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CENTRAL INTELLIGENCE AGENCY

REPORT

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COUNTRY GDR

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ORGANIZATIONAL INFORMATION CONCERNING THE GDR MINISTRY OF POSTAL AFFAIRS AND TELECOMMUNICATIONS

50X1-HUM

This report contains the following:

A. Regulation Concerning the Reorganization of the Postal and Telecommunications Systems, undated and unsigned. Since the Bezirk directorates referred to in this regulation have been established (see Der Verkehr, Eisenbahn -- Railroad--Edition, Berlin, February 1953), it may be assumed that the entire regulation went into effect.

B. List of Bezirk Directorates and Subordinate Telecommunications Offices for the Main Administration for Telecommunications Under the Ministry of Postal Affairs and Telecommunications, undated.

C. Decree Concerning the Establishment of a People-Owned Radio Installations Planning and Assembly Enterprise for Radio, Transmitting, and Receiving Installations, dated 8 January 1953 and signed by Friedrich Burmeister, Minister of Postal Affairs and Telecommunications.

D. Decree Concerning the Establishment of the GDR Central Institute for Radio Engineering, dated 24 January 1953 and signed by Dr Karl Wilhelm Schroeder, State Secretary in the Ministry of Postal Affairs and Telecommunications.

The term Bezirk as used in this report refers to the GDR administrative units replacing the former Laender.

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A. REGULATION CONCERNING THE REORGANIZATION OF THE POSTAL AND TELECOMMUNICATIONS SYSTEMS

I

1. The following main administrations are to be established in the Ministry of Postal Affairs and Telecommunications, in addition to the existing Main Administration for Radio Operations:

(a) Main Administration for Postal Affairs
(b) Main Administration for Telecommunications

2. The minister is assisted by a state secretary for the management of postal affairs and by a state secretary for the management of telecommunications and radio facilities.

II

1. Effective 1 January 1953, Bezirk directorates for postal affairs and telecommunications are to be established in the GDR Bezirke.

2. Kreis offices for postal affairs and telecommunications, subordinate to the Bezirk directorates, are to be established in the GDR Kreise.

3. The local postal affairs and telecommunications offices, insofar as they are not directly responsible to the ministry, are to be subordinated to the appropriate Kreis offices for postal affairs and telecommunications.

III

The Postal Savings-Bank Office is to be subordinated to the Ministry of Finance.

IV

1. To attain a uniform clearing system, the postal checking offices in Berlin, Dresden, Leipzig, Magdeburg, and Erfurt are to be transferred by 30 June 1953 from the administration of the Deutsche Post (GDR Post Office) to that of the Deutsche Notenbank (GDR Bank of Issue).

2. The inclusion of the existing postal checking operations in the clearing system of the Deutsche Notenbank is to be organized by the Deutsche Notenbank.

V

At the time when the postal checking offices are transferred to the Deutsche Notenbank, a control office is to be set up to check on the money transfers made by the enterprises of the Deutsche Post.

VI

1. The function of transporting passengers by buses of the Deutsche Post has been transferred to the Ministry of Transportation's Directorate-General for Motor Transport and Roads /now State Secretariat for Motor Transport and Roads/, insofar as such buses have been replaced by mail trucks of the Deutsche Post.

2. The main and Bezirk motor-vehicle repair shops are to be transferred to the Directorate-General for Motor Transport and Roads of the Ministry of Transportation. However, the operations repair shops for smaller repairs will remain subordinate to the Deutsche Post.

VII

1. To achieve uniform control over all technical services for the telecommunications lines, all offices of that service are to be consolidated under an Office for the Telecommunications Network.

2. To control the construction and assembly operations of wire communications of the Deutsche Post, a VEB (People-Owned Enterprise) for Communications Installations of the Deutsche Post is to be established. This VEB is to be directly responsible to the Ministry of Postal Affairs and Telecommunications and is to be set up on the basis of the existing VEB for the Construction of Long-Distance Cable Installations. The latter VEB is to be transferred from the Ministry of Machine Building to the Ministry of Postal Affairs and Telecommunications.

VIII

The Central Office for Postal and Telecommunications Engineering is to be converted into an Institute for Postal and Telecommunications Engineering.

IX

The Ministry of Postal Affairs and Telecommunications will issue the necessary regulations to carry out this reorganization, in cooperation with the State Planning Commission and the appropriate ministries and state secretariats.

X

This reorganization is to be carried out by the Ministry of Postal Affairs and Telecommunications by 31 December 1953. The transfer of assets and liabilities of the former owners is to be carried out on the basis of the balance sheets as of 31 December 1952, and in the case of Kreis offices for postal affairs and telecommunications, on the basis of those of 31 December 1953.

