purchaser or the condition of the goods. This sometimes resulted in negligence and irresponsibility on the part of the producer with regard to the quality, quantity and time of delivery of goods. A third weakness was the method of crediting profits to producing organizations prior to final determination of the cost of production.

It consequently was found necessary to issue supplementary decrees in the following year, correcting these weaknesses. These corrective measures did away with the mechanical manner of making settlements which hitherto had existed, emphasized the importance of the contract between seller and purchaser, and placed the granting of loans on a basis of the fulfillment of the financial and production plans and of prompt repayment. The decrees further made provision for supplying each enterprise with sufficient funds to meet all current operating expenditures, such as for raw materials, labor, etc., and established the purposes for which financing by bank credits could be arranged. These included financing of goods in transit, advance payments for seasonal work, payments for procurements of seasonal stocks of raw materials, fuel, etc., and for other temporary needs arising from the general conduct of the industry. All funds of the organization, its own as well as those derived from loans, were to be deposited to its account with the State Bank, which maintains a single current account for each enterprise or trust. These measures are reported to have increased greatly the effectiveness of economic accounting and the control of state enterprises through the medium of the banking system.

State Bank of the U.S.S.R.

The central credit institution of the U.S.S.R. and the only bank of issue is the State Bank, which was established on October 12, 1921, shortly after the introduction of the New Economic Policy. Its foundation capital, received from the government, consisted of two trillion paper rubles, equivalent to about 50 million prewar rubles. The development of the State Bank during subsequent years has been a reflection of the development of the national economy as a whole. Originally organized with a capital of depreciated currency, the bank succeeded in accumulating through its purchases and operations

a considerable reserve of gold and other precious metals, valued on January 1, 1929 at 223 million rubles, and on January 1, 1935 at more than 862 million rubles.

In the first years of its existence the chief tasks of the Bank were the establishment of a stabilized currency and the fostering of the development of state-owned industry and agriculture. During the period of civil war immediately following the establishment of the Soviet Government, the credit structure of the nation had reached a state of collapse. With organization of the State Bank, credit operations were resumed and contacts along credit lines re-established with the rest of the world.

Credits extended to various branches of the national economy by the State Bank increased from 525 million rubles on October 1, 1924 to 2.66 billion on January 1, 1929 and 10.56 billion rubles on January 1, 1934. The funds of the State Bank, which are used for financing industry, agriculture and trade, are derived mainly from the following sources: deposits of government and budget funds; emission of banknotes; the bank's own capital, reserves, and accumulated profits; deposits and accounts of industrial and trading enterprises, banks, and private individuals. Total assets of the Bank rose from 155 million rubles in 1922 to 19.5 billion rubles on May 1, 1932.

The present constitution of the State Bank is embodied in its Statutes, which were approved by the Central Executive Committee and the Council of People's Commissars on June 12, 1929. According to these Statutes, the function of the bank is "to regulate currency circulation and provide short-term credits for industry, agriculture, commerce, transport and other branches of national economy."

The bank is governed by a council (40 members) and a board of directors (seven members). The commissar for

finance is chairman of the council, which meets at least twice a year, formulates the general policy and nominates members to the board. The latter's chairman and vice-chairman are appointed by the Council of People's Commissars.

The network of branches of the State Bank has been rapidly extended in the thirteen years of its existence. On October 1, 1922, one year after its organization, it had 117 branches throughout the country; of these 89 were concentrated in the Russian Republic. By 1928 the number had reached 599 and on January 1, 1934, there were 2,140 branches distributed as follows: Russian Republic 1,564, Ukraine 232, Transcaucasia 133, White Russia 75 and Central Asia 136. In 1922 there were no branches in Transcaucasia and only three in Central Asia.

The relative importance of the State Bank in the general banking system has likewise increased. On October 1, 1922 there were in all 471 banks and branches in the U.S.S.R. of which 252 belonged to the State Bank. On January 1, 1934 the figures were respectively 2,949 and 2,140 (not including savings banks). Moreover, a number of the remaining banks work in direct contact with the State Bank, which has considerable powers of control over them.

The granting of short-term loans, which is handled solely by the State Bank, is strictly regulated by various legal limitations. As a general rule enterprises are able to finance their normal operations and growth from funds assigned them by the state budget and their own accumulated resources. Consequently, the State Bank does not extend credit to enterprises for these purposes nor to cover losses incurred from improper management or excessive cost of production. In addition to fixing the requirements which can be financed by bank credit—payment for goods in transit, seasonal needs, etc.—the law provides for strict enforcement of timely repayment of loans

by enterprises. These measures operate, on the one hand, as a control of the proper fulfillment of production and financial programs by individual organizations and, on the other, as a safeguard of the funds of the State Bank. As the depository of government funds the Bank controls the distribution of budget allotments to the various branches of national economy.

The growth of the credit operations of the State Bank during the past five years (more than 300 per cent) is indicated in the following table showing the obligations of the various state and cooperative organizations at the beginning of each year:

NET INDEBTEDNESS TO STATE BANK ON JANUARY 1

	1929	1931	1933	1934
	<i>(in millions of rubles)</i>			
TOTAL	2,656	5,658	6,631	10,564
Commissariat for Heavy Industry	535	918	427	680
Commissariat for Light Industry	607	386	464	1,160
Commissariat for Lumber Industry	143	667	361	574
Commissariat for Internal Supply and Procurements' Committee	476	990	2,761	4,017
Commissariat for Agriculture and State and Collective Farms	173	396	726	655
Agricultural Cooperatives	179	720	265	289
Transport	19	144 *	22	104
Communications	4	4 *	65 *	77
Commissariat for Foreign Trade	204	404	68 *	72
Consumers' Cooperatives and Workers' Supply Departments	233	1,238	1,634	3,056
Producers' Cooperatives	73	141	180	241

* Credit balance

The issue department of the State Bank is conducted separately from the banking division and publishes its own statements. The following is the balance sheet of the issue department for January 1, 1935, and for earlier years. All amounts are in chervontzi (10 gold rubles, equivalent to \$5.146 at the old and \$8.713 at the new parity, established after the reduction in the gold content of the dollar):

ASSETS	JAN. 1, 1929	JAN. 1, 1931	OCT. 1, 1933	JAN. 1, 1935
Gold in coin and bars	17,855,890	48,364,314	80,848,238	85,434,107
Other precious metals	4,436,262	2,225,848	1,360,308	841,442
Foreign banknotes	7,845,561	5,207,154	3,325,388	2,950,376
Drafts in foreign currencies	275,815	302,361	323,180	434,456
Collateral for short-term loans	82,586,472	155,900,323	277,642,886	294,839,619
	<u>113,000,000</u>	<u>212,000,000</u>	<u>363,500,000</u>	<u>384,500,000</u>
LIABILITIES				
Banknotes transferred to State Bank	112,256,151	210,040,942	338,743,831	383,836,210
Balance against which notes may still be issued	743,849	1,959,058	24,756,169	663,790
	<u>113,000,000</u>	<u>212,000,000</u>	<u>363,500,000</u>	<u>384,500,000</u>
TOTAL	113,000,000	212,000,000	363,500,000	384,500,000

The following table shows the issue of banknotes during the period 1925-1935 and the amount of firm cover (precious metals and stable foreign currency):

DATE	BANKNOTES TRANSFERRED TO STATE BANK	FIRM COVER	RATIO (in per cent)
	(in million rubles)		
Jan. 1, 1925	596.0	253.6	42.6
Jan. 1, 1927	885.2	255.4	28.9
Jan. 1, 1929	1,122.6	304.1	27.1
Jan. 1, 1931	2,100.4	561.0	26.7
July 1, 1932	2,925.5	733.8	25.1
Oct. 1, 1933	3,387.4	858.6	25.3
Jan. 1, 1934	3,432.5	862.0	25.1
July 1, 1934	3,421.6	862.3	25.2
Jan. 1, 1935	3,838.4	896.6	23.4
Apr. 1, 1935	3,978.0	904.8	22.7

The State Bank occupies an important place in financing the foreign trade operations of the U.S.S.R. In 1929, out of a total sum of credits granted for foreign trade operations of 623 million rubles, 523 million or 84 per cent were loaned by the State Bank. Payments by and to Soviet organizations for such operations are made through the State Bank, the payments abroad being effected through its correspondents in various parts of the world.

Long-Term Credit Banks

While the State Bank occupies the predominant place in the Soviet banking system and is the only bank of issue and short-term credit, the long-term credit banks likewise perform a most important function, the financing of capital construction. Capital investments in state enterprises have shown a steady increase, going from 4.1 billion rubles in 1928 to 18.4 billion in 1933. With the aim of instituting stricter control in the system of financing capital construction, a decree was promulgated on May 5, 1932, reorganizing the system of long-term credit banks. This decree provides for the concentration of all long-term credit operations in four banks, each of which finances capital investments in a definite section of the national economy. The granting of credits is based on the actual execution of plans.

The special banks operate not only with their own and budget funds but with funds of the enterprises themselves and special sums assigned for financing expansion of plant. Government enterprises are required to set aside 12.5 per cent of their annual profits for this purpose.

The first of these banks, the Prombank (Industrial Bank), is devoted to financing capital construction in all state undertakings of national and local importance controlled by the Commissariats for Heavy Industry, Light Industry, Lumber, Food Industry, Internal Trade and Foreign Trade, and by the Procurements' Committee of the Council of Labor and Defense. The second, the Selkhozbank (Agricultural Bank), finances all capital investments in socialized agriculture. The third, the Vsekobank (All-Union Cooperative Bank), finances capital construction by cooperative organizations, except the housing cooperatives. The fourth, the Tsekombank (Central Bank for Public Utilities), finances municipal public utilities, the construction of dwellings and the building of new cities.

With the exception of the Vsekobank, these banks carry on financing through non-repayable subsidies and long-term credits. The cooperative organizations receive funds only through long-term loans.

The Prombank, the full name of which is the "Long-Term Credit Bank for Industry and Electrification," has been in operation since 1928. Loans from the bank's own funds are extended at a definite rate of interest and are repayable. Credits from other sources (from the budget, etc.) are non-interest-bearing and non-repayable. Nevertheless, in respect to these latter credits the bank exercises considerable financial control, *i. e.*, sees to it that the credits granted are invested in capital works in accordance with the duly approved plan and with the maximum efficiency.

The bulk of the financing of capital construction in industry and electrification is by non-repayable credits, the greatest share of which is supplied by the state budget. However, industrial enterprises are obliged to pay into the bank a certain share of their profits, and as the many newly constructed plants and power stations begin operation, the share supplied from the profits of enterprises will increase.

The number of branches of the Prombank totaled 108 on January 1, 1934 as compared with 96 a year previously, 34 on January 1, 1932 and seven on October 1, 1928. With the aim of maintaining close contact with the actual construction projects these branches were opened in districts where a large amount of building work was in process. The exercise of control at the place of construction and the institution by the bank of strict accounting between the construction works and the supplying organizations are reported to have had a favorable effect in encouraging economy. The total capital construction financed by the bank increased from 921 million rubles in 1928-29 to 9,179 million rubles in 1933. The distribution

and growth of the credit operations of the Prombank for the period 1928-1933 are shown in the following table:

FINANCING OF CAPITAL CONSTRUCTION THROUGH PROMBANK

	1928-29	1931	1933
	<i>(in millions of rubles)</i>		
Commissariat for Heavy Industry	714.6	4,522.6	5,486.2
a) Coal	116.6	381.2	470.6
b) Oil	75.1	395.0	509.6
c) Peat	0.3	104.1	92.8
d) Ferrous metallurgy	190.7	1,169.9	1,817.8
e) Non-ferrous metallurgy	75.9	297.3	529.5
f) Machine-building	94.7	1,055.3	923.4
Electrification	152.6	622.2	612.6
Commissariat for Light Industry	18.4	106.9	316.4
a) Textile industry	16.9	69.5	202.9
Lumber Industry	31.4	359.4	299.9
Commissariats for Internal Supply and Foreign Trade	3.9	565.9	598.6
Commissariats for Railways and Water Transport	—	—	1,298.1
Miscellaneous	—	367.0	567.5
	<hr/>	<hr/>	<hr/>
Total	920.9	6,544.0	9,179.3

The consolidation of municipal banks by the decree of 1932 together with the growth in housing and other municipal construction resulted in a considerable increase in the operations of the Tsekombank (Public Utilities Bank). In 1933 financing of such construction by the bank reached the sum of 1,875 million rubles as compared with 235 million in 1928-29. The number of branches increased from 98 on January 1, 1932 to 182 two years later. The growth and distribution of the financing operations of Tsekombank are shown below:

FINANCING OF CAPITAL CONSTRUCTION BY TSEKOMBANK

	1928-29	1931	1932	1933
	<i>(in millions of rubles)</i>			
I. Industry	95.7	673.3	1,083.4	1,037.8
a) Heavy industry	62.6	547.2	803.1	818.0
b) Light industry	9.9	12.1	35.2	85.5
c) Lumber industry	4.2	18.5	30.9	54.5

	1928-29	1931	1932	1933
	——(in millions of rubles)——			
d) Commissariat for Internal Supply	—	21.3	40.0	43.4
e) Commissariat for Foreign Trade	—	9.9	32.4	13.8
f) Electric power	7.8	18.8	28.2	22.6
g) Miscellaneous	11.2	45.5	113.6	—
II. Transport and Communication	28.6	64.8	103.6	150.9
a) Commissariat for Railways	24.7	43.4	66.3	62.4
b) Commissariat for Water Transportation	3.8	18.1	21.6	28.4
c) Other	0.1	3.3	15.7	60.1
III. Executive Committees of Soviets	43.5	59.4	90.5	177.1
IV. Miscellaneous	67.4	218.5	297.9	509.3
	<hr/>	<hr/>	<hr/>	<hr/>
Total	235.2	1,016.0	1,575.4	1,875.1

The Vsekobank (Cooperative Bank), while a part of the banking system of the Commissariat for Finance, is governed by a board elected by its shareholders, the cooperative organizations. The scope of its work was greatly enlarged by a decree of May 5, 1932 increasing the number of its branches and enabling it to perform independently certain functions formerly carried out through the State Bank. By January 1, 1934 the Vsekobank had 26 branches, as against 3 on January 1, 1932.

The Selkhozbank, formerly the Socialist Land Bank, finances capital investments and new construction by state farms, machine-tractor stations and collectives. The short-term credit operations of the agricultural mutual aid societies have been taken over by the State Bank and its branches while long-term financing operations are now concentrated mainly in the Selkhozbank. Credits are granted to a collective farm only if the latter also invests its own funds in the undertaking. The interest rate on long-term loans is four per cent annually. The "indivisible funds" of the collective farms, formed of membership dues, proceeds from sales, insurance payments, etc., is

kept on deposit in the Agricultural Bank and draws interest of eight per cent. On January 1, 1934 the number of branches of the Selkhozbank totaled 493 as compared with 237 in 1928. During the period 1931-1934, the Selkhozbank issued credits of 1,168 million rubles to collective farms, assigning these funds for the development of stock breeding, the acquisition of draft animals, agricultural machines, fertilizers, etc. A decree promulgated at the end of 1934 cancelled all indebtedness of the collective farms to the Agricultural Bank incurred up to 1933. This measure, which was aimed at strengthening the economic position of the collective farms and assisting in their future development, involved the cancellation of debts amounting to 435 million rubles (including loans of 415 million and interest of 20 million).

Although the State Bank finances the bulk of the foreign trade operations of the U.S.S.R., the export of such raw materials as timber and petroleum, grain and dairy products, as well as industrial products is financed in part by the Vneshtorgbank (Bank for Foreign Trade). The Vneshtorgbank is the successor of the Russkombank (Russian Commercial Bank) organized during the period of the New Economic Policy with the assistance of Swedish capital. It fosters the establishment of Soviet banks abroad, such as the Moscow Narodny Bank, Ltd., in England, etc.

Savings Banks

The chief function of the government savings banks in the U.S.S.R. is to mobilize the resources of small depositors, both individuals and organizations (trade unions, cooperatives, etc.), for the financing of the state-owned economy. Their growth during the past years has been an indicator of the increase in national and individual income. On January 1, 1935, the number of depositors in Soviet savings banks totaled over 20

million and the amount of their deposits 1,636 million rubles, as compared with 3,788,400 depositors and deposits of 336 million rubles on October 1, 1928—a fivefold growth in both depositors and sums deposited. During the same period the number of branches increased from 16,438 to 57,556.

Savings banks are under the supervision of the Commissariat for Finance. Branches are attached to local finance departments, agencies of the State Bank, post, telegraph and railway offices, factories, village libraries, etc. Depositors in the banks are paid interest—eight per cent on demand accounts and nine per cent on time accounts for individual clients. Interest on the deposits of institutions and enterprises is limited to six per cent on demand and seven per cent on time accounts.

There are also non-interest-bearing deposits on which depositors have the opportunity to win prizes drawn by lottery. Aside from handling deposits, the savings banks perform a number of other services, such as collecting payment for rent, electricity, gas and other public utilities, selling state bonds and paying out interest and prizes thereon, etc.

A large part of the deposits is invested in government bonds. From 1925 to January 1, 1933 the amount of state bonds held by the savings banks increased from 26.5 to 892 million rubles. During the year 1932 alone the amount of such bonds held by the banks increased by nearly 300 million rubles.

The greatest period of growth of the savings banks was during the first Five-Year Plan (1928-1932) when the number of depositors increased more than sixfold and the amount of deposits more than fourfold. At the same time, the relative importance of the different groups of depositors changed. On October 1, 1928 the employees (technical and administrative personnel) were the leading group, making up 37 per cent of the total number; manual workers were second with 22.5 per cent and peasants third with 12 per cent. By

1933, the largest group of depositors were manual workers, who constituted 32 per cent of the total; peasants were second with 27 per cent and staff employees third with 24 per cent. Deposits of staff employees, however, made up 27 per cent of the total as against 21 per cent for manual workers and eight per cent for peasants. The remainder was accounted for by institutions, organizations and enterprises.

The growth and distribution of savings banks deposits and the number of depositors is given below:

DATE		TOTAL FOR U.S.S.R	TOTAL FOR CITIES	TOTAL FOR VILLAGES
Oct. 1, 1924	No. of branches	4,544	—	—
	No. of depositors (thous.)	537	—	—
	Deposits (million rubles)	11	—	—
Oct. 1, 1926	No. of branches	14,526	—	—
	No. of depositors (thous.)	1,315	—	—
	Deposits (million rubles)	90	—	—
Oct. 1, 1928	No. of branches	16,438	6,919	9,519
	No. of depositors (thous.)	3,788	2,699	1,089
	Deposits (million rubles)	336	246	90
Oct. 1, 1930	No. of branches	28,054	11,710	16,344
	No. of depositors (thous.)	12,902	8,184	4,718
	Deposits (million rubles)	754	543	211
Jan. 1, 1932	No. of branches	58,217	17,407	40,810
	No. of depositors (thous.)	23,377	13,290	10,087
	Deposits (million rubles)	1,174	768	406
Jan. 1, 1934	No. of branches	47,218	14,183	33,035
	No. of depositors (thous.)	19,938	10,962	8,976
	Deposits (million rubles)	1,529	1,077	452

Of the total number of depositors on January 1, 1934, 19,200,600 comprised individuals and 737,700 "juridical entities," *i. e.*, enterprises and organizations. The individual depositors accounted for deposits to the amount of 1,181.8 million rubles and the institutions and enterprises—347.3 million rubles. Savings banks deposits of the latter group have shown a decline in recent years (they amounted to 444 million rubles on January 1, 1932), owing to the tendency of these

organizations, as they increase in size, to go over to the commercial banking system.

Financing of National Economy

In the U.S.S.R. all income and accumulation of state enterprises (industrial, agricultural, trade, transportation, etc.), as well as taxes, loans, etc., enter into the state financial plan and are redistributed by the government among the various branches of the national economy. During the period of the first Five-Year Plan (from October 1, 1928 to January 1, 1933) a total of 120 billion rubles was mobilized and redistributed through the state financial system. Of the total sum, 60 billion rubles, or 50 per cent, constituted capital investments in industry, agriculture, etc.; 87.5 per cent of the latter sum was invested in state and cooperative enterprises.

The major portion of these funds was accumulated and distributed through the unified state budget, which combines the federal budget of the U.S.S.R. and the government budgets of the seven constituent republics but does not include the local budgets of the various autonomous republics and areas. During the four and a quarter years of the first Five-Year Plan the income of the unified state budget amounted to 72.8 billion rubles, 60 per cent of the total income of the national economy. Budget expenditures amounted to 72 billion rubles for the period, as compared with an estimate of 45 billion in the Five-Year Plan. The state and local budgets together (total budget) grew from 12.4 billion rubles in the fiscal year 1929-30 to 53.7 billion in 1934, that is, $4\frac{1}{2}$ times.

The role of the state budget in the financial system of the U.S.S.R. is defined by G. F. Grinko, People's Commissar for Finance, as "that guiding idea of financial economy which determines the basic line of financial policy and administration for the year not only with respect to the budget but for all

enterprises operating on a commercial basis. The state budget is inseparable from the economic program as a whole, but is not at all a passive result or balance of the quantitative and qualitative fulfillment of the program. On the contrary, the budget is a powerful factor in the struggle for the fulfillment of this economic program. Just as the income side of our budget is a reflection of the national economic plan, the growth of national income, development of trade, money income of the population, accumulation by industry, agriculture, etc., so is the expense side devoted entirely to the problem of further capital investment, the mastery of the newly created basic capital and the carrying out of broad social and cultural measures.”

During the period from 1931 to 1934 the state and local budgets assigned 144 billion rubles for financing of national economy, culture, administration and defense; in addition to this, the outstanding credits of the State Bank increased by 8.1 billion rubles. The expenditures of 144 billion rubles were distributed as follows:

YEAR	TOTAL EXPENDITURES	FINANCING OF NATIONAL ECONOMY	<i>Including:</i>		
			EXPENDITURES ON SOCIAL AND CULTURAL MEASURES	EXPENDITURES ON STATE LOANS	PEOPLE'S COMMISSARIAT FOR DEFENSE
			<i>(in million rubles)</i>		
1931	22,087	15,177	3,518	408	1,288
1932	32,941	23,301	4,768	462	1,296
1933	38,325	25,159	6,123	1,273	1,421
1934	50,663	29,710	8,499	1,876	5,000
Total for four years	144,016	93,347	22,908	4,519	9,005

The distribution of the 93.3 billion rubles assigned for financing national economy was as follows: industry and state trade received 58.4 billion rubles, agriculture 17.4 billion rubles, transport and communications 10.9 billion rubles. Dur-

ing the period, 57.5 billion rubles, of which the All-Union budget alone furnished 46.7 billion rubles, from all sources (including the accumulations of industry) were invested in the development of state industry.

The total extent of investments from all sources in the reconstruction of transport and communications amounted to 18.5 billion rubles during the four years, of which 12.2 billion rubles were invested in railway transport. The appropriations for housing and municipal construction totaled 8.7 billion rubles. During the period 44.1 billion rubles, of which half (22.1 billion rubles) was assigned from the state and local budgets, were invested in social development, including education, health service and social insurance.

The combined budget revenues of the seven constituent republics increased from 1,096 million rubles in 1925-26 to 4,113 million in 1932 and 4,964 million in 1933 (about 12 per cent of the unified state budget). Of the latter sum, the R.S.F.S.R. accounted for 54 per cent and the Ukraine 21 per cent. Local budget income increased from 1,275 million rubles in 1925-26 to 6,065 in 1932 and 6,979 in 1933 (69 per cent of which fell to the share of the R.S.F.S.R. and 18 per cent to the Ukraine).

As a result of an important administrative reform, involving redistricting, the abolition of regions, the creation of districts and the establishment of independent village budgets, there has taken place a considerable growth in district and village budgets. District budgets increased from 700 million rubles in 1929-30 to 1.8 billion in 1934. Rural budgets increased from 260 million to 1.9 billion rubles.

Preliminary estimates of the fulfillment of the unified government budget for 1934 place the income at 49,762 million rubles, and expenditures at 46,948 million rubles, leaving a surplus of 2,814 million rubles. These figures represent a

considerable increase over 1933, when budget revenues totaled 40.15 billion and expenditures, 35.67 billion rubles, and a ninefold increase over 1927-28 (with revenues of 5.21 billion and expenditures of 5.06 billion rubles). The growth of the unified state budget during the period 1928-29 to 1934 is shown in the following tables:

UNIFIED STATE BUDGET OF THE U.S.S.R.

A. REVENUE

	1928-29	1932	1933	1934 (<i>budget estimate</i>)
	———(in millions of rubles)———			
I. Revenue from socialized economy	5,236.5	25,404.7	32,616.4	41,125.2
1. Turnover tax	3,146.1	17,693.3	23,166.5	29,227.8
2. Special commodity fund	—	1,901.8	3,893.7	6,300.0
3. Agricultural tax on collective farms	9.9	121.5	222.6	319.9
4. Deductions from profits	535.0	1,409.6	1,164.7	1,521.0
a) heavy industry	157.8	388.3	342.5	375.9
b) light industry	156.2	163.3	122.2	87.6
c) food industry and trade	88.3	229.6	353.8	515.7
5. Transportation.	1,149.9	2,511.9	2,484.3	2,642.7
a) railway	1,115.0	2,479.2	2,437.0	2,633.5
6. Communications	56.2	324.3	284.4	278.9
7. Internal loans in socialized economy	277.8	1,128.4	1,042.0	445.0
8. Other	61.6	313.9	358.2	389.9
II. Revenue from population	969.6	4,572.4	5,950.1	6,526.0
1. Organized accumulation	447.0	2,793.3	3,365.5	3,880.0
a) mass loans	270.2	2,370.5	3,176.3	3,580.0
b) bonds purchased by savings banks	176.8	364.0	169.5	300.0
2. Taxation	522.6	1,779.1	2,584.6	2,646.0
a) tax for housing and cultural work	—	941.6	1,369.4	1,515.0
b) agricultural tax	439.5	337.5	547.6	600.0
c) personal income tax	83.1	114.4	195.9	207.0
III. Other revenue	448.0	596.4	1,586.6	1,228.2
TOTAL REVENUE	6,654.1	30,573.5	40,153.1	48,879.4

B. EXPENDITURES

	1928-29	1932	1933	1934 (budget estimate)
	——(in millions of rubles)——			
I. Financing of national economy	3,436.5	23,161.3	25,113.9	33,383.4
1. Industry and trade	1,409.4	15,357.2	16,122.3	14,755.0
a) heavy industry and elec- trification	888.6	10,435.3	10,517.1	11,360.9
b) light industry	28.9	393.4	758.7	1,157.8
c) lumber industry	157.9	1,033.8	968.8	957.5
2. Trade and food industry	257.6	2,780.3	3,073.3	4,557.5
3. Agriculture	540.4	3,723.5	3,917.1	5,890.0
4. Transportation	1,282.7	3,654.2	3,377.2	5,521.9
a) railway	1,025.5	2,661.9	2,301.5	3,736.0
b) water	180.9	465.1	543.8	913.1
c) road construction and motor transport	74.0	362.2	347.0	562.2
d) civil aviation	2.3	165.2	143.8	225.3
5. Communications	46.6	219.8	184.8	301.5
6. Municipal economy and housing	67.5	95.7	88.2	203.0
7. Other	89.9	110.9	1,424.3	2,159.4
II. Social and cultural measures	416.1	1,718.7	2,334.5	3,018.9
1. Education	343.7	1,524.2	2,060.9	2,668.7
2. Health protection and phy- sical culture	37.5	116.0	177.1	237.7
III. Administration and defense	1,256.0	2,018.3	2,433.1	2,873.3
IV. Service on state loans	317.5	961.8	1,273.0	1,702.1
V. Funds transferred to local budgets	1,045.6	1,724.9	2,562.2	3,698.0
VI. Other expenditures	198.7	698.0	1,949.9	2,632.7
TOTAL EXPENDITURES	6,670.4	30,283.0	35,666.6	47,308.4

The 1935 budget shows further increases: revenues for the year are set at 65.9 billion rubles and expenditures at 65.4 billion, leaving a total of 500,000,000 rubles to be added to the state reserve fund. Revenues are estimated to increase by 32.4 per cent and expenditures by 39.3 per cent. The following tables show the structure of budgetary receipts and outlays in 1935 as compared with the preliminary figures of the fulfillment of the 1934 budget:

A. REVENUE

ITEM OF REVENUE	1934	1935 (Plan)	INCREASE
	(Estimated fulfillment) (millions of rubles)		OF 1935 OVER 1934 (per cent)
I. Revenue from socialized economy	43,097.7	57,090.3	+32.5
a) Turnover tax	37,615.0	52,025.7	+38.3
Including commercial trade	8,361.8	5,450.0	34.8
b) Deductions from profits	2,283.9	1,723.7	-24.5
c) Contribution from social insurance fund for health protection and payment of stipends	1,321.3	1,758.4	+33.1
II. Revenue from general population	5,922.6	5,732.8	-3.2
Including: agricultural tax	561.1	737.8	+31.5
Mass Loans	3,320.0	3,550.0	+6.9
III. Other revenues	741.8	777.5	+4.8
	<hr/>	<hr/>	
	49,762.1	63,600.6	+27.8
IV. Revaluation of seasonal balance of raw materials and goods on hand on Jan. 1, 1935	—	2,300.0	—
	<hr/>	<hr/>	
TOTAL	49,762.1	65,900.6	+32.4

B. EXPENDITURE

ITEM OF EXPENDITURE	1934	1935 (Plan)	INCREASE
	(Estimated fulfillment) (millions of rubles)		OF 1935 OVER 1934 (per cent)
National Economy	27,952.1	35,156.9	25.8
Social-cultural measures	3,214.8	4,804.3	49.4
People's Commissariat for Defense	5,000.0	6,500.0	30.0
People's Commissariat for Home Affairs Administration	1,048.2	1,652.5	57.7
	688.2	886.2	28.0
Funds transferred to the budget of the A.S.S.R. and local budgets	4,882.7	8,977.3	83.9
Other expenditures	4,161.9	5,123.4	23.1
Including: Expenses on state loans	1,792.7	1,815.0	1.2
Reserve funds of council of People's Commissars	1,764.5	1,962.5	11.2
	<hr/>	<hr/>	
TOTAL	46,947.9	63,100.6	39.3
Increase of State Bank's credit resources due to revaluation of goods	—	2,300.0	—
	<hr/>	<hr/>	
TOTAL	46,947.9	65,400.6	39.3

By far the largest portion of the state revenue is obtained from state and co-operative enterprises. In 1934 this amounted to 43.1 billion rubles, making up about 87 per cent of the total as compared with 81 per cent in 1933 and 79 per cent in 1928-29. In 1935 state industries, agriculture and trade were scheduled to furnish almost 90 per cent of the budget income. About three-quarters of the revenue from this source comes from the tax on business turnover, which yielded 23 billion rubles in 1933 and almost 38 billion in 1934, making up 58 per cent of the total revenue in the former and 76 per cent in the latter year. In 1935 the proportion was expected to rise to 82 per cent. On the other hand, the relative importance of deductions from profits of state enterprises in the budget has declined in the past few years, as well as the percentage of profits deducted by the government. Thus, while deductions from profits in 1934 were estimated at 2.3 billion rubles, a fourfold increase over 1928-29, this sum constituted only five per cent of the total revenue as against eight per cent in 1928-29 and twelve per cent in 1929-30. In the 1935 budget this item was further reduced, and makes up only 2.6 per cent of the total. A portion of the profits formerly taken by the government is now left at the disposal of the enterprises, thus providing a further stimulus for increasing productivity and lowering costs.

