JANIS
CHAPTER

JOINT ARMY-NAVY
INTELLIGENCE STUDY

EUROPEAN U.S.S.R.

CITIES AND TOWNS

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Chapter VIII

CITIES AND TOWNS

Prepared under supervision of Military Intelligence Division, Office of the Chief of Engineers, by Engineer Research Section, Army Map Service

80. GENERAL DESCRIPTION

A. Introduction

(1) Evaluation of source information

The basic source material for the present chapter is a series of German Military Geographies published in 1940 and 1941. It has not been possible thoroughly to correct or verify this material, in which many inaccuracies have been discovered. Captured German documents and aerial photographs, designed to supplement the Military Geographies, have been of value for this purpose. Some information has been provided by observers from the United States or other countries, but movements of foreign observers within the USSR have been restricted. Postwar USSR reports have been modified or used with restraint, as they are often exaggerated, vague, or misleading, make use of percentages based on an unknown index figure, or fail to distinguish plans from accomplished facts. Descriptions of individual urban areas in this Chapter include certain generalized data which are more analytically considered under topics such as Ports in Chapter VI, Railroads in Chapter VII, and Electric Power in Chapter IX.

(2) Area subdivision

This chapter considers 53 major, and 211 minor cities and towns in European USSR, a total of 264.* It includes those cities and towns in areas annexed since the war and formerly part of Finland, East Prussia, Poland, Czechoslovakia, and Rumania, as well as those in Estonia, Latvia, and Lithuania. It does not include the European Caucasus. In this Topic, the area has been arbitrarily divided into two zones, the dividing line being the line of farthest German penetration (FIGURE VIII-119). The extent of structural damage in urban areas and rural communities of the western (occupied) zone was so extensive and so complete that any consideration of these communities based on their prewar plans, conditions, and facilities must be largely conjectural. There is considerable evidence that full advantage is being taken of the opportunity to replan urban areas in order to eliminate prewar conditions which caused internal congestion. Even the relatively modern city of Stalingrad is being replanned along more efficient lines and on a grander scale (FIGURE VIII-40). In spite of the fact that Leningrad *37** and Moscow *107* were close to the front lines and suffered extensive damage (especially heavy in Leningrad), these major urban areas are not included in the western occupied zone. In both these cities plans for the war-damaged areas include the opening of major arteries and the elimination of points of congestion. Considerable changes and revisions of the available information regarding these cities are to be expected in the near future.

The movement eastward and the consequent expansion of eastern cities was so rapid in the war years that the available information was quickly outdated and now, therefore, frequently is incomplete.

(3) Terrain

European USSR is generally low-lying and relatively level or rolling hill country. From west to east, the land rises gradually in a series of terraces, each ending in a bluff, or steep escarpment, which may be over 100 meters (300 feet) high. Along the foot of each bluff flows one of the major rivers so important to the area. Deviations from this formation occur in the tundra region of the far north, in the mountains of the Karelo-Finnish SSR, of Murmanskaya Oblast', and in the southwest, where the USSR has expanded into the Carpathians.

With the exception of Moscow, Leningrad, the Black Sea ports, and the cities in western postwar additions to the USSR, the major cities are located at strategic crossings of the major rivers, each with its nucleus erected on a prominent point of the bluff which dominates the crossing. Kiev *171*, Gor'kiy *58*, Stalingrad *197*, and Kalinin *74* are typical examples. At Stalingrad a series of urban industrial areas extends along the Volga River bluff a distance of some 50 kilometers (31 miles). The left bank is low and the river bottom is shelving and shallow (FIGURE VIII-1).

Another feature commonly found in urban areas are the gullies which cut through these rivers bluffs. Their abrupt banks and meandering courses present a geological obstacle to lines of communications, which tend to parallel the bluffs and rivers. At Stalingrad, one of the largest gullies, north of the tractor plant, divides the city into separate units (FIGURE VIII-2). Such gullies played a prominent part in the defense of this city. Another, at

* An index accompanying the cities and towns map, FIGURE VIII-119, gives alphabetical list of cities and towns discussed, with alternate names.

* Identification number on FIGURE VIII-119. Major cities are indicated by italicized numbers in the text and underlined numbers on the map; minor cities by numbers in parentheses in both.

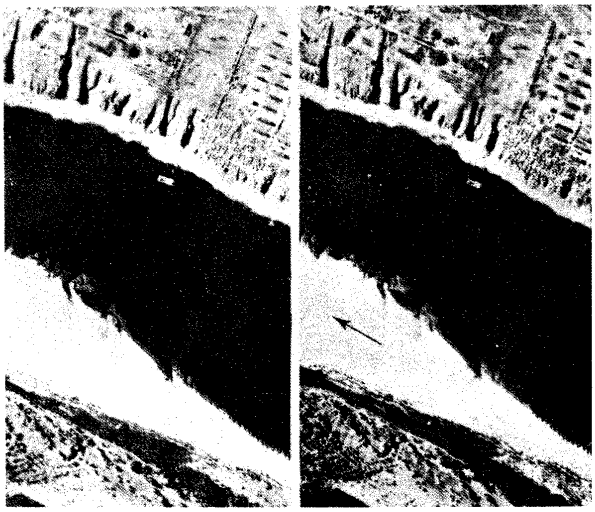


FIGURE VIII-1. *The Volga at Stalingrad.*
2 October 1942, 1335 hours.