XI

This decree will become effective with its promulgation.(1)

B. LIST OF BEZIRK DIRECTORATES
AND SUBORDINATE TELECOMMUNICATIONS OFFICES
FOR THE MAIN ADMINISTRATION FOR TELECOMMUNICATIONS

Bezirk Directorate	Subordinate Telecommunications Offices	
Dresden	Dresden	Pirna
	Goerlitz	Meissen
	Bautzen	Loebau/Sachsen
Chemnitz	Chemnitz	Auerbach/Vogtland
	Freiberg/Sachsen	Aue
	Zwickau	Annaberg
	Plauen/Vogtland	

Bezirk Directorate	Subordinate Telecommunications Offices	
Leipzig	Leipzig Oschatz	Doebeln Altenburg/Thueringen
Erfurt	Erfurt Weimar	Eisenach Muehlhausen
Gera	Gera Jena Saalfeld/Sachsen	
Suhl	Meiningen Sonneberg/Thueringen	
Halle	Halle/Saale Dessau	Sangerhausen Weissenfels
Magdeburg	Magdeburg Stendal Gardelegen	Halberstadt Genthin
Cottbus	Cottbus Senftenberg	
Frankfurt/Oder	Frankfurt/Oder Eberswalde	
Potsdam	Potsdam Brandenburg Neuruppin	Zossen Special tele-communications office in Luckenwalde
Schwerin	Perleberg Stralsund	Wismar Greifswald
Neubrandenburg	Neubrandenburg Anklam Prenzlau	

C. DECREE CONCERNING THE ESTABLISHMENT OF A PEOPLE-OWNED RADIO INSTALLATIONS PLANNING AND ASSEMBLY ENTERPRISE FOR RADIO, TRANSMITTING, AND RECEIVING INSTALLATIONS

1. Effective 1 January 1953, the People-Owned Radio Installations Planning and Assembly Enterprise for Radio, Transmitting, and Receiving Installations is to be established. The enterprise has its headquarters in Berlin.

2. This enterprise is responsible to the appropriate main administration of the Ministry of Postal Affairs and Telecommunications.

3. The duties of the enterprise concerning the production and erection of radio installations are:

a. Preparing projects with cost estimates and technological projects with cost plans for radio installations.

b. Setting up uniform drafting norms, which can be declared generally binding by the appropriate minister or ministers.

c. Performing technical evaluations upon request.

In addition to the above duties, this enterprise may perform designing work, assembly work, and construction management.

The enterprise has the right to inspect radio installations being produced by other enterprises.

Only this enterprise is authorized to give final approval for the transfer of completed installations.

D. DECREE CONCERNING THE ESTABLISHMENT OF THE GDR CENTRAL INSTITUTE FOR RADIO ENGINEERING

For purposes of coordination and guidance in the field of radio engineering, and to promote research and technical development in this field, the Council of Ministers has decreed the following:

I

1. The Central Institute for Radio Engineering is established, effective 1 January 1953.

2. The Central Institute for Radio Engineering is a legal entity and is situated in Berlin. It is under the supervision of the appropriate main administration in the Ministry of Postal Affairs and Telecommunications.

II

The organization, duties, and activities of the Central Institute for Radio Engineering will be determined by a statute to be issued by the Ministry of Postal Affairs and Telecommunications. The statute requires confirmation by the director of the Central Office for Research and Technology in the State Planning Commission.

III

With the approval of the director of the Central Office for Research and Technology, the Ministry of Postal Affairs and Telecommunications will appoint a board of trustees for the Central Institute for Radio Engineering. The organization and functions of this board of trustees are to be stated in the bylaws of the institute.

IV

The organizational plan of the Central Institute for Radio Engineering is to be drawn up and confirmed in accordance with paragraphs 3 and 4 of the regulation of 12 July 1951 concerning rules for organizational planning (Legal Gazette, page 689).

V

The Central Institute for Radio Engineering is a budget organization, and its budget is an integral part of the budget of the Ministry of Postal Affairs and Telecommunications.

VI

1. Effective 1 January 1953, the Radio Department of the Central Office for Postal and Telecommunications (Engineering) is to be transferred to the Central Institute for Radio Engineering.

2. The Central Institute for Radio Engineering will take over from the Radio Department of the Central Office for Postal and Telecommunications Engineering all installations, equipment, and instruments which can be used for research and development in the field of radio engineering.

VII

1. Effective 1 January 1953, personnel and equipment useful for radio development work are to be transferred from the State Radio Committee to the Central Institute for Radio Engineering.

2. By 31 March 1953, an agreement is to be reached with the State Radio Committee concerning the transfer of personnel and equipment for television development.

3. It is agreed that the State Radio Committee will retain equipment and personnel essential to the radio and television studio operations.

VIII

This decree takes effect upon its promulgation.(2)

IRON AND STEEL

Iron Ore

The USSR is now the second largest producer of iron in the world, but is far behind the largest producer, the US.

In the record year 1943, the world production of iron ore was 236 million tons, divided as follows among the most important producing countries: US, 102 million tons; France, 31; Soviet Union, 25; Great Britain, 18; Germany, 15; and Sweden, 10 million tons.

In 1940, iron-ore production in the USSR amounted to about 28 million tons. Of this production, about 18 million tons (two thirds of the production) came from the Krivoy Rog mines in the Ukraine; about 8 million tons from mines in the Urals, especially in the Magnitogorsk area; and the remaining 2 million tons from mines in the Moscow area, on the Crimean Peninsula, in western Siberia -- especially the Kuzbass -- and from other, smaller mines.

Most Important Deposits

The Krivoy Rog deposits contain reserves of ore amounting to one billion tons. This ore is rather rich, with an iron content of up to 60 percent, and low phosphorus content.

The deposits in the Crimea are estimated to contain reserves of about 3 billion tons of ore. This ore, however, is of considerably poorer quality than the Krivoy Rog ore, containing only a little over 33 percent iron, and much phosphorus.

The Krivoy Rog ore is mined underground, while the Crimean deposits lie near the surface, and may, to a large extent, be worked by open pit mining.