All profits of industry form part of the unified financial plan of the U.S.S.R. and are distributed according to this plan. A definite percentage is assigned to the unified budget (or local budget if the enterprise is local in character), another portion is set aside for purposes of vocational and technical education, part is paid by the producing organization into the fund for improving living conditions of its employees, and the remainder is assigned to the enterprise itself for capital expansion and investment.

Profits of Soviet national economy have shown considerable

increase during the past years; they amounted to 7.6 billion rubles in 1934 as compared with 6.6 billion in 1932. During the period of the second Five-Year Plan they are planned to total nearly 80 billion rubles, a fourfold increase over the first Five-Year Plan period. During the period 1932-1937 financing of all phases of national economy is planned to total over 400 billion rubles. Profits will thus provide about 20 per cent of the total funds necessary for the fulfillment of this program. Profits of U.S.S.R. enterprises are figured only after an allowance is made for depreciation of capital. Since prices are regulated by the government, the individual enterprise can increase its profits only by lowering the cost of production through increased efficiency of operation.

Revenue derived from the general population amounted to 5,994 million rubles in 1933 and 5,923 million rubles in 1934, constituting 15 per cent of the total income of the state budget in the former and 12 per cent in the latter year. The 1935 budget shows a further decline in receipts from this source, both absolutely and relatively, since the estimated total of 5.8 billion rubles makes up only nine per cent of the total receipts. Whereas the total budget revenue derived from the general population increased almost sixfold in the past five years (from 970 million rubles in 1928-29 to 5,923 million in 1934), income from mass loans rose from 270 million rubles to 3,320 million rubles during this period, a twelvefold increase. Income from direct taxation of the population rose from 523 million rubles in 1928-29 to 2.6 billion rubles in 1933, an increase due to the growth of national income. For instance, the total wage fund for workers and employees in national economy rose from 8.16 billion rubles in 1928 to 34.50 billion in 1933, a fourfold increase.

Revenue from agricultural taxes was estimated at 919 million rubles in 1934 as against 770 in 1933 and 449 million

in 1928-29. Although doubling in absolute amount in the last five years, its relative weight in the budget has decreased considerably, from nearly seven to less than two per cent of the total. The 1935 budget set the total contribution of the rural population at six per cent less than in 1934.

The following table shows the proportion of revenues and expenditures made up by the principal items in the unified state budget:

	1928-29	1932	1933	1934
	<i>(in per cent of total)</i>			
A. Revenue	100.0	100.0	100.0	100.0
1. Revenue from socialized economy	78.7	83.1	81.2	84.1
a) Turnover tax	47.3	57.9	57.7	59.7
b) Special commodity fund	—	6.2	9.6	12.9
c) Deductions from profits	8.0	4.6	2.9	3.1
d) Income of railways	16.8	8.1	6.1	5.4
e) Loans to socialized economy	4.2	3.7	2.6	0.9
f) Other	2.4	2.6	2.3	2.1
2. Revenue from general population	14.6	15.0	14.8	13.4
a) Mass loans	4.1	7.8	7.9	7.3
b) Taxation	7.7	5.8	6.4	5.4
c) Other	2.8	1.4	0.5	0.6
3. Other revenues	6.7	1.9	4.0	2.5
B. Expenditures	100.0	100.0	100.0	100.0
1. Financing of national economy	51.5	76.5	70.4	70.5
a) Heavy industry and electrification	13.3	34.5	29.5	24.0
b) Light industry	0.4	1.3	2.1	2.4
c) Lumber industry	2.4	3.4	2.7	2.0
d) Trade and food industry	3.9	8.7	8.6	9.6
e) Agriculture	8.1	12.3	11.0	12.4
f) Transport	19.2	12.1	9.5	11.7
g) Other	4.2	4.2	7.0	8.4
2. Social-cultural measures	6.2	5.6	6.5	6.4
3. Administration and defense	18.8	6.7	6.8	6.1
4. Service on loans	4.8	3.2	3.6	3.6
5. Funds transferred to local budgets	15.7	5.7	7.2	7.8
6. Other expenditures	3.0	2.3	5.5	5.6

Personal income taxes, which in 1928-29 amounted to 83 million rubles, were set at 207 million in 1934. In the former

year they constituted a little more than one per cent of the revenues and in 1934 less than one-half of one per cent.

The major part of government budget expenditures goes for the financing of national economy. In 1934, 28 billion rubles was so expended as compared with 3.4 billion in 1928-29. In that year it made up 51.5 of total budget outlays and in 1934—60 per cent. For 1935 the share of total expenditures was set at 54 per cent. Of the disbursements for financing the national economy in 1933, heavy industry and electrification absorbed 42 per cent, trade and the food industry 12 per cent, agriculture 16 per cent and transportation 13 per cent.

With the exception of the sums allotted by the unified state budget to the local budgets, the second largest item of expenditures is the financing of social and cultural measures. In 1933 the sums expended for this purpose totaled 2.3 billion rubles and in 1934 3.2 billion rubles, including over 2.5 billion rubles for education. For 1935 an increase of 49.4 per cent is provided, bringing this item to 4.8 billion rubles. It should be noted, however, that by far the larger portion of expenditures for social and cultural development comes from other agencies than the state budget, such as the social insurance funds, local budgets, trade unions, etc. Thus, in 1932, out of 9.4 billion rubles spent for these purposes expenditures of the unified budget amounted to 1.7 billion rubles, or 18 per cent of the total. This group of outlays has made up from six to seven per cent of the budget in the past few years.

Outlays for administration and defense totaled 2.4 billion rubles in 1933 (somewhat less than seven per cent of total expenditures as compared with 18.8 per cent in 1928-29). The amount spent on national defense came to 1.5 billion rubles, or 4.2 per cent of total budget expenditures. In 1934 it was considered necessary to increase expenditures for defense to a total of five billion rubles and in 1935 the allot-

ment was set at 6.5 billion, ten per cent of the entire budget outlays.

Funds transferred to local budgets by the unified government budget have increased considerably in the past few years. In 1928-29 these totaled about one billion rubles, and in 1934 they were scheduled to reach 3.7 billion. Their relative weight in budget expenditures has dropped, however, from 15 per cent in 1928-1929 to less than eight per cent in 1934.

State Loans

State loans have played an important part in the financing of national economy. In 1928-29 proceeds from bonds sold to the general population and organizations and enterprises constituted 10.9 per cent of the revenue of the unified state budget and in 1931—16 per cent; in 1934 they were estimated to net 8.8 per cent of the total. Gross returns from this source increased from 725 million rubles in 1928-29 to 4.4 billion rubles in 1933 (eleven per cent of all revenues). However, service on loans in the latter year (payment of interest and redemption of bonds) amounted to 1.3 billion rubles, leaving net receipts from loans of 3.1 billion rubles.

The total government internal debt on January 1, 1934 amounted to 14,369.2 million rubles, as compared with 6,221 million rubles on January 1, 1932 and 1,395 million on October 1, 1928. About sixty per cent of the state debt consists of bonds held by the general population; on January 1, 1934 this sum amounted to 8.7 billion rubles. The balance of the debt is made up of bonds held by state and cooperative organizations and enterprises as investments. Of the total amount of bonds held by the general population on January 1, 1934, workers and employees accounted for 70 per cent as compared with 65 per cent on October 1, 1930. The share of the peasantry rose from 19 to 24 per cent during this period.

Since the completion of the currency reform in 1925, state loans of the U.S.S.R. have been used exclusively for financing the economic development of the country, and not for current expenses of the government. The usual type of loan, which is intended for mass circulation, is one in which part of the bonds are interest-bearing while the others entitle the holders to an opportunity to win prizes drawn by lot at specified intervals. The relation between the amounts allocated for interest payments and for prizes varies in different loans. Some of the past bond issues (for instance, the lottery loans of 1926 and 1929) did not pay any interest, all the payments to the holders being made in the form of prizes. In any event the principal is paid in full. The state loans are issued for various periods, but their duration usually does not exceed 10 years.

The growth of the state debt during the past ten years, and its distribution among the various sections of the population are given in the following table:

GOVERNMENT DEBT¹ (*in millions of rubles*)
POPULATION

	SOCIALIZED SECTOR	WORKERS AND EMPLOYEES	PEASANTS	OTHERS	TOTAL
Oct. 1, 1925	245.6	26.3	22.7	72.6	367.2
" 1928	957.2	152.2	108.4	150.4	1,368.2
" 1930	1,217.5	840.5	241.3	205.5	2,504.8
Jan. 1, 1931	1,338.3	991.0	302.3	206.5	2,838.1
" 1932	2,895.3	2,056.4	780.0	281.1	6,012.8
" 1933	4,319.7	3,766.2	1,270.8	405.8	9,762.5
" 1934	5,484.9	5,903.1	2,040.1	527.8	13,955.9

¹ Not including unclaimed interest and lottery prizes.

In August 1930 the first bonds were issued of the "Five-Year Plan in Four Years" loan and in subsequent years two more issues were floated, the outstanding bonds of the three issues totaling 5.7 billion rubles by January 1, 1934. The "First Year of the Second Five-Year Plan" loan, floated in 1933, exceeded three billion rubles and was taken by over 40 million subscribers. The "Second Year" loan, floated on April

15, 1934, was subscribed to the full amount of 3.5 billion rubles by the middle of the year. In the first drawing, held in June, 1934, 265,200 prizes totaling 68,450,000 rubles were allotted. The loan was issued for a term of ten years and the interest-bearing bonds pay ten per cent. In May 1935 the "Third Year" loan of 3.5 billion rubles was announced, to run from October 1, 1935 for a period of ten years. Half of this issue consists of lottery bonds and half of interest-bearing bonds paying eight per cent. Between 1927 and 1935 there were eight state loans and in the past five years more than 43 million people have purchased Government bonds. Small internal bond issues are also floated at times by municipalities and other administrative divisions.

BOND ISSUES	GOVERNMENT DEBT			
	OCT. 1, 1928	JAN. 1, 1931	JAN. 1, 1933	JAN. 1, 1934
	<i>(in millions of rubles)</i>			
A. Mass Loans				
1st industrialization loan 1927	202.3	60.5	8.3	2.7
2nd industrialization loan 1928	8.2	139.5	21.4	9.9
3rd industrialization loan 1929	—	815.7	809.9	776.3
Agricultural Economy loan	135.5	41.0	13.9	8.0
Five-Year Plan in Four loan (1st, 2nd, 3rd issues)	—	428.8	4,723.0	5,724.1
First Year of Second Five-Year Plan loan	—	—	—	2,150.9
Total mass loans	346.0	1,485.5	5,576.5	8,671.9
Total mass loans (not including unclaimed interest and lottery prizes)	336.7	1,412.0	5,316.6	8,340.4
B. Market Loans (ten issues)	257.4	155.7	136.6	142.4
Market loans (not including unclaimed interest and lottery prizes)	247.0	145.5	126.2	130.6
C. Loans Held by Socialized Enterprises				
Government internal 8% loan 1925	321.9	370.1	2,887.9	3,941.9
Government internal 12% loan 1927	187.9	197.1	180.2	145.4
Government internal 11% loan 1928	71.0	287.7	296.1	296.9
Internal loan of 1929 (non-interest bearing)	—	112.4	111.3	111.3
Internal 10% savings bank loan	—	321.5	887.6	1,055.8
Total loans held by socialized enterprises	580.8	1,288.8	4,363.1	5,551.3
Total loans held by socialized enterprises (not including unclaimed interest and lottery prizes)	573.9	1,276.0	4,315.9	5,481.3
D. Other Indebtedness	210.6	4.6	3.8	3.6
Total Government Debt	1,394.8	2,934.6	10,080.0	14,369.2
Total Government Debt (not including unclaimed interest and lottery prizes)	1,368.2	2,504.8	9,762.5	13,955.9

In addition to the loans floated within the country the Soviet Government also issues bonds which may be purchased abroad. Payment for these bonds is made in foreign currency only, in contradistinction to internal loans which are contracted for in the currency of the U.S.S.R. Bonds sold abroad are issued in denominations of 100 gold rubles (a gold ruble contains 0.774234 grams of pure gold) and both interest and payment of principal are based upon a fixed quantity of gold. On October 1, 1933 a ten-million gold ruble bond issue was floated in the United States.

The Taxation System

A decree promulgated by the Government in September 1930 reforming the taxation system has been an important factor in the general reconstruction of the financial system of the U.S.S.R. With the elimination of private trade and the enormous growth of state industry and collectivization of agriculture creating entirely new conditions, the old system of taxation, modeled in the main on lines similar to those existing before the war, were considered hindrances to the planning and further development of the national economy. Also, it was deemed that the development of the system of directly regulating prices of commodities had removed the necessity for using taxation as a means of price regulation. The present system of taxation includes as its main items the business turnover tax, the single agricultural tax and the tax on individual incomes.

As noted above, the tax on business turnover is the principal source of government income, now constituting more than three-quarters of the total revenue. The single turnover tax was established by the tax revision of 1930 and replaced more than 50 separate taxes and duties, including a trade license tax, an excise tax, a stamp duty, and many other small taxes and fees paid by the manufacturing concern. The numerous taxes

to which a single commodity was subject often resulted in the price of similar commodities varying from one establishment to another, since the total amount of the tax (included in the purchase price) depended upon the number of stages the commodity passed through before it reached the consumer. The new single tax is applied only at the point of production and at a fixed rate for various commodities. All socialized enterprises are subject to the turnover tax with the exception of producers' and consumers' cooperatives, which pay instead, an income tax amounting to 20 per cent of their profits.

The system of agricultural taxation is designed to further the government collectivization policy and assist the development of agriculture. With these aims in view collective farms and farmers are subject to a lower rate of taxation than individual farmers, the livestock, forage and feed crops of collective farms are exempt from taxation, and special exemptions are allowed for collectives which have fulfilled their programs, amounting to as much as 25 per cent of the tax. The raising of technical and special crops is encouraged by special tax exemptions for certain crops (sugar beets, cotton, rice, flax, etc.). Collectivized farms receive the best treatment.

In the case of collective farms definite rates are fixed per hectare, the lowest tax being imposed on grain and fodder and the highest on grapes. Individual peasants are taxed on the basis of income; income is determined by assessing certain fixed values per hectare of each crop, the value varying with the different republics. On the basis of this assessment of income, the peasant pays a tax ranging from 15 rubles upwards, the tax increasing progressively with the income.

The amount of the agricultural tax for 1934 was outlined in a decree of the Central Executive Committee dated May 31. The rate of taxation of collective farmers remained about the same as for 1933; however, additional exemptions were

granted them for enlarging and bettering their farms and for excellence in account and record-keeping. The tax reductions for fulfilling the crop quotas, etc., are put in a fund for premiums to the best workers.

The entire agricultural tax goes to the local budgets—80 per cent to the district soviets and 20 per cent to the village authorities. The central government receives no part of this tax. In general it is levied not so much for the purpose of raising revenue as of serving the interests of collective farms and stimulating the cultivation of certain crops. As noted above, the total revenue from agricultural taxation amounts to less than two per cent of the income of the state budget.

Aside from the state agricultural tax, a general meeting of village electors may impose taxes on farms, to be spent for local civic and economic measures. Three-quarters of the funds so collected are turned over to the budgetary committees of the village and district and one-quarter remains with the village soviet. This tax, which was established by a decree issued in May 1934, ranges from five rubles per farm up to 100 per cent of the agricultural tax. Incomes of certain rural residents not engaged in farming (artisans not in co-operatives, etc.) are also taxed, the amount of the tax ranging from seven to 80 rubles.

Individual income taxes in the U.S.S.R. are steeply graduated while the rates vary with the class of the taxpayer. The rates for workers and employees range from 0.8 per cent for taxable incomes below 100 rubles monthly to 3.5 per cent on incomes above 500 rubles monthly. The tax on the incomes of workers and employees is assessed and collected monthly based on the earnings of the previous month, and is deducted from the wages or salaries. Workers with more than three dependents are entitled to reductions in their tax of from 25 to 40 per cent. Workers and employees having incomes sepa-

rate from their wages are taxed on that income separately; however, incomes derived by them from their own gardens or livestock are exempt from taxation.

Students on stipends, literary workers who have no copyright agreements, "members of collegium of defenders" (lawyers) acting as consultants, etc. are taxed similarly to workers. Workers and employees earning less than 140 or 150 rubles a month (depending on the locality), students with stipends under 175 rubles a month, pensioners, persons serving in a military capacity and a number of other groups of the population are exempt from taxation, as are persons whose income is subject to the agricultural tax. For cooperative workers, authors, inventors, scientists, physicians, dentists, renters of rooms, etc., there are also exemptions applying to incomes up to 1,200 rubles a year. Income from original inventions up to 6,000 rubles a year is exempt from income tax.

Persons other than workers and employees subject to income tax are divided into three categories: 1) literary workers owning copyrights, scientists, artists, etc.; 2) cooperative artisans and landworkers not employing labor, physicians and dentists (taxed on income from private practice), inventors receiving royalties, persons with incomes from renting rooms, etc.; 3) tradesmen, artisans not in cooperatives, persons employing labor, and others depending upon non-labor incomes. The rates in category 1 range from one per cent on incomes up to 1,000 rubles to about 20 per cent on incomes of 20,000 rubles and 38 per cent on the excess over 20,000 rubles; in category 2, the rates go from 2.5 per cent on incomes up to 1,000 rubles to about 32 per cent on 24,000 rubles and 50 per cent on the excess over 24,000 rubles; in category 3, the rates range from five per cent on incomes up to 1,000 rubles to 59 per cent on incomes of 24,000 rubles and 87 per cent on the part of the income in excess of 24,000 rubles.

Compulsory Insurance

The laws of the U.S.S.R. provide for compulsory insurance of all dwellings, industrial enterprises, crops, livestock and other farm inventory. The insurance is effected by the State Insurance Department (Gosstrakh), which is under the supervision of the Commissariat for Finance. The premiums are fixed by the Council of People's Commissars and vary for different sections of the country. A graduated scale of premiums is also established for collectives and individual farmers. Industrial and business buildings and dwellings in cities are insured against losses through fire. Farm buildings, crops, etc., are insured against fire, flood, frost, drought and hail and there is a special type of insurance for livestock.

A new agricultural insurance law, designed primarily to encourage livestock raising and increase the sown area, was announced on July 20, 1934. The law provides for a general lowering of insurance premiums (seven per cent on the average), for increasing the percentage of premiums devoted to fire prevention from 10 to 15 per cent, and contains special provisions designed to assist collective farms to raise cattle, horses, sheep, etc. The young of animals are insured free of charge. Rates for livestock on collectives range from 2.35 rubles per 100 rubles for cattle to 6.25 rubles for swine (the rates for individual farmers are somewhat higher).

Premiums for insurance of sown area are charged according to the program set for the collective, any land sown in excess of the plan being insured free of charge. Premiums for crop insurance vary according to the type of insurances—from 1.15 per 100 rubles for damage resulting from hail or fire, to 2.4 rubles for frost damage. Special industrial crops are insured for premiums ranging from 2.3 rubles per 100 for cotton to 5.6 for sesame. Payments to insured for livestock range from

40 rubles for a goat to 145 for a horse; for crops, from 50 rubles per hectare for grain to 2,820 rubles for hops.

Gosstrakh also has a monopoly of marine insurance of imports into and exports from the U.S.S.R. It has delegated part of this business to other companies abroad. In particular, the Black Sea and Baltic General Insurance Co., Ltd., in London, handles the marine insurance of Soviet exports and imports to and from England and certain other countries.

XV.

LABOR CONDITIONS AND SOCIAL WELFARE

THE Labor Code, which went into effect November 15, 1922, establishes the legal status of labor in the U.S.S.R. Its provisions, covering wages, hours, and the whole field of labor conditions, constitute the basis of all labor and welfare legislation. All forms of labor without exception—industrial, agricultural, domestic—are subject to the code's provisions, which are binding on every individual, organization, or institution employing labor. One of the code's fundamental requirements is that all labor agreements and contracts must provide for conditions at least as good as those called for by the code itself; otherwise they are void. Supervision over the execution of the code and of subsequent labor legislation and regulation of all matters affecting labor, including social insurance, labor protection, etc., constituted, until recently, the functions of the Commissariat for Labor, which co-operated closely with the All-Union Central Council of Trade Unions. In June, 1933, the latter body took over the functions of the Commissariat for Labor, which was thereafter dissolved. The basic aim of labor legislation has been to improve working conditions and raise living standards.

The rapid growth of industry and the large volume of new construction during the first Five-Year Plan resulted in an ever greater demand for new workers, both skilled and unskilled. This increased by the autumn of 1930 to a point where the Government announced that unemployment had been

eliminated. Other steps affecting working and living conditions taken during the period include: doubling of average annual money wages; increase in the average number of employed persons per family; extension of the 7-hour day to embrace over 80 per cent of the industrial workers; quadrupling of social insurance funds; decline in industrial accidents and sickness; increase of 40 per cent in labor productivity; 27 million square meters of new housing space created; 14.8 million workers served by public catering establishments (restaurants and kitchen-factories). Further progress along these lines was recorded in 1933-1934.

Number of Workers

One of the features of the labor situation in the U.S.S.R. has been the considerable rise in the number of persons employed. During the first Five-Year Plan the total number of wage-earners almost doubled, rising from 11.6 million in 1928 to 22.9 million in 1932. The number of industrial workers increased from 3.5 to 6.8 million during the same time. The Five-Year Plan schedules for 1932-33—15.8 and 4.6 million, respectively—were exceeded by nearly 50 per cent in each case. The growth in the number of workers in the principal branches of the national economy and the program for the second Five-Year Plan are shown in the table below:

	YEARLY AVERAGE (<i>in thousands</i>)				
	1928	1930	1932	1933	1937 (program)
Total Number of Wage Earners					
in National Economy	11,599	14,531	22,943	22,301	28,909
Large-scale Industry	3,096	4,264	6,303	6,222	8,130
Construction	723	1,623	3,126	2,344	3,425
Transportation	1,270	1,499	2,222	2,235	2,776
Railway	971	1,084	1,527	1,474	1,666
Water	104	132	195	189	230
Other	195	283	500	573	880
Communications	95	153	224	264	336
Trade	532	815	1,411	1,357	2,285
Public Catering	55	181	515	547	860

	YEARLY AVERAGE (<i>in thousands</i>)				
	1928	1930	1932	1933	1937 (<i>program</i>)
Finance	95	101	128	123	—
Institutions	2,362	2,857	3,912	3,932	4,678
Educational	789	921	1,347	1,470	2,065
Health	399	477	647	696	1,020
Government, Cultural, etc.	1,174	1,469	1,918	1,766	1,593
Agriculture	1,676	1,552	2,858	2,999	3,575
Forestry	331	611	1,140	1,194	1,360
Fishing	30	45	99	111	135

During the four years of 1928–1932 a total of 12.5 million new workers were drawn into employment in the various branches of the national economy. This figure includes 1.3 million workers who took the place of deceased or incapacitated workers and workers on prolonged leave for courses of study. According to preliminary estimates this increase was made up from the following elements: 8.5 million came from the peasantry and about 4 million from the urban population. The latter group included 1.7 million youths, about 500,000 graduates of colleges, universities and technical schools, about 1.4 million women previously not engaged in productive labor, and approximately 400,000 artisans.

Approximately half of the new personnel went in to industry and construction, the number of industrial workers doubling and the number of construction workers quadrupling. The industrialization of new, outlying districts, such as Central Asia and the Ural-Kuznetzk district, led to a larger rate of increase in the number of workers in these regions than in the old industrial districts of central European Russia.

In 1933, as a result of the completion of some of the large construction projects, the rationalization of production methods and the cutting down of office and administrative personnel, the number of wage earners was reduced by over 600,000, despite the considerable development of the national economy. This process was accompanied by a return of many former

peasants to their villages. Preliminary figures for 1934 give a total of 23.2 million workers and employees, only 1.3 per cent more than in 1932. The number in large-scale industry totaled 6,528,000, and practically all other branches recorded corresponding increases.

The number of women engaged in the various branches of the national economy more than doubled during the first Five-Year Plan period, rising from 2.5 million in 1928 to 6,819,000 on January 1, 1933. Of this total 2,935,000 were employed in large-scale industry, construction and transportation, 556,000 in agriculture, 796,000 in education, 476,000 in health protection and 798,000 in public feeding and trade. In health work women made up 71 per cent and in education 55 per cent of the total number of wage earners. Women now make up about a third of the total number of all persons employed. They have been drawn into skilled industrial work on a large scale. Thus, the number of women workers in the metal trades rose from 8.3 per hundred workers employed on Jan. 1, 1929 to 22.3 per hundred on Jan. 1, 1934; at power plants, from 2.8 per hundred to 16.9 per hundred; in the chemical industries from 34.0 to 38.9 and in mining from 4.2 to 17.4 per hundred.

During the second Five-Year Plan period the number of wage-earners is scheduled to record a further increase of 20 per cent, reaching 29.6 million by 1937. The number of industrial workers is to show a gain of 40 per cent.

In contrast to the large number of new workers drawn from the peasantry during the first Five-Year Plan (8.5 million), only 32 per cent of new labor will come directly from the village, while 36 per cent will be furnished by the lower schools, colleges and technical schools, as against only four per cent in 1928-1932. The balance is to be made up of women (members of families of workers and employees) entering industry

for the first time, in all 1.6 million, and office help released by rationalization of administrative forces. The number of women in industry is scheduled to rise to 10.1 million, 33.9 per cent of all persons employed in the national economy, as compared with 6.8 million in 1932. Of the total, 3.6 million will be employed in industry, 1.2 million in education, 776,000 in medical service and 823,000 in agriculture.

Trade Unions

The great majority of workers in the Soviet Union—19 out of 23 million in 1934—are members of trade unions. These unions are organized on an industrial rather than a craft basis and number at present 154. The All-Union Council of Trade Unions is elected by the All-Union Congress of Trade Unions, which meets once every two years. Membership in the unions is voluntary; officers are elected by the members and are directly responsible to them. Dues, formerly two per cent of wages, were reduced in September, 1933, to one per cent.

Among the forms of workers' participation in the operation and development of industry are the numerous inventions and suggestions for increasing efficiency made by employees. Every enterprise has a special bureau charged with the duty of seeing that all proposals are given careful consideration and acted on one way or the other. Inventions and proposals by workers attained an impressive volume during the past few years of intensive economic development and effected savings estimated at many hundreds of millions of rubles. During the years from 1930 to 1932 alone, more than 1,700,000 inventions and rationalization proposals were made by workers in industry and agriculture. The All-Union Society of Inventors numbered about 800,000 members in 1933, having increased its membership eightfold within a period of three years.

The unions draw up collective agreements with the em-

ployers, which now are practically all government or co-operative organizations, based on the regulations of the labor code and see to it that the provisions of the labor code and the collective agreements are adhered to; in case of labor disputes they represent the employees on arbitration committees. They appoint labor inspectors; organize, through their factory committees, production conferences to consider problems of rationalization and labor productivity; and carry on extensive cultural and educational activities.

Previous to September, 1934, there had been only 47 unions, but the rapid growth of trade union membership necessitated a reorganization involving the division of large unions into smaller units. In some cases the division was made on a regional basis and in others the unions embracing workers in an entire branch of national economy were divided into sub-branches of the same industry. Thus, the Educational Workers Union was divided into eight separate organizations for kindergarten workers, university and scientific workers, etc.

A decree of June 23, 1933, entrusted the trade unions with the functions of the Commissariat for Labor. All matters concerning labor, labor legislation, labor protection and social insurance are now regulated and supervised by the trade unions.