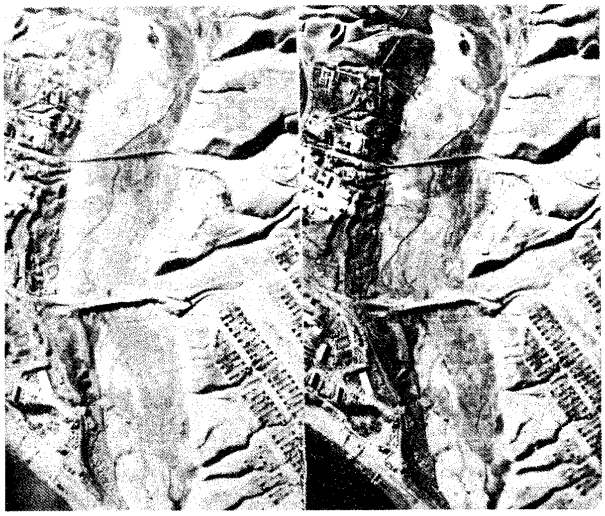


FIGURE VIII-2. *Stalingrad.*
Arroyo north of *Dzerzhinskiy* tractor plant. 2 October 1942. 1335 hours.

Gor'kiy, was used to carry a major street from the Oka river bridge to the old city on the top of the bluff (FIGURE VIII-97).

B. Pattern and urbanization

Until the revolution in 1917, European Russia had a predominantly agricultural economy. Internal communications were poor and inadequate. Much of the freight was carried on river barges and steamers. Consequently, cities of any size or importance were usually located on one of the many inland waterways, such as the Dnepr, Don, and Volga and their major tributaries. One exception to this pattern was the string of urban centers located on the main highway between Moscow and the Polish border. These communities (other than Smolensk, on the Dnepr river) depend on overland transportation and are cut off on both the north and south by practically impassable country known as Poles'ye (Pripet Marshes) (Chapter II). Between 1917 and 1940 many of these older communities were expanded through intensive industrialization, and communications were improved by a considerable increase in the number of railroads. Highways appear to have been poorly developed and, except in metropolitan Leningrad and Moscow, to have contributed little to industrialization. Cities such as Odessa *238*, Sevastopol' *246*, and others along the Black Sea, and those such as Murmansk *3*, with its satellites on the White Sea (Beloye More), have been developed into major seaports independently of the inland waterway system (Chapter VII, 73).

The areas recently incorporated in the USSR generally follow a different pattern of urbanization. Most of their major urban centers such as Rīga *86* and Kalingrad (Königsberg) (263) are seaports.

C. Degree of urbanization

General population and urban population statistics show that USSR prewar industrialization changed the economy of the area from a rural to an industrial one (TABLE VIII-1). This is reflected by the large percentage increase in most of the important urban areas listed in TABLE VIII-2. The effect of the war upon the urban areas is difficult to ascertain at this time (TABLE VIII-2).*

Considerable transfers of populations have been made and are being made. Large industrial populations were evacuated with their tools and equipment to the Ural regions and to Siberia. Reports indicate considerable rebuilding and reindustrialization of the destroyed cities and towns. There are also indications that the original populations of the area taken over by the USSR have been moved from their homes, and that these areas have been repopulated by imported Russian families.

One major population transfer, made for reasons of national security, was the evacuation to western Siberia and USSR middle Asia of the German population of the German Volga ASSR, whose influence in the urban areas and rural districts in and around the cities of Engel's, Marks (Marksshtadt), and Kuybyshev is reflected in German residential construction characteristics and planning.

* TABLE VIII-1, with its accompanying diagram, FIGURE VIII-3, indicates the postwar urban and rural populations in the revised political units according to information as of 10 November 1947. The estimated percentages of urban populations and rural densities are based on the 1939 Census Statistics adjusted to revisions of political subdivisions and indicated population shifts in the referent report.