The largest of the mines in the Urals, which in 1939 produced 6 million tons of iron ore, are at Gora Magnitnaya, near Magnitogorsk, at Vysokaya and Blagodatskoye north of Sverdlovsk, at Bakal near Chelyabinsk, and at Khalilovo. The ore from these deposits contains 45 percent iron, mainly in the form of magnetite. The Bakal ore is richer, containing about 65 percent iron. Total known ore reserves in the Urals are estimated at 1.6 billion tons.

Geophysical exploration some years ago led to the discovery of large ore deposits in the Bogoslovsk region in the northern Urals. These deposits are now being developed. Mining has begun at Ivdel', at Serov, and in the area between Bogoslovsk and Krasnotur'insk. These deposits consist mostly of titanium-bearing magnetite ores.

In the Kuzbass (the Stalinsk region) in western Siberia, large iron ore deposits are found in the Shoriya Mountains, southeast of Stalinsk. In 1941 these deposits were heavily exploited.

During the war, mining was begun in large deposits in Kazakhstan, near Karaganda coal fields.

On the Kola Peninsula, iron ore deposits are known to occur at Koldorovo, near the Finnish border, and in the Priimandra area. The Koldorovo deposit is now being exploited, and probably has an annual production of about 500,000 tons of iron ore.

At Tula and at Lipetsk, in the Moscow region, there are large, but poor, deposits of iron ore. In 1938 their annual production was about 500,000 /figure almost illegible/ tons of iron ore.

In the area between Kursk and Voronezh in western Russia enormous deposits of poor, quartzitic iron ores are found. These contain from 30 to 35 percent iron, and are of the same type as those found in Sörvaranger in Norway. Most of these deposits, however, lie at very great depths, and mining them would be very costly. One small mine is in operation near the city of Staryy Oskol. Ores of a similar type occur also in the Krivoy Rog area. At Kursk, a better type of iron ore occurs and, in 1938, 900,000 tons of iron ore were produced there.

Disregarding the quartzitic iron ores in the Kursk and Krivoy Rog areas, the total known reserves of iron ore in the USSR amount to about 11 billion tons, that is, enough for several hundred years, even with a considerably larger production of iron ore than at present.

Reserves of quartzitic iron ores in the Kursk area and at Krivoy Rog have been estimated at 220 billion tons -- a gigantic figure. For the present, it is unlikely that these deposits will be exploited to any great extent.

After the German occupation of the Ukraine in 1941, a great increase in production took place in the eastern iron ore mines, especially in the Magnitogorsk mines and other mines in the Urals, but also in the mines in the Kuzbass and other places.

Iron ore production in the period 1941 - 1945 was not significantly smaller than formerly, despite the loss of the Krivoy Rog mines. During this period, the mines in the Urals probably produced from 15 to 20 million tons of iron ore, and the mines in Kuzbass some millions of tons.

The Krivoy Rog mines were severely damaged during the German occupation, but it has been stated that the mines in 1945 were back to 40 percent of their prewar production. It must be assumed that the mines in 1949 had reached the prewar level of production, that is, 18 million tons. If, at the same time, the capacity of the iron ore mines of the Urals, Kuzbass, and other places are fully utilized, the USSR should now be able to produce 40 to 50 million tons of iron ore annually.

The following table shows the probable distribution of the estimated 1950 production among the most important mines. For purposes of comparison, production figures for 1938 are given. Reserves of ore and iron content are also given for the various deposits.

	Region	Estimated Production (million tons)		Iron Content of Ore (%)	Known Reserves of Ore (million tons)
		1938	1950		
Krivoy Rog (a)	Ukraine	16	18	57	1,000
Krivoy Rog (b)	"			30-40	(20,000)
Tula, Lipetsk	Moscow region	0.5	0.5	30-40	1,400
Kursk (a)	Kursk	0.9	0.5	50	300
Kursk (b)	"	--	--	30-40	(200,000)

	Region	Estimated Production (million tons) 1938	1950	Iron Content of Ore (%)	Known Reserves of Ore (million tons)
Kerch'	Crimea	0.8	1	40	3,000
Koldorovo	Kola Peninsula	--	0.5	35-50	1,000
Priimandra	"	--	--	30-40	300
Khalilovo	Southern Urals	0.1	0.5	45-50	
Gora Magnitnaya	"	6	8	45-50	
Others	"	0.2	0.5	45-50	
Vysokaya Gora	Central Urals	1	3	30-40	1,600
Bakal	"			60	
Blagodatskoye	"	0.4	1.5	30-40	
Others	"			30-40	
Ivdel'	North Urals			30-50	
Serov	"		1	30-50	500
Shoriya Mountains	Kuzbass	0.3	2	40	300
Tel'bes Ilim	Angara	--	1	50	400
Karaganda	Kazakhstan	--	0.5	40	300 ?
Bureya and others	Far East	0.1	2	50	300
Others	Uzbekistan, etc.	0.2	0.5	30-60	800
Total		26.5	41		About 11,000 + 220,000

The production figures given for the various mines are very uncertain. The Fourth Five-Year Plan called for a pig iron production of about 19,500,000 tons in 1950. This corresponds to an iron ore production of about 50 million tons, depending on the iron content of the mined ore. The production figures for the various mines are estimated on the basis of various data on development, etc. Statistical material for the postwar years is not available. However, it is known that the Krivoy Rog mines before the war produced 16 million tons annually, and that the Ural mines -- mainly those at Magnitogorsk -- produced about 8 million tons. Further, it is known that the mines in the Urals have been greatly expanded, and that mines are in operation in the Kuzbass, Kazakhstan, Angara, the Far East, and on the Kola Peninsula.