Hours and Wages

The large increase in the number of workers during the period of the first Five-Year Plan was the result, on the one hand, of the putting into operation of new plants and the expansion of old ones, and, on the other, of the introduction of multiple shifts and the shortening of the working-day. The government has adopted in most enterprises, instead of a seven-day week, the six-day week. Under this system the enterprise is closed each sixth day—the 6th, 12th, 18th, 24th and 30th of the month.

At its inception the Soviet regime established the eight-hour day as a maximum for the adult population and the six-hour day for young people. Since the introduction of the seven-hour day in October, 1927, it has been extended gradually and by the end of 1933 embraced most of the industrial workers. In hazardous and underground work and for young workers from sixteen to eighteen years of age a six-hour day has been established, and for some groups of workers the working day has been shortened to five or four hours. No children under sixteen may be employed except in certain cases when work is required in connection with their training. In such cases children from fourteen to sixteen may be employed for not over four hours a day.

Wages in all branches of the national economy have risen steadily. Average annual wages in 1932 reached 1,427 rubles, double the 1928 level and eight times the 1922-23 figure (180 rubles). The total wage fund amounted to 32.7 billion rubles, four times the 1928 figure and double the Five-Year Plan schedule for 1932-33. In 1934 the wage fund amounted to 41.6 billion rubles while average annual wages rose to 1,791 rubles, an increase of 14 per cent over 1933 and of 25.5 per cent over 1932. The growth in wages in the various branches of the national economy is set forth in the table below:

AVERAGE ANNUAL WAGES OF WORKERS

	1928	1930	1932	1933	1934
		<i>(in rubles)</i>		<i>(preliminary)</i>	
National Economy as a whole	703	936	1,427	1,571	1,791
Large-scale Industry	870	1,035	1,466	1,666	1,902
Construction	996	1,082	1,509	1,617	1,994
Transportation	861	1,064	1,506	1,697	1,978
Railway	859	1,030	1,496	1,636	1,925
Water	899	1,162	1,509	1,711	1,983
Other	846	1,147	1,539	1,846	2,100
Communications	776	760	1,333	1,453	1,560
Trade	783	893	1,351	1,362	1,537
Public Catering	623	778	1,059	1,078	1,227
Institutions	783	1,047	1,878	1,997	2,121

AVERAGE ANNUAL WAGES OF WORKERS

	1928	1930	1932	1933	1934
		<i>(in rubles)</i>		<i>(preliminary)</i>	
Educational	678	978	1,633	1,847	1,930
Health	638	799	1,248	1,425	1,531
Government, Cultural, Social	903	1,170	1,943	2,349	2,557
Agriculture	—	557	866	1,048	1,215
Forestry	—	497	1,094	1,130	1,257
Fishing	816	889	1,319	1,502	1,808

The greatest rate of increase in wages, according to government statistics, is shown in agriculture, forestry and fishing, where wages almost quadrupled during the period from 1928 to 1934. The next largest increase (185 per cent) was that recorded by wages of educational workers, whose wages at the beginning of the Five-Year Plan period were below the general level. Wages of railway workers rose by 124 per cent and of workers in large-scale industry—118 per cent. Average monthly wages of industrial workers in 1933 amounted to 127.17 rubles, as compared with 115.42 rubles in 1932 and 70.24 rubles in 1928. In the first nine months of 1934, the average came to 142.37 rubles. The wage increases in different branches of industry varied, being largest in the basic industries. Wages of coal miners more than doubled from 1928 to 1933, and those of steel workers increased by 90 per cent. The following table gives the growth in average monthly wages for the workers in some of the principal branches of industry (not including office or technical personnel):

	1928	1930	1932	1933
		<i>(in rubles)</i>		
All Large-scale Industry	70.24	82.59	115.42	126.58
Coal	63.27	76.47	122.08	133.12
Iron and Steel	75.61	88.30	132.24	143.41
Machine Building	92.94	108.36	142.93	152.37
Chemical	82.09	88.06	122.62	130.03
Cotton Textile	59.89	64.29	85.89	103.67
Leather and Shoe	86.72	88.78	112.11	103.01
Food	68.06	74.71	96.18	120.47

By 1937 the total wage fund is scheduled to reach 50.7 billion rubles, a growth of 55 per cent over 1932; in large-scale industry a gain of 64 per cent is scheduled. Real wages are scheduled to double during the five-year period, while average monthly wages of workers in large-scale industry are expected to rise to 144.66 rubles, a gain of 25 per cent.

The labor code grants employees certain benefits in addition to the wages they receive. A system of social insurance provides for care of their health, payments in cases of disability and for pensions. Employees are entitled to vacations of from two weeks to one month with full salary or wages. House rentals are based on the amount of wages received; the average rent paid does not exceed 10 per cent and frequently amounts to from 4 to 8 per cent of the total expenditures of a family.

The system of piece work and graduated wage scales, which has been in practice since the institution of the new economic policy in 1921, now embraces all the employees in the more important industries. Under this system skilled workers and workers exceeding the established production norm receive considerably higher wages than the average. This system is designed to encourage the workers to increase their skill, to provide incentive to the technical and engineering staffs, and to raise labor productivity. Compared with the prewar period the daily output per worker in large-scale industry is reported to have doubled and in 1933 was 63 per cent above the 1928 level. The hourly output per worker in 1932 was reported to be nearly three times that in 1913 and more than 60 per cent in excess of the 1928 figure. In heavy industry the value of output per worker in 1934 was 8,469 rubles.

One of the most serious obstacles to the development of labor productivity has been an excessively high turnover. The shortage of labor created by the program of intensive industrial development and the consequent ease with which jobs could

be obtained has been given as one of the causes of this condition. Other factors were the unsatisfactory food and living conditions at some of the enterprises and the traditional migration to the farms during the sowing and harvesting seasons of those workers still retaining their contacts with the village. An improvement in the standard of living and establishment of systems of bonuses and premiums for long continued service are reported to have caused a decline in the turnover of labor. For industry as a whole the number of workers quitting their employment each month averaged 6.2 per cent of the total number of workers enrolled in the first nine months of 1934 as compared with 7.9 per cent in the corresponding period of 1933 and 12.7 per cent in 1930. For the coal industry the corresponding percentages were 6.0, 8.0 and 24.6. Further reduction of the still abnormally high turnover is one of the most difficult problems facing the industries.

Formerly absenteeism constituted a serious difficulty in industry and construction, but this has been greatly reduced as a result of the introduction of penalties. The number of days lost through absences without valid reason by industrial workers was thus cut down from an average of 5.96 in 1932 to 0.93 in 1933 and 0.55 in the first nine months of 1934.

One of the central problems of the second Five-Year Plan is set forth as the raising of labor productivity. The program provides for an increase of 63 per cent over 1932 in large-scale industry, 43 per cent in railway transport, 86 per cent in water transport, and 75 per cent on construction work.

Social Insurance

The social insurance system is based entirely on contributions from the state and from organizations which employ labor, no contributions whatever being paid by the insured workers. The number of workers covered by the system increased from 9,674,000 in 1927-28 to 21,700,000 in 1933, 95 per cent of

the total number of workers. The budget for social insurance during this period grew from 1.05 billion to 4.40 billion rubles, while the annual expenditures per insured person rose from 108.5 to 182.3 rubles. The income of the social insurance fund in 1933 amounted to 4.61 billion rubles, and to 5.39 billion rubles in 1934. Previously administered by the Commissariat for Labor with the collaboration of the trade unions, this fund is now handled directly by the trade unions.

The growth in social insurance expenditures, by principal items, has been as follows:

	1928-29	1932	1933	1934
		<i>(in million rubles)</i>		
Total Budget	1,238.9	4,400.0	4,607.0	5,392.0
Temporary Disability Benefits	297.7	773.5	1,462.3	1,514.2
Pensions	263.4	470.7		
Unemployment Benefits	136.4	—	—	—
Medical Care and Hospital Construction	255.6	821.0	953.6	1,189.0
Prophylactic Measures (Chiefly Sanitarium and Rest Home Care)	39.1	188.2	208.3	284.3
Special Dietetic Treatment	—	33.0	48.2	53.0
Housing for Workers	123.3	710.0	622.6	696.0 ¹
Children's Institutions	—	153.0	261.8	327.0 ¹
Student Stipends	—	508.2	649.5	750.0 ¹

¹ Amount scheduled in program for year.

According to preliminary estimates expenditures on pensions in 1934 totaled 825 million rubles; 987 million rubles were spent on temporary disability benefits, feeding of new-born infants and other children's services, while more than 1.4 billion rubles were expended on housing and on students' stipends.

The expenditures for housing, medical care, etc., are in addition to the regular government appropriations for these pur-

poses. Unemployment benefits, which made up 11 per cent of the social insurance budget in 1928, were not considered necessary after 1930, and the sums formerly so expended were directed to other benefits, including some not previously given. Among the new social insurance services are: special dietetic treatment, including over-night rest homes for persons whose condition is not such as to necessitate their giving up work but who require special diet and treatment; milk stations and camps for children; student stipends, etc.

All wage-earners in the state and cooperative enterprises, and in private enterprises or domestic service also, are entitled to social insurance benefits. Temporary disability benefits cover sickness, accidents, care of ill members of the family, and maternity. Woman workers receive a vacation of 16 weeks for factory employees and 12 weeks for office workers for the period before and after childbirth, free hospital care and a lump sum for the layette. Full wages are paid in all cases of temporary disability to persons employed in industrial plants, on construction jobs, in transportation and communication services, on state farms or machine tractor stations, provided they have been wage-earners for three years and for no less than two years in the given enterprise. For others smaller payments are provided.

Pensions are provided for those permanently disabled, by disease or accident, for the aged, for members of families who have lost their main source of support and for long record of work. The amount of the pension for permanent disability is determined by the degree of disability, previous record of employment, and the industry in which the person involved was employed prior to becoming an applicant for pension, the rate ranging from 40 to 100 per cent of the former wage. The pension is highest for workers employed in the basic industries, in unhealthy occupations, and in underground work. Old-age

pensions are paid to all workers attaining the age of 60 (55 for women, and 50 for those engaged in unhealthy or underground work), regardless of whether or not they have lost their ability to work, who have worked for hire for not less than 25 years (20 years for women). The rates range from 50 to 60 per cent of the former wage.

Large sums are invested in teaching new trades to disabled workers capable of doing light work and in creating facilities for their employment. Such training embraced 600,000 people in the five years 1929-1933, 200,000 in 1933 alone. There has also been created a network of invalids' cooperatives which in 1934 included 125,000 members working in 6,000 producing enterprises and 12,000 trading points. Invalids and aged persons incapable of work and having no family to care for them are put in special homes.

All wage-earners and their families are entitled to free medical care. The sums invested in such care by the social insurance organization now amount to over 40 per cent of the total appropriations for this purpose. The aim of the social insurance organization in this field is to secure the best medical service for the insured and their families, including regular dispensary and hospital service and such special aid as X-ray, electric treatment, artificial limbs, etc. In order to make the medical service more readily available for the insured workers, health stations and dispensaries are established at the factories and specialists visit the workers in their homes. The number of health stations directly serving the workers of large factories and mines rose from 1,942 in 1928 to 6,811 in 1933 and 7,200 in 1934. By 1937 the number of such stations is scheduled to reach 9,700.

The social insurance organizations do much to provide the insured with rest home, sanatorium and health resort care. Workers employed in the basic industries have received a larger

percentage of places than those in other industries. Thus, in 1932, when an average of 64 out of each 1,000 insured were sent to rest homes and 7.4 out of 1,000 to sanatoria and health resorts, the average for the coal industry was 200 and 22, respectively, for the metallurgical industry 175 and 40, and for the chemical industry 155 and 18. About 1.4 million persons availed themselves in 1934 of care at rest homes, sanatoria and health resorts at the expense of the social insurance fund, nearly three times the number so served in 1928 (511,000).

Social insurance appropriations for special services for women and children have shown particularly rapid growth. Appropriations for such services amounted to more than 260 million rubles in 1933. Appropriations for children in 1933 included day nurseries, 83.5 million rubles; kindergarten and playgrounds, 51.9 million rubles; feeding school children, 29 million rubles; children's sanatoria and summer camps, 6.9 million rubles; children's homes, 17.8 million rubles; care and feeding of new-born infants 72.5 million rubles. The social insurance budget is scheduled to increase by almost 60 per cent during the period of the second Five-Year Plan, amounting to more than seven billion rubles in 1937.

Labor Protection

Since the abolition of the People's Commissariat for Labor in 1933 the trade unions have assumed complete control of matters connected with labor protection as well as of social insurance. The labor inspectors, who numbered about 7,000 in 1934, are vested with wide powers. They have the right to inspect any enterprise at any time of day or night and to require the management of such enterprise to submit all necessary information. Instructions issued by a labor inspector with reference to remedying any conditions in violation of the Labor Code or of the collective agreement

concerning labor protection are mandatory for the management. No enterprise or section of an enterprise may start operations or move into new premises without the sanction of the labor inspector. With the reconstruction of agriculture labor inspection has extended its scope to include agricultural workers (on state and collective farms, at machine-tractor and experimental stations, etc.).

In addition to the labor inspectors each enterprise must appoint a competent person to act as director of safety technique and industrial hygiene, such director supervising the installation and maintenance of all necessary safety measures. Each factory or local trade union committee appoints a special committee to check up on the execution of the labor protection regulations. The employees also submit suggestions and inventions bearing on labor protection and safety measures. In 1931 workers in the machine-building industry submitted 18,630 such suggestions, coal miners 4,500, etc. To popularize the idea of labor protection and safety technique, museums, lectures and traveling exhibits have been organized and many posters and popular pamphlets issued. New workers receive individual and group instruction in safety measures and industrial hygiene. A network of schools and correspondence courses has been set up to train specialists in this field. There are now 20 scientific-research institutes, employing more than 2,000 scientific workers, and numerous factory laboratories engaged in the study of the problems of labor protection.

Appropriations for labor protection increased from 65 million rubles in 1928-29 to 170 million rubles in 1932. This does not include the large investments for safety devices in newly built plants.

As a result of the improvements in the sanitary and safety conditions of old plants and the attention devoted to such matters in the new plants, illness and industrial accidents de-

clined sharply, according to official statistics. By 1934 the decline in industrial accidents as compared with 1930 amounted to 39.9 per cent in the coal industry, 45.2 per cent in the machine-building industry, 43.7 per cent in the metallurgical industry, 37.6 per cent in the textile industry and 41.4 per cent in the mining industries. In 1933 the number of cases of industrial accidents of all kinds per 1,000 fully employed workers totaled 292 in the coal industry as compared with 465 in 1928; for the metallurgical industry the respective figures were 198 and 322; for machine-building—169 and 320, and for the textile industry 48 and 74. During the five-year period ending in 1937 a drop of more than 30 per cent is expected.

Occupational poisoning in the three-year period 1929-1932 declined from 10.9 to 2.9 cases per 1,000 employed in the chemical industry; from 1.8 to 0.8 per 1,000 in the metal-working industry. Particular attention has been paid to the problem of eliminating poisons in production. The manufacture and use of white lead has been practically discontinued. Mechanization and hermetic sealing of injurious processes is being rapidly introduced. Progress is reported to have been made in the matter of industrial ventilation and air conditioning. Where necessary, special protective clothing and supplies are provided free of charge. During the period from 1928 to 1933 the number of cases of temporary disability due to illness declined by 40 per cent in the coal industry, by 25 per cent in the metallurgical industry, 23 per cent in the textile industry, etc.

HEALTH AND VITAL STATISTICS

The first efforts of the Commissariat for Public Health, organized in July, 1918, during the civil war were necessarily centered on combating epidemics, while a hygienic campaign was carried on among the peasants and urban dwellers.

However, at this time there was also laid the foundation for a network of new institutions—public dispensaries, maternal and infant clinics, etc. With the conclusion of the civil war the public health service developed at a faster pace, recording growth particularly during the period of the first Five-Year Plan.

Expenditures for health protection and medical care from all sources totaled 2.9 billion rubles in 1934, more than seventeen times the 1913 figure (128.5 million rubles) and three and one-half times the 1928 amount (622 million rubles). The growth of accommodations for the care of the sick up to 1932 is set forth in the following table:

	1913	1930	1932
<i>A. Medical Personnel</i>			
1. Physicians	19,785	68,516	76,300
Health officers	472	2,722	5,819
2. Nurses and Staff	37,476	123,549	—
<i>B. Hospitals</i>			
Number	6,910	10,073	—
Number of beds	175,634	328,892	405,800
1. General Hospitals			
Number, total	4,105	5,432	—
In towns	1,104	1,908	—
In rural districts	3,001	3,524	—
Number of beds, total	127,157	243,636	349,298 ^a
In towns	82,399	165,319	234,322 ^a
In rural districts	44,758	78,317	114,976 ^a
2. Maternity Homes and Maternity Hospital Wards			
Number	856	3,637	—
Number of beds	6,824	31,297	—
3. Railway Hospitals (inc. Maternity Wards)			
Number	—	292	393
Number of Beds	—	14,613	18,630
<i>C. Out-patient Institutions (regular physician's attendance)</i>			
1. Polyclinics in Towns			
Number	1,166	3,917	—
Visits per year (thous.)	33,252	210,158	393,684

^a Including beds in receiving wards and maternity institutions.

	1913	1930	1932
2. Polyclinics in Rural Districts			
Number	4,367	8,350	—
Visits per year (thous.)	55,200	133,411	—
3. Tuberculosis Stations and Dispensaries			
Number	43	554	—
Visits per year (thous.)	149.8	7,385.4	—
4. Health Stations (at factories, mines, etc.)	487 ³	2,966	5,674
D. Rural Medical Districts			
1. Number	3,226	6,922	—
2. Rural Population per District	36,300	12,800	11,360

³ 1917.

The number of hospital beds rose from 329,000 in 1930 to 470,000 in 1934. During the first Five-Year Plan period the number of hospital beds in cities increased by 58 per cent and in the rural districts by 90 per cent. New equipment and new departments have been added to old hospitals, and entirely new modern hospitals have been built. The largest hospital in the Union is now under construction at Kharkov. It will have beds for 2,500 patients. Two sections were opened toward the end of 1933, and the structure is to be completed by the end of 1936. The number of hospital beds per 1,000 population in cities totaled 5.50 in 1933 as compared with 3.61 in 1913; in villages the corresponding figures were 1.38 and 0.43. The number of health stations in enterprises increased from 2,966 in 1930 to 7,200 in 1934.

A large network of tuberculosis dispensaries has been set up in the past several years. By 1933 there were 595 such dispensaries in the R.S.F.S.R. and the Ukraine as well as many in the other federated republics. In the R.S.F.S.R. the number of beds in institutions for tubercular patients totaled 40,700 in 1934 as compared with about 300 in 1918. There are 20 scientific research institutes and 3,000 specialists and nurses engaged in this field. The death rate from tuberculosis is reported to have declined 40 to 50 per cent as compared with 1913.

Growth has been recorded by out-patient institutions with attending doctors. Visits at city polyclinics totaled 393.7 million in 1932, nearly twelve times the 1913 figure. The polyclinic aims to look for and rectify the causes of the patient's illness at their root, viz., the conditions under which he lives and works. To this end it sends doctors and nurses to visit the patient at home, obtains reports from the health station at the factory where he is employed, and co-operates with other organizations providing therapeutic and prophylactic treatment. In 1934 there were 48,400 such clinics in cities and 12,800 in the rural districts.

Not only are the city dwellers provided with an extensive network of hospitals, clinics, dispensaries, health stations, etc., but such institutions are rapidly being introduced in rural sections as well. In prewar days over half of the rural medical districts were served only by "feldshers"⁴ instead of by fully qualified doctors. Even the districts served by doctors never had the services of a specialist; they had only one general practitioner. Now the majority of the rural medical districts have two and a considerable number three or more doctors. Public health institutions have made their appearance in the villages which in prewar days were unknown—tubercular, venereal, maternity and infant clinics, etc. The organization of large state and collective farms, concentrating the village population into larger centers, has made possible a new medical system in the rural districts: hospitals, polyclinics, motor ambulances, motor or horse-drawn first-aid stations and nurseries to serve the peasants in the fields, etc. Moreover, due to the greater ease and cheapness of transportation, the rural population is now able to take much more advantage of the services of specialists at the medical centers in the towns. About one-fifth of the beds in town hospitals are occupied by peasants.

⁴ Medical workers with lower qualifications than those required for regular physicians.

The number of doctors in 1933 totaled 80,900, over four times as many as in 1913. Their ranks are being supplemented from about 150 medical colleges, and special measures have been taken to assist practicing doctors to raise their qualifications. Scientific and practical research institutes have been opened in every section of the country, to the number of 300.

On September 3, 1934, a decree was issued raising the minimum training requirements for medical personnel. A minimum five-year course of training is specified for therapeutic, surgical, and obstetrical-gynecological branches of medicine. Training for further specialization may be obtained at hospitals, clinics, sanatoria, etc. The decree sets the number of students to be admitted to medical institutes and colleges at 33,500 in 1937 as compared with 15,610 in 1934. Provision is likewise made for rural physicians to attend courses at specified intervals in order to permit them to keep informed of the latest developments in medicine.

During the second Five-Year Plan period the number of hospital beds in towns is scheduled to increase by 44 per cent, in villages by 98 per cent. Total expenditures for health, workers' rest and physical culture during the five-year period are set at 19.6 billion rubles, as compared with 5.4 billion in the first Five-Year Plan period. The number of doctors is expected to increase from 76,300 in 1932 to 97,000 in 1937, a gain of 27 per cent.

The most important health project is the building in Moscow of a new research center for the reorganized All-Union Institute of Experimental Medicine. This will have about 8,500 rooms for laboratories, wards, clinics, etc., and a staff of about 3,500 persons. The institute will provide facilities for making a complete study of the human body and its functions and for seeking out new methods of investigation, prophylaxis and treatment, incorporating the latest discoveries in the field of biology, chemistry, physics and affiliated sciences. It is

planned to establish branches of this institute in various other cities of the Union, where research will be conducted on health problems under different climatic conditions.

Another important project will be the construction in Moscow of an All-Union Institute of Contagious Diseases, which will combine scientific research with the training of specialists in this field.

Maternity and Infant Protection

In the field of maternity and infant protection the Soviet Union has made great progress. At present in the towns 65 per cent, and in the larger industrial centers from 90 to 100 per cent, of the births take place in special maternity homes or in the maternity wards of hospitals. In villages and remote districts assistance is provided by obstetrical centers and by experienced traveling midwives. An extensive network of pre- and post-natal clinics has been set up, now numbering several thousand and visited by millions of women annually. They may exist as independent institutions or form a part of large dispensaries and polyclinics.

Another type of institution widely developed in recent years is the crèche, or day nursery, where while the mother is at work in field, factory or office her children are given trained care at low fees. Practically every factory and industrial plant has its permanent crèche, while the mothers on state and collective farms are served primarily by seasonal crèches. The latter accommodated five million children in 1933. On large state and collective farms, in addition to a central stationary crèche, there are a number of traveling field crèches, horse- or tractor-drawn, to accommodate nursing mothers at work at a distance from their homes or the central crèche. On state farms the network of permanent crèches has recently recorded considerable growth. The children, both in rural and urban

crèches, usually remain from early morning till evening, when the mothers take them to their respective homes. The number of places in permanent crèches in cities totaled 347,000 in 1934, and in villages—468,000. In 1928 the respective number was 52,000 and 7,000.

Extensive expansion of the network of crèches is scheduled during the second Five-Year Plan. The number of places for children in towns is to increase by 156 per cent (from 273,800 to 700,000) and in villages by 129 per cent (from 350,000 to 900,000 at permanent and from 3.9 million to 9 million at seasonal crèches). Among other special types of aid for mothers and children are: day and twenty-four hour crèches and kindergartens attached to rest homes, health resorts and city parks, so that mothers may have adequate opportunity for rest and recreation on free days or during vacation periods; special waiting-rooms for mothers with children at railway stations (at present 120 large stations have such waiting-rooms).

Physical Culture and Sports

In the Soviet Union stress is now being laid on the development of physical culture and sports as a means of fostering the health of the people. The number of those taking part in regularly organized physical culture and sport clubs has mounted from 800,000 in 1928 to 8,200,000 in 1934, or about 80 out of every thousand inhabitants between the ages of 15 and 45. The physical culturists are encouraged to develop themselves in an all-around manner. Minimum norms have been set in 13 different branches of sport—running, jumping, gymnastics, skiing, swimming, rowing, etc.—and in first aid and theoretical knowledge of hygiene and sanitation. By 1933, 1,700,000 young men and women had passed these tests.

By the end of 1932 the Soviet Union had 4,000 stadiums and sport fields, 2,000 gymnasiums, 300 skiing grounds, etc.

To train physical culture teachers and athletic coaches there have been organized over 20 special physical culture secondary schools, and five physical culture institutes. This is in addition to physical culture courses and departments in medical and pedagogical colleges. Physical culture is obligatory in all schools—lower, secondary and higher. Many industrial plants have introduced a daily period of 10 to 15 minutes of gymnastics during working hours. In 1933 the physical culture personnel totaled 16,300, of whom about 3,600 were specially trained.

The death toll from tuberculosis, malaria, smallpox, venereal diseases, etc., has been reduced, and both general and infant mortality have shown a decline. In Moscow in 1913 the tuberculosis death rate was 226 per 100,000; in 1933 the rate had dropped to 116 per 100,000. The incidence per 1,000 population in the U.S.S.R. of smallpox fell from 0.90 in 1927 to 0.37 in 1929; of typhus, from 2.8 to 2.0; of dysentery from 18.1 to 10.8; malaria, from 249.9 to 183.0. The number of cases of venereal disease registered dropped from 958,000 in 1927 to 878,000 in 1929. While in 1913 the number of registered cases of venereal disease in Moscow was 388.7 per 10,000 population, by 1934 the number had been reduced to 75 per 10,000. For the U.S.S.R. as a whole the figures are respectively 136.7 in 1913 and 30.4 in 1932. The system of registration is now said to be more complete than before the war, so the actual decrease probably is even greater.

The general mortality rate for the European territory of the Soviet Union in 1928 was 18.8 per thousand, as compared with the prewar average (1911-1913) of 28.6 per thousand. This is a drop of 34 per cent. Infant mortality registered an even greater decline, falling from 270 per thousand in 1913 to 141 per thousand in 1930. In the larger cities the death rate and infant mortality rate have fallen to

less than half the prewar rates. Thus, in 1929 the death rate in Leningrad was 15.4 and in Moscow 13.2 per thousand. Infant mortality in Leningrad had dropped by 1930 to 146, and in Moscow to 123 per thousand. The decline in mortality has been accompanied by an increase in the average span of life, amounting to ten years for men and thirteen years for women. The average life span is now reported as 42 for men and 47 for women. The annual increase in population has averaged over three million during the past six years. The birth rate for the R.S.F.S.R. in 1929 was 38.58 per 1,000, for the Ukraine 35.26, and for White Russia, 32.90. The excess of births over deaths (natural increase) was 18.02 in the R.S.F.S.R., 17.72 in the Ukraine and 18.69 for White Russia. In 1934, according to G. M. Kaminski, Commissar for Health of the R.S.F.S.R., the general mortality rate for U.S.S.R. was one-third below that of prewar Russia, while the infant mortality rate had declined by one-half.

MARRIAGE AND DIVORCE

Soviet laws regarding marriage, divorce and other family matters are based on a recognition of the complete equality of rights, both juridical and economic, of the married couple. No formalities are required for either marriage or divorce aside from registration by the persons concerned at a government civil registry office (ZAGS). The state abstains from interference in the personal relations of husband and wife, but guards the interest of the children.

The principal points in the Soviet code of laws on family and marriage are as follows:

Each party to a marriage must have attained the age of 18 years. The Presidium of the Central Executive Committee of the national republics has the right to lower this age limit for women but not by more than one year.

The persons to be married must be mutually informed in regard to each other's health. Before registering their marriage they are required to inform each other whether they have previously been married, whether their former marriages have been dissolved and whether they have children from them. The forming of a new family, though creating new obligations, does not liberate one from previous obligations in regard to the maintenance of children under age or of a sick or disabled wife or husband.

When registering a marriage each party to it must declare which surname he wishes to bear. The wife has the right to take her husband's name, the husband his wife's name, or, as is often the case, each may keep his or her own name.

Divorce

In order to dissolve a marriage, one or both of the parties may apply to the ZAGS for divorce. If the ZAGS receives an application for a divorce from one of the parties, the other party receives a copy of the record of the dissolution of marriage.

The personal rights and the rights of property of each party to a marriage are based on complete equality. Property which was in the possession of either of the parties before marriage is considered his personal property, but that acquired during their married life is considered common property. In case of division of property the court takes special circumstances into account. For instance, if the main part of the expenses in acquiring the property was incurred by the wife or if she is left with children, the court awards her the larger part and in some cases all of the property. Alimony as such is not recognized in Soviet law, but a wife or husband who has become disabled during the period of the marriage may be awarded an allowance for support from the other party to the marriage.

In disputable cases in divorce, when the question arises with which of the divorced parents the children should be left, the court considers only the interests of the children. Preference is given to that parent with whom it is believed the child will have better care and a better education. In practice, when the child is still small, he is usually left with his mother, and she gets the allowance for support of the child from the father.

Support of Children

The right to receive an allowance for maintenance from parents belongs to all children whether they were born of a registered or unregistered marriage or out of marriage. The Soviet laws do not make any distinction between the child born in wedlock and the child born out of wedlock.