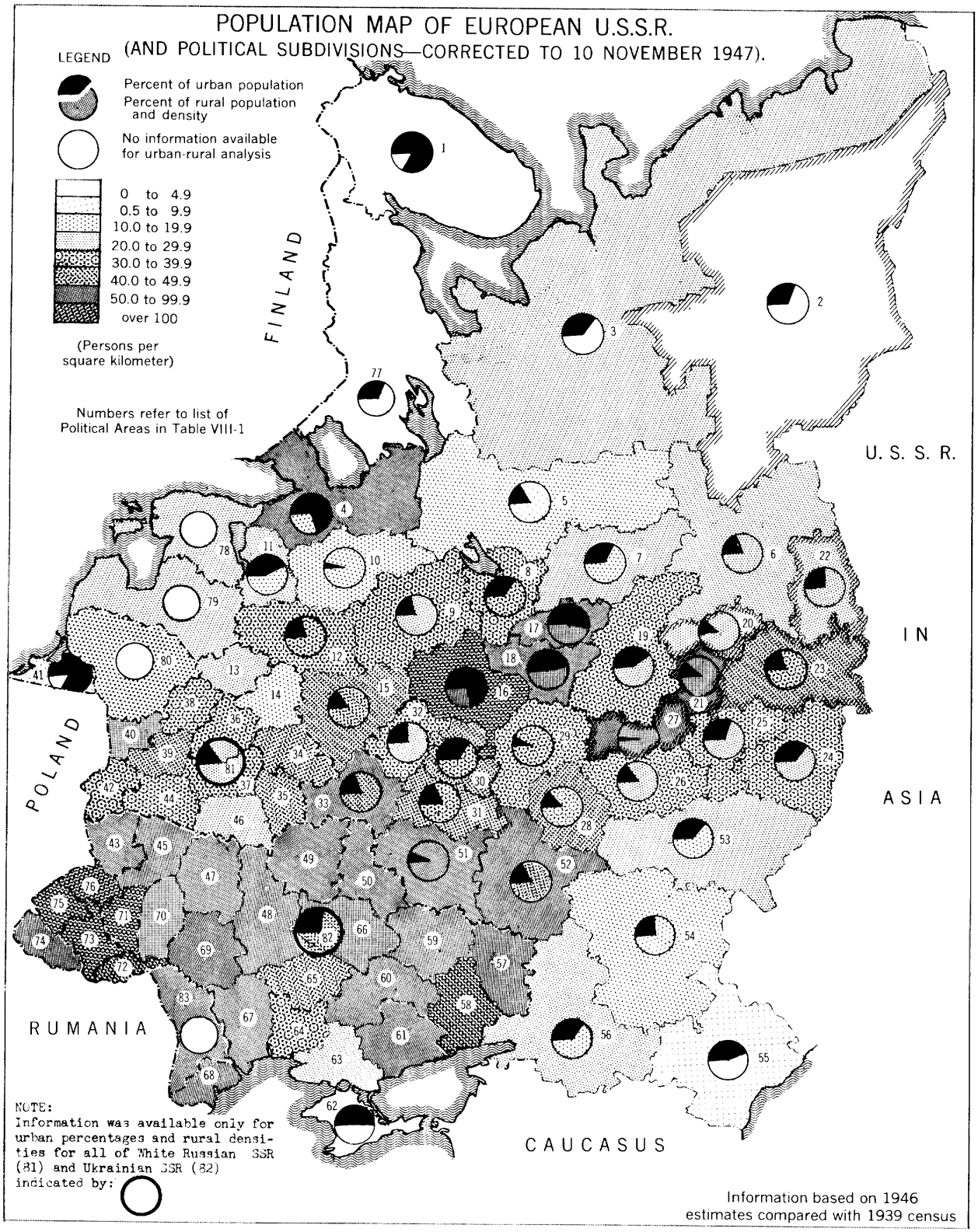


FIGURE VIII-3. *Population map of European USSR.*
Corrected to 10 November 1947.

TABLE VIII - 1

COMPARATIVE POPULATION STATISTICS OF ADMINISTRATIVE DIVISIONS, EUROPEAN USSR
(1946 estimate)

Name	Map identification FIGURE VIII-3	Estimated area	Estimated population	Estimated urban population	Adjusted rural density	Estimated gross density
		1,000 sq. km.	*1,000's*	*Percent*	*Persons per sq. km.*	*Persons per sq. km.*
1. Major Political Areas **						
USSR * Total	..	21,863.3	191,600.0	...	...	15.7
USSR * European (except Caucasus and Urals)	..	4,571.0	129,400.0	...	...	27.3
RSFSR European (except Caucasus and Urals) (R)	..	3,385.8	73,000.0	32.0	14.3	19.4
Karelo-Finnish SSR (Karelo-Finskaya)	77	178.2	600.0	32.0	2.3	3.4
Estonia *	78	45.0	1,000.0	..	...	22.0
Latvia *	79	63.7	1,800.0	...	...	28.2
Lithuania *	80	80.8	2,600.0	...	...	32.2
White Russian SSR * (B)	81	207.0	7,200.0	19.7	26.4	34.8
Ukrainian SSR * (U)	82	576.5	40,500.0	36.7	44.4	70.3
Moldavian SSR	83	34.0	2,700.0	...	...	79.0
2. Oblast or ASSR **						
Arkhangel'skaya Oblast' (R)	3	594.1	1,200.0	36.3	1.3	20.0
Astrakhanskaya Oblast' (R)	55	92.2	600.0	45.0	3.6	6.5
Baranovichskaya Oblast' (B)	39	13.7	600.0	...	...	43.8
Bobruyskaya Oblast' (B)	37	17.6	700.0	...	...	39.8
Brestskaya Oblast' (B)	42	13.5	500.0	...	...	37.0
Bryanskaya Oblast' (R)	33	34.7	1,800.0	19.9	42.2	53.4
Chernigovskaya Oblast' (U)	49	31.6	1,600.0	...	...	50.6
Chernovitskaya Oblast' (U)	72	8.3	900.0	...	...	108.4
Chuvash ASSR (R)	21	18.4	1,200.0	13.6	59.0	65.2
Dnepropetroskaya Oblast' (U)	60	32.6	2,100.0	...	...	64.4
Drogobychskaya Oblast' (U)	75	10.4	1,200.0	...	...	115.4
Gomel'skaya Oblast' (B)	35	15.8	700.0	...	...	44.3
Gor'kovskaya Oblast' (R)	19	75.3	3,600.0	41.2	28.2	47.8
Grodnenskaya Oblast' (B)	40	13.0	800.0	...	...	61.5
Ivanovskaya Oblast' (R)	17	24.6	1,300.0	54.0	24.3	52.8
Izmail'skaya Oblast' (U)	68	12.4	700.0	...	...	56.4
Kaliningradskaya Oblast' (R)	41	88.0	500.0	85.0	0.85	5.7
Kalininskaya Oblast' (R)	9	66.0	2,300.0	21.8	27.3	34.8
Kaluzhskaya Oblast' (R)	32	29.8	900.0	25.1	23.3	31.2
Kamenets-Podol'skaya Oblast' (U)	70	20.7	1,700.0	...	...	82.1
Khar'kovskaya Oblast' (U)	59	31.1	2,300.0	...	...	74.0
Khersonskaya Oblast' (U)	63	27.5	600.0	...	...	21.8
Kirovogradskaya Oblast' (U)	65	24.8	1,200.0	...	...	48.4
Kirovskaya Oblast' (R)	6	121.5	2,400.0	20.0	15.7	19.8
Kiyevskaya Oblast' (U)	48	41.2	3,400.0	...	...	82.52
Komi ASSR (R)	2	404.6	600.0	49.0	0.8	1.5
Kostromskaya Oblast' (R)	7	58.0	1,200.0	33.2	13.8	20.8

* Detailed urban percentages and rural densities based on the 1939 census were not available for compilation; therefore, it has been impossible to make any postwar estimates, other than for the SSR as a whole.

** Political subdivisions according to information available 10 November 1947. (R)=RSFSR; (B)=White Russian SSR; (U)=Ukrainian SSR.

CONVERSION FACTOR: 1 square kilometer equals 0.3861 square mile.