The figures given for reserves of ore in the deposits in the Ukraine and in the Urals are probably quite accurate. The figures for the deposits in eastern Russia are more uncertain.

Crude Iron and Steel

The most important iron and steel works in the Ukraine are located at Dnepropetrovsk, Dneprodzerzhinsk, Krivoy Rog, Zaporozh'ye, Zhdanov (formerly Mariupol'), and Makeyevka. In the part of the Donets Basin which lies east of the Ukraine, the most important works are at Rostov. Farther east, steelworks are located in Stalingrad. Magnitogorsk has the largest iron and steel industry in the Urals (and in the USSR). Western Siberia's iron and steel industry is concentrated in Stalinsk. In the central European part of the USSR, iron and steel works are located in a belt which extends northeast from Bryansk to Gor'kiy on the Volga. The most important centers of production are Moscow, Voronezh, Tula, Gor'kiy, and Kiev. Leningrad also has a steel plant. In the Far East, the steelworks in Komsomol'sk has an annual capacity of 600,000 tons.

It is not possible, with any degree of certainty, to give figures for the distribution among the various steelworks of the planned production for 1950 -- 25 million tons. With all possible reservations, it may be surmised that the picture is about as follows (production figures for 1938 are included for comparison).

	Region	Million of Tons 1938	1950
Gor'kiy	Moscow and Volga		
Tula	"		
Kirov	"		
Voronezh	"	2.3	2
Moscow	"		
Others	"		
Leningrad	Leningrad	0.4	0.4
Dnepropetrovsk	Ukraine-Stalingrad		
Dneprodzerzhinsk	"		
Krivoy Rog	"		
Zaporozh'ye	"		
Zhdanov	"	10	9
Makeyevka	"		
Kerch'	"		
Taganrog	"		
Rostov	"		
Stalingrad	"		

	Region	Million of Tons 1938	1950
Khalilovo	Southern Urals		
Magnitogorsk	"		
Chelyabinsk	Central Urals		
Sverdlovsk	"	4.1	9
Zlatoust	"		
Nizhniy Tagil	"		
Serov	Northern Urals		
Stalinsk	Kuzbass	0.7	2.5
Petrovsk Zabaykal'	Angara	0.1	0.5
Komsomol'sk	Far East	--	1
Khabarovsk	"		
Others		0.4	0.6
Total		18	25

Production in Neighboring States

Manchuria produces 7 to 8 million tons of iron ore annually, Korea 3 to 4 million tons, Poland 700,000 tons, Hungary about 600,000 tons, Rumania 200,000 tons, and Yugoslavia 500,000 tons.

The annual pig iron production of these countries is as follows: Manchuria about 2 million tons, Korea 500,000 tons, Poland about one million tons, Hungary about 400,000 tons, Rumania about 200,000 tons, and Yugoslavia about 100,000 tons.

Steel production in these countries is proportional to the raw iron production.

MANGANESE

The USSR has the world's largest known deposits of manganese ore, and has for a long time been the world's leading producer of manganese. The normal annual production amounts to 2,800,000 tons, that is, one half of the world production. (Most of the USSR's manganese ore contains about 45 percent manganese.)

Most Important Deposits

The most important manganese producing regions in the Soviet Union are (1) Chiatura in Georgia, and (2) Nikopol' in the Ukraine, on the lower course of the Dnepr, about 150 kilometers from the Odesskiy Zaliv. Other producing regions are: the northern and central Urals, the Bashkir area in the southern Urals, the Krasnoyarsk area in western Siberia, and Kazakhstan.

1. Chiatura, the Caucasus

The Chiatura mines are located around the Kvirila River, about 70 kilometers east of the city of Kutaisi, in the Kutaisskaya Oblast in Georgia. The manganese deposits occur within an area 30 kilometers long and 10 kilometers wide. The Kvirila River divides the area, into two parts of equal size.

The deposits consist of horizontal layers of manganese, 1 to 2 meters thick. The ore is obtained from underground mines. There are about 300 mines within the Chiatura region. The ore generally contains about 40 percent manganese. Part of the ore is shipped, without further treatment, directly to the steelworks; but much of it is washed, and a concentrate containing about 50 percent manganese is obtained. The washing takes place at the various mines, and the ore is later transported to one or more storage places by cable conveyers.

As early as 1913, the Chiatura mines produced one million tons of manganese ore annually. Later, the production diminished, and not until 1935 did production equal that of the record year 1913.

During World War II, German bombing damaged some of the Chiatura mines, but there is reason to believe that at present the region is in full production.

Most of the manganese ore which is exported originates in the Chiatura mines. Exports in 1938 amounted to 400,000 tons. The ore from Nikopol' -- the other large manganese region -- is used mainly in the domestic steel industry. The ore from the other manganese mines is used domestically only.

Reserves of ore in Chiatura are estimated at 160 million tons.

2. Nikopol', the Ukraine

The ore in this region occurs in quite flat layers, averaging 2 meters in thickness. The ore is obtained from underground mines, as in the Chiatura region. Most of the mines in the region are from 50 to 100 meters deep.

The ore contains an average of about 30 percent manganese. The raw ore is concentrated by means of washing or flotation into a concentrate containing 40 to 50 percent manganese.