The maintenance of the child is obligatory for the parents until he is 18 years old. This obligation concerns each parent in an equal degree. If after divorce the child is left with his mother, the court in considering the question of allowance takes into account the mother's work in taking care of her child, the time that she spends on him as well as her financial status, etc.

Persons who are obliged to pay allowance for support are required to send notice concerning any increase in their earnings or change in their work to the person to whom they are making payments. Fraudulent evasion of such payments is considered criminal and is punishable either by imprisonment or fine.

The court's decision concerning such payments is sent directly to the institution, factory or plant where the defendant works. The institution is obliged to retain the sum fixed by the court at each pay day. The allowance for support must not exceed 30 per cent of the father's earnings. In each case,

however, the sum of the allowance is fixed according to the financial status of both mother and father.

RED CROSS AND RED CRESCENT SOCIETIES

The Red Cross and Red Crescent Societies take an active part in the development of health welfare in the U.S.S.R. They organize relief to the population of districts suffering from natural disasters and provide supplementary medical aid to the backward national minorities. They also assist the public health organizations in various measures for the improvement of living and working conditions, especially with regard to maternity and child welfare.

These societies have taken the place of the Red Cross Society of Russia, founded in 1867, which was incorporated in the Soviet Red Cross Society by a decree issued in 1918.

The Red Cross and Red Crescent Societies have over 500 stations which disseminate information and otherwise assist in improving sanitary conditions, inculcating hygienic ideas, furthering maternity and child welfare, etc. Together these societies have over one million members.

Representation in the United States

The Red Cross and Red Crescent Societies of the U.S.S.R. maintain a representation in the United States, at 1776 Broadway, New York City. Dr. Gregory L. Rabinovitch is the representative.

One of the functions of the representation is to facilitate the exchange of information between medical organizations in the Soviet Union and physicians in the United States concerning the latest achievements in the field of medicine and medical research in both countries.

In addition, the representation, with the assistance of social agencies in the United States, such as the National Council of

Jewish Women, attempts to re-establish communication between Russian nationals in the United States and their relatives in the U.S.S.R. Its efforts have brought about the resumption of many contacts which had been broken entirely during the war and revolution, approximately 385 such cases being successfully handled in 1934.

The representation also performs services for the families in the U.S.S.R. of a large number of men who served with the American and Canadian Forces during the war and who were killed or disabled in such service.

XVI

EDUCATIONAL AND CULTURAL DEVELOPMENT

THE administration of education in the Soviet Union is under the direction of a People's Commissariat for Education in each of the seven constituent republics. In each republic the functions of the Commissariat for Education include, besides supervision of schools, control over scientific organizations, nurseries, theaters, motion pictures, musical and art institutes and the state publishing enterprises. In addition to the formal educational work directed by the different commissariats, educational work is carried on by various organizations, such as the trade unions, factory committees, cooperatives, trusts and central organs, army and youth organizations, etc. The emphasis in educational work has been directed mainly along three lines: (1) eradication of illiteracy; (2) introduction of compulsory elementary education; (3) vocational training of skilled workers and technicians.

By the end of 1932, according to official reports, illiteracy had been reduced to 10 per cent, as compared with 42 per cent in 1928 and 67 per cent before the war. Compulsory elementary education, introduced in 1930, had been carried out to the extent of 98 per cent of all children between the ages of 8 and 11, and was rapidly being extended to include children from 12 to 14 years of age. During the four-year period, 1928-1932, about half a million skilled workers and specialists were graduated from secondary and higher technical schools and universities; another three million were in attend-

ance at such institutions in 1932, as compared with 640,000 in 1928. The original Five-Year Plan schedules were far exceeded in all these respects.

The carrying out of this educational program involved the appropriation by the state of increasingly large sums. Expenditures for the year 1932 totaled 6.4 billion rubles, as compared with 1.06 billion rubles in 1927-28 and only about 400 million rubles annually before the war. During the first Five-Year Plan 15.4 billion rubles were expended for education; this sum was 36 per cent above the schedule set for five years. Emphasis has been placed on the training of skilled workers, technicians, managers, engineers, agricultural specialists, professional workers, etc., who are in demand to carry out the program of industrialization and of large-scale agriculture.

Eradication of Illiteracy

In prewar Russia the average literacy was said not to have exceeded 33 per cent. By the beginning of the first Five-Year Plan it had been raised, according to official reports, to 58.4 per cent and by 1932 to 90 per cent. In the latter year the urban population was reported 97 per cent literate and the rural population 88 per cent. The first Five-Year Plan provided for the teaching of 18.2 million illiterates. Actually over 45 million workers and peasants attended anti-illiteracy courses.

GROWTH OF LITERACY

	1928	1930	1932
1. Literacy, population between 8 and 50 years (%)	58.4	67.3	90.0
Urban	78.5	83.9	97.0
Rural	48.3	62.1	88.0
2. Attendance at literacy courses (thous.)			
Courses for semi-literates	—	6,970.2	6,471.0
Courses for illiterates	1,315.0	6,981.8	7,170.0

Many of the smaller nationalities in the country in prewar times had no written languages. What few schools existed were conducted in the Russian language. The government has aided the minor nationalities to develop their national culture. Philologists have worked out alphabets for a number of those nationalities which previously had none. In the R.S.F.S.R. (Russian Republic) 40 new alphabets have been introduced. By the end of 1932 out of 182 nationalities 134 had their own national written language. Latinization of the national alphabets has also been widely introduced; by the end of 1932 over 70 nationalities had adopted the Latin alphabet.

This has played a large role in eradicating illiteracy. For example, among the Turkomans in 1925, prior to Latinization, there were only 2 per cent literates; in 1932 there were 61 per cent. Corresponding figures for Uzbekistan and Tadzhikistan are: 2 and 72 per cent and 1.5 and 52 per cent. Similar progress has been made among the Cossacks, Tatars, Kalmyks, Buryats and other minor nationalities. The more cultured peoples have achieved close to 100 per cent literacy and have not only elementary but secondary and higher educational institutions in their own languages. Elementary schools are conducted in 70 different languages in the U.S.S.R.

It is expected that adult illiteracy will be virtually eliminated within a short time. While the number of persons attending "anti-illiteracy" courses is scheduled to show a continual decline, the number attending courses for semi-literates is expected to increase from 6,471,000 in 1932 to 9,000,000 in 1937.

Educational System

According to official reports, by the end of 1932 preschool institutions embraced one-fourth of the children between 3 and 7 years of age. The four-year elementary school course was attended by 98 per cent of the children of school age,

while the seven-year course embraced more than two-thirds of the children. More than 2.5 million students were attending secondary and technical schools and another 400,000 were enrolled in higher educational institutions. The total number of children and adults in attendance at all the various educational institutions reached more than 50 million, three times as many as in 1927-28.

Elementary school training is divided into three courses: a four-year primary course (for children of 8-12 years), followed by a three-year intermediate course (for children of 12-15 years) and a three-year senior grade course (for children of 15-18). The intermediate course is somewhat comparable to the Junior High School in this country. The four-year course, made obligatory in 1930, now embraces practically all children, both urban and rural, of corresponding age, while the seven-year course already includes all city children and is being extended to the rural districts. The total number of children attending elementary schools doubled during the first Five-Year Plan period, rising from 11.3 million in 1927-28 to 21.8 million in the autumn of 1932. In the school year 1934-35 attendance totaled 24 million, over three times the 1914 figure (7.8 million). The number of pupils in the intermediate three-year course exceeded five million, more than nine times as many as in 1914. The number of schools totaled 167,300, as compared with 106,400 in 1914-15. The number of teachers increased from 363,000 in 1928-29 to 656,000 in 1933-34.

Over 42,000 new school buildings have been built during the Soviet regime, about half of them during the three years 1931-33. Expenditures on education amounted to 38.6 rubles per capita in 1932.

Kindergartens for preschool children (3 to 7 years) have been organized in practically all cities and now enroll about 6

EDUCATIONAL PROGRESS

	Number of Students (in thousands)			
	1914-15	1927-28	1932-33	1934-35
<i>Preschool Institutions</i>		308	5,231	6,506
<i>Elementary Schools, total</i>	7,801	11,356	21,813	24,036
Primary (1st to 4th year)	7,236	9,947	18,179	18,538
Intermediate and Secondary (5th to 10th year)	565	1,409	3,634	5,498
<i>Secondary Technical Schools</i>				
Technicums (3-4-year course)	} 267	254	797*	683
Factory apprentice schools		178	959*	297
Workers' faculties (3-4-yr. course)		49	353*	297
<i>Higher Educational Institutions</i>				
Total	125	160	470*	470

* On Jan. 1, 1933.

million children. The kindergartens are open from 8 to 12 hours a day, making it possible for parents to leave their young children there not only during the period of work in office or factory but also for the time devoted to social work and cultural recreation. The kindergartens are staffed by trained nurses and teachers, and provide food, care and systematic educational work. On many collective farms summer kindergartens have been organized for children of peasant women at work in the fields. In some cases such kindergartens have been continued throughout the winter as well. One of the goals of the second Five-Year Plan is to establish kindergartens for all children of preschool age in both urban and rural districts. In 1934-35, the number of children in attendance at these institutions rose to 6,500,000, a rise of 13 per cent over the previous year. The network of permanent kindergartens increased from 2,517 in 1928-29 to 27,151 in 1933-34, attended by 1,318,000 children. More than three times as many children attended seasonal kindergartens.

Elementary and secondary education has been organized into a unified system of polytechnical education for all children

between the ages of 8 and 17. The aim of the system is to give the children a thorough grounding in the fundamental principles of the social and economic sciences and throughout the entire course to link up the school work with productive labor in industry and agriculture. Its course of study provides:

(a) general education, including history, social science, natural science, foreign languages, mathematics, physics, chemistry, etc.;

(b) physical education; and

(c) technical education, including theoretical study of the scientific principles of production and acquisition of skill in handling tools used in production processes.

Both secondary and higher technical schools have been transferred from the jurisdiction of the Commissariat for Education to that of the various government departments in control of industry. Each industry is directly responsible for technical training in its own field and must provide the facilities necessary for that purpose.

A series of government decrees issued in the past few years have inaugurated far-reaching changes in the methods and curricula employed in the lower and intermediate schools. A decree of August 1932 established that regular classes with definite lessons according to a strictly determined schedule of work were to constitute the basic form of school work, rather than the group, in which the project method was the basic method of teaching. The latter method was not abandoned but was woven in with the regular subjects being taught. Two decrees issued early in 1934 raised the educational requirements for teachers and principals of the primary and secondary schools. Provision was made for supplying additional training to those teachers already at work who had not received the requisite normal school or college training. Two decrees published in May 1934 provided for a reorganization of the

methods of teaching history and geography, putting greater emphasis on exact factual information instead of on abstract generalization, as had been the tendency formerly.

Students having completed the seven-year elementary course may pass on to the "technicum," the basic type of secondary school in the Soviet Union. The technicum is a high school with a three- or four-year course, which combines technical and industrial training with a broad general education. There are now more than 3,500 technicums, attended (in 1934-35) by 797,000 students, more than three times the number in 1927-28.

The technicums alone, however, could not supply rapidly enough the millions of skilled workers required to operate the complex machines installed in factories, mines and mills. Consequently, various other types of secondary technical schools have been developed, among the more important being the factory apprentice schools and the workers' faculties. The former is attached to a factory or plant and admits pupils who have completed the elementary school training. It provides theoretical and practical training for work in the particular plant to which it is attached. A workers' faculty prepares workers who possess high skill and at least three years' industrial experience but lack an adequate general education for entrance to a technical university. There are two types: a three-year day course and a four-year evening course. Attendance at factory apprentice schools totaled 520,000 in 1933-34 and at workers' faculties 326,000, as compared with 178,000 and 49,000, respectively, in 1927-28. Additional tens of thousands of workers are improving their skill and preparing for higher positions by attending evening schools or courses, study circles, taking correspondence courses, etc.

With the introduction of compulsory seven-year education for all children during the second Five-Year Plan, both factory

apprentice schools and workers' faculties have curtailed their activities, a curtailment which is reflected in the drop in attendance since 1933. The factory apprentice schools, which formerly provided general educational courses in addition to trade and professional training, are now taking on the status purely of trade schools, offering six to twelve-month courses in particular trades. At the same time, the increasing number of workers with full seven-year elementary training is lessening the number of students for whom the workers' faculties were originally established.

The higher educational institutions—universities, special institutes and academies—prepare skilled specialists for the various fields of engineering, economic and cultural work. The course of study ranges from three to six years, depending upon the complexity of the specialty studied. By 1933 the number of such institutions amounted to 721 with an attendance of nearly half a million, as compared with 130 institutions attended by 160,000 students in 1927–28 and 97 attended by about 125,000 students in 1914. Of the 97 prewar institutions 34 were technical universities; now there are over 350 higher technical institutions. There are no tuition fees and a large proportion of the students receive state stipends and are housed in state dormitories. In 1932 the state expended 800 rubles per student for this purpose; in 1933 this rose to 1,450 rubles.

During the second Five-Year Plan increasing emphasis is being placed on secondary and higher education. Universal compulsory seven-year polytechnical courses, which were for the main part instituted in urban sections during the first Five-Year Plan, will be established throughout the U.S.S.R. The number of elementary school children is expected to increase from 21.8 million in 1932 to 29.9 million in 1937, with the larger proportion of the increase resulting from a threefold

gain (from 3.6 million in 1932 to 10.6 million in 1937) in the number of students in the intermediate grades.

Increase in Number of Specialists

As a result of the development of secondary and higher technical schools, the number of graduated specialists in the productive branches of the national economy reached 375,000 by the end of 1932, over 2.5 times as many as the beginning of the first Five-Year Plan period (146,000). During the same period the number of graduates in the fields of education and medicine nearly doubled. This growth is recorded in the table below:

NUMBER OF GRADUATE SPECIALISTS

	WITH HIGHER EDUCATION		WITH SECONDARY EDUCATION		TOTAL	
	<i>End of</i>	<i>End of</i>	<i>End of</i>	<i>End of</i>	<i>End of</i>	<i>End of</i>
	1928	1932	1928	1932	1928	1932
In productive branches of national economy	90,000	184,500	56,000	190,500	146,000	375,000
In education ¹	26,000	43,209	185,500	344,000	211,500	387,200
In medical service	63,500	76,300	72,000	169,000	135,500	245,300
Total	179,500	304,000	313,500	703,500	493,000	1,007,500

¹ Preschool and elementary only.

By the end of the first Five-Year Plan period there were about 1,366,000 persons in the U.S.S.R. with higher and secondary technical education. The year 1933 alone added about a quarter million more. In industry the number of graduate specialists rose from 24,200 in 1928 to 122,500 in 1932, the proportion of such specialists to the number of workers increasing from 0.92 per cent to 1.5 per cent. If non-graduate specialists with extensive practical experience are included, the respective ratios are 3.8 and 4.2 per cent. In agriculture the number of graduate specialists rose from 17,800 in 1928 (less than one to a thousand households) to about 84,000 in 1932 and to approximately 122,000 by the beginning of 1934. Including persons with broad practical experience, the total num-

ber of specialists employed in agriculture now exceeds 250,000; in industry—400,000. Young specialists having completed secondary or higher education during the period of the first Five-Year Plan, constitute over half of the total number.

Toward the end of the first Five-Year Plan period the training of agricultural experts was greatly reinforced by the reorganization of the Communist universities into higher agricultural colleges. Fifty-five such institutions were organized to prepare trained leaders and technicians for large-scale agriculture (state and collective farms and machine-tractor stations). The training of skilled agricultural workers, such as tractor and truck drivers, brigade leaders, etc., has also developed rapidly. During the first Five-Year Plan about 4.5 million such workers were trained. In 1933 there were a total of 116 agricultural colleges, with students numbering 99,000, and 928 secondary agricultural schools, with 121,000 students.

The schedules of the second Five-Year Plan call for an increase in the total number of graduate specialists during the period of 69.9 per cent, from 1,366,000 to 2,323,000; if specialists who received their training chiefly in industry are included—from 2.7 million to 4.0 million, an increase of 46.5 per cent. Of this total the number in industry proper will be 299,800, a rise of 144 per cent; including practical specialists, 520,000; in agriculture, 288,700 as against 83,700; including practical agriculturists, 425,000; in education (all branches), 825,200 and 1,535,100, respectively, as compared with 539,000 and 1,070,000 in 1932.

Extra-Mural Education

With illiteracy rapidly dwindling, the anti-illiteracy courses are being gradually converted into courses for semi-literates. The aim of this program is to give every adult not only a knowledge of the three R's but the rudiments of the social sci-

ences, physics, chemistry, biology and the technical processes of production. Literacy in this broader sense has also been fostered by the extensive development of the press and such other cultural media as libraries, clubs, motion pictures and theaters, radio, museums, etc. A general concept of the progress in these fields in recent years may be obtained from the following statistics:

GENERAL INDICES OF CULTURAL DEVELOPMENT

	1928	1930	1932	1933
1. Publishing				
Newspapers				
Number	576	3,000	6,500	9,600
Circulation (mill. copies)	8.8	27	35.5	36.5
Number of languages	48	—	83	88
Books and Pamphlets				
No. of titles	34,212	40,060	49,880	43,587
“ “ copies (millions)	366.7	853.1	518.3	
“ “ languages	70	72	94	
“ “ signatures of 16 pp. each (in billions)	1.4	3.0	2.4	2.4
2. Libraries, clubs, etc.				
No. of public libraries (thous.)	28.3	29.3	26.8	32.5
No. of Volumes (millions)	62.3	79.1	100	
Village reading huts*	21,300	25,593	33,021	34,214
Workers' clubs*	6,409	9,499	12,520	13,304
3. Motion Picture Installations** (stationary and portable)				
In towns	4,900	8,100	9,413	10,923
In villages	2,400	13,900	18,157	18,240
4. Radio				
No. of Broadcasting stations	23	52	57	65
Capacity (kw.)	126	381	902	1,658
No. of Receiving points (thousands)	348	953	1,793	2,161

* Figures are for years—1928-29, 1930-31, 1931-32 and 1932-33 respectively.

** On Jan. 1st of the corresponding years.

The most outstanding growth has been recorded by the press. In 1913 there were 859 newspapers, with a circulation of 2.7 million. By 1930 there were approximately 3,000, with a circulation of 27 million, or ten times the 1913 figure. By

1932 there were 6,500, with a circulation of 36 million, and toward the end of 1934 about 11,000, with a circulation of 37 million, or fourteen times the prewar figure. In 1913 there was one newspaper for every 60 inhabitants; in 1933 one for every four inhabitants or approximately one per family. Of all the newspapers published in the U.S.S.R. about a fourth are issued in 88 languages of the national minorities. There has been also a great development of local papers in factories, on state and collective farms, at machine-tractor stations, etc. The publication of magazines has shown similar growth. In 1931 there were 2,167 different magazines, with a total yearly circulation of 419 million. Special newspapers and magazines are issued for various categories of the population—the youth, Red Army men, engineers, trades-unionists, physicians, etc.

During the past several years the number of titles of books and pamphlets issued has been about 50,000 annually, while the number of copies published in 1930 totaled 853 million, eight times the prewar figure. In 1934 the output of books and pamphlets amounted to 480,000,000. The average number of copies per title in 1928 was 7,796; in 1930 this figure increased to 17,338 and in 1933, the average edition ran to 11,196 copies. Publications are of all sizes, from a pamphlet of a few pages to bound sets in several volumes of the works of Soviet or foreign writers. If the number of printed pages is taken as the unit of comparison, the ratio between 1932 and prewar is approximately 4 to 1; in 1932 2.5 billion signatures (16 printed pages each) were issued, as against 550-600 million signatures maximum before the war. State publishing activities have been co-ordinated into a central organization, "The United State Publishing House" (OGIZ), located at Kuznetsky Most, 16 Moscow. Books are now published in 104 languages, as compared with 29 in 1913. While a large proportion of the books is issued in cheap paper-bound volumes,

in the past few years the number of better editions has been considerably increased. This accounts in part for the decline in total book production.

At the same time the network of libraries is being extended. In 1934 there were 39,700 public libraries, comprising a total of approximately 100 million volumes. The largest of these libraries are the Leningrad Public Library, with 6 million volumes, the Academy of Sciences Library in Leningrad, the oldest library in the Soviet Union, and the Lenin Library in Moscow, now being enlarged to a capacity of 11 million volumes. In addition, there is an extensive network of branch or traveling libraries, numbering in 1932 approximately 150,000. These serve readers directly at the factories where they work, at their clubs, parks, restaurants, etc., and the peasants not only on large state and collective farms but even in remote villages. By the end of 1933 there were about 15 million adult borrowers registered in the libraries.

Workers' clubs, Peasants' Houses in the towns, village reading huts and other similar institutions have sprung up throughout the country and provide a wide variety of cultural service. The village "reading hut" is not merely a small reading room but also a meeting place for study circles and a center for the dissemination of information of all kinds (agricultural, legal, etc.) and for the presentation of motion pictures, amateur theatricals, lectures, etc. The Peasants' Houses, of which there were about 8,000 in 1932, provide shelter and cultural services to peasants in town on temporary visits. In addition to these and to the 13,000 workers' clubs, there have been established in the larger cities about 1,700 so-called "palaces of culture," for the most part in new, modern buildings, equipped with lecture and theatrical halls, gymnasiums, rest rooms, etc.

There were more than 30,000 motion picture installations in the U.S.S.R. in 1934, as compared with 7,300 in 1928.

The number of spectators at moving picture performances totaled 700,000,000. Regular theaters number more than 600, as compared with 150 in 1913. There are about 30,000 professional actors and musicians and plays are produced in forty languages. There is a special network of children's theaters, numbering over 65 at present. There are hundreds of museums, providing a wealth of educational material.

A wide expansion of extra-mural cultural activities is planned during the period of the second Five-Year Plan. Newspaper circulation is scheduled to rise to 66 million by 1937, an increase of 86 per cent over 1932. Production of books and magazines is planned to total 6,875 million signatures as compared with 3,263 million in 1932; of the total 30 per cent will consist of textbooks. Considerable emphasis is being placed on the growth of motion picture installations which will total 70,000 in 1937, with sound theaters numbering 14,500, a nineteen-fold increase. Legitimate theaters are scheduled to number 1,080. Village reading huts are to double in number, while the number of books in public libraries is scheduled to increase almost three-fold. The Plan also provides for a large increase in the number of artists' workshops and studios and exhibition halls, in furtherance of the program of development of the fine arts.

Scientific Research

Extensive scientific research work is carried on in the higher educational institutions, in special research institutes, and in numerous laboratories, experimental stations, scientific libraries, museums, observatories, etc. These total close to 2,000, of which research institutes proper account for about 860. This latter figure compares with 224 in 1928. The number of scientific workers in the U.S.S.R. in 1933 totaled approximately 48,000, with additional thousands of assistants and "aspirants" (students in training)—in all 69,000. Government appropri-

ations for scientific work, not including sums invested directly by economic organizations, rose from 72 million rubles in 1928-29 to 253 million rubles in 1932. The total amount spent for scientific research work in 1932 was estimated at over 600 million rubles.

Two important centers of scientific research are the Academy of Sciences and the Communist Academy. The latter embraces about a dozen institutes (history, philosophy, economics, natural and exact sciences, literature and art).

The Academy of Sciences, which celebrated its 200th anniversary in 1925, embraces several score institutes, about twenty of which are headed by scientists of renown. In the year 1929 the Academy of Sciences underwent radical reorganization. Scientific research designed to meet the practical needs of the various branches of the national economy was given much wider place. This has involved an extension of the technical group in the academy, the organization of a number of new technical institutes, and the carrying out of extensive practical research in industrial and agricultural problems. Among the new departures in its work have been the holding of "visiting sessions," such as the one held in the summer of 1932 in the Ural and West Siberian Regions devoted to a study of the problems of the Ural-Kuznetz combine, and the establishment of branches and scientific bases in districts of intensive construction—the Urals, West Siberia, Transcaucasia, Kazakstan and Central Asia. In December, 1933, a decree was issued placing the academy directly under the jurisdiction of the Council of People's Commissars, the membership and working plans of the academy to be subject to ratification by the Council.

In accordance with the policy of linking up scientific research more closely with the practical problems of the national economy, a large number of scientific institutes formerly un-

der the jurisdiction of the Commissariat for Education have been transferred to that of the respective economic commissariats. The Commissariat for Heavy Industry alone has jurisdiction over 136 institutes and 42 local branches; Light Industry—16 institutes and 5 branches; Transportation—8 institutes and 16 branches; Health (R.S.F.S.R.)—271 institutes and 15 branches, and so on. The system of agricultural scientific research institutes embraces 140 institutes, 42 branches and some 1,000 experimental stations.

The names and addresses of some of the more important institutes are listed below:

GENERAL SCIENTIFIC INSTITUTES

	DIRECTOR	ADDRESS
All-Union Academy of Sciences	A. P. Karpinsky	Moscow, U.S.S.R.
All-Union Arctic Institute	Otto Schmidt	
Physiological Institute	I. P. Pavlov	
Geological Institute	V. A. Obruchev	
Geo-chemical Institute	A. E. Fersman	
Soil Institute	B. A. Keller	
Botanical Institute	B. A. Keller	
Physico-Mathematical Institute	S. I. Vavilov and I. M. Vinogradov	
Energetics Institute	G. M. Krzhizhanovsky	
Physico-Chemical Analysis Institute	N. S. Kurnakov	
Zoological Institute	S. A. Zernov	
Language and Thought Institute		
Communist Academy		Volkhonka 14, Moscow
Institute of World Economy and World Politics	E. S. Varga	Volkhonka 14, Moscow
Agrarian Institute	V. P. Milyutin	Volkhonka 14, Moscow
Timiryasev Biological In- stitute	I. J. Agol	Pyatnitskaya ul., 48, Moscow
Marx-Engels-Lenin Institute	V. V. Adoratsky	Marx and Engels ul., 5, Moscow
Institute of Monopoly of Foreign Trade	A. Manukian	Gorky, 56, Moscow
State Physico-Technical In- stitute	A. F. Joffe	Lesnoy, Yashunov per., 10, Leningrad

INDUSTRIAL AND AGRICULTURAL SCIENTIFIC RESEARCH
INSTITUTES*Agriculture*

All-Union Institute of Plant-Breeding	N. I. Vavilov	Ul. Gertzena, 44, Leningrad
Lenin Academy of Agricultural Sciences	N. I. Vavilov	Bolshoy Komsomolsky per., 6, Moscow
Institute of Organization of Large-Scale Socialized Agriculture	M. I. Ronzhin	Khoromny tup., 6, Moscow
Collective Farm Institute	D. G. Lurye	Bolshaya Dmitrovka, 4, Moscow
Institute of Agro-Soil Science	V. P. Bushinsky	Chaussée Entuziastov 111-a, Moscow
Institute for the Mechanization and Electrification of Agriculture	M. L. Feldman	Kuznetsky Most, 15, Moscow

Industry

RUSSIAN CONTRACTION

ADDRESS

Mining, Metals and Machine-Building

Institute of Applied Mineralogy		Bolshaya Ordynka, Pyzhevsky per., 7, Moscow
Institute for the Mechanical Exploitation of Minerals	Mekhanobr	Vasilyevsky Ostrov, 21 Liniya, 8-a, Lenin- grad
All-Union Institute for Metals	VIM	Gospitalnaya 3-8, Lenin- grad
Institute for Nonferrous Metals	Gintsvetmet	Bolshaya Ordynka, Pyzhevsky per., 10, Moscow
Metal and Machine-Building Institute	Niimash	Simonovsky Val, 11, Moscow
Automobile and Tractor Institute	NATI	Saltykovskaya, 5, Mos- cow

Central Aerohydrodynamic Institute	TSAGI	Ul. Radio, 17, Moscow
<i>Power and Fuel</i> Institute for Power and Electrification		Stremyanny per., 29, Moscow
All-Union Electrotechnical Institute	VEI	Prolomny proyezd, 45, Moscow
Dzerzhinsky Thermotechni- cal Institute		Leninskaya Sloboda, 3, Moscow
Peat Institute	Instorf	Bolshaya Kaluzhskaya, 73, Moscow
Petroleum Institute	GINI	Bolshaya Kaluzhskaya, 73, Moscow
<i>Chemical</i> Karpov Chemical Institute		Vorontsovo Polye, 10, Moscow
Institute for Applied Chemis- try	GIPKH	Vatny Ostrov, 2, Lenin- grad
Institute for the Rubber In- dustry		Maroseika, 12, Moscow
<i>Miscellaneous</i> Institute of the Timber In- dustry		Kuntsevo, Moscow
Institute of the Textile In- dustry	NITI	Bolshaya Kaluzhskaya, 75, Moscow

As an example of the growth of some of these institutes may be mentioned the State Physico-Technical Institute at Leningrad, which celebrated its fifteenth anniversary in October, 1933. The staff of this institute, which in 1918 consisted of eighteen workers grouped about the distinguished scientist, A. F. Joffe, now totals about 2,000 physicists. The institute has subdivided into several institutes—physico-technical, electro-physical, chemico-physical, physico-agronomical, etc. Moreover, branches have been established in other important centers, such as Moscow, Kharkov (Ukraine) and Sverdlovsk (Urals). During the fifteen years of its existence the institute has pub-

lished more than 1,000 scientific works. Similarly, the staff of the Institute of Applied Chemistry, founded in 1919, has increased from 40 to 400.

As an aid to the reconstruction of agriculture Soviet botanists, who numbered 1,440 in 1930, have made an intensive study of the native flora of the country, mapping their distribution and discovering many types valuable for cultivation. A 20-volume publication, *The Flora of the U.S.S.R.*, is now in press. Notable work in this field was done by the Soviet botanist, the late I. V. Michurin, who developed new fruits, vegetables and other plants which can be adapted to various climates of the U.S.S.R.