TABLE VIII - 1 (Continued)

Name	Map identification FIGURE VIII-3	Estimated area	Estimated population	Estimated urban population	Adjusted rural density	Estimated gross density
		1,000 sq. mi.	*1,000's*	*Percent*	*Persons per sq. km.*	*Persons per sq. km.*
Krymskaya Oblast' (R)**	62	259.0	1,100.0	52.0	2.04	42.5
Kurskaya Oblast' (R)	51	50.8	2,900.0	8.2	51.8	57.0
Kuybyshevskaya Oblast' (R)	24	53.9	1,800.0	36.6	21.2	33.4
Leningradskaya Oblast' (R)	4	85.2	4,700.0	70.8	16.1	55.2
L'vovskaya Oblast' (U)	76	1.1	1,400.0	...	...	126.1
Mari ASSR (R)	20	23.1	600.0	13.6	22.6	26.0
Minskaya Oblast' (B)	36	20.7	700.0	...	...	33.8
Mogilëvskaya Oblast' (B)	34	20.7	900.0	...	...	43.5
Molodechnenskaya Oblast' (B)	38	14.8	500.0	...	...	33.8
Mordovian ASSR (R)	27	26.2	1,200.0	0.7	42.4	45.8
Moskovskaya Oblast' (R)	16	51.5	9,900.0	72.0	53.6	192.3
Murmanskaya Oblast' (R)	1	149.7	300.0	85.0	0.3	2.0
Nikolayevskaya Oblast' (U)	64	19.4	600.0	...	...	30.9
Novgorodskaya Oblast' (R)	10	53.6	900.0	4.1	16.1	16.8
Odesskaya Oblast' (U)	67	28.0	1,700.0	...	...	60.7
Orlovskaya Oblast' (R)	31	31.6	1,400.0	20.0	35.4	44.3
Penzenskaya Oblast' (R)	26	43.2	1,400.0	16.0	27.3	32.4
Pinskaya Oblast' (B)	44	16.3	500.0	...	...	30.7
Polesskaya Oblast' (B)	46	21.8	500.0	...	...	22.9
Polotskaya Oblast' (B)	13	17.9	500.0	...	...	27.9
Poltavskaya Oblast' (U)	66	43.2	2,000.0	...	...	58.5
Pskovskaya Oblast' (R)	11	31.6	900.0	43.5	16.1	28.5
Rostovskaya Oblast' (R)	56	104.4	2,600.0	35.0	16.2	24.9
Rovenskaya Oblast' (U)	45	20.7	1,200.0	...	...	57.9
Ryazanskaya Oblast' (R)	29	43.8	1,700.0	9.7	33.2	39.1
Saratovskaya Oblast' (R)	53	102.3	2,600.0	36.4	16.1	25.4
Smolenskaya Oblast' (R)	15	48.9	2,000.0	16.5	34.2	40.8
Stalingradskaya Oblast' (R)	54	127.1	1,700.0	25.1	10.3	13.3
Stalinskaya Oblast' (U)	58	26.4	3,000.0	...	...	113.6
Stanislavskaya Oblast' (U)	73	14.0	1,400.0	...	...	100.0
Sumskaya Oblast' (U)	50	24.4	1,700.0	...	...	69.6
Tambovskaya Oblast' (R)	28	34.2	1,400.0	14.6	30.0	40.9
Tatar ASSR (R)	23	67.6	3,000.0	21.3	35.0	44.4
Ternopol'skaya Oblast' (U)	71	13.7	1,400.0	...	...	102.2
Tul'skaya Oblast' (R)	30	24.1	1,200.0	35.0	32.5	49.8
Udmurt ASSR (R)	22	42.2	1,200.0	26.6	20.9	28.4
Ul'yanovskaya Oblast' (R)	25	37.3	1,200.0	33.3	21.5	32.2
Velikolukskaya Oblast' (R)	12	44.8	1,600.0	22.4	27.3	35.7
Vinnitskaya Oblast' (U)	69	27.5	2,300.0	...	...	83.6
Vitebskaya Oblast' (B)	14	19.7	600.0	...	...	13.4
Vladimirskaya Oblast' (R)	18	26.7	1,400.0	48.2	27.2	52.4
Vologodskaya Oblast' (R)	5	147.4	1,700.0	17.8	9.6	11.5
Volynskaya Oblast' (U)	43	20.0	1,200.0	...	...	60.0
Voronezhskaya Oblast' (R)	52	68.4	3,600.0	18.8	14.8	52.6
Voroshilovgradskaya Oblast' (U)	57	26.7	1,800.0	...	...	67.4
Yaroslavskaya Oblast' (R)	8	36.8	1,400.0	35.4	24.6	38.0
Zakarpatskaya Oblast' (U)	74	12.9	900.0	...	...	69.8
Zaporozhskaya Oblast' (U)	61	26.9	1,500.0	...	...	55.8
Zhitomirskaya Oblast' (U)	47	30.2	1,700.0	...	...	56.3

** Political subdivisions according to information available 10 November 1947. (R)=RSFSR; (B)=White Russian SSR; (U)=Ukrainian SSR.

CONVERSION FACTOR: 1 square kilometer equals 0.3861 square mile.