In 1935, the Nikopol' mines produced a little over one million tons of manganese ore. Since then, the annual production has amounted to from one million to 1.5 million tons.

The mines were in operation during the German occupation of the Ukraine. However, the Germans destroyed what they could before retreating. The Russians immediately began putting the mines back into operating condition. As early as 1945 the mines had a significant production. At present, the mines are probably back at full capacity -- about one million tons of manganese ore annually.

The Nikopol' deposits are the largest known deposits of manganese in the USSR, and in the world.

3. Other Deposits

The Mazul' manganese mine delivers manganese ore to the Stalinsk steel plant /Stalinsk Ferroalloy Plant?/ in the Kuzbass region. The mine is located on the Mazul' River, about 12 kilometers southwest of the city of Achinsk, 100 kilometers west of Krasnoyarsk. This ore contains, as a rule, not more than 15 to 20 percent manganese. The iron content of the ore is about the same.

The ore is enriched into a concentrate containing 30 to 40 percent manganese. The 1935 production was 130,000 tons of concentrate. Known reserves of ore, at that time, amounted to only 1,600,000 tons -- not even enough for 10 years of operation at that annual rate of production. In 1940, reserves of ore were estimated at 4 million tons. The deposit provides most of the manganese ore required by the Stalinsk steel plant. In comparison with Chiatura and Nikopol', the Mazul' deposit is insignificant. However, up to 1940 it was the third largest producer of manganese ore in the USSR, following Chiatura and Nikopol'.

A smaller deposit occurs in the Salairskiy Kryazh in the Kuzbass. At Mangyshlak, in Kazakhstan, there is a considerable deposit of manganese ore, with known reserves of over 30 million tons. In 1935, this deposit had an insignificant production of 10,000 tons of ore. Since then, production has been increased, and may at present amount to 100,000 tons annually.

In the Malkinskiy area of the northern Caucasus there is a manganese deposit of about the same size as the Mangyshlak deposit, containing about 30 million tons of ore. Exploitation worth mentioning has not, so far as is known, taken place here.

The Urals contain a number of small manganese ore deposits, probably over 200. As early as 1935, Bashkiria in the southern Urals produced 30,000 tons of manganese ore. [illegible] all deposits in Bashkiria were estimated at 5 million tons in 1935.

Reserves of ore in the Chelyabinsk-Sverdlovsk areas in the central Urals have been estimated at about 10 million tons. Small mining operations were carried out here before World War II, but production was increased greatly during the war. However, the most important deposit is the Polurochnoye deposit at Ivdel' in the northern Urals. Machinery and workers from Nikopol' were moved here in 1941. The deposits in this region may now be producing some 200,000 tons of manganese ore annually. Ivdel' has a large ferromanganese plant.

Further [illegible] of manganese ore are found in Matveyev, the Kurgan area at Tagansk in the Kuzbass, and on Olkhon Island in Lake Baykal.

The following [illegible] the possible production of the various deposits in 1950, and [illegible] of manganese ore. Production figures for 1938 are given for comparison.

Deposit	Region	Production (tons) 1938	Production (tons) 1950	Ore Reserves (tons)
Chiatura	Caucasus	1,696,000	[illegible]	160,000,000
Nikopol'	Ukraine	955,000	1,000,000	400,000,000
Mazul', Achinsk	Western Siberia	65,000	[illegible]	4,000,000
Bashkir	Southern Urals	60,000	[illegible]	5,000,000
Chelyabinsk-Sverdlovsk area	Central Urals		[illegible]	10,000,000
Polurochnoye	Northern Urals	--	[illegible]	20,000,000
Others in the Urals		--	90,000	--
Mangyshlak	Kazakhstan	--	100,000	30,000,000
Others in the Caucasus and Ukraine		--	50,000	60,000,000
Total		2,750,000	3,200,000	690,000,000

Production in Neighboring States

Rumania and Hungary each has an annual production of about 40,000 tons of manganese ore.

CHROMIUM

The USSR's total reserves of chromium ore were estimated in 1937 at 15 million tons -- enough for 50 years at an annual production rate of 300,000 tons. The now known reserves are probably considerably larger.

The largest deposits are in the Urals, contained in a belt reaching from Khalilovo in the south, northward past Sverdlovsk to Nizhniy Tagil, and farther northwest toward Saratov. Other deposits occur in Kazakhstan, in the Caucasus, and around Lake Baykal.

Practically the whole of the USSR's production of chromium ore has thus far come from the Urals. Recently, rather small production has taken place in Kazakhstan.

Most Important Deposits

In the central Urals (especially the Sverdlovsk area), chromium ore is mined at Saratov, Klyuchevsk, Bisert', Nizhniy Tagil, Goroblagodatskoye, Kutuzovskiy, Gologorsk, Alapayevsk, Kezhevskiy, Sverdlovsk, Polevskoy, Serginsk-Ufaleinsk, Miass, and Tungatarev. In the northern Urals, chromium is mined at Bogoslovsk.

Before World War II, the Saratov mine was the largest producer of chromium ore in the USSR. Known reserves at this mine amount to 7 million tons. Most of the ore contains 30 percent chromium oxide, but the best of it contains 40 percent and more. One half of the Saratov production (before the war, 50,000 tons annually) goes to the nearby Shaytanskiy works, where chromium salts for the chemical industry, tanneries, etc., are produced.

During the war, exploitation of the Nizhniy-Tagil deposits was greatly expanded, and they are now probably the largest producers of chromium ore in the USSR.