Only a few of the developments in the other branches of science can be cited here: In biology—Pavlov's work on conditioned reflexes; in chemistry—Bakh's research on the development of ferments, discovery of processes for the manufacture of synthetic rubber, plastics, etc.; in physics—Joffe's work in the physics of solid bodies, especially crystals, investigation of atomic nuclei; in geology—extensive researches resulting in an unprecedented growth of the known mineral resources; in metallurgy—work on ferroalloys, special steels, processes for aluminum manufacture; in machine-building—new designs for airplanes, automobiles, and industrial and agricultural machinery of all kinds; in power—research work on new types of generators, condensers, insulating materials, high-voltage transmission lines, etc.; in agriculture—research in many fields, notably in that of selection, struggle against drought, for increased yields, new crops, improved methods of cultivation, etc.; in Arctic exploration—systematic exploration and scientific investigation of the Arctic.

The second Five-Year Plan calls for a large expansion of research in all branches of science and industry. The funds assigned by the government to research institutes are scheduled

to rise from 470 million rubles in 1932 to 970 million in 1937. Capital investments for the period are to total 1,040 million rubles as compared with 390 million during the first Five-Year Plan. Thirteen new research institutes and seven branches will be established, among them, a Coal Institute in Moscow, for the study of coal in the Moscow Basin; an Institute of Physics and a Metallurgical Laboratory in Leningrad; an Institute of Hard Alloys in Podolsk, and branches of the Academy of Sciences in Tashkent, Novosibirsk and other cities.

Soviet scientists have participated in many scientific congresses in other countries, and in recent years a number of such congresses have met in the U.S.S.R. Among some of the recent international congresses held in the United States and attended by scientists from the U.S.S.R. have been the International Astronomical Congress held at Cambridge, Mass., in September, 1932, the International Genetics Congress at Ithaca, N. Y., in August, 1932, and the International Geological Congress at Washington, D. C., in July, 1933. The next Geological Congress is scheduled to meet in 1937 in the U.S.S.R. The 1935 International Congress of Physiologists was held in Leningrad from August 9 to 17. It was attended by 1,500 delegates representing 37 countries, including 500 from the U.S.S.R. and 165 from the United States. The Third International Congress on Iran Art and Archeology took place in Leningrad in September, 1935.

Cultural Relations with Foreign Countries

The All-Union Society for Cultural Relations (VOKS) was formed for the purpose of establishing closer contact between cultural and scientific bodies in the U.S.S.R. and those of foreign countries. It arranges an exchange of information, reports, periodicals, and books issued by such societies in the Soviet Union for similar publications in foreign countries, and

issues the magazines *Voks* and *Soviet Culture Review*. The society maintains a Service Bureau for Foreign Visitors, which assists foreigners going to the U.S.S.R. for purposes of research or study, and arranges tours for visiting scientists, professors, etc. Reciprocal societies for the promotion of cultural relations have been formed in many countries. A .Y. Arosev is President of the Society, whose address is Grusinski Square 17, Moscow, U.S.S.R. There is a branch in Leningrad at October 25th Prospekt, 40.

The American Society for Cultural Relations with Russia (U.S.S.R.) was organized in 1926. It is now known as the American Russian Institute (for Cultural Relations with the Soviet Union) and its main office is located at 56 West 45th Street, New York City.

XVII

REGULATIONS FOR FOREIGNERS

SOVIET legislation in general places foreigners resident in the U.S.S.R. on the same footing as Soviet citizens. Foreign residents, engaged as industrial and farm workers, and not employing hired labor are accorded all political rights, including the right to vote and to be elected to the Soviets. Article 9 of the instructions published by the Central Executive Committee of the U.S.S.R. concerning the election to the Soviets in 1930 reads as follows: "In accordance with the constitution of the federated republics, foreign workers and peasants not using hired labor, resident within the territory of the Union, possess electoral rights. The Electoral Commissions may grant electoral rights also to foreign citizens from the category of employees (administrative and technical personnel), resident within the territory of the Union, in case there is sufficient proof of their absolute loyalty to the Soviet Government." Foreign workers and technicians are permitted to join the consumers' co-operatives and to be supplied by them.

Foreigners who have resided within the territory of the U.S.S.R. for not less than eighteen months and who have in that time carried on socially useful work are considered residents. Foreigners who intend to establish their residence in the territory of the U.S.S.R. are obliged to present their foreign passports to the proper administrative department of the local executive committee, where they are given an identification card good for a limited period, maximum one year, and renewable on expiration. For entrance to and exit from the U.S.S.R. the corresponding visas are required.

The laws of the U.S.S.R. recognize the following kinds of participation of foreign capital in the economic life of the Soviet Union: concessions, participation of foreign firms in individual transactions with special permission of the government authorities of the U.S.S.R., participation of foreign capital in corporations founded according to Soviet law, and technical assistance under special agreements concluded with state organizations. The labor laws of the Soviet Republics apply to all foreigners resident in the U.S.S.R.; foreign workers and specialists enjoy all rights to social insurance possessed by Soviet citizens and are permitted to join the trade unions.

By virtue of Article 16 of the Federal Law of April 22, 1931, relating to citizenship, a simplified method of admitting foreigners to Soviet citizenship is applied "to foreigners who are workers and peasants and live in the territory of the Union for the purpose of work, as well as to foreigners enjoying the right of asylum. . . ." Under this method a decision of the Executive Committee of the respective region ("krai" or "oblast") is sufficient.

There is full equality of rights between men and women, both in determining the citizenship of a married woman, and in determining the citizenship of the children.

Soviet law places no special restrictions on the right of nationals of other states to engage in professions. It does not exclude foreigners from the Government service, nor does it make naturalization a prerequisite.

As is the case in most countries, according to Soviet legislation the right to fish in territorial waters is granted only to nationals of the country. The limitation of the rights of foreigners to engage in fishing refers to all the territorial waters of the Soviet Union, *i.e.*, within twelve miles of the shore. Foreigners may obtain fishing rights under special concessions.

As a general rule, in order to follow vocations requiring a

diploma, persons holding diplomas of foreign universities must pass corresponding examinations in the U.S.S.R. This rule has been laid down particularly in the case of physicians.

Foreign citizens settling in the U.S.S.R. or engaged to work there are permitted to bring in without license and free of duty all their personal belongings (including furniture) within the limits of a specified list. The objects imported into the country may be taken out. Rare books, paintings, antiques and similar objects of value acquired in the U.S.S.R. are allowed to be taken out of the country on production of an authorization (furnished usually when the sale is made) of the People's Commissariat for Education or its local organs and on payment in certain specified cases of an ad valorem duty. Foreigners employed in Soviet organizations have special privileges in regard to supplies and the right to receive parcels from abroad at a reduced rate of duty.

Foreign citizens in the U.S.S.R. may acquire the right of property in things and building rights in houses and have recourse to the law of mortgage. Nearly all the commercial treaties between the U.S.S.R. and foreign states contain rules on the property rights of foreigners.

Foreign citizens, as well as Soviet citizens, are entitled under the law to enjoy religious freedom and the right to hold religious services. In accordance with the decree of January 1, 1918, every citizen may profess any religion or none. The unimpeded performance of religious rites is guaranteed in so far as they do not disturb public order and are not accompanied by any infringement of the rights of citizens of the Soviet Union.

Foreign citizens resident in the U.S.S.R. pay the same taxes and assessments as Soviet citizens. Income tax is also levied on the income of foreign citizens resident abroad to the extent to which this income arises from enterprises or property lo-

cated within the U.S.S.R. Income of foreign citizens derived from sources outside the limits of the U.S.S.R. is not subject to taxation. Foreign corporations doing business in the U.S.S.R. are taxed on that part of their income derived from their activity within the Soviet Union. Exceptions to these rules are granted only by special arrangement, either to avoid double taxation or in accordance with special concession or technical aid agreements.

The legislation of the Soviet Republics fixes certain rules for the expulsion of foreigners whose manner of living, activity and conduct are incompatible with the principles and institutions of the Soviet state. In all court proceedings foreigners enjoy the same rights as citizens of the U.S.S.R. Soviet law does not require special bail or bonds for foreigners.

Marriages between foreigners as well as marriages between foreigners and Soviet citizens are registered in accordance with the general laws of the U.S.S.R. Registration of marriages between foreigners at foreign consulates is permissible, provided the conditions prescribed by Soviet law for civil marriage are complied with. Marriages contracted abroad are considered valid in the U.S.S.R. The same rules apply to the registration of divorces. The laws of the U.S.S.R. provide for divorce also in cases where only one of the two parties is a resident of the U.S.S.R. Family law contains no special provision for foreigners. They are subject to Soviet law except to the extent that international treaties provide for the application to them of the laws of their native country.

An order of the People's Commissariat for Education of the R.S.F.S.R. of April 6, 1925, established that where minors, citizens of foreign states in treaty relations with the U.S.S.R. and resident in the R.S.F.S.R., are in need of guardianship, such guardianship may be exercised by the diplomatic or consular representatives of the foreign states concerned. Local

departments of education are instructed to report, in the manner prescribed, to the foreign representatives concerned, each foreigner under age who is in need of a guardian. In case the foreign representatives decline to accept guardianship over their national, the guardianship shall be exercised by the local authorities.

The Soviet civil code contains no special provisions covering the right of inheritance of foreigners in the U.S.S.R. There is an extensive body of precedents supplementing the existing law. The chief provision of existing agreements with other countries is that in case of the death of a foreigner the law of his native country applies to the movable part of his estate, while Soviet law applies to his immovable property, immovable according to foreign law. In case there are no treaties Soviet law applies. Since the Soviet civil code does not distinguish between movable and immovable property, all buildings, building rights and legal relations arising from the use of land are to be considered as immovable property.

The estate of a foreigner in the U.S.S.R. is subject to an inheritance tax in accordance with the laws of the Soviet Union, unless the contrary is stipulated in international treaties ratified by the U.S.S.R.

By virtue of Article 7 of the Civil Procedure Code, the Court is obliged in taking cognizance of contracts made and acts executed abroad to take into account all the formal rules operative in the place where the contract was made or the act executed . . . "provided the said contracts or acts are lawful under the existing laws and treaties."

U.S.S.R. consuls abroad perform the functions of Soviet notaries in respect to transactions between the citizens and juridical persons of the U.S.S.R. and also for foreign corporations and citizens in so far as the transaction is to be performed within the territory of the U.S.S.R.

The courts of the U.S.S.R. execute the judicial commissions of nearly all the states with which the Soviet Union is in normal diplomatic relations. Special conventions have been signed with Germany, Austria, Lithuania and Estonia containing more or less uniform provisions. States which have entered into an agreement of this kind with the U.S.S.R. are exempt from fees for judicial commissions; in all other cases a fee is charged.

Special arbitration clauses are contained in treaties with Germany, Austria, Norway, Latvia, Italy, Turkey and other states. By virtue of Article 12 of the Treaty of Commerce and Navigation between the U.S.S.R. and Italy of February 7, 1924, the contracting parties undertook to recognize "every article dealing with arbitration contained in the contracts between their nationals and all kinds of companies."

A foreign-trade arbitration commission and a maritime arbitration commission have been set up at the All-Union Chamber of Commerce in Moscow.

CURRENCY REGULATIONS

The State Bank of the U.S.S.R. has issued the following summary of currency regulations:

Rules Regarding Foreign Currency

1. Every foreign citizen entering the U.S.S.R. is allowed to bring in foreign currency (money, checks, letters of credit, etc.) to an unlimited amount.

2. Foreign citizens arriving from abroad should apply to the customs office for a statement certifying the amount of foreign currency brought in by them. Such certificate gives the person concerned, during a period of two months after arrival in the U.S.S.R., the right when going abroad of freely taking out a similar amount of actual foreign currency notes or transferring same through the banking institutions of the U.S.S.R.

Checks, letters of credit and other payment instruments ex-

pressed in foreign currency brought into the country by foreign citizens may be taken out by them on leaving for abroad or transferred through Soviet banking institutions even after the above-mentioned two-month term, on condition that these documents are precisely indicated in the certificate issued by the customs office.

This does not apply to foreign currency and checks, letters of credit, and other payment instruments expressed in foreign currency transferred from abroad to foreign citizens staying in the U.S.S.R.

3. Foreign citizens arriving from abroad may, within a period not exceeding two months from the date of their arrival, deposit the foreign currency brought into the country by them with the State Bank or the Bank for Foreign Trade, to be credited to a current account in foreign currency known as type "A." The foreign currency proceeds of checks, letters of credit and other similar payment instruments issued by foreign banks and other organizations may also be credited to this account on condition that these payment instruments are passed directly to the respective Soviet bank without the actual proceeds having been delivered personally to the holders of the account.

Sums standing to the credit of foreign currency accounts, type "A," are at the request of the holder of the account transferred abroad without any kind of permit whatever having to be presented by him. The transfer of such sums abroad can be made in any practical form desired by the owner of the account (remittance order, check, letter of credit, and so on).

Foreign citizens having a type "A" current account with the State Bank or the Bank for Foreign Trade may, on leaving the country, carry out with them the foreign currency standing to their credit on their presenting a corresponding certificate, issued by the State Bank or Bank for Foreign Trade, to the customs office. The banks are obliged to issue such certificates at the request of the holder.

4. Foreign citizens arriving from abroad may, within a period of two months from the date of their arrival, use the foreign currency brought in by them for the purpose of acquiring travelers' checks of the State Bank of the U.S.S.R. These checks may also be purchased for the foreign currency proceeds

due to foreign citizens who have brought into the U.S.S.R. checks, letters of credit, and other payment instruments, issued on foreign banks and other institutions, if the actual proceeds of these payment instruments have not been originally paid to the purchaser.

The original purchaser of a travelers' check of the State Bank has the right to convey freely or transfer same abroad on condition that the check bears a facsimile of his signature and has not been endorsed.

Foreign currency received by the original purchaser of a check on cashing it can be taken freely by him out of the country on his presenting the corresponding certificate of the State Bank to the customs office or it may be transferred abroad through a banking institution.

5. Checks, letters of credit and other payment instruments of the State Bank and Bank for Foreign Trade expressed in foreign currency and drawn on other foreign correspondents may be taken freely out of the country or transferred abroad by the person in whose name they have been drawn. The despatch of these documents abroad should be carried out through one of the banking institutions of the U.S.S.R.

6. For the export, transfer or despatch abroad of foreign currency in cases not foreseen by points Nos. 2-5 it is necessary to obtain a permit from the Department of Foreign Currency and International Accounting of the Commissariat for Finance.

7. The State Bank, Bank for Foreign Trade and other banking institutions carrying out operations for the purchase of foreign currency convert the latter into Soviet currency at the official current rate published in the newspaper *Izvestia*.

8. At all frontier customs offices of the U.S.S.R. there are exchange bureaus of the State Bank and other banking institutions of the U.S.S.R. which freely effect conversion of foreign into Soviet currency at the rate indicated in par. 7.

Rules Governing the Import and Export of Soviet Currency

9. The import of Soviet currency (bank notes of the State Bank of the U.S.S.R., treasury notes and coins of the U.S.S.R., as well as payment instruments drawn in Soviet currency, with

the exception of the documents indicated in par. 10 and 11) is prohibited.

10. The import of (a) checks and other payment instruments drawn in the currency of the U.S.S.R., against the accounts of foreign correspondents with Soviet banking institutions, and (b) travelers' checks of the State Bank of the U.S.S.R. is allowed to an unlimited amount.

The import of drafts drawn in the currency of the U.S.S.R. is allowed to an unlimited amount, if permit for same has been obtained from the Department of Foreign Currency and International Accounting of the Commissariat for Finance.

11. The import of Soviet currency and payment instruments drawn in Soviet currency is allowed on condition that proof is submitted that same were exported before August 1, 1926.

12. The export of Soviet currency and payment instruments expressed in Soviet currency is prohibited, with the exception of the documents indicated in par. 10.

The export of payment instruments indicated in par. 10 is allowed to an unlimited amount, the export of travelers' checks of the State Bank being regulated by the rules given in par. 4.

The export of drafts drawn in Soviet currency is effected by permission of the Department of Foreign Currency and International Accounting.

13. Soviet currency not declared by persons who arrive in the U.S.S.R. at the customs examination is confiscated. Soviet currency declared by persons who arrive in the U.S.S.R. at the customs examination is put into custody. Should same have been exported before August 1, 1926, the proofs thereof are examined by the Department of Foreign Currency and International Accounting, and, if considered satisfactory, the currency is allowed to be taken into the U.S.S.R. In the absence of proof or when the proof presented is found to be unsatisfactory, the owner of the currency is given a period of six months either to take the money out personally or to authorize another person to convey same abroad on his behalf.

State Bank Deposits

For the convenience of foreigners two types of accounts in foreign currency may be opened with the State Bank of the

U.S.S.R., Neglinnaya 12, Moscow, or with any of its branches: current account, type "A," the balances on which may be freely transferred abroad; and current account, type "B," whose balances may be disposed of only within the U.S.S.R. Either type of account may be opened by foreign citizens (individuals or corporations), regardless of whether they reside in the U.S.S.R. or abroad. If the depositor resides abroad, remittances are made through the foreign correspondents of the State Bank. In the United States the principal correspondent is the Chase National Bank, in New York City. Among the leading correspondents in other countries are: the Moscow Narodny Bank, in London; the Banque Commerciale pour l'Europe du Nord, in Paris; and the Garantie und Kredit-Bank für den Osten, in Berlin. In case the depositor is an individual no permit is needed to open an account; corporations are usually required to obtain a permit from the Commissariat for Finance.

All foreign currency brought into the U.S.S.R. or transferred from abroad may be deposited to these accounts. Payments from both types of account may be effected on demand in actual foreign currency or in rubles, at the desire of the holder of the account; payments from type "A" accounts may be effected also in checks of the State Bank drawn on foreign correspondents of the latter or in travelers' checks of the State Bank.

When withdrawing money from a current account, type "A," at time of departure, the depositor should secure a permit from the bank to take out such money. As such permits are valid for only 15 days from date of withdrawal, if departure is delayed, funds should be redeposited in a similar account.

Interest on accounts in foreign currency is payable annually in the currency in which the account is opened. The present interest rates are as follows: 6 per cent for regular drawing

accounts, 7 per cent for accounts placed on fixed deposit for 6 to 12 months, and 8 per cent or over for accounts placed on fixed deposit for one year or more. Interest rates are fixed by the head office of the State Bank, and may be changed by the latter at any time, whereupon notice is given to holders of accounts.

TRAVELERS' CHECKS

The State Bank of the U.S.S.R. issues travelers' checks for the convenience of foreigners in the U.S.S.R. These checks are issued in denominations of 5, 10 and 25 rubles, and are sold for foreign currency by the State Bank and its agents and by Intourist offices and representatives, both in the U.S.S.R. and abroad. Travelers' checks presented for payment in the U.S.S.R. are paid at the desire of the holder either in foreign or Soviet currency. Payment in foreign currency is made only if the check is presented by the original purchaser; in Soviet currency only if the person presenting same for payment is a Soviet citizen or if one of the endorsers is a Soviet citizen.

When cashing travelers' checks for foreign currency, the original purchaser has the right to convey this currency out of the country on the strength of a certificate issued to him by the institution cashing the check. Or the travelers' checks may be taken abroad freely and submitted for collection at any bank or company abroad with which arrangements have been made. In the United States these include among others: American Express Company; Chase National Bank, Manufacturers Trust Company, National City Bank and Corn Exchange Bank of New York City; First National Bank and Continental Illinois Bank and Trust Company of Chicago; First National Bank of Boston; Mellon National Bank of Pittsburgh; Tradesmens National Bank and Trust Company of

Philadelphia; Hibernia Bank and Trust Company of New Orleans; Bank of America and Wells Fargo Bank and Trust Company of San Francisco; Union Bank and Trust Company of Los Angeles. Reciprocally, the State Bank of the U.S.S.R. cashes travelers' checks and drafts against letters of credit issued by these banks.

SOVIET BONDS

Soviet bonds (non-premium) may be purchased by foreigners resident in the U.S.S.R. or abroad. Foreigners resident in the U.S.S.R. may subscribe to state loans in either rubles or foreign currency. Bonds paid for in rubles receive payment in that currency and may not be taken abroad, while purchasers of bonds in foreign currency may receive, at the time of purchase, a permit from the State Bank to convey such bonds abroad. Foreigners resident in the United States may purchase bonds direct from the Foreign Department, State Bank of the U.S.S.R., Neglinnaya 12, Moscow, from any of its correspondent banks in this country or from the Soviet American Securities Corporation, 30 Broad Street, New York

The bonds now available to American investors are the 7 per cent ten-year gold bonds of the Second Five-Year Plan Loan, maturing on October 1, 1943. These bonds are issued in denominations of 100 gold rubles (a gold ruble contains 0.774234 grams of pure gold), and bear interest at 7 per cent payable quarterly. The price of the bonds in dollars varies according to the prevailing rate of exchange. On demand of the bondholder the bonds will be repurchased by the State Bank of the U.S.S.R. at a price of par plus accrued interest. The bonds are redeemable commencing Oct. 1, 1939, at which time 20 per cent of the entire issue will be drawn by lot, and an equal amount each October 1 thereafter until maturity.

Bonds may be held by their owners or left with the State Bank of the U.S.S.R. for safekeeping and service. In the latter case the bonds are registered in the name of the owner and a receipt is issued to him. The State Bank thereafter makes regular payments of interest and principal when due, by mailing checks to owner or his bank. This service is without charge. In the former case interest coupons and bonds may be deposited at any bank for collection through the American correspondent banks of the State Bank of the U.S.S.R., or deposited for collection at the offices of the Soviet American Securities Corporation. The Chase National Bank is the paying agent in the United States for the 7 per cent ten-year gold bonds of the Second Five-Year Plan Loan. Payments of principal and interest to bondholders in the United States are made in American dollars or in such other foreign currency as the holder may desire, in either case at the rate of exchange prevailing on date of payment. The bonds are exempt from taxation by the U.S.S.R. or any of its constituent subdivisions.

PATENTS AND COPYRIGHTS

Foreign residents of the U.S.S.R. enjoy the same rights in regard to the registry of inventions as Soviet citizens. This holds true likewise for foreigners resident abroad, except in cases where the foreign government does not extend reciprocity in this respect. The granting of patent rights to foreign inventors does not carry with it the right to work the patent commercially in the Soviet Union by opening industrial or trading concerns. Foreigners desirous of utilizing their patent in the U.S.S.R. must secure a special concession.

The U.S.S.R. does not participate in the International (Berne) League for the Protection of Industrial Property Rights. Thus, as a rule, foreigners taking out letters patent in the U.S.S.R. have no priority based on the filing of an

application in the country where the invention was made. A foreigner's right to a patent dates from the moment an application was filed in the U.S.S.R. A different method may be established only by virtue of an agreement between the U.S.S.R. and the state concerned. So far the U.S.S.R. has made two agreements regarding the protection of industrial property rights including patents for inventions (with Germany and Norway).

The administration of all matters concerned with patents is handled by a special Inventions Committee under the supervision of the Council of Labor and Defense. The Committee has two subsidiary bodies: the Originality Bureau and the Council of Appeal. The Originality Bureau accepts applications, issues patents, certificates, etc. This bureau examines tens of thousands of applications annually. The expert examination must be completed within six months from date of application; in 1933 such examination took on an average about 2-3 months. The functions of the Council of Appeal cover the examination of appeals against decisions of the Originality Bureau. The Inventions Committee publishes a special journal, *Vestnik Komiteta po Izobretatelstvu*, giving notices of applications received and of patents and certificates granted, lists of inventions made in the U.S.S.R., etc.

Either a patent or a certificate of authorship is granted for those new inventions favorably reported on by the Originality Bureau. The grant of a Soviet patent carries with it exclusive rights during the entire period of validity of the patent (15 years) and guarantees the patentee a definite sum on the disposal of the patent. The holder of a certificate of authorship is precluded from transferring his rights in return for money. The compensation to holders of these certificates is based on agreements entered into with the state enterprise utilizing the invention. Remuneration at a lower rate is granted also for

proposals for technical or organizational improvement, not necessarily new in world technique but new to the U.S.S.R. and which have been accepted as adaptable to Soviet enterprises. The extent of remuneration for patents, certificates of authorship and proposals is in each case based on calculations as to the annual economy resulting from the use of the invention or proposal.

The Soviet patent law makes it obligatory to utilize all inventions which are considered useful for Soviet national economy. The Inventions Committee sends a copy of the application to the patent committee of the industry concerned, which examines the invention from the point of view of its usefulness for that industry. This body is required to decide within one month as to the usefulness of the invention. Should the patent be considered useful, it is the duty of the organization to enter into negotiations with the inventor or his assignee. Serious penalties are inflicted (dismissal and prosecution) for the non-utilization of or delay in working inventions declared useful.

The number of applications filed by foreigners in 1930 and 1931, the latest years for which data are available, was 1,251 and 634, respectively. By far the largest number of such applications came from Germany and the United States, the former accounting for 632 in 1930 and 318 in 1931 and the latter for 286 in 1930 and 149 in 1931. Great Britain came next with 53 and 40, respectively. Patents have been issued on 32.1 per cent of the total number of foreign applications examined, which compares with 25.4 per cent as regards applications of Soviet citizens.

According to Soviet law foreigners resident abroad must authorize persons permanently residing in the U.S.S.R. to conduct all affairs in regard to the issue of patents on their inventions. The office now handling such matters is the Patent

Bureau, U.S.S.R. Chamber of Commerce, Ul. Gertzena, 8, Leningrad. This bureau has issued a pamphlet listing the documents and materials required in making application for a patent or for registration of trade marks and listing the various fees and charges in connection therewith. The chief official fees for patents are: application fee—60 rubles; filing fee for appeals—30 rubles; transfer of patent rights—60 rubles; issue of a license—30 rubles. Annuities are payable as follows: during the first three years—50 rubles a year, for the next three years—25 rubles more than each preceding year, and for every subsequent year 50 rubles more than the preceding year. Foreigners resident abroad pay these fees and annuities in foreign currency to the correspondents of the State Bank of the U.S.S.R. to the credit of Account No. 160 of the Commissariat for Finance with the Foreign Department of the State Bank. Certificates of authorship are not subjected to any fees and annuities whatsoever. A patent may be exchanged for a certificate of authorship. Foreigners usually prefer the latter to a patent. In making application it should be specifically stated which is desired.

All material sent to the U.S.S.R. in connection with applications for patents, certificates, trade marks, etc., such as drawings, plans, models, etc., may be imported into the country free of duty and without special permit. Such material should be certified at a consulate of the U.S.S.R.

Trade Marks

Patents for trade marks in the U.S.S.R. may be obtained by foreign manufacturers who are permitted to do business in the territory of the U.S.S.R. or who are nationals of a country permitting the registration of trade marks for citizens of the U.S.S.R. Since the laws of the United States permit the registration of trade marks of applicants from the Soviet Union, a similar privilege is enjoyed reciprocally in the U.S.S.R. by

American citizens. In 1931 out of 64 foreign applications for registration of trade marks 28 came from the United States, which country held first place in this respect. Germany came second with 19 applications. Fees and other charges are listed in the above-mentioned pamphlet issued by the Patent Bureau of the U.S.S.R. Chamber of Commerce. Exchange of notes providing for reciprocity in respect to registration of trade marks has taken place between the U.S.S.R. and Austria, Italy, Denmark, Sweden and Finland.

Copyright Laws

Article 1 of the Union law on copyright of May 16, 1928, states that "copyright in productions which have either appeared in the territory of the U.S.S.R. or which exist as manuscripts, sketches or in any other form is recognized as the property of the author or of his assignee or successor, irrespective of their citizenship." Thus foreigners have the same rights as Soviet citizens in relation to their copyright in productions which appear in the territory of the U.S.S.R.

Article 2 provides that "copyright in productions which have appeared abroad or which are located abroad as manuscripts, sketches or in any other form, is recognized only if there is a special agreement between the U.S.S.R. and the corresponding state, and exclusively within the limits laid down by such agreement." Thus domestic laws do not protect the copyright of foreigners in products which have appeared abroad unless there is a convention to that effect. There is as yet no copyright agreement between the Soviet Union and the United States. Soviet law grants no copyright on translations.

TORGsin SERVICE *

Torgsin (All-Union Company for Trade with Foreigners) occupies a special field in foreign trade. It supplies goods and

* The Soviet Government has announced that the Torgsin organization will be liquidated on February 1, 1936.

provisions to foreigners and to Soviet citizens in exchange for gold, foreign currency, or Torgsin orders, and to foreign steamers entering the ports of the Soviet Union. It operates a chain of stores in hundreds of localities, including all the important cities and ports of the U.S.S.R. These stores have in stock a large variety of domestic and imported articles (food, drygoods, household supplies, handicraft articles, etc.).

People abroad who desire to enable their friends or relatives in the Soviet Union to purchase goods from Torgsin stores may secure orders by applying to authorized agents or any local bank. Among the principal companies and banks which handle Torgsin orders are: American Express Company, Amalgamated Bank, Am-Derutra Transport Corporation, Gdynia-America Line, Manufacturers Trust Company, Public National Bank and Trust Company, R. C. A. Communications, Inc., and Bank of America, Calif.

Torgsin orders may be sent to any resident of the U.S.S.R. in any quantity. The order may specify the merchandise to be delivered to the recipient of the order, or the choice of goods may be left to the recipient.