TABLE VIII-2

COMPARATIVE POPULATION STATISTICS OF MOST IMPORTANT CITIES, EUROPEAN USSR

City or town	Figure VIII-119 Reference no.	Census data			Rank in USSR in respect to size 1939	Estimated population	
		December 1926	January 1939	Index of Change 1926=100		Persons	Date
Arkhangel'sk	*9*	76,774	281,091	366.1**	23	280,000	1941
Astrakhan'	*259*	184,301	253,655	127.6	28	...	...
Bezhitsa (W)*	(147)	36,040	82,331	228.0	109	...	...
Bobruysk (W)	(152)	51,296	84,107	164.0	105	...	...
Brest (W)	*164*	...	54,200 (1937) (P)	...	...	50,000	Dec. 1940
Bryansk (W)	(146)	45,962	87,473	190.3	101	...	...
Cheboksary	(55)	...	12,000 (1932)	...	...	...	...
Chernigov (W)	(162)	35,234	67,356	191.2	136	...	...
Chernovtsy (W)	*223*	...	112,000 (1937) (R)	...	...	...	...
Dneprodzerzhinsk (W)	(211)	34,150	147,829	432.9**	56	...	...
Dnepropetrovsk (W)	*210*	236,717	500,662	211.5	11	600,000	1946
Dzerzhinsk	(61)	8,910	103,415	1,160.0**	79	...	...
Engel's	*193*	34,345	73,279	213.4	125	...	...
Gomel' (W)	(148)	86,409	144,169	166.8	58	...	...
Gor'kiy	*58*	222,356	644,116	289.7	6	900,000	1946
Gorlovka (W)	(202)	...	108,690	...	...	...	...
Ivanovo	(62)	111,460	285,069	255.8	22	...	...
Izhevsk	(53)	63,221	175,740	278.0	44	...	...
Kalinin (W)	*74*	108,413	216,131	199.4	35	216,000	1941
Kaliningrad (W)	(263)	315,651 (1933)	368,433 (G)	...	...	...	...
Kaunas (W)	(91)	...	154,000 (B)	...	...	...	...
Kazan'	*127*	179,023	401,665	224.4	16	...	...
Kerch (W)	(249)	35,690	104,471	292.7	78	...	...
Khar'kov (W)	*208*	417,342	833,432	199.7	4	835,000	1941
Kherson (W)	(241)	58,801	97,186	165.3	87	...	...
Kiev (W)	*171*	513,637	846,293	164.8	3	650,000	1946
Kirov	*52*	62,097	143,181	230.6	59	...	...
Kirovograd (W)	(213)	66,467	100,331	150.9	82	...	...
Kishinev (W)	(233)	...	114,896 (R)	...	...	130,000	1946
Klaipėda (W)	*260*	...	38,500 (1937) (G)	...	...	...	...
Kolomna	*113*	30,767	75,139	244.2	123	...	...
Kostroma	*63*	73,732	121,205	164.4	70	...	...
Kramatorsk (W)	*203*	12,348	93,350	756.0**	93	...	...
Krivoy Rog (W)	(242)	38,228	197,621	517.0**	41	...	...
Kronshtadt	*32*	...	60,000	...	...	...	...
Kursk	*177*	82,440	119,972	145.5	71	...	...
Kuybyshev	*130*	175,636	390,267	222.2	17	600,000	1946
Leningrad	*37*	1,690,065	3,191,304	188.9	2	2,800,000	1946
Liepāja (W)	*90*	...	57,000 (1935) (B)	...	...	...	...
Lipetsk	*141*	21,439	66,625	310.8**	140	...	...
L'vov (W)	*227*	...	317,800 (1937) (P)	...	...	...	...
Makeyevka (W)	(253)	79,421	240,145	302.4**	31	...	...
Mariupol' (W)	(251)	63,920	222,427	348.0**	34	...	...
Michurinsk	(139)	49,853	70,202	140.8	132	...	...
Minsk (W)	*155*	131,803	238,772	181.2	32	103,000	(Postwar)
Mogilëv (W)	(151)	50,222	99,440	198.0	83	...	...
Molotovsk	*10*	...	...	...	...	10,000	1945
Moskva (W)	*107*	2,029,425	4,137,018	203.9	1	4,500,000	1946
Mozyr' (W)	(153)	...	12,000 (1932)	...	...	...	...
Murmansk	*3*	8,777	117,054	1,333.6**	72	100,000	1945
Nikolayev (W)	*240*	104,909	167,108	159.3	49	...	...
Noginsk	*115*	38,494	81,024	210.5	113	...	...
Odessa (W)	*238*	420,862	604,223	143.6	7	...	...
Orekhovo-Zuyevo	(116)	62,841	99,329	158.1	84	...	...
Orël (W)	*145*	75,968	110,567	145.5	74	...	...
Penza	*136*	91,924	157,145	171.0	52	...	...
Polotsk (W)	(98)	25,830 (1928)	...	...	...	...	...
Poltava (W)	(209)	91,984	130,305	141.7	65	...	...
Proskurov (W)	(220)	...	28,250 (1932)	...	...	...	...
Pskov (W)	(81)	17,054	60,111	325.5**	154	...	...

TABLE VII-2 (Continued)