The Klyuchevsk mine lies 20 kilometers west of Sverdlovsk. This ore is of poor quality, containing only 17 percent chromium oxide, but it may be enriched to a concentrate containing 48 percent chromium oxide. Known reserves at this deposit amount to about 600,000 tons.

The Gologorsk mine is 10 kilometers west of Sverdlovsk. Here the reserves of ore amount to about 500,000 tons, containing from 35 to 55 percent chromium oxide.

In the Chelyabinsk region, south of Sverdlovsk, there is a small mine at Verblyuzhnaya Gora, near Kartaly. In Bachart, 40 kilometers west of Magnitogorsk, there is another small mine.

The Khalilovo area, in the Chkalov region, is an important center of production. The ore from this deposit is uniformly good, containing about 50 percent chromium oxide.

In northern Kazakhstan (just south of the Urals), a number of small deposits of chromium are found around Aktyubinsk.

In the Adamovskiy region, a small deposit at Akarga is being exploited on a small scale.

Near Lake Sevan, in the Transcaucasus, a considerable deposit is known to occur. No exploitation had taken place there up to 1939.

In the Transbaykal deposits are found along the Gazimur River, below Akshinskiy.

Before World War II, the USSR had only one ferrochrome plant, at Chelyabinsk in the central Urals. It is possible that others have been built since.

The following table gives the possible production of chromium ore of the most important mines in the USSR in 1950, and their known and probable reserves of ore.

Deposit	Region	1950 Production (tons)	Reserves of ore (tons)
		(Ore containing 40 percent chromium oxide)	
Saratov	Central Urals	100,000	7,000,000
Nizhniy Tagil	" "	150,000	3,000,000 (?)
Klyuchevsk	" "		
Gologorsk		70,000	2,000,000
Others			
Khalilovo area	Chkalov, southern Urals	70,000	3,000,000
Others	Kazakhstan, Caucasus, and the Transbaykal	10,000	1,000,000
Total		400,000	16,000,000
Neighboring States			
Yugoslavia		100,000	1,000,000
Greece (production capacity)		50,000	--

NICKEL

Before 1933, the USSR produced no nickel. The First Five-Year Plan (1928 - 1932) called for a small nickel production, but none was produced during this period. In 1938, USSR nickel production amounted to only 2,500 tons, that is, 2,500 tons of nickel were produced from nickel ore mined in the USSR. Practically all of this production originated in mines in the Urals. In 1938, the USSR imported about 10,000 tons of nickel.

Some years before World War II, an important nickel deposit was developed at Noril'sk, at the mouth of the Yenisey River. By 1941, the production of nickel, mainly based on the Noril'sk mine, had risen to 15,000 tons. The nickel deposits at Monchegorsk on the Kola Peninsula, which had just been developed at the beginning of the war, were not in operation during the war, but are now in full production. After the war, the USSR purchased the Pechenga nickel mines -- formerly in Finnish territory -- from the Canadian owners for 20 million dollars.

It must be assumed that USSR nickel production in 1950 will amount to about 25,000 tons. Thus, the nickel situation in the USSR at present is significantly better than before World War II. However, 25,000 tons annually is hardly sufficient to cover the requirements of the steel industry, and everything possible will surely be done to increase nickel production further.

Known reserves of nickel ore are hardly sufficient for more than 20 years of operation, assuming an annual production of 25,000 tons of nickel.

Most Important Deposits

1. Noril'sk

The largest deposit is in Rudnaya Garka. The Noril'sk ore is a nickel-copper ore, of a type similar to the Pechenga ore. The content is about one percent nickel, about 1½ percent copper, and some platinum and gold. Assuming the nickel content of the ore produced in the course of a normal production year to be 10,000 tons, this would correspond to a crude ore production of 1,200,000 tons of one percent nickel ore. Noril'sk has smelting and refining plants, which probably refine all, or most of, the production.

2. Kola Peninsula

a. Pechenga

Most of the Pechenga ore contains 1.5 to 3 percent nickel, and 1 to 2 percent copper. Some of the ore contains over 5 percent nickel and almost as much copper. Known reserves of ore are estimated at 5 million tons, corresponding to about 120,000 tons of nickel. Possible reserves are larger.

The mines which existed in Pechenga in 1944, before they were destroyed by the Germans, were capable of an annual production of 400,000 tons of crude ore, corresponding to about 10,000 tons of nickel.

In 1943 -- the only year with a full production in Pechenga while it was still in Finnish territory -- ore containing 9,000 tons of nickel and 4,000 tons of copper was produced. The ore was smelted in an electric smelter at Kol'skiy, electric power being obtained from the power plant in Jäniskoski, which lies 70 kilometers southwest of Kol'skiy. The power plant was planned for a full capacity of 40,000 kilowatts. The smelting produced nickel-copper matte, containing about 60 percent nickel, as well as copper. There was no refinery for further treatment of the matte in Pechenga. It may be assumed that the mines are at present in full production, but it is improbable that the smelter will be able to produce at full capacity before 1950. It must, therefore, be assumed that part of the crude ore is being shipped to the nickel works at Monchegorsk for further treatment. Refinement of the Pechenga matte will probably, under any circumstances, take place in Monchegorsk, or possibly partly in the refineries in the Urals.

b. Monchegorsk

Monchegorsk is located on the west side of Lake Imandra, on the Kola Peninsula. Several significant deposits of nickel are known on the nearby Monche tundry, and on the Volche tundra, farther west. Toward the north and the west, other, little explored, nickel deposits are known on Losevaya tundra, the Sal'naya tundra, and the Podas tundra. Deposits of nickel are also known in the central part of the Kola Peninsula, east of Lake Lovozero, on the Fedorov tundra, and on the Pulmas tundra. Nickel ore is mined only on the Monche tundry; exploration is going forward on the Volche tundra, with a view toward development.