Upon receipt of an order Torgsin immediately notifies the person designated in the order to go to the Torgsin store nearest to his residence and select the merchandise desired. Persons who reside in localities where there are no Torgsin stores receive, with the notification of the receipt of the order, a price list from which they may select and order merchandise. Torgsin forwards the merchandise ordered by registered parcel post. Packing and postage are deducted from the amount of the order at the rate of 50 kopeks for parcels of 20 lbs. or less and 80 kopeks for parcels of over 20 lbs. and up to 40 lbs. Four times as many persons availed themselves of Torgsin services in 1933 as in the preceding year.

XVIII

TOURIST TRAVEL IN THE SOVIET UNION

PRIOR to the war the tourist traffic of Russia was small. The few foreigners who came in confined their attention, as a rule, to the larger centers. Likewise, in the early years of the Soviet régime the tasks of reconstruction left little time for the provision of the usual tourist facilities. At the beginning of the period of the Five-Year Plan, however, it was decided to create a special tourist organization, since Sovtorgflot (the Soviet Mercantile Fleet) and Derutra (the shipping organization) were found to be inadequate to handle the growing number of foreigners desiring to visit the Soviet Union. In 1929, the state travel company *Intourist* (a contraction of Russian words meaning "foreign tourist") was organized.

In a period of six years Intourist has cared for more than 100,000 visitors from abroad. Its employees number more than 12,000. It controls the leading hotels in the large centers of the Soviet Union, as a result of a merger in 1932 with the All-Union Hotel combine.

Fleets of foreign-built cars and buses, augmented by others of Soviet manufacture, are at the disposal of its many bureaus for sight-seeing purposes. These bureaus have been established in all important centers and places of interest to tourists. Attached to each are corps of guides who speak several foreign languages. The guides are trained in their profession in Moscow University which conducts all year-round courses for guides. In this school they are taught languages and given instruction in the history and physical aspects of the U.S.S.R.

They are sent to the various sight-seeing centers for visits and are transferred from time to time from one bureau to another in order to increase their knowledge of different sections. Intourist has facilities to assist foreign business men and technicians interested in studying various branches of Soviet industry and commerce.

In addition to the thirty large hotels taken over by Intourist, most of them since overhauled and modernized, an extensive building program is under way. The hotels vary in size from 50 to 1,100 rooms, many with private bath or shower. Restaurants are attached to each hotel. Following is a list of the more important hotels in European U.S.S.R. where Intourist services are available: *New Europe Hotel*, Baku; *Intourist Hotel*, Batum; *Intourist*, Erivan; *Rossia*, Gorki; *Krasnaya* and *Astoria*, Kharkov; *Continental*, Kiev; *Grand*, Kislovodsk; *Astoria* and *Europe*, Leningrad; *National*, *Metropole*, *Savoy* and *New Moscow*, Moscow; *Europa*, Novorossisk; *London* and *Krasnaya*, Odessa; *Caucasus*, Ordzhonikidze; *Great Moscow*, Rostov-on-Don; *Northern*, Sevastopol; *Riviera*, Sochi; *Lux*, Stalingrad; *Orient*, Tiflis; *Leningrad*, Yalta.

Agreements have been made by Intourist with the chief Soviet railways and steamship companies which give it prior rights on accommodations for its clients. Foreign offices have been established in many of the principal cities of the world. Leading travel agencies all over the world book tours and cruises to the Soviet Union.

Intourist is not attached to a commissariat but is subordinated directly to the Central Executive Committee of the Soviet Union. The board of directors has its headquarters in the National Hotel, 11 Gorky St., Moscow, where all the departments are centered. The following is a list of Intourist offices abroad and the principal bureaus in the U.S.S.R.:

INTOURIST OFFICES ABROAD

- NEW YORK: 545 Fifth Avenue
 AUSTRIA: *Vienna*, 6 Opernring
 BELGIUM: *Brussels*, 6 Rue D'Assaut
 DENMARK: *Copenhagen*, 4 Bernstorffsgate
 ENGLAND: *London*, W.C.2, Bush House, Aldwych
 FRANCE: *Paris*, 26 Rue Auber 12 (Opera)
 GERMANY: *Berlin* N.W.7, 62-63; Unter den Linden
 Hamburg, Alsterdam 4-5
 HOLLAND: *Amsterdam* (O), Archimedesweg 82
 NORWAY: *Oslo*, 24b Inkognito Gt.
 SWEDEN: *Stockholm*, Kungsgatan 4 a
 TURKEY: *Istanbul*, "Natta" Calata Serey

PRINCIPAL INTOURIST OFFICES IN THE U.S.S.R.

MOSCOW	Main office: Hotel National Local office: Hotel Metropole
BAKU	Hotel New Europe
BATUM	International Hotel
KHARKOV	30 Ploshchad Teveleva
KIEV	Hotel Continental
KISLOVODSK	14 Nikitskaya
LENINGRAD	Hotel Europe
GORKY (formerly Nizhni Novgorod)	Hotel No. 5
ODESSA	Hotel London
ORDZHONIKIDZE	Hotel Caucasus
ROSTOV-ON-DON	Great Moscow Hotel
STALINGRAD	Hotel Lux
TIFLIS	Hotel Orient
VLADIVOSTOK	Hotel Zolotoi Rog
YALTA	Hotel Leningrad

There is probably no other country offering so great a diversity of scenery, nationalities, customs and conditions as does the U.S.S.R. The largest country in the world, its topography ranges from ice-bound northern tundras to semi-tropical desert sands, with all varieties of climatic and geographical conditions. The many nationalities inhabiting the territories which comprise the Soviet Union are an unending source of interest.

Intourist Service

Four cities are the customary points of arrival for tourists in the U.S.S.R.: Leningrad, by steamer through the Baltic Sea or train from Helsingfors; Moscow, by train from West-

ern Europe; Kiev, by train through a southern border point, and Odessa, usually by boat from Istanbul across the Black Sea. From these centers numerous itineraries may be worked out, covering the Northern regions; the Volga area from Gorky to Stalingrad; the Caucasus Mountains (with the highest mountain peaks in Europe); the Ukraine; and the Crimean peninsula. The itineraries cover the large metropolitan and industrial centers, rural districts, mountain and watering resorts, visits to factories, schools, museums, parks, housing developments, hospitals, nurseries, and, in fact, almost all phases of Soviet life and culture in the European part of the U.S.S.R. Occasional tours are conducted by Intourist on special trains to Central Asia. Several expeditions of ice-breakers into the polar regions have been participated in by foreign tourists. A special itinerary comprises the more distant industrial centers, such as Magnitogorsk in the Urals.

Suggested itineraries ranging from five to thirty days are arranged each travel season by Intourist. These tours are available for a standard daily rate in three classes: first, tourist, and third. They vary from five days in one Soviet city to a grand tour, including travel over the greater part of European U.S.S.R.

The tour prices quoted in connection with the standard tours include the following: meals, hotels, guide-interpreters, sight-seeing two to three hours daily. The cost of Soviet entrance and exit visas is included in the tour price. Transportation between cities is arranged at low special rates quoted in the currencies of the Western countries. Special itineraries varying from those included in the standard tours may be worked out for those cities where Intourist service is available.

Partial service in the Soviet Union is arranged for those who wish to secure hotels, meals and transport service in the cities and do not desire full tour service. It is intended par-

ticularly for business men and those wishing to confine their visits to one or two cities. The cost of Soviet visas is additional with partial service.

For those not desiring to take one of the Intourist tours or limit themselves to partial service, open service orders may be purchased. These orders are issued for all three classes of travel and for a minimum number of days. They entitle the holder to select itineraries after arrival in the Soviet Union comprising various cities in which Intourist service exists (all important centers).

Care, transportation and delivery of luggage up to 70 pounds per person is included in the cost of Intourist service. The tourist is advised to take only hand luggage. Larger, overweight pieces are subject to additional charges for transportation.

Transit Service

A number of transit services for travelers to the Near or Far East are in operation. The Trans-Siberian express leaves Moscow six times weekly for Vladivostok and Manchuria. Connecting service from the Polish border at Negoreloye gives rapid through service from Western Europe to the Far East, the most expeditious way of making this journey except by plane. Rail access to China is via the Chinese Eastern Railway to Harbin and then southward. A boat service operates on regular schedule between Vladivostok and Tsuruga, Japan.

The shortest route to Persia from Western Europe is also through the U.S.S.R. A daily limited which connects with European railways at Shepetovka (Polish border) is routed over a line through Kiev, Kharkov, and Rostov-on-Don to Baku. From there a Caspian Sea steamer makes regular trips to the Persian port of Pekhlevi. The journey to Teheran is made by automobile. If Tabriz is the destination in Persia, train service via Tiflis and Armenia connects with the Persian border at Julfa.

Visa Regulations for Tourists

Citizens of any country may make application to visit the Soviet Union as tourists. The traveler must hold either an unexpired passport of any nation, or a re-entry permit and certificate of identity as issued by United States authorities, or similar documents issued by authorities of other countries.

Separate applications are required for each person. Children under 16 may be included in the application of either parent. Tourists visas and extensions of visas are issued only in connection with the purchase of Intourist service.

The cost of the Soviet entrance and exit visa is included in the rate for Intourist standard tours. Visa charges are \$11.00 for the entrance visa and \$11.00 for the exit visa for American citizens.

The Soviet exit visa is good for departure through any of the border points on the Western border of the Soviet Union (Leningrad, Negoreloye, Bigosovo, Belo-Ostrov, Ostrov, Kingesep, Shepetovka, Volochisk, Moscow airport, Odessa). If the traveler plans to leave the Soviet Union via the East (Trans-Siberian Railway or Persia), note of this should be made in the application and special permission obtained.

Transit visas are issued to travelers purchasing through tickets for direct transit through the Soviet Union. Short stop-over privileges are allowed in the cities en route. Intourist partial service may be arranged for the cities visited. The charge for the transit visa, covering both entrance and exit, for American citizens is \$11.00.

According to the existing laws of the U.S.S.R., tourists may bring in with them foreign currency and valuables, checks, letters of credit, articles made of precious metals, bullion, precious stones and jewelry. These must be registered on the tourist's passport, or a special receipt made out for them by the customs office at the Soviet border point of entry. The tourist is allowed

to take out with him the amount of foreign currency and valuables which he brought in and which are enumerated in his receipt or on his passport, if he leaves within two months from date of entry. If he leaves after that time special permission must be obtained to export foreign currency. The import or export of Soviet currency is prohibited.

Tourists may take with them as much clothing and personal effects, duty free, as they may need for their own use. Articles of value purchased at Torgsin or Intourist shops in the Soviet Union, such as works of art or articles containing precious metals or stones, may be taken out on presentation of purchase receipts.

Typewriters, movie apparatus and films may be taken in on condition that the traveler bring them out of the country with him on his return. These must be registered on the passport at the border point of entry.

Films and plates may be taken out by the person who brought them in provided they have been developed or if they remain unused, with the seals on the film or plate packs unbroken. At the Soviet border a receipt is given or a note made on the tourist's passport regarding the films taken in, which must be shown at the border point of exit.

Border Points and Distances Between Cities

The Soviet Union may be entered through the following border points: Belo-Ostrov (from Finland); Leningrad port (via Baltic steamer); Leningrad airport; Kingesep (from Estonia); Ostrov and Bigosovo (from Latvia); Velikie Luki (airport); Negoreloye, Shepetovka, and Volochisk (from Poland); Odessa, Batum, and Novorossisk (via Black Sea steamer); Julfa (from Persia); Baku (via Caspian Sea, from Persia); Junction 86 (from Harbin); Vladivostok (via Sea of Japan).

APPENDIX I

STATISTICAL SURVEY *

Indicators	Unit	1913	1928	1929	1930	1931	1932	1933	1934 (Prelim.)
I. GENERAL INDICATORS									
National income	bil. rub. in prices of 1926-27	21.0	25.0	28.9	35.0	40.9	45.5	48.5	55.6
Share of industry in national income	in % of total	24.0 ¹	34.8	37.9	42.2	42.6	45.3	46.4	47.9
Share of large-scale in- dustry in total produc- tion of industry and ag- riculture	"	40.6	—	54.5	61.6	66.7	70.7	70.8	73.1
Share of socialized econ- omy in national income	"	—	44.0	56.0	74.3	90.0	93.0	95.0	96.0
Share of socialized indus- try in total industrial production	"	—	—	89.5	94.4	—	99.5	99.55	99.67
Share of socialized agri- culture in total agricul- tural production	"	—	3.0	7.0	28.9	62.8	74.7	79.5	83.8
Basic capital of socialized economy (yearly average)	mil. rub. in prices of 1933	—	49,394	51,645	59,903	71,870	85,222	98,284	111,730
II. INDUSTRY									
Basic productive capital of large-scale industry ²	mil. rub.	—	10,262.4	11,389.0	—	14,198.0	17,310.6	22,585.6	28,919.2

* The figures in this table in some cases differ slightly from those given in the body of the Handbook. This is due either to the fact that they represent later revisions or to the fact that they may refer to a somewhat different calculation. The latter is in some cases indicated by the footnotes.

¹ Not including lumber cutting and fish industry.

² 1928-1929 on October 1; remaining years on Jan. 1; without deductions for amortization. Capital put into operation after inventory of October 1, 1925 figured at actual cost, up to October 1, 1925 revalued at 1925 prices.

STATISTICAL SURVEY

Indicators	Unit	1913	1928	1929	1930	1931	1932	1933	1934 (Prelim.)
For production of means of production	in % of total	—	59.1	60.7	—	64.5	68.6	73.0	74.5
For production of consumers' goods	"	—	40.9	39.3	—	35.5	31.4	27.0	25.5
Total production of large-scale (census) industry (not including lumber cutting and rafting, fish industry, railway shops)	mil. rub. in prices of 1926-27	10,251	15,818	19,923	25,837	32,263	36,813	40,079	47,636
Producers' goods	in % of total	41.8	44.4	46.6	50.7	54.0	55.6	57.0	58.7
Consumers' goods	total	58.2	55.6	53.4	49.3	46.0	44.4	43.0	41.3
Average yearly output per worker (in prices of preceding year 1926-27)	in % of	—	112.2	112.9	109.7	107.6	102.6	108.9	109.5
Total output of metal-working industry	mil. rub. in prices of 1926-27	1,131	2,135	2,940	4,844	7,398	9,240	10,732	13,375
Machine-building	"	697	1,631	2,233	3,647	6,077	7,628	8,908	11,118
Share of machine-building in total output of large-scale industry	in % of total	6.8	10.3	11.2	14.1	18.8	20.7	22.2	23.3
Capacity of power plants (at end of year)	thous. kw.	1,098	1,905	2,296	2,876	3,972	4,677	5,579	6,212
Regional stations	in % of total	16.1	32.8	40.9	49.3	59.8	64.6	66.6	66.9
Output of electrical power	mil. kw.-h. in % of	1,945	5,007	6,224	8,368	10,687	13,540	16,366	20,520
Regional stations	total	22.2	40.0	44.8	54.3	60.6	68.1	70.3	74.2

STATISTICAL SURVEY

Indicators	Unit	1913	1928	1929	1930	1931	1932	1933	1934 (Prelim.)
Output of coal	thous. tons	29,117	35,485 ³	40,044 ⁴	47,780 ⁵	56,752	64,406	75,959	93,480
“ “ oil (with gas)	“ “	9,234	11,652 ³	13,694 ⁴	18,826 ⁵	23,093	22,252	22,503	25,532
“ “ pig iron	“ “	4,216	3,282 ³	4,021 ⁴	4,964 ⁵	4,871	6,161	7,110	10,440
“ “ steel	“ “	4,231	4,251 ³	4,854 ⁴	5,761 ⁵	5,620	5,927	6,842	9,565
“ “ rolled steel	“ “	3,506	3,408 ³	3,898 ⁴	4,503 ⁵	4,159	4,288	4,882	6,723
“ “ raw copper	tons	31,113	30,014 ³	35,503 ⁴	44,517 ⁵	44,335	44,986	44,295	53,333
“ “ tractors	pieces	—	1,272 ³	3,281 ⁴	9,097 ⁵	38,108	50,640	78,138	94,438
“ “ automobiles (not including machines assembled from imported parts)	“	—	671 ³	1,390 ⁴	3,375 ⁵	4,005	23,879	49,724	72,466
III. AGRICULTURE									
Basic capital of socialized agriculture (at beginning of year, with allowance for depreciation)	mil. rub. in prices of 1926-27	—	1,367.4	1,665.9	2,491.2	5,990.4	11,468.9	12,660.9	14,284.8
Sovkhozes (State Farms)	“	—	300.0	377.2	551.0	1,363.9	2,639.3	3,384.6	4,066.0
Sown area of state farms	thous. ha.	—	1,735.0	2,273.8	3,926.2	10,958.3	13,447.5	14,138.8	15,026.1
Percentage of peasant families in collectives (on June 1)	in %	—	1.7	3.9	23.6	52.7	61.5	64.4	73.0 ⁸
Number of machine-tractor stations (on June 1)	units	—	—	—	158 ⁸	1,228	2,115	2,660	3,326

³ Fiscal year 1927-28.⁴ Fiscal year 1928-29.⁵ Fiscal year 1929-30.⁸ Aside from the 158 machine-tractor stations under the supervision of Tractor Center, in 1930 there were 479 stations operated by cooperatives.⁹ As of October 1, 1934.

STATISTICAL SURVEY

Indicators	Unit	1913	1928	1929	1930	1931	1932	1933	1934 (Prelim.)
Share of machine-tractor stations in total sown area of collectives	in % of total	—	—	—	27.4	37.1	49.3	58.6	63.9
Tractor supply (at end of year) †									
Number of tractors	pieces	—	26,733 ⁶	34,943 ⁶	72,078	125,344	148,480	210,490	278,413
Capacity	thous. hp.	—	278.1 ⁶	391.4 ⁶	1,003.5	1,850.0	2,225.0	3,205.6	4,460.6
Total production of agriculture	mil. rub. in prices of 1926-27	12,607.1	—	14,744.6	14,007.6	13,943.9	13,071.8	13,961.2	14,829.1
Total sown area	mil. ha.	105.0	113.0	118.0	127.2	136.3	134.4	129.7	131.4
Grain	"	94.4	92.2	96.0	101.8	104.4	99.7	101.5	104.7
wheat	"	31.6	27.8	29.8	33.8	36.9	34.5	33.2	35.25
Technical crops	thous. ha.	—	8,615.4	8,799.8	10,465.7	14,039.3	14,877.2	11,981.0	10,710.4
sugar beets (factory)	"	648.7	769.7	770.7	1,035.8	1,394.1	1,537.8	1,210.7	1,183.3
cotton	"	688.0	971.3	1,055.5	1,582.6	2,137.3	2,172.0	2,051.6	1,937.2
long-fibre flax	"	1,015.3	1,364.1	1,630.6	1,749.1	2,390.9	2,510.0	2,394.6	2,109.8
Feed crops	"	—	3,871.5	4,983.1	6,506.9	8,780.7	10,631.6	7,321.0	7,116.6
Yield of grain crops	centners per ha.	8.5	7.9	7.5	8.5	6.7	7.0	8.8	8.5
Yield of sugar beets	"	168.0	131.8	81.1	135.3	86.4	64.3	74.2	96.0
Yield of flax fibre	"	3.25	2.4	2.2	2.5	2.3	2.0	2.3	2.5
Total grain crop	mil. cent.	801.0	733.2	717.4	835.4	694.8	698.7	898.0	894.0
Number of livestock:	mil. heads								
horses	"	—	33.5	34.6	30.2	26.2	19.6	16.6	15.7
large horned cattle	"	—	70.5	67.1	52.5	47.9	40.7	38.4	42.4
hogs	"	—	26.0	20.4	13.6	14.4	11.6	12.1	17.5
sheep and goats	"	—	146.7	147.0	108.8	77.7	52.1	50.2	51.9

⁶ As of October 1.

† Tractor supply for all years figured with allowance for depreciation.

Indicators	Unit	1913	1928	1929	1930	1931	1932	1933	1934 (Prelim.)
IV. TRANSPORTATION AND COMMUNICATION									
Basic capital of transportation and communication	mil. rub. in prices of 1933	—	15,804	16,315	17,361	18,747	20,560	22,687	—
Total commercial operations of railway transport	mil. ton-km.	91,089	117,995	145,087	185,876	214,222	253,420	244,639	273,200
Commercial freight carried on railways	thous. tons	132,400	156,237	187,626	238,732	258,283	267,906	268,075	316,000
Number of passengers carried on railways	thous. persons	184,800	291,118	365,239	557,704	723,681	967,053	927,028	942,000
Length of railway lines in operation (annual average)	km.	58,549	76,887	77,010	77,073	80,248	81,564	82,080	83,191
Freight carried by river transport system (in vessels and towed)	thous. tons	—	18,332.7	23,143.6	36,504.9	44,668.9	46,937.9	44,717.0 ¹⁰	52,000
Number of passengers carried by river transport system	thous. persons	—	17,780.1	20,697.1	32,058.0	34,428.2	43,631.1	41,584.2	40,000
Length of navigable rivers in use	thous. km.	—	71.6	74.0	75.0	76.0	77.6 ¹¹	82.2	82.3
Freight carried by maritime vessels	thous. tons	33,069	18,416	23,513	34,946	36,903	34,349	33,102	38,900
In vessels of Sovtorgflot (Soviet merchant fleet)	"	—	7,870	8,839	12,278	14,627	14,820	15,868	22,126

¹⁰ In addition, vessels of the Northern river fleet leased to the lumber organizations towed rafts totaling 1,748.1 tons.

¹¹ Including lines operated by other organizations—84,000 km.

STATISTICAL SURVEY

Indicators	Unit	1913	1928	1929	1930	1931	1932	1933	1934 (Prelim.)
Length of air lines (not including intersecting branches)	km.	—	9,326	15,426	26,316	27,716	31,934	34,761	42,700
Length of interurban telegraph-telephone lines	thous. km.	502.5	890.1	955.0	1,071.4	1,322.4	1,515.0	1,652.6	1,870.2
V. CONSTRUCTION									
Capital investment in so- cialized economy	mil. rub. in prices of cor- responding years	—	4,083	5,885	9,786	15,681	20,086	18,432 ¹²	—
Industry	—	—	1,880	2,615	4,115	7,407	10,431	8,863	—
Agriculture	"	—	379	840	2,590	3,645	3,820	3,900	—
Transport and Com- munications (includ- ing industrial enter- prises)	"	—	958	1,249	1,783	2,878	3,658	3,268	—
Municipal economy ¹³ (including city elec- tric stations)	"	—	231	300	315	336	465	562	—
Education	"	—	130	221	241	239	250	234	—
Health and Social Wel- fare	"	—	99	116	128	141	148	173	—
VI. LABOR ¹⁴									
Average number of wage and salary earners in en- tire national economy ¹⁵	in thous.	—	11,599.0	12,167.9	14,530.9	18,989.5	22,942.8	22,301.2	23,225.9

¹² Not including expenditures of 1,275,000,000 rubles for special purposes.¹³ Not including municipal construction by government departments and institutions.¹⁴ Data for 1933 preliminary.

Indicators	Unit	1913	1928	1929	1930	1931	1932	1933	1934 (Prelim.)
Large-scale industry (including hired employees of industrial co-operatives)	in thous.	—	3,096.0	3,365.9	4,263.8	5,483.3	6,481.3	6,222.1	6,528.0
Transport	"	—	1,270.0	1,302.2	1,499.2	1,927.2	2,222.0	2,235.1	2,509.8
Construction	"	—	723.0	917.8	1,623.4	2,548.9	3,125.8	2,343.5	2,475.0
State farms and machine-tractor stations	"	—	345.4	416.4	795.0	1,601.1	2,370.7	2,572.7	2,861.2
Wage fund of entire national economy	mil. rub.	—	8,158.8	9,735.2	13,597.2	21,394.8	32,737.7	35,031.7	41,603.7
Large-scale industry (including hired employees of industrial co-operatives)	"	—	2,695.0	3,222.4	4,413.0	6,494.3	9,547.9	10,366.8	12,418.8
Transport	"	—	1,093.0	1,209.6	1,594.8	2,305.2	3,347.3	3,793.2	4,965.4
Construction	"	—	720.0	940.9	1,756.1	3,168.7	4,715.9	3,789.7	4,936.0
State farms and machine-tractor stations	"	—	113.0	166.3	483.1	1,258.8	2,000.5	2,604.5	3,543.8
Average annual earnings in entire national economy	rubles	—	730	800	936	1,127	1,427	1,571	1,791
Large-scale industry (including hired employees of industrial co-operatives)	"	—	870	957	1,035	1,184	1,473	1,666	1,902
Transport	"	—	861	929	1,064	1,196	1,506	1,697	1,978
Construction	"	—	996	1,025	1,082	1,243	1,509	1,617	1,994
State farms and machine-tractor stations	"	—	327	399	608	786	844	1,012	1,207

STATISTICAL SURVEY

Indicators	Unit	1913	1928	1929	1930	1931	1932	1933	1934 (Prelim.)
VII. GOODS TURNOVER									
Retail trade turnover	mil. rub. in prices of cor- responding years	—	2,408.8	3,197.7	4,282.5	6,547.2	12,995.4	21,680.3	31,958.0
State trade	mil. rub. in prices of cor- responding years	—	9,341.2	11,396.0	13,300.0	18,178.0	22,508.9	21,239.7	22,242.0
Co-operative trade	mil. rub. in prices of cor- responding years	—	3,406.6	2,273.4	1,043.0	—	—	—	—
Private trade	“	—	15,156.6	16,867.1	18,625.5	24,725.2	35,504.3	42,920.0	54,200.0
Total	“	—	10,494.7	11,499.1	11,996.3	16,447.0	23,387.8	29,045.6	38,420.0
Urban	“	—	4,661.9	5,368.0	6,629.2	8,278.2	12,116.5	13,874.4	15,780.0
Rural	“	—	—	—	—	—	—	—	—
Turnover of restaurants and cafeterias	“	—	350.0	550.0	1,290.0	2,740.0	4,840.4	6,374.3	6,600.0
VIII. EDUCATION									
Number of students in higher educational insti- tutions (at beginning of year)	thous.	124.7 ¹⁸	159.8	166.8	191.1	272.1	394.0	469.8	—
Number of students in technicums (at begin- ning of year)	“	48.0 ¹⁸	253.6	284.0	327.1	593.7	754.1	797.0	—
Number of students in workers' faculties (at beginning of year)	“	—	49.2	56.5	68.2	231.9	319.5	352.7	—
Number of students in primary and secondary schools (at beginning of year)	“	7,800.6 ¹⁸	11,356.2	12,074.8	13,503.7	17,656.2	20,846.2	21,813.5	24,036.2

¹⁸ 1914-1915 school year.

STATISTICAL SURVEY

Indicators	Unit	1913	1928	1929	1930	1931	1932	1933	1934 (Prelim.)
IX. HEALTH PROTECTION									
Number of hospital beds ¹⁷									
In cities	"	89.2	143.6	—	186.4	—	230.0	251.3	270.5
In villages	"	49.4	60.0	—	90.4	—	107.0	119.7	133.1
In hospitals of rail-ways	"	—	13.4	—	14.6	—	18.8	20.2	22.6
Number of doctors	"	19.8	63.2	—	66.6 ¹⁸	—	76.4	80.9	82.0
X. FINANCES									
Unified State budget									
Income (total)	mil. rub.	—	—	6,654.1 ¹⁹	11,230.3 ²⁰	20,341.9	30,573.5	40,153.1	49,762.1
Expenditures (total)	"	—	—	6,670.4 ¹⁹	10,765.6 ²⁰	20,332.8	30,283.0	35,666.6	46,947.9
For national economy	"	—	—	3,436.5 ¹⁹	6,031.9 ²⁰	15,327.7	23,161.3	25,113.9	27,952.1
For social and cultural purposes	"	—	—	416.1 ¹⁹	740.3 ²⁰	1,290.7	1,718.7	2,334.5	3,214.8
XI. FOREIGN TRADE									
Exports	mil. rub.	1,520.1	803.4	923.7	1,036.4	811.2	574.9	494.9	418.3
Imports	"	1,375.0	953.1	880.6	1,058.8	1,105.0	704.0	348.2	232.4

¹⁷ Not including psychiatric and sanitary-prophylactic and auxiliary institutions.

¹⁸ Not including doctors not employed in health institutions.

¹⁹ 1928-29.

²⁰ 1929-30.

APPENDIX II

MISCELLANEOUS INFORMATION

Weights and Measures

Kilogram	2.2046	lbs.
Centner	220.46	lbs.
Metric ton	2,204.6	lbs.
Meter	39.37	inches
Kilometer	0.621	miles
Square meter	10.764	sq. ft.
Hectare	2.471	acres

The metric system is officially in use in the U.S.S.R.

Currency

1 kopek = .01 of a ruble; 1 ruble = 51.46 cents at old parity and 87.13 cents at new parity; 1 chervonetz = 10 gold rubles

Postal Regulations

The postage rate for letters from the United States to the Soviet Union is five cents for the first ounce and three cents for each additional ounce.

Parcels up to 22 pounds may be sent by mail. The parcel postage rate to the U.S.S.R. is 14 cents per pound. In addition, the following transit charges are payable: parcels up to 2 pounds, 21 cents; over 2 pounds, and up to 11 pounds, 35 cents; over 11 and up to 22 pounds, 70 cents. If not sent for commercial purposes, no special import permit is required. The usual customs duties must be paid by the recipient. No person in the Soviet Union, however, may receive from abroad during each year more than the quantity of any particular item established by the customs regulations of the Soviet Union.

A copy of the list of annual quotas set for each item may be obtained upon request from the American-Russian Chamber of Commerce.