City or town	Figure VIII-119 Reference no.	Census data December 1926	Census data January 1939	Index of Change 1926 = 100	Rank in USSR in respect to size 1939	Estimated population Persons	Estimated population Date
Riga (W)	*86*		385,063 (1935) (B)				
Rogachev (W)	(150)		11,750 (1932)				
Rostov-na-Donu (W)	*256*	308,103	510,253	165.6	10		
Ryl'sk (W)	(176)		10,200 (1932)				
Rzhev (W)	(78)	32,810	54,081	164.8	164		
Saransk	(123)		21,460 (1932)				
Saratov	*192*	219,547	375,860	171.2	18		
Serpukhov (W)	(109)	47,361	91,678	193.6	97		
Sevastopol' (W)	*246*	74,551	111,946	150.2	73		
Shakhty (W)	(258)	41,043	155,081	377.9**	54		
Shcherbakov (Rybinsk)	*46*	55,546	139,011	250.3	62		
Simferopol' (W)	*245*	82,213	142,687	173.6	60		
Slavyansk (W)	(205)	28,771	75,542	262.6	120		
Smolensk (W)	*103*	78,520	156,677	199.5	53		
Stalingrad (W)	*197*	151,490	445,476	294.1	13	Over 300,000	Jan. 1947
Stalino (W)	*252*	174,230	462,395	265.4	12		
Stalinogorsk (W)	*117*		76,207		118		
Stanislav (W)	*226*		63,500 (1937) (P)			60,000	Dec. 1940
Sumy (W)	(175)	44,213	63,883	144.5	147		
Svoboda (W) (Liski)	(182)		16,320 (1932)				
Syktyvkar	(15)	No definite	data is available,	but is	over	10,000	1941
Taganrog (W)	*254*	86,444	188,803	218.4	43		
Tallinn (W)	*27*	138,000 (1934)	146,000 (B)	(105.8)			
Tambov	*138*	72,256	121,285	167.9	69		
Ternopol' (W)	(222)		40,000 (1937) (P)			33,000	Dec. 1940
Tula (W)	*110*	155,005	272,403	175.7	26		
Ul'yanovsk	(125)	70,130	102,106	145.6	81		
Valuyki (W)	(179)		11,000 (1932)				
Vil'nyus	*92*		209,500 (B) (P)			215,000	(after 1940)
Vinnitsa (W)	(217)	57,990	92,868	161.9	94		
Vitebsk (W)	(101)	98,857	167,424	169.4	48		
Vladimir	(65)	39,654	66,761	168.4	139		
Vologda	*47*	57,976	95,194	164.2	90		
Voronezh (W)	(181)	121,612	326,836	268.7	19		
Voroshilovgrad (W)	*201*	71,765	213,007	296.8	36		
Vyborg (W)	*24*					30,000 (B)	1941***
Yaroslavl'	*70*	114,277	298,065	260.8	20	300,000	1936
Yoshkar-Ola	(54)	8,200 (1932)	9,400	(114.6)			
Zaporozh'ye (W)	*250*	55,744	289,188	518.8**	21		
Zhitomir (W)	(170)	76,678	95,090	124.0	91		

* (W) Occupied, destroyed, or badly damaged during war.
(B) Former Estonian, Latvian, Lithuanian, or Finnish territory.
(G) Former German East Prussia.
(P) Former Polish territory.
(R) Former Rumanian territory.

** "Boom" cities which had increased in populations over 300% between the years 1926 and 1939. Of the 48 cities in this category for the entire USSR, 26 are located within this area. (See note at end of Table.) Those not listed above are:

	1939	% Increase		1939	% Increase
Chapayevsk	57,995	428	Mytishchi (W?)	60,111	353
Konstantinovka (W)	95,087	376	Nikopol' (W)	57,841	407
Krasnyy Luch (W)	50,829	409	Yenakiyevo		
Kuntsevo (W?)	60,963	610	(Ordzhonikidze) (W)	88,246	363
Babushkin			Perovo	77,727	326
(Losinoostrovsk) (W?)	70,480	451	Podol'sk	72,422	366
Lyublino	64,332	767	Kadiyevka		
Melitopol' (W)	75,735	300	(Sergo) (W)	68,360	396
			Voroshilovsk (W)	54,794	342

*** Entire Finnish population was evacuated 1944 when USSR took over Karelian Isthmus.

TABLE VIII - 3

TREND FROM AGRICULTURAL TO INDUSTRIAL EMPLOYMENT IN USSR

Occupational groups	1930	Percentage of 1930	1939	Percentage of 1939	Net change in percent 1930-1939
	1,000's		*1,000's*		
1. Total employed personnel	14,531.0	100.0	28,539.0	100.0	
2. Agricultural and related occupations	2,208.0	15.2	3,935.0	13.8	—1.4
3. Handicrafts and shop industry	290.0	2.0	400.0	1.4	—0.6
4. Construction	1,623.0	11.2	1,963.0	6.9	—4.3
5. Manufacturing and mining	4,264.0	29.3	9,135.0	32.0	+2.7
6. Transport and trade	2,595.0	17.8	5,857.0	20.5	+2.7
7. Total of items 4 through 6	8,482.0	58.3	16,955.0	59.4	+1.1
8. Total, all employed labor except agricultural (Item 1 minus 2)	12,323.0	84.8	24,604.0	86.2	+1.4

The prewar change in employment from an agricultural to an industrial economy is indicated in TABLE VIII-3 and in Molotov's "Report on the Third Five-Year Plan" (TABLE VIII-4).

Rapid industrialization created a serious overcrowding problem prior to the German invasion. The extensive destruction and the inability to rebuild at once the immense number of dwelling units required, mean that a large percentage of urban areas considered in this chapter are greatly overpopulated, and that dwelling space is at a premium. Especially is this true of Leningrad and Moscow, both of which suffered considerable damage.

TABLE VIII - 4

PREWAR POPULATION TREND TO INDUSTRIALIZATION

Group*	1928*	1937*	Net change in percent 1937-1928
	Percent	*Percent*	
1. Workers and employees	17	35	+18
2. Collective farmers and handicraftsmen organized in producers' cooperatives	3	55	+52
3. Individual peasants and handicraftsmen not organized in producers' cooperatives	73	6	—67
4. Capitalist elements (private traders and kulaks)	5	0	— 5
5. Miscellaneous (students, the armed forces, pensioners, etc.)	2	4	+ 2
	100	100	

* Molotov's "Report on Third Five-Year Plan"

D. Functions of cities and towns

Historically, the USSR is relatively modern. Most of the major urban areas are of recent development as compared with cities such as Rome or Paris in the western countries of Europe. Moscow was only a small village in 1156, when it was first fortified by a wooden palisade and towers; Leningrad was not founded until the 17th century. Cities such as Gor'kiy (Nizhniy Novgorod) still have a kremlin *(kreml')*, or citadel, as a nucleus. In Moscow this ancient fortress, which was the original walled community, is better known as the Kremlin and is the seat of the Soviet government.

The industrialization of major cities and towns in the USSR has affected their planning. Most of them are surrounded by industrial communities centering on a large plant. This situation is illustrated in the suburbs of Moscow, Gor'kiy, Kuybyshev, and Leningrad. In the case of Stalingrad (Tsaritsyn), industries and satellite industries were added up and down the right bank of the Volga until the city reached a length of some 50 kilometers (31 miles). Industries thereby obtained not only good waterway access, but in addition the service provided by an excellent belt-line system.