Most of the ore known on the Monche tundry is poor, containing only 0.5 percent nickel and 0.3 percent copper. Development of these deposits was begun in 1934. At a later date, richer nickel ores were discovered in the Nittis and Kumukha Varaka mountains in the Monche tundry, which were said to contain over 4 percent nickel, that is, richer than the Pechenga ore. Since 1938, development has been concentrated on these deposits.

The contents of the poor ore on the Monche tundry was estimated at 50,000 tons of nickel. Of the richer ores, the quantities known were considerably smaller.

The poor ores are beneficiated by flotation into a concentrate before they are treated in the smelter at Monchegorsk. The rich ores, on the other hand, are smelted directly -- as is the case with the Pechenga ores -- and a nickel-copper matte, containing about 60 percent nickel, as well as copper, is obtained. Before the war, there was no refinery in Monchegorsk, but a large plant had been planned, and is now probably completed. This refinery will produce metallic nickel, metallic copper, and, as by-products, some lead and cobalt. Some gold, silver, and platinum metals will also be obtained.

In the years before the war, the annual production of Monchegorsk was hardly more than 1,000 tons of nickel. The present production may be about 4,000 tons annually, and it will probably be possible, in the near future, to increase it to 10,000 tons annually.

3. The Urals

In the Urals, nickel is produced mainly in two areas -- the Sverdlovsk area in the central Urals, and the Orsk -- Khalilovo -- Aktyubinsk -- Novo-Troitsk area in the southern Urals. One of the most productive nickel mines in the Urals thus far is located near Ufalei, about midway between Chelyabinsk and Sverdlovsk. These are sulfide ores, of a type similar to the Pechenga ore, but with a lower nickel content -- about one percent. The ore of the Orsk-Khalilovo area is low-grade nickel silicate ore, of a type similar to that found in New Caledonia.

Before World War II, nickel production in the Urals amounted to about 2,500 tons annually. During the war it increased, through forced exploitation, to perhaps 4,000 tons annually. Known reserves of nickel in the Urals hardly exceed 100,000 tons, and most probably they are considerably smaller. The first nickel refining plant in the Urals was built in Ufalei in 1934. It had a production capacity of about 3,000 tons annually. Since then, nickel refineries have been built in Rezh, east of Sverdlovsk, and in Orsk.

The following table gives the probable 1950 nickel production of the various nickel mines in the USSR, expressed as nickel content of the ore. The known and probable reserves of ore of the various mines are also given, likewise as nickel content of the ore. Production figures for 1938 are given for comparison.

Deposit	Region	Production		Known and Probable Reserves of Ore
		(Metal content of ore, in tons)		
		1938	1950	
Noril'sk	Yenisey	--	10-15,000	200,000 (?)
Pechenga	Kola Peninsula	--	9,000	120,000
Monchegorsk	" "	--	4,000	80,000
Ufalei	Central Urals	1,500		20,000
Rezh	" "	500	2,000	40,000
Khalilovo and others	Southern Urals	500		40,000
Total		2,000	25-30,000	500,000

COBALT

All cobalt produced in the USSR is obtained as a by-product of the smelting of nickel ores. Cobalt is extracted at smelters in Noril'sk, Ufalei, and Orsk. Cobalt may possibly be extracted in Monchegorsk also.

The USSR's production of cobalt hardly exceeds 50 to 100 tons annually. This is almost certainly insufficient to cover Soviet requirements.

The copper-bearing pyrite ores of the Urals contain small amounts of cobalt. By special treatment of these ores, it is possible to obtain cobalt as a by-product. So far as is known, this has not yet been done.

MOLYBDENUM AND TUNGSTEN

Before World War II, the USSR never figured in international statistics as a producer of molybdenum and tungsten. In 1940, it was reported that a molybdenum smelter had been put into operation in Kazakhstan -- near Kounradskiy on Lake Balkhash -- based upon a molybdenum concentrate obtained as a by-product of the copper ore of Kounradskiy. At about the same time, it was stated that exploitation of a large deposit of tungsten had begun at Dizhinsk at the southern end of Lake Baykal.

It may be assumed that since 1940 the USSR has produced certain amounts of both molybdenum and tungsten. Soviet statistics state that the 1945 molybdenum production was 309 percent of the 1940 production, and that during the same period tungsten production increased 113 percent. The fourth Five-Year Plan calls for

an increase in molybdenum production of 110 percent and in tungsten production of 340 percent, as compared to 1945. Assuming a molybdenum production of 100 tons in 1940, this means that in 1945 the production amounted to about 300 tons, and that in 1950 the production will be about 600 tons. Likewise, assuming a tungsten production of 100 tons in 1940, the 1945 production was about 200 tons, and the 1950 production will be about 700 tons.

In 1945, the USSR imported from the US 1,600 tons of molybdenum concentrate (90 percent molybdenite); in 1946, none was imported from the US. Since the war, the USSR has obtained all of Norway's production of molybdenite. In 1948 this amounted to 130 tons.