Printed matter may be sent in parcels not exceeding 4 lb. 6 oz. at the rate of 1½ cents for two ounces. Single copies of books may be sent at the rate of 1½ cents for every two ounces, providing the books do not weigh more than 6 lb. 9 oz.

Mail may be addressed: Union of Soviet Socialist Republics or U.S.S.R.

Radio and Cable Rates

Full-rate fast messages: 30 cents per word.

(Special rate for extremely urgent messages: 60 cents per word).

Deferred rate: 15 cents per word.

Night letter or cable letter: minimum charge of \$2.50 for 25 words, each additional word 10 cents.

Coded messages (five letters): 18 cents per word.

Messages at sea: 21 cents per word.

There is a federal tax of ten cents on each message.

APPENDIX III.
CHRONICLE OF EVENTS—1917-1935 ¹

Congresses of Soviets

A. All-Russian ²

1. 1917—June 16-30.
2. 1917—November 6-9.
3. 1918—January 23-31.
4. 1918—March 13-16.
5. 1918—July 4-10.
6. 1918—November 6-9.
7. 1919—December 5-9.
8. 1920—December 22-29.
9. 1921—December 22-27.
10. 1922—December 23-27.

B. All-Union

1. 1922—December 30.
2. 1924—January 26.
3. 1925—May 13-20.
4. 1927—April 18-26.
5. 1929—May 20-28.
6. 1931—March 8-17.
7. 1935—Jan. 28-Feb. 6.

1917

- | | | |
|------|----|--|
| Nov. | 7 | —Kerensky's Provisional Government overthrown by the Revolutionary Military Committee of the Petrograd Soviet. Decrees on peace, land and establishment of Soviet Government adopted at 2nd All-Russian Congress of Soviets. |
| | 9 | —Soviet Government formed. Lenin elected Chairman of Council of People's Commissars. |
| Dec. | 1 | —Decree on organization of Supreme Council of National Economy. |
| | 27 | —Decree on nationalization of banks. |
| | 31 | —Decree on introduction of civil marriage. |

¹ In order to avoid repetition this list does not include the signature or conclusion of trade agreements, peace treaties, non-aggression pacts, and exchanges of diplomatic notes, these events being chronicled in the two lists in Chapter III.

² Only the first ten All-Russian Congresses of Soviets, which represented the country as a whole, are here listed; the succeeding All-Russian Congresses represented the R.S.F.S.R. alone.

1918

- Jan. 2 —Council of People's Commissars recognizes the independence of Finland.
- 16 —Russia declared a Federated Soviet Republic.
- Feb. 3 —Decree on organization of the Red Army.
- 8 —Introduction of European (Gregorian) Calendar.
- 19 —Decree on socialization of land.
- 23 —Decree on organization of permanent Red Army.
- March 3 —Peace treaty with central powers signed at Brest-Litovsk.
- 12 —Moscow becomes capital of the Russian Soviet Republic.
- April 5-6—Japanese and British forces land at Vladivostok.
- 22 —Decree on nationalization of foreign trade.
- June 28 —Decree on nationalization of large-scale industry and commerce.
- July 2 —Landing of the Anglo-French forces at Murmansk.
- 10 —Congress of Soviets adopts Constitution of the R.S.F.S.R. (Russian Socialist Federated Soviet Republic).
- Aug. 3 —Arrival of American troops in Archangel.
- Sept. 4 —American troops arrive in Vladivostok.
- 14 —Decree on introduction of metric system in Russia.
- Dec. 10 —Publication of labor code.

1919

- Jan. 1 —Proclamation of Soviet régime in White Russia.

- 2 —Ludwig Martens appointed representative of the People's Commissariat for Foreign Affairs in the United States.
- June 14 —Kolchak recognized by Allies as Supreme Ruler of Russia.
- Nov. 14 —Red Army success on northwestern and eastern front. Yudenitch army that was attacking Petrograd, crushed. Omsk, Kolchak's capital in Siberia, taken by advancing Soviet forces.

1920

- Jan. 16 —Allied Supreme Council decides to lift blockade of Soviet Russia and to renew trade relations with Russian co-operative organizations.
- March 27 —Red Army captures Novorossisk on Black Sea, last Denikin stronghold. Flight of Denikin abroad.
- 30 —American troops leave Vladivostok.
- April 28 —Proclamation of Soviet Republic in Azerbaidzhan (Transcaucasia).
- July 7 —Announcement by United States State Department declaring that the restrictions which have heretofore stood in the way of trade and communication with Soviet Russia are removed.
- Sept. 2 —Revolutionary overturn in Bokhara (Central Asia). Bokhara proclaimed a Soviet republic.
- Nov. 9 —Occupation of Perekop in the Crimea by the Red Army. Decisive defeat of Wrangel.
- Oct. 12 —Signing of armistice with Poland.
- Dec. 2 —Occupation of Erivan by revolutionists and proclamation of Soviet Republic in Armenia.
- 22 —Adoption of the Electrification Plan (Goelro).

1921

- Jan. 22 —L. Martens sails from New York for Soviet Russia under decision of U. S. Department of Labor of Dec. 15, 1920.
- Feb. 22 —Organization of State Planning Commission (Gosplan).
- March 18 —Suppression of Kronstadt mutiny.
- Aug. 11 —Council of People's Commissars publishes decision concerning the introduction of the New Economic Policy (NEP).
- Oct. 18 —Establishment of the State Bank of the Russian Socialist Federated Soviet Republic; in 1924 reorganized into State Bank of the U.S.S.R.
- R.T.B.—Machine No. 3—Nov. 8
- 19 —Autonomous Crimean Soviet Republic created.
- Dec. 3 —Arrival in Washington of the Special Delegation of the Far Eastern Republic.

1922

- Feb. 6 —Extraordinary Commission for Combating Counter-Revolution and Speculation (Cheka) is dissolved and the United State Political Department (OGPU) created.
- March 12 —Transcaucasia declared a Socialist Federated Soviet Republic.
- April 10— } —Genoa Conference with participation of Soviet delegation.
- May 19 }
- Oct. 11 —Introduction of the gold-backed "chervonetz" currency.
- 25 —Japanese troops and remains of White armies evacuate Vladivostok.
- Nov. 14 —Amalgamation of the Far Eastern Republic with Soviet Russia.

- Dec. 30 —First All-Union Congress of Soviets. Declaration proclaiming the establishment of the Soviet Union.

1923

- May 10 —Introduction of single agricultural tax.
 July 6 —Constitution of the Soviet Union ratified.
 Aug. 21 —Establishment of Chief Concessions Committee of the Soviet Union.
 Dec. 16 —Chicherin's note to President Coolidge proposing resumption of friendly relations between the Soviet Union and the United States.

1924

- Jan. 21 —Death of Lenin.
 Feb. 14 —Currency Reform. Soviet currency put on a gold basis.
 May 27 —Organization of the Amtorg Trading Corporation to handle Soviet-American trade.
 Nov. 21 —English note to the Soviet Government concerning the non-ratification of the general treaty of Aug. 8, 1924.

1925

- April 4 —Northern Sakhalin surrendered by Japan to representatives of the Soviet Union.
 May 23 —Organization of "Aviakhim" Society of the Friends of the Airfleet and of Chemical Defense. Its name was later changed to "Osoaviakhim."

1926

- Aug. 31 —Protest by the Soviet Government to the Peking Government against an order of Chang Tso-lin confiscating the merchant fleet of the Chinese Eastern Railway.

- Dec. 17 —General census of the population of the Soviet Union.

1927

- April 9 —In a note to the Peking Government Litvinoff demands the liberation of the Soviet employees arrested in the raid of April 6. Soviet Embassy withdrawn from Peking pending the satisfaction of the demands.
- 21 —Beginning of construction of the Turkestan-Siberian Railway.
- May 4 —Construction of the Dnieper Power Project started.
- May 4-23 —International Economic Conference at Geneva with the participation of the Soviet Union,
- 27 —Rupture of Anglo-Soviet relations.
- June 7 —Voikov, Soviet Plenipotentiary Representative to Poland, assassinated in Warsaw by a Russian monarchist.
- Oct. 15-20 —Extraordinary session of Central Executive Committee of the Union of Soviet Socialist Republics in connection with the tenth anniversary of the Revolution, issues manifesto on the gradual introduction of the seven-hour day.
- 25 —Soviet Government protests against exclusion from International Radio-Telegraph Conference in Washington.
- Dec. 1 —Soviet disarmament proposal submitted by M. Litvinoff at Geneva Preparatory Conference on Disarmament.
- 18 —98 leading members of the Opposition expelled from Communist Party.

1928

- March 6 —The United States Secretary of the Treasury forbids the Assay Office to accept a shipment of Soviet gold amounting to \$5,000,000.
- 15 —Interruption of German-Soviet trade negotiations in connection with the arrest of German engineers in the Donetz coal basin.
- 23 —Soviet complete disarmament proposal rejected. Soviet delegation submits new project for partial disarmament.
- May 18— } —Trial of 54 engineers accused of sabotage of
 July 5 } the Donetz coal mines, three Germans
 included.
- July 12-13—Soviet ice-breaker *Krassin* saves seven members of the Nobile Expedition.
- Aug. 27 —The Soviet Union adheres to the Kellogg Anti-War Pact.

1929

- April 23 —The maximum program for the Five-Year Plan of economic development for the period from 1928-29 to 1932-33 is ratified by the Council of People's Commissars.
- July 10 —Seizure of Chinese-Eastern Railway by Chinese authorities.
- Aug. 26 —Decree on continuous working week for all State institutions and industrial undertakings.
- Sept. 24 —Decree on introduction of five-day week in Soviet industrial enterprises and offices, with one day out of every five for rest.
- Oct. 16 —Tadzhikistan proclaimed a Constituent Republic of the Union of Soviet Socialist Republics, increasing the number of Federal States in the Soviet Union from six to seven.

- Nov. 1 —“Land of Soviets” arrives in New York, completing 20,000-kilometer flight from Moscow.
- Dec. 7 —All-Union Commissariat for Agriculture coordinating the work of the agricultural commissariats of the constituent republics, established.

1930

- Jan. 30 —Decree on Credit Reform.
- March 1 —New single agricultural tax law enacted.
- May 1 —Completion and official opening of Turksib Railway.
- Aug. 13 —Decree providing for introduction of universal compulsory primary education throughout the U.S.S.R. in 1930-31.
- Sept. 20 —Fiscal year changed to coincide with calendar year, beginning Jan. 1, 1931.
- Nov. 22 —Commissariat for Domestic and Foreign Trade reorganized into two separate commissariats, the Commissariat for Internal Supply and the Commissariat for Foreign Trade.
- Dec. 24 —“Committee of Fulfillment” of Council of People’s Commissars established.

1931

- Jan. 30 —Commissariat for Water Transportation established.
- May 18 —Litvinoff proposes economic non-aggression pact to League of Nations commission for the study of a European Union meeting at Geneva.
- June 23 —Stalin speaks of new economic tasks before conference of industrial managers held in Moscow.

- Aug. 1 —Decree on improvement of living and material conditions of engineers and technicians.
- Oct. 1 —Introduction of piecework and bonus system and large wage increases in coal and steel industries in accordance with decree of Sept. 20.
- Nov. 21 —Decree establishing six-day week, with day of rest every sixth day, for all institutions except those serving cultural and social needs or connected with enterprises in continuous operation.

1932

- Jan. 1 —Gorky (Nizhni Novgorod) automobile plant starts operations.
- 5 —Decree reorganizing Supreme Economic Council into three Commissariats: for Heavy Industry, Light Industry and Lumber Industry.
- 31 —First blast furnace blown in at Magnitogorsk.
- May 20 —Decree facilitating free sale of agricultural products by collectives and individual peasants.
- Aug. 25 —Col. Hugh L. Cooper, chief consulting engineer of Dnieprostroy, and members of staff decorated by Soviet Government.
- Sept. 3 —Decree prohibiting withdrawal of land from agricultural collectives.
- Oct. 1 —Commissariat for Grain and Livestock State Farms established. Ice-breaker "Sibiriakov" reaches Bering Strait, completing the north-east passage from Archangel through the Arctic Ocean in one season.
- 10 —Formal dedication of Dnieprostroy hydroelectric station.

- Nov. 15 —Decree permitting discharge of workers absent without justifiable reason.
- Dec. 31 —First Five-Year Plan fulfilled in four and one-quarter years.

1933

- Jan. 1 —Beginning of second Five-Year Plan.
- 11 —Decree establishing political departments for machine-tractor stations and state farms.
- 19 —Decree replacing the system of grain procurements formerly in force by a system of fixed quotas of grain to be delivered to the state.
- April 12-18—British engineers' trial in Moscow.
- 22 —Decree on retaliatory restrictive measures taken by Soviet Government in answer to British embargo on Soviet imports.
- June 1 —Cheliabinsk tractor plant starts mass production.
- 15 —Decree granting members of agricultural communes the right to own cows, small livestock and poultry for personal use.
- 20 —Draft protocol on economic non-aggression submitted by Soviet delegation to World Economic Conference.
- 23 —Decree abolishing Commissariat for Labor and turning over its functions to All-Union Central Council of Trade Unions.
- July 1 —British government lifts embargo on Soviet goods; Soviet retaliatory measures revoked; prison sentences of British engineers commuted and engineers released; British Government proposes resumption of negotiations for trade agreement.

- 10 —Decree establishing political departments for railroads.
- Aug. 2 —Official opening of Baltic-White Sea Canal.
- Sept. 30 —Soviet Red Army Stratostat, *U.S.S.R.*, makes successful ascent to stratosphere, attaining a height of 19 kilometers.
- Oct. 10 —President Roosevelt invites M. I. Kalinin, Chairman of the Central Executive Committee of the *U.S.S.R.*, to send a representative to discuss outstanding questions between the United States and the Union of Soviet Socialist Republics.
- 17 —Chairman Kalinin accepts invitation and announces Maxim Litvinoff, People's Commissar for Foreign Affairs, will carry on discussions with President Roosevelt.
- Nov. 7 —Maxim Litvinoff arrives in the United States.
- 16 —Normal diplomatic relations established between the United States and the Soviet Union by an exchange of notes between President Roosevelt and Commissar Litvinoff at the White House.
- 17 —Appointment of William C. Bullitt as first American Ambassador to the Soviet Union announced.
- 19 —Appointment of Alexander A. Troyanovsky as Soviet Ambassador to the United States announced.
- Dec. 11 —Decree providing special privileges for population of Far Eastern Region.
- 18 —Bobriky (Stalinogorsk) chemical combine starts operations.

- 30 —Publication of basic figures and outline of second Five-Year Plan.

1934

- Jan. 7 —Ambassador Troyanovsky arrives in Washington.
- 13 —Decree specifying training requirements for teachers.
- 21 —Capital of the Ukrainian S.S.R. transferred from Kharkov to Kiev. First section of Kharkov turbo-generator works opened.
- 24 —Secretary of Treasury Morgenthau lifts various restrictions hampering Soviet-American trade, revoking previous Treasury orders with regard to Soviet gold shipments and importation of lumber, pulpwood and safety matches.
- 26 —Seventeenth Congress of the Communist Party of the Union of Soviet Socialist Republics opens.
- Feb. 10 —Concluding session of Seventeenth Congress of the Communist Party passes resolution embodying schedules of second Five-Year Plan.
- 11 —Decree ordering reorganization of the Committee of Fulfillment into the Commission of Soviet Control, under the Council of People's Commissars; the People's Commissariat of Workers' and Peasants' Inspection liquidated and its apparatus transferred to the new organ.
- 19 —Design for Palace of Soviets accepted by the government construction commission.
- March 16 —Decree replacing multiplicity of direction by individual management in industrial enterprises.

- April 12 —The motorship *KIM*, first Soviet vessel to sail to the United States, arrives in New York.
- 12 —Completion of rescue of *Chelyuskin* party from Arctic ice floes.
- 15 —New state internal loan of 3.5 billion rubles floated.
- May 7 —Birobidzhan declared an Autonomous Jewish Region.
- 16 —Decree providing for three types of lower and secondary schools. Decrees providing for reorganization of methods of teaching.
- 22 —Navigation opened on Baltic-White Sea Canal.
- June 3 —Maxim Litvinoff submits to the Disarmament Conference a resolution embodying the Soviet proposal for the creation of a permanent body to safeguard peace.
- July 10 —All-Union Commissariat for Internal Affairs formed.
OGPU abolished with its judicial functions transferred to regular courts.
- 20 —New compulsory insurance law passed.
- 29 —Commissariat for Internal Supply divided into two separate commissariats—for internal trade and the food industry.
- Aug. 10 —Decree authorizing formation of Commissariats for Local Industry in the constituent republics.
- 17 —First Soviet Writers' Congress opened.
- 24 —Finish of International Diesel contest.
- Sept. 3 —Decree raising training requirement for physicians.

- 5- 9—Plenary meeting of All-Union Council of Trade Unions at which reorganization of trade unions is decreed.
- 10 —Mendelejev Chemical Congress opened.
- 15 —Union of Soviet Socialist Republics invited to become a member of League of Nations by thirty countries; replies accepting the invitation.
- 18 —Formal induction of Union of Soviet Socialist Republics into League; Litvinoff makes first speech at League Assembly.
- 20 —Soviet ice-breaker *Litke* completes northwest Arctic passage from Vladivostok to Murmansk.
- 28 —Official opening of Kramatorsk heavy machinery plant.
- Dec. 1 —S. M. Kirov, member of the Communist Party "Politburo," assassinated in Leningrad.
- 7 —Decree abolishing bread card system announced, to take effect January 1, 1935.
- 23 —Cancellation of collective farm debts, amounting to 435,639,000 rubles, decreed.

1935

- Jan. 25 —Death of V. V. Kuibyshev.
- Feb. 6 —Resolution on direct elections, secret ballot and equal representation adopted by VIIth Congress of Soviets.
- Feb. 11-17—2nd Congress of Collective Farm Shock Workers held. New constitution for artels adopted.
- Feb. 21-Mar. 2—First international film festival in Moscow.

- March 14 —Close of second Moscow international chess tournament.
- 26 —Negotiations concluded at Tokyo for sale of Chinese Eastern Railway.
- 27-31 —Visit of Anthony Eden to Moscow, where he conferred with Stalin, Litvinoff and Molotov.
- May 5 —Third Year of Second Five-Year Plan Loan issued.
- 15 —Tenth anniversary of establishment of Soviet Sakhalin.
- 15 —Opening of first line of Moscow subway.
- 18 —Destruction in an accident of the "Maxim Gorky" plane.
- June 26 —Flight of stratosphere balloon "USSR-1-bis."
- July 10 —Ten-Year plan for reconstruction of Moscow published.
- 25 —Submarine B-3 sunk in Gulf of Finland.
- Aug. 9 —Opening of Fifteenth International Physiological Congress in Leningrad.
- 12 —Decree announced granting amnesty to former collective farm officials and workers.
- 22 —Thirty-four Turkmen horsemen arrive in Moscow after a three months' journey of 2,500 miles from Ashkhabad.
- 25 —Ambassador Bullitt hands note to Acting Commissar for Foreign Affairs Krestinsky protesting against activities of Comintern.
- 27 —Acting Commissar Krestinsky replies to American note.
- Sept. 4 —Decree prohibiting discrimination in schools on account of social origin.
- 9 —Collectives receive deeds to land.

- 10 —Decree issued authorizing work on two new wharves and river ports for Moscow in preparation for opening of Moscow-Volga Canal.
- 10 —Opening of Third International Congress on Iran Art and Archeology.
- 16 —War games begin at Kiev.
- 26 —Abolition of system of ration cards for meat, fish, fats, sugar and potatoes, to take effect October 1, 1935.
- 28 —Ice-breaker "Sadko" returns to Archangel after an 85-day voyage in the polar seas during which several new islands were discovered.
- Oct. 3 —Decree issued providing for reorganization of co-operatives, which are to confine their future activities entirely to village trade.
- 13 —Ambassador Yurenev of the U.S.S.R. protests to Hirota, Japanese Foreign Minister, against military invasions of Soviet territory by Manchukuoan patrols commanded by Japanese officers.
- 15 —Reopening of bridge across Dniester River, connecting the U.S.S.R. and Rumania.

APPENDIX IV.

BOOKS ABOUT THE U.S.S.R. IN THE ENGLISH LANGUAGE

The following list is given in chronological order

- "Ten Days that Shook the World," by John Reed. International Publishers, New York, 1919. \$1.50.
- "Russia in 1919," by Arthur Ransome. B. W. Huebsch (now the Viking Press), New York, 1919.
- "The Bullitt Mission to Russia." Testimony before the Committee on Foreign Relations, United States Senate, of Wm. C. Bullitt. B. W. Huebsch (now the Viking Press), New York, 1919.
- "Fighting Without a War." An Account of Military Intervention in North Russia, by Ralph Albertson. Harcourt, Brace and Howe, New York, 1920.
- "The Russian Workers' Republic," by H. N. Brailsford. Harper and Brothers, New York, 1921.
- "Through the Russian Revolution," by Albert Rhys Williams. Boni and Liveright, New York, 1921.
- "The Russian Soviet Republic," by Edward A. Ross. The Century Co., New York, 1923.
- "The New Theatre and Cinema in Russia," by Huntly Carter. International Publishers, New York, 1925.
- "Broken Earth," by Maurice Hindus. International Publishers, New York, 1926.
- "Oil Imperialism—The International Struggle for Petroleum," by Louis Fischer. International Publishers, New York, 1926.
- "Modern Russian Composers," by Leonid Sabaneyef. International Publishers, New York, 1927.
- "The Russian Land," by Albert Rhys Williams. New Republic, Inc., New York, 1927.
- "Russia After Ten Years," Report of American Trade Union Delegation to U.S.S.R. International Publishers, New York, 1927.

- Vanguard Studies of Soviet Russia. The Vanguard Press, New York, 1927-28:
 "How the Soviets Work," by H. N. Brailsford.—"The Economic Organization of the Soviet Union," by Scott Nearing and Jack Hardy.—"Village Life Under the Soviets," by Karl Borders.—"Religion Under the Soviets," by Julius F. Hecker.—"Soviet Russia and Her Neighbors," by R. Page Arnot.—"Soviet Trade Unions," by Robert W. Dunn.—"Women in Soviet Russia," by Jessica Smith.—"New Schools in New Russia," by Lucy L. W. Wilson.—"Health Work in Soviet Russia," by Anna J. Haines.—"Liberty Under the Soviets," by Roger N. Baldwin.—"The Jews and Other Minor Nationalities Under the Soviets," by Avrahm Yarmolinsky.
- "Soviet Russia in the Second Decade"; Edited by Stuart Chase, Robert Dunn and R. G. Tugwell. John Day Co., New York, 1928.
- "Present Day Russia," by Ivy Lee. Macmillan Company, New York, 1928.
- "Labor Protection in Soviet Russia," by George M. Price. International Publishers, New York, 1928. \$1.00.
- "Illustrated History of the Russian Revolution," 1917-1927. Ten Years' Progress Reported by Authoritative Russian Leaders, 2 vols. International Publishers, New York, 1928.
- "Russian Economic Development Since the Revolution," by Maurice Dobb. E. P. Dutton & Co., New York, 1928.
- "Guide Book to the Soviet Union." International Publishers, New York, 1928.
- "American Policy Toward Russia Since 1917," by Dr. Fred L. Schuman. International Publishers, New York, 1928.
- "Dreiser Looks at Russia," by Theodore Dreiser. Horace Liveright, New York, 1928.
- "Lenin," by Valerie Marcu. Macmillan Company, New York, 1928.
- "Impressions of Soviet Russia and the Revolutionary World," by John Dewey. New Republic, Inc., New York, 1929.
- "Civic Training in Soviet Russia," by Samuel N. Harper. University of Chicago Press, Chicago, 1929.
- "Soviet Union and Peace." A collection of official documents. 1917-1929. International Publishers, New York, 1929.
- "Revolution of 1917," by V. I. Lenin. Volume XX of Collected Works—2 vols. International Publishers, New York, 1929.
- "The Soviet Union Looks Ahead." The Five-Year Plan for Economic Construction. Horace Liveright, New York, 1929.
- "The Red Star in Samarkand," by Anna Louise Strong. Coward McCann, New York, 1929.
- "Humanity Uprooted," by Maurice Hindus. Jonathan Cape and Harrison Smith, New York, 1929.

- "Voices of October—Art and Literature in Soviet Russia," by Joseph Freeman, Joshua Kunitz and Louis Lozowick. The Vanguard Press, New York, 1930. \$4.00.
- "The New Education in the Soviet Republic," by Albert P. Pinkevitch. John Day Company, New York, 1929.
- "Soviet Economic Development and American Business," by Saul G. Bron. Horace Liveright, New York, 1930.
- "Soviet Russia—A Living Record and a History," by W. H. Chamberlain. Little, Brown & Company, Boston, 1930. \$5.00.
- "A Ford Crosses Soviet Russia," by George S. Counts. Stratford Co., Boston, Mass., 1930.
- "The Soviets in World Affairs," 2 vols., by Louis Fischer. Jonathan Cape and Harrison Smith, New York, 1930. \$10.00.
- "Memories of Lenin," by Nadezhda K. Krupskaya. International Publishers, New York, 1930. \$1.50.
- "The Five-Year Plan of the Soviet Union," by G. T. Grinko. International Publishers, New York, 1930. \$3.50.
- "The Russian Experiment," by Arthur Feiler. Harcourt, Brace and Company, New York, 1930. \$3.00.
- "Wages and Regulation of Conditions of Labour in the U.S.S.R.," by S. Zagorsky. P. S. King & Son, Ltd., London, 1930. \$1.00. Distributed in United States by World Peace Foundation, Boston, Mass.
- "Social Economic Planning in the Union of Socialist Republics," by V. V. Obolensky-Ossinsky, S. L. Ronin, A. Gayster, I. A. Kraval. International Industrial Relations Association, New York, 1931.
- "Employment and Unemployment in Pre-war and Soviet Russia," by Susan M. Kingsbury and Mildred Fairchild. International Industrial Relations Association, New York, 1931.
- "Piatiletka: Russia's Five-Year Plan," by Michael Farbman. New Republic Inc., New York, 1931. \$1.00.
- "The Soviet Challenge to America," by George S. Counts. John Day Company, New York, 1931. \$4.00.
- "The Challenge of Russia," by Sherwood Eddy. Farrar and Rinehart, New York, 1931. \$2.50.
- "The Economic Life of Soviet Russia," by Calvin B. Hoover. The Macmillan Company, New York, 1931. \$3.00.
- "Russia's Productive System," by Emile Burns. E. P. Dutton & Co., New York, 1931.
- "The Red Trade Menace," by H. R. Knickerbocker. Dodd, Mead and Company, New York, 1931. \$2.50.

- "Soviet Foreign Trade: Menace or Promise," by Budish and Shipman. Horace Liveright, New York, 1931. \$2.50.
- "Progress in the Soviet Union." Charts and diagrams compiled by Albert A. Johnson. A. A. Johnson and Associates, Springfield, Mass., 1931.
- "Making Bolsheviks," by Samuel N. Harper. University of Chicago Press, Chicago, 1931. \$2.00.
- "The Road to the Grey Pamir," by Anna Louise Strong. Little, Brown and Co., Boston, 1931. \$3.00.
- "Why Recognize Russia?" by Louis Fischer. Jonathan Cape and Harrison Smith, New York, 1931. \$2.00.
- "New Russia's Primer—The Story of the Five-Year Plan," by M. Ilin. Houghton Mifflin Co., Boston and New York, 1931. \$1.75.
- "Red Bread," by Maurice Hindus. Jonathan Cape and Harrison Smith, New York, 1931. \$3.50.
- "Pan-Sovietism," by Bruce Hopper. Houghton Mifflin and Co., Boston and New York, 1931. \$2.50.
- "Economic Handbook of the Soviet Union." American-Russian Chamber of Commerce, New York, 1931. \$1.00.
- "The Soviet Planned Economic Order," by William Henry Chamberlain. World Peace Foundation, Boston, 1931. \$2.50. (Student Edition, 75c).
- "The Red Fog Lifts; A Wall Street Man Visits Soviet Russia," by Albert Muldavin. D. Appleton and Co., New York, 1931. \$2.00.
- "The Soviet Conquers Wheat," by Anna Louise Strong. Henry Holt and Co., New York, 1931. \$2.50.
- "Red Villages: The Five-Year Plan in Agriculture," by Y. A. Yakovlev. International Publishers, New York, 1931. \$1.50.
- "The Success of the Five-Year Plan," by V. M. Molotov, Chairman Council of People's Commissars, U.S.S.R. International Publishers, New York, 1931. \$1.25.
- "America's Siberian Adventure," by Major-General William S. Graves, with foreword by Hon. Newton D. Baker. Jonathan Cape and Harrison Smith, New York, 1931. \$3.50.
- "Russia and the Soviet Union in the Far East," by Victor A. Yakhontoff. Coward McCann, New York, 1931. \$5.00.
- "Recognition of Soviet Russia." Compiled by Buehler Maxwell and Pflaum. H. W. Wilson Co., New York, 1931. \$2.40.
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- "Eyes on Russia," by Margaret Bourke-White. Simon and Schuster, New York. \$5.00.
- "History of Russia," by M. Pokrovsky. International Publishers, New York, 1931. \$3.50.