The effect of the war upon cities and towns has been catastrophic in the areas which were occupied by the Germans. This chapter is, correspondingly, divided into two parts: Occupied Area and Unoccupied Area (Topics 81 and 82). Many of the cities, by reason of their location on high river banks (usually the right), command important river crossings. The Russians, therefore, made a maximum effort to hold these cities, even though they thus became major battlegrounds, with extensive destruction. The cities of Smolensk, Kiev, and Khar'kov were badly damaged before the Germans occupied them. Although the Germans, during their occupation, undertook some restoration of important facilities, such as bridges, they put into effect a systematized plan of total destruction when they finally abandoned an urban area. For example, Smolensk had only 40 buildings standing when the Soviet Army finally recaptured the city. This makes difficult an evaluation of any urban area of prewar USSR in the occupied zone. Reports indicate that considerable thought is being given to systematic replanning of these urban areas. These proposed changes will, if carried out, modify to a greater or less degree the city plans as now known, as regards both the street patterns and the ease and rapidity of through traffic movement. Prewar bottlenecks will more than likely be eliminated; permanent bridges will be stronger and have greater capacities; it is believed that street construction will be more permanent than that existing before the war.

E. General characteristics

(1) Physical characteristics

Up to the time of the revolution of 1917, cities were generally spread out, and the majority of buildings were one or two stories high. Only the centers of the older and western town, which reflected some influence from the West, had the built-up look so familiar in cities like Paris or Berlin. Leningrad is outstanding in this respect. With the exception of the areas rebuilt or developed during the prewar Soviet regime, most urban communities include large areas of rectangular blocks, consisting of small detached wooden buildings with fenced gardens or yards (FIGURES VIII-9 to VIII-17). In spite of overcrowding, this results both in a relatively low density of population,

and also low percentages of continuous land occupied by structures. In the western areas annexed since the war's conclusion, the cities and towns have the greater compactness generally found in western Europe.

A comparison of the percentages of the city districts alloted to various uses in Soviet and American cities respectively shows that a bigger share is reserved for industry and for parks in the former than in the latter, and relatively less land is allotted to residential and street use. The figures given in the following tabulation for Moscow and Vladimir are fairly typical. Vladimir is a provincial city with a planned population of 110,000. The park territory includes neither green spaces inside the superblock, nor the forest belt surrounding Moscow.

Land use	Moscow	Vladimir
Residential	24%	28%
Parks and cemeteries	24%	22%
Industry	12%	24%
Public buildings (schools, hospitals, stores, etc.)	12%	9%
Railroads and warehouses	6%	7%
Streets and squares	15%	9%
Water	7%	1%
Total	100%	100%

Practically all urban communities, even those on the coasts, are located on waterways, which are frequently navigable. Many are located on bluffs at the confluence of two rivers, which have consequently developed a characteristic triangular shape (Table VIII-5).

TABLE VIII-5

PARTIAL DIGEST OF WAR DAMAGE AND RECONSTRUCTION IN OCCUPIED AREA

Region	City or town	Residential	Industrial	Electric power	Hospitals and schools	Rural communities
1. RSFSR	Over 500 towns and factory settlements totally destroyed; 1,200 partially destroyed. Over 6,000,000 buildings lost.	Population of 25,000,000 without shelter. In 9 regions (1943) 326,461 home units rebuilt, 60,411 in towns.	31,850 plants, factories etc., (employing 4,000,000 workers) destroyed, including 37 iron and steel works, 62 blast furnaces, 213 open-hearth furnaces, 248 rolling mills, 4,700 coking ovens, 12 nonferrous plants.	61 major and many smaller plants, capacity 5,000,000 kw. and 12,000 buildings destroyed. Taken to Germany: 14,000 steam boilers, 1,400 turbines, 11,600 electric generators.	6,000 hospitals, 33,000 clinics, 84,000 schools, and 43,000 public libraries damaged or destroyed.	(In 9 regions only) 70,000 villages, 98,000 collectivized farms, 1,876 state farms destroyed. In 1943, 266,060 rural homes rebuilt.
2. Leningradskaya Oblast' (occupied area within prewar boundary)	In Novgorod almost 100% of residences were destroyed. 11 hospitals, 4 colleges, 5 workers' clubs, 2 theaters, a museum, and the water-supply system destroyed.	By 1944, 13,000 units restored.	.....	.....	In Novgorod districts, 75 out of 76 schools destroyed. In oblast, 534 schools restored through 1944.	By 1944, 1,000 collectivized farm units restored.
3. Kaliningradskaya Oblast' (occupied area within prewar boundary)	In Rzhev, 1,000 homes restored by April 1944.	779,000 square miles destroyed. By August 1943, 264,000 restored.	.....	.....	.....	By March 1945, 40,000 collective farmers' homes restored or rebuilt; reportedly "Not too good." Also 4,000 out of 10,000 poultry sections of collectivized farms were restored by October 1943.
4. Moskovskaya Oblast' (occupied area only)	.....	.....	.....	.....	.....	2,230 villages with 47,246 collective farmers' homes and 46,000 farm buildings destroyed.
5. Smolenskaya Oblast'	12 towns, 8 factory settlements, and 10 district centers completely destroyed. In Smolensk, 40 buildings were left standing when recaptured. 89.8% (650,000 sq. m.) of living units destroyed. Power plant destroyed; also 40,000 trees.	By March 1943, 12,726 living quarters for population of 34,314 restored.	870 out of 900 plants destroyed (96.6%).	All destroyed.	.....	2,000 villages with 220,000 collective farmers' homes and 28,500 farm buildings destroyed. By Aug. 1945, 75,000 farm cottages with 23,000 public and farm buildings restored.

TABLE VIII-5 (Continued)

Region	City or town	Residential	Industrial	Electric power	Hospitals and schools	Rural communities
6. Mogilëvskaya Oblast'	.....	.....	.....	.....	.....	2,100 collective farms with 40,000 buildings destroyed.
7. Tul'skaya Oblast'	.....	.....	.....	.....	8 hospitals and 72 schools restored in Belevskiy Rayon.	In the Belevskiy Rayon, by July 1945, 3,000 houses and 300 farm buildings restored.
8. Orlovskaya Oblast' (19 districts)	In oblast 583 state, 316 R.R., 284 municipal buildings, with 493 trading establishments destroyed.	129,000 private houses destroyed.	317 buildings destroyed.	In Bryansk by December 1944, 5,000 kw. restored.	.....	58,866 farm buildings destroyed.
9. Kurskaya Oblast'	In Kursk, by June 1944, 600 apartments and 22 dwellings restored; streets paved and 20,000 new trees planted.	.....	.....	.....	.....	5,000 collective farms with 80,000 buildings destroyed.
10. Sumskaya Oblast'	.....	130,000 (including auxiliary farm buildings) destroyed.	.....	.....	.....	90 villages, 9,000 collective farms, with 35,460 farmers' houses destroyed.
11. Kiyevskaya Oblast'	In Kiev, 2,600 houses (500,000 sq. m.) destroyed. All power plants destroyed; also 940 municipal and state buildings (over 1,000,000 sq. m.), all public utilities, with 5 to 7 km. of streets.	.....	.....	.....		.....
12. Khar'kovskaya Oblast'	In Khar'kov, 90% residences destroyed. By 1946, 75% restored.	.....	.....	.....	.....	Over 1,000,000 trees (chiefly fruit) destroyed.
13. Zhitomirskaya Oblast'	.....	.....	.....	.....	.....	20,000 collective farm buildings destroyed.
14. Voronezhskaya Oblast'	In Voronezh, 80% to 90% destroyed. In 1944, 7,676 houses, as well as 2 power plants restored.	.....	127 out of 143 destroyed food industries restored by October 1943.	.....	By Jan. 1945 in Voronezh, 29 hospitals and 75 educational institutions restored.	.....
15. Poltavskaya Oblast'	.....	94,000 houses and auxiliary farms and buildings.	.....	.....	.....	108,000 collectivized farm buildings and houses destroyed; 45,000 restored in 1944.
16. Stalinigradskaya Oblast'	In Stalingrad: 125 km. streetcar lines, 300 km. water mains, all paved streets, 14 parks, 3 theaters and so on, destroyed.	In Stalingrad: 40,000 (4,000,000 sq. m.) destroyed. 10,000 dwellings restored by 1944.	In Stalingrad: 176,000 sq. m. restored by June 1945.	.....	In Stalingrad, all hospitals (4,500 beds) destroyed as well as 102 schools.	.....

TABLE VIII-5 (Continued)

Region	City or town	Residential	Industrial	Electric power	Hospitals and schools	Rural communities
17. Rostovskaya Oblast'	In Rostov-na-Donu: The protecting belt of orchards and woods completely destroyed.	In Rostov-na-Donu: 1,000,000 sq. m. damaged 700,000 sq. m. destroyed.	In Rostov-na-Donu: 105 industries restored in 1 year.	.....	.....	.....
18. Dnepropetrovskaya Oblast'	In Dnepropetrovsk 4,843 units damaged or destroyed. 20,000 sq. m. restored by April 1944.	57,000 units damaged or destroyed.	.....	.....	.....	33,000 auxiliary farm buildings destroyed.
19. Stalinskaya Oblast'	.....	8,412 houses destroyed.	.....	.....	1,615 medical and 442 educational institutions restored by November 1944.	.....
20. Krymskaya Oblast' (prewar ASSR.)	In Sevastopol' by 1947, 3,206 houses (170,000 sq. m.) restored with 2 power plants and a marine plant.	.....	Entire salt industry destroyed. By Nov. 1944, 400,000 sq. m. salt beds and 1½ km. railroad spurs restored.	.....	.....	.....
21. Belorusskaya SSR.	26 cities and towns (2,160,000 population) destroyed.	By Aug. 1945, 200,000 sq. m. restored.	.....	.....	.....	400,000 rural buildings destroyed; by Aug. 1945, 150,000 restored.

Note: The above information is largely abstracted from Voronin's book, "Rebuilding the Liberated Areas of the Soviet Union" (Hutchinson & Co. Ltd. London (no date) and is intended to give a general estimate of the extent of the war damage suffered by the areas which were occupied by the Germans.

(2) Street plan

The typical street plan consists of a square or rectangular gridiron. Segments of gridirons occasionally have been imposed on a radial-circumferential pattern of major streets, as in Moscow. The small town of Talovaya (40°45'E, 51°22'N), illustrates modern planning and thinking based on such a pattern, which makes use of a semicircular gridiron (FIGURE VIII-20). Notwithstanding considerable modernization in most cities and towns, especially in the residential areas, dirt roads are still the rule outside of the larger cities. A wide public, or open, strip between garden fences exists, and the traveled path wanders as the condition of the surfacing dictates (FIGURE VIII-4). In some cases the better main streets are paved with cobblestones. Where modernization has been undertaken the main streets are well paved and generally wide. Drastic measures have often been taken to complete street-widening and straightening programs. This is most evident in Moscow (PLAN 29).

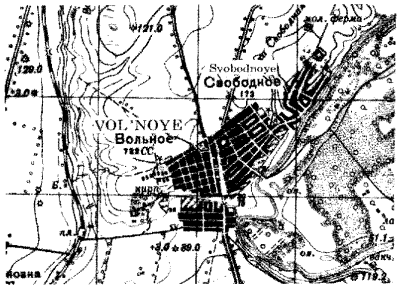