It may be assumed that the USSR is far from self-sufficient so far as molybdenum and tungsten are concerned, but that it is doing everything possible to increase the production of these metals.

Most Important Deposits

Very little is known concerning deposits of molybdenum and tungsten in the USSR. In Soviet technical and scientific literature and in geological descriptions of the USSR, mention is made of deposits of molybdenum and/or tungsten in various regions. In some cases, mention is made of the exploitation of certain deposits, but as a rule no mention of exploitation is made. Information concerning the size of the deposit or reserves of ore is not available for a single deposit. Everything indicates that the tungsten deposit at Dizhinsk, west of Kyakhta at the southern end of Lake Baykal, and one deposit in the nearby Khalzan' Mountains, are the most important producers of tungsten in the USSR. Molybdenum is also produced here.

The Tashkent area in Uzbekistan has one deposit of molybdenum-tungsten.

The copper deposit at Kounradskiy on Lake Balkhash is probably the largest producer of molybdenum in the USSR. The Kounrad ore is of the same type as that found in the large US molybdenum-bearing copper deposits. Similar ores are found also at Agarak in the Transcaucasus, and at Almalyk in the Tashkent area.

A molybdenum deposit is supposed to exist at Verkhoyansk in northern Siberia. A smaller molybdenum-tungsten deposit is found in the Kuzbass.

In the Urals, tungsten deposits are found in the Gumbeyka region, 40 kilometers east of Magnitogorsk; scientific literature mentions deposits at Buryanovsk, Navarinskiy, Trebyi, Araslanbey, and Balkany. The mineral in the ore is scheelite in all deposits. Everything points to all these deposits being small, but some of them are now probably being exploited.

On the Kola Peninsula, 23 deposits of molybdenum have been described. Most of these lie along the Kirov railroad -- from Murmansk to Kirovsk. With a couple of exceptions, these are small deposits, which will hardly be exploited. The Takhtavumchorskiy deposit on the Khibinskaya tundra is the only one which is said to be promising.

Production in Neighboring States

China is the world's largest producer of tungsten. Over 90 percent of China's production originates in Kiangsi Province, in southern China, 320 kilometers from Canton. All other deposits of tungsten are also located in southwestern China. China's known reserves of tungsten, expressed as tungsten metal, are estimated at 5 million tons, that is, sufficient for several hundred years at the rate of production which has thus far taken place.

[redacted]

Considerable deposits of tungsten are also found in North Korea, in Hwanghae-do.

In Manchuria, a considerable deposit of molybdenum was discovered during the war. Extensive development was undertaken under Japanese leadership, but so far is known, no production was obtained before the end of the war. Some 6,000 Chinese, led by 300 Japanese engineers and technicians, worked the deposits.

During World War II, Finland produced 200 tons of molybdenum annually. The whole of the production came from the Matasvaara mine in eastern Finland, near the Soviet border. Production was discontinued after the war. However, reserves of ore sufficient for many years of operation at the former rate of production are known to exist.

Rumania has an insignificant deposit of molybdenum at Baita, which can produce some tens of tons of molybdenum concentrate annually.

Yugoslavia also has a small production of molybdenum. During World War II, the Germans began developing a new, quite considerable deposit of molybdenum in Mackatica in Serbia. The Yugoslavs took up the work again in 1949, and estimate that the mine will be ready for production in 1952. This mine will then probably be capable of producing about 1,000 tons of molybdenum concentrate annually.

TITANIUM

(Ilmenite and Rutile)

In the USSR considerable deposits of ilmenite exist on the Kola Peninsula and in the Urals. The largest deposit on the Kola Peninsula is the Afrikanda deposit, which lies between the south end of Lake Imandra and Kandalaksha. Known reserves of ore here correspond to a titanium content of 50 million tons. Most of the ore contains 10 to 15 percent titanium oxide and about 50 percent iron. Before World War II, the Afrikanda deposit was being developed for operation. Production had not begun at the start of the war. The size of the planned production capacity is not known. Production is now most probably under way at Afrikanda. It is possible that the annual production here will be of the order of 100,000 tons of ilmenite concentrate, but probably it will be considerable smaller. In Afrikanda, and at other places on the Kola Peninsula, titanium minerals other than ilmenite also occur; their exploitation has been considered.

Practically all ilmenite deposits in solid rock contain considerable quantities of magnetite also. They are in reality iron-titanium deposits. In Afrikanda, the iron content is 4 to 5 times as large as the titanium content.

On the Khibinskaya tundra on the Kola Peninsula, titanium-bearing magnetite is obtained through the beneficiation of the apatite-nepheline ore of Kirovsk. The annual production here amounts to about 50,000 tons of a titanium-magnetite concentrate, containing about 15 percent titanium oxide.

In the Urals, especially in the Chelyabinsk region, there are several large deposits of titanium-bearing iron ore. The largest titanium mine in the Urals is probably the Kusa deposit, which is located near Zlatoust, west of Chelyabinsk. The ore is beneficiated and given further treatment at the Kusa works, 15 kilometers east of the mine. The size of the ilmenite concentrate production in the Urals is not known.

It is possible that the USSR's total annual production of ilmenite concentrate amounts to about 200,000 tons. With its known ilmenite deposits fully developed, the USSR would have no difficulty in producing sufficient titanium for its own requirements.

The USSR's production of rutile is not known. Neither is it known whether deposits of rutile occur in the USSR.