- "My Russian Venture," by Mrs. Cecil Chesterton. J. B. Lippincott Co., New York. \$2.50.
- "Soviet Policy in Public Finance, 1917-1928." By Gregory Y. Sokolnikov and Associates, Stanford University Press, Stanford University, Calif. \$4.00.
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- "Soviet Administration of Criminal Law," by Judah Zelitch. University of Pennsylvania Press, Philadelphia, 1931. \$5.00.
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- "New Minds: New Men?" By Thomas Woody. Macmillan Co., New York, 1932. \$4.00.
- "Russia," by Hans von Eckardt. Alfred A. Knopf, New York, 1932. \$7.50.
- "Russia: Market or Menace?" by Thomas D. Campbell. Longmans, Green and Co., New York, 1932. \$2.00
- "Protection of Women and Children in Soviet Russia," by Alice Withrow Field. E. P. Dutton and Co., New York, 1932. \$3.00.
- "Rural Russia Under the Old Regime," by Geroid Tanquary Robinson. Longmans, Green and Co., New York, 1932. \$4.00
- "This Is Russia," by George Earle Raiguel and William Kistler Huff. The Penn Publishing Co., Philadelphia, 1932. \$5.00.
- "Machines and Men in Russia," by Louis Fischer. Harrison Smith, New York, \$2.50.
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- "A Scientist Among the Soviets," by Julian Huxley. Harper and Brothers, New York, 1932. \$1.50.
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- "The Red Flag of Ararat," by A. Y. Yeghenian. The Woman's Press, New York, 1932. \$2.00.
- "Red Virtue—Human Relationships in the New Russia," by Ella Winter. Harcourt, Brace and Co., New York, 1933. \$3.00.
- "In Place of Profit," by Harry F. Ward. Charles Scribner's Sons, New York, 1933. \$2.50.

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- "Red Medicine—Socialized Health in Soviet Russia," by Sir Arthur Newsholme and John Kingsbury. Doubleday, Doran & Company, New York, 1933. \$2.50.
- "The Great Offensive," by Maurice Hindus. Harrison Smith and Robert Haas, New York, 1933. \$3.00.
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- "Soviet Russia, 1917-1933," by Vera Micheles Dean. Published jointly by the World Peace Foundation, Boston, and the Foreign Policy Association, New York, 1933. Cloth, \$0.50; paper, \$0.25.
- "Protection of Motherhood and Childhood in the Soviet Union," by Dr. Esther Conus. Moscow, 1933. \$0.35.
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- "Soviet Economic Policy in the East," by Violet Conolly. Oxford University, London, 1933.
- "Duranty Reports Russia," by Walter Duranty. The Viking Press, New York, 1934. \$2.75.
- "Lenin," by Ralph Fox. Harcourt Brace Co., New York, 1934. \$2.50.
- "Russia, Youth and the Present Day World," by Frankwood E. Williams, M.D. Farrar & Rinehart, New York, 1934. \$2.50.
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- "The Second Five-Year Plan," by W. P. Coates and Zelda K. Coates, Methuen and Co., London, 1934.
- "The Traveler's Russia," by Burton Holmes. G. P. Putnam's Sons, New York, 1934. \$3.50.
- "The Planned Economy of Soviet Russia," by Edward Lamb. Dorrance and Co., Inc., Philadelphia, 1934. \$1.75.
- "Where the Ghetto Ends—Jews in Soviet Russia," by Leon Dennen. Alfred H. King, Inc., New York, 1934. \$2.50.
- "The Bolshevik Revolution, 1917-18." Documents and Materials, by James Bunyan and H. H. Fisher, Stanford University Press, California, 1934.

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 4. "Ethnography, Folklore and Archeology in the U.S.S.R." 1933. \$0.50.
 5. "Scientific Construction in the U.S.S.R." 1933.
 6. "The Theater in the U.S.S.R." 1934. \$0.50.
 - 7.-8. "Literature of the Peoples of the U.S.S.R.," 1934.
 - 9.-10. "Painting, Sculpture and Graphic Art in the U.S.S.R." 1934. \$0.50.
- "The U.S.S.R. in Figures." State Planning Commission, Moscow, 1934. \$1.00.
- "Russia's Iron Age," by William Henry Chamberlain. Little, Brown and Co., Boston, 1934. \$4.00.
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- I. "Supply and Trade in the U.S.S.R.," by W. Nodel. 1935.
 - II. "Health Protection in the U.S.S.R.," by N. A. Semashko. 1935.
 - III. "The Soviet Theater," by P. A. Markov. 1935.
 - VIII. "Foreign Trade in the U.S.S.R.," by J. W. Yanson. 1935.
 - X. "The Unified Transport System of the U.S.S.R.," by K. N. Tverskoi. 1935.
 - XII. "Science and Education in the U.S.S.R.," by Professor A. Pinkevich. 1935.
- "The Foreign Policy of the Powers," Chapter on Soviet Russia by Karl Radek. Council on Foreign Relations, New York, 1935. \$1.50.
- "Soviet Russia Fights Crime," by Lenka Von Koerber. E. P. Dutton and Co., New York, 1935. \$3.00.
- "Turkestan Solo," by Ella K. Maillart. Translated from the French. G. P. Putnam Sons, New York, 1935. \$3.50.
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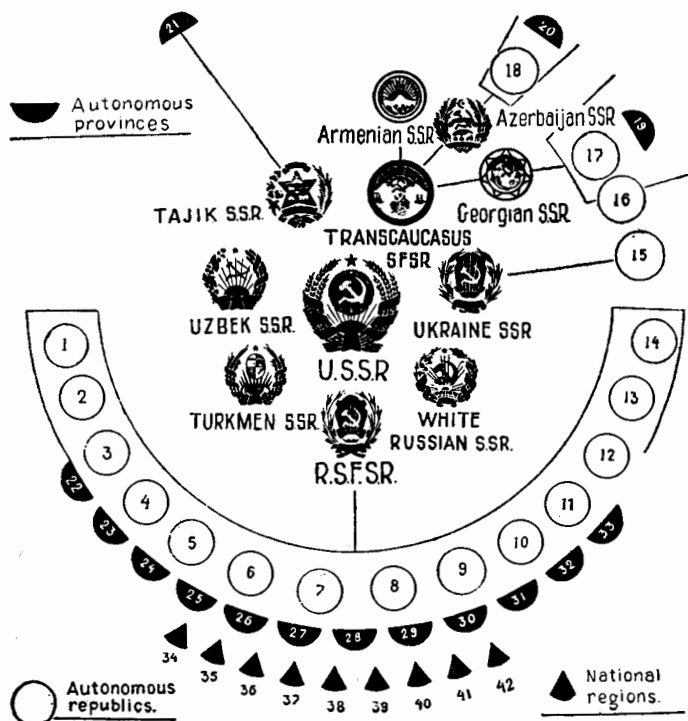
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Information regarding books published in the Soviet Union may be obtained from the American-Russian Chamber of Commerce, 261 Fifth Avenue, the Bookniga Corporation, 255 Fifth Avenue, or International Publishers, 381 Fourth Avenue, New York City.

APPENDIX V.



ADMINISTRATIVE DIVISIONS OF THE U.S.S.R.

The emblems of the seven constituent republics of the Soviet Union are grouped about the emblem of the U.S.S.R. (The emblems of the three republics of the Transcaucasian Federation are also shown). Other administrative divisions are as follows: Autonomous Republics: (1) Karelian, (2) Chuvash, (3) Udmurt, (4) Bashkirian, (5) Mordovsk, (6) Tartar, (7) Volga German, (8) Daghestan, (9) Crimean, (10) Kazak, (11) Karakalpakian, (12) Kirghiz, (13) Buryat-Mongolian, (14) Yakutian, (15) Moldavian, (16) Ajarian, (17) Abkhazian, (18) Nakhichevansk. Autonomous Provinces: (19) South Ossetian, (20) Nagorno-Karabakhsk, (21) Gorno-Badakhshan, (22) Komi, (23) Mariisk, (24) Kalmyksk, (25) Adygeisk, (26) Checheno-Ingushsk, (27) Kabardino-Balkarian, (28) Karachayev, (29) North Ossetian, (30) Cherkess, (31) Khakassk, (32) Oïrot, (33) Jewish. National Regions: (34) Nenets, (35) Komi-Permyatsk, (36) Ostyak-Vogulsk, (37) Yamalsk, (38) Vitimo-Olekminsk, (39) Taimyr, (40) Evenkisk, (41) Koryak, (42) Chukotsk.

APPENDIX VI.

THE AMERICAN-RUSSIAN CHAMBER OF COMMERCE

The American-Russian Chamber of Commerce was incorporated on January 22, 1916, and was reorganized on June 11, 1926. The object of the Chamber, provided by the certificate of incorporation, is "to foster trade, encourage and generally promote the economic, commercial, and industrial relations between the United States of America and Russia."

In accordance with its general purpose, the American-Russian Chamber of Commerce has taken an active part since its reorganization in every phase of the development of trade between the United States and the Soviet Union. It maintains headquarters in New York with a branch office in Moscow. These offices serve the interests of member firms in matters of Soviet-American trade and furnish trade information and statistical data regarding the Soviet Union. They cooperate with and are at the disposal of officials and representatives of the United States Government in matters affecting American-Soviet trade.

The American-Russian Chamber of Commerce is the only trade organization exclusively devoted to the promotion of American trade with the Soviet Union, and because of its consistent record of constructive service, enjoys the confidence of American business and its work in solving various problems confronting this trade has received public commendation from high official sources in the Soviet Union.

The Chamber of Commerce represents and is able to bring the unified influence of American business men to bear on those special phases of American-Soviet relations which require community of action by all engaged in this trade.

New York Office

The New York office maintains an active service to provide its members with current trade and economic data on the Soviet Union and all phases of American-Russian trade.

The Chamber receives and distributes to its membership important Russian trade and economic publications. In addition, it maintains an up-to-date collection of official Soviet books and periodicals containing statistical data, government regulations, the rights of foreigners in the U.S.S.R., etc. These publications are kept on file in the Chamber's office, where they are readily available for the use of members.

To assist member firms interested in using direct mail promotional methods to acquaint the Soviet Union with their products, the Chamber has recently

prepared new and up-to-date lists of planning, producing and buying agencies throughout the Soviet Union. These lists, comprising names and addresses of several thousand Soviet organizations, are available to members.

The Chamber arranges meetings in the principal cities of the United States at which addresses regarding American-Russian trade are given by American business men and economists and by representatives of the Soviet Union.

A statistical and news summary is received at frequent intervals from the Moscow office of the Chamber. This includes official reports on industrial production, agricultural development, railway operation and construction, etc., as well as complete tabulations of the export and import trade figures of the U.S.S.R. Members may also secure, on request, more detailed information regarding specific industries.

Frequent bulletins are issued to members concerning all phases of Soviet economic life and of trade between the United States and the Soviet Union. Special reports are issued on individual industries and bulletins are published at intervals listing arrivals and expected arrivals in the United States of Soviet buying and technical commissions; departures of Soviet commercial representatives; ships due to carry cargoes to the Soviet Union, with dates of sailings; full cargoes of merchandise and partial cargoes of Soviet exports to the United States, etc.

On a number of occasions special committees have been designated to make investigations and surveys concerning specific phases of American-Russian trade. Among the reports prepared as a result of such surveys is one on the development of a feasible plan for the operation of the Export-Import Bank, and one on official regulations regarding imports, customs, etc.

The Chamber advises as to methods to be employed by its members in opening or broadening their trade relations with the Soviet Union, the Amtorg Trading Corporation and other agencies carrying on foreign trade for the U.S.S.R. It puts members in contact with Soviet officials and trade representatives in the United States through its New York office and in the Soviet Union through its Moscow office. It translates Russian correspondence for its members and advises them in matters of advertising in Soviet publications and concerning the preparation and distribution of their literature or catalogues in the Soviet Union.

Moscow Office

Since its establishment in 1927, the Moscow office of the American-Russian Chamber of Commerce has been of considerable assistance to American businessmen. This bureau maintains contacts with the various economic and political departments of the Government, such as the Commissariats for Foreign Trade, Foreign Affairs, and Finance, the industrial commissariats, the State Bank, and other Soviet banks, industries and administrations. Arrangements have been made with these organizations and institutions to receive information in regard to their activities, especially as they affect Soviet-American trade and foreign trade in general. This data is sent to the New York office by mail and radio for distribution to members.

Many members of the Chamber find it advisable to send representatives

to the U.S.S.R., in order to study the situation there at first-hand and to promote the sale and use of their products or for other business reasons. The Chamber's representatives in Moscow assist visiting members and their representatives to accomplish these objectives during their stay in the U.S.S.R. This includes assistance in making contacts and securing appointments with Soviet trade officials; assistance in the matter of arranging visas; scheduling of itineraries; procurement of legal advice, etc.

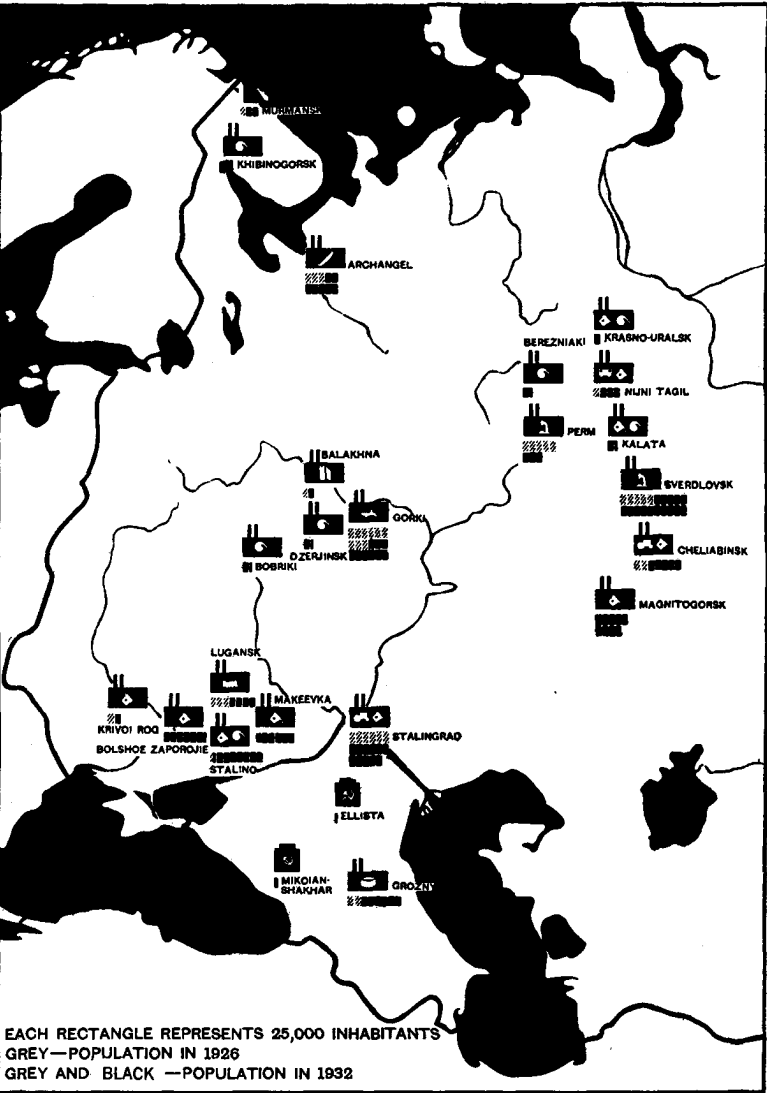
Members use the Moscow office as a mailing and cable address, communications being forwarded or delivered promptly to the addressee. Interpreting, translation and office service can be arranged through the Moscow office of the Chamber.

Membership

The membership of the American-Russian Chamber of Commerce includes many leading American firms, and the majority of those who have carried on a large volume of trade with the U.S.S.R. in recent years. The Board of Directors of the Chamber extends an invitation to American manufacturers, exporters, importers, and others interested in U.S.S.R. trade to join the Chamber and participate in its work and benefits.

Further information may be obtained from the Executive Secretary, 261 Fifth Avenue, New York.

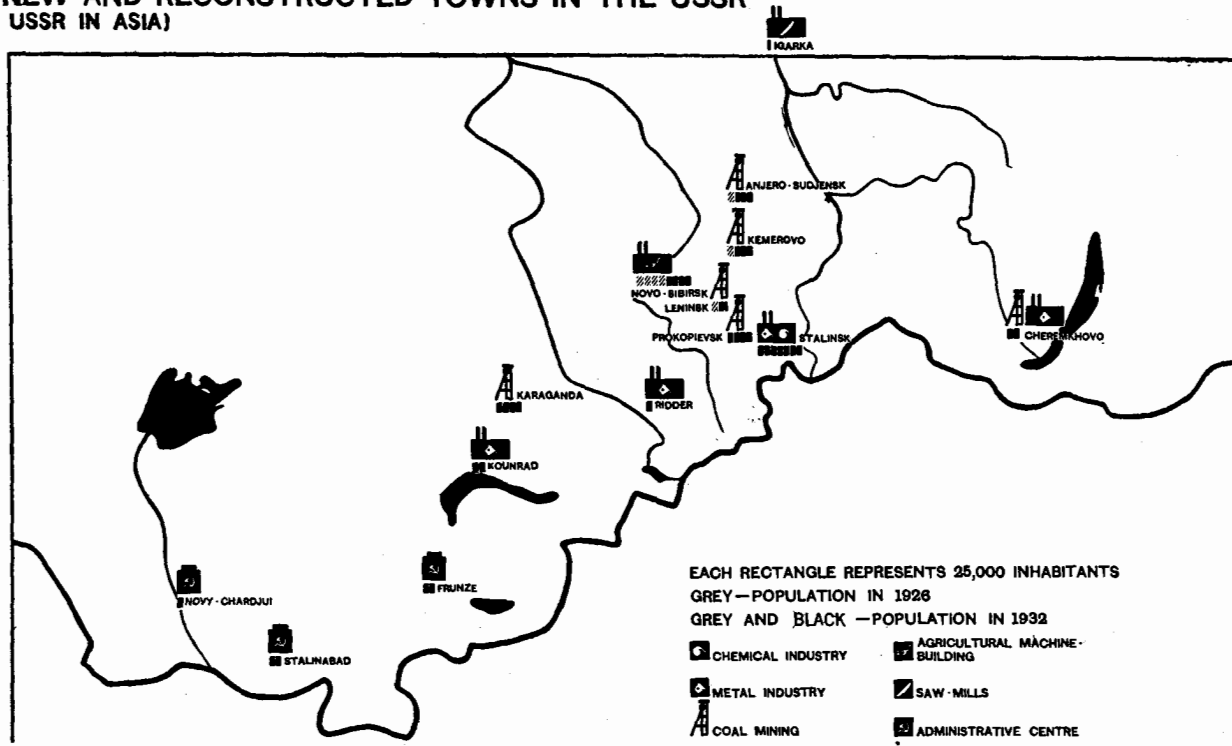
NEW AND RECONSTRUCTED TOWNS IN THE USSR (USSR IN EUROPE)



EACH RECTANGLE REPRESENTS 25,000 INHABITANTS
 GREY—POPULATION IN 1926
 GREY AND BLACK —POPULATION IN 1932

- | | | | |
|-------------------|-------------------|---------------------|-----------------------|
| METAL INDUSTRY | RAILWAY-CAR WORKS | CANNING | SAW MILLS |
| CHEMICAL INDUSTRY | TRACTOR-BUILDING | AUTOMOBILE INDUSTRY | ADMINISTRATIVE CENTRE |
| LOCOMOTIVE WORKS | PAPER INDUSTRY | MACHINE-BUILDING | OIL INDUSTRY |

NEW AND RECONSTRUCTED TOWNS IN THE USSR (USSR IN ASIA)



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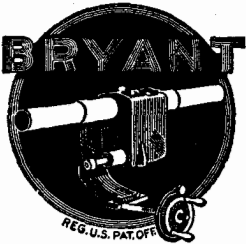
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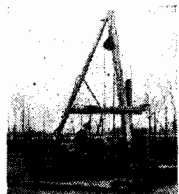
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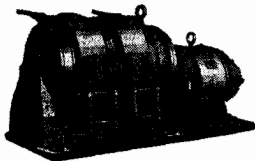
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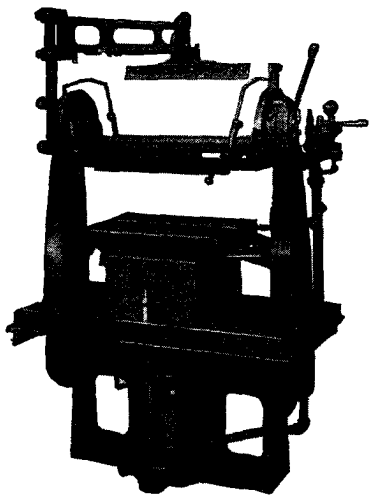
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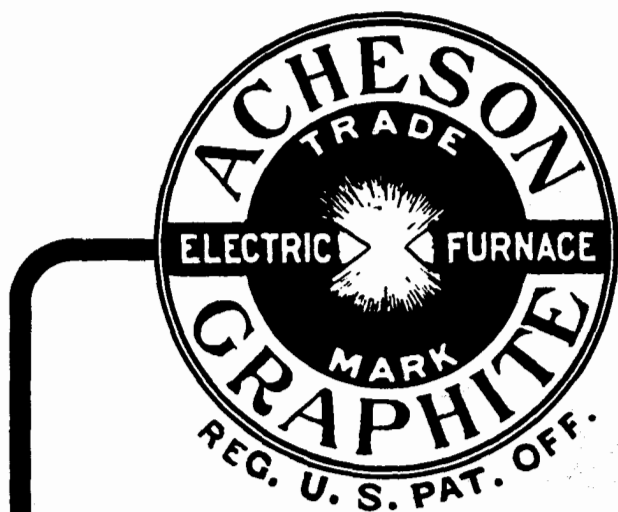
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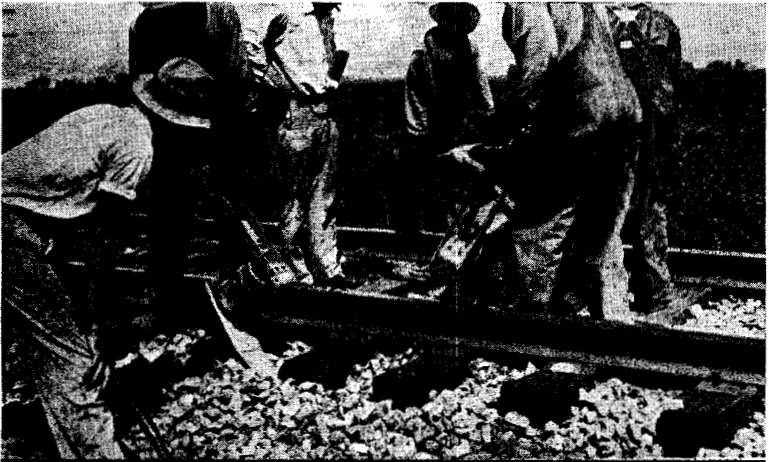
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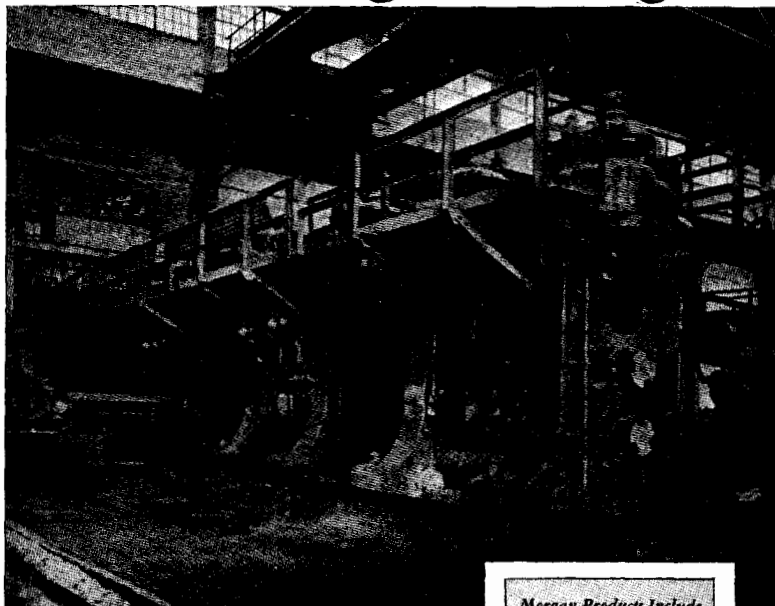
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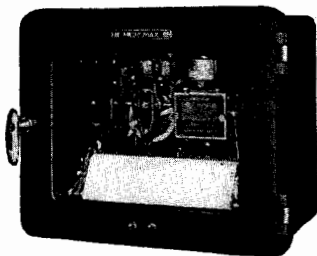
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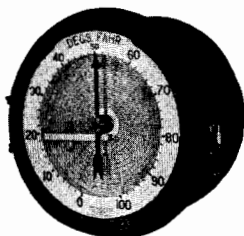
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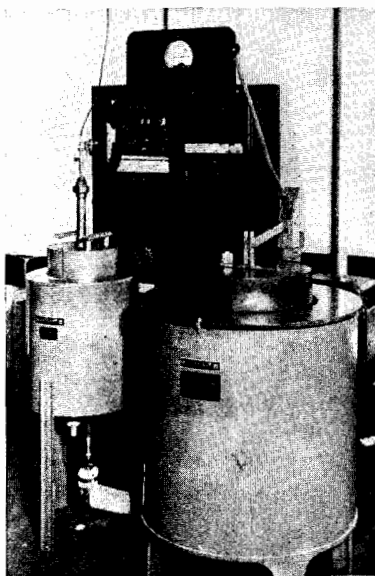
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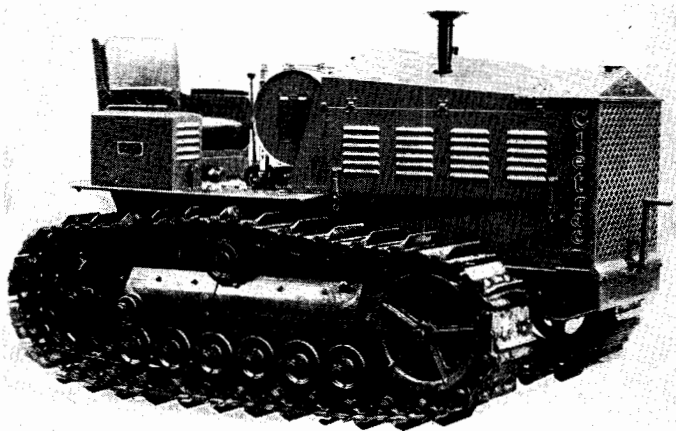
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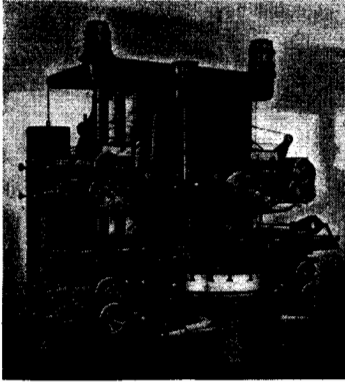


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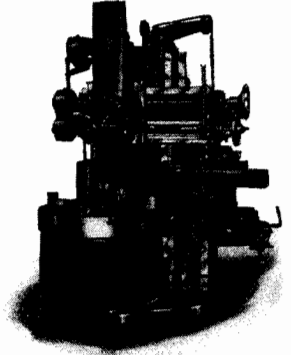


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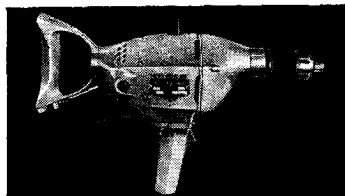


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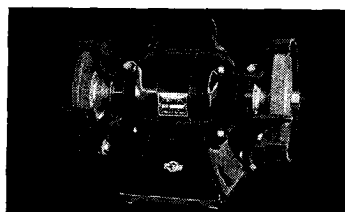
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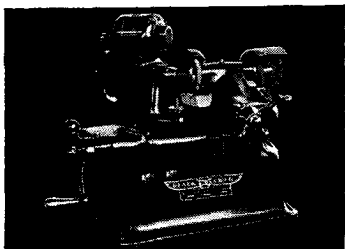
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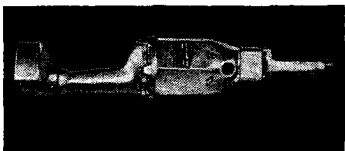
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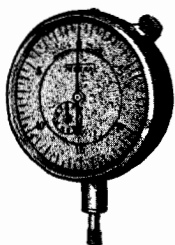
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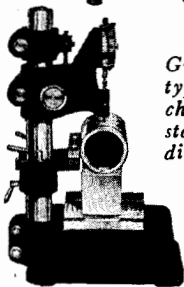
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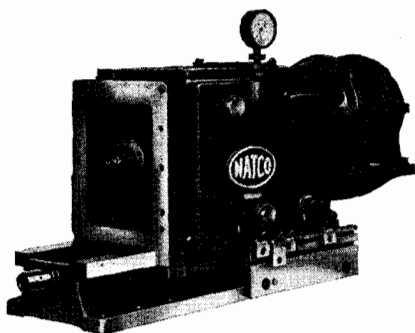
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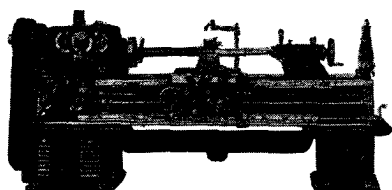
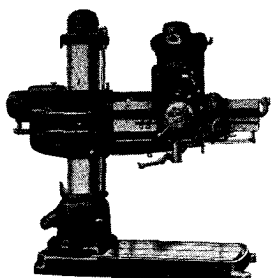
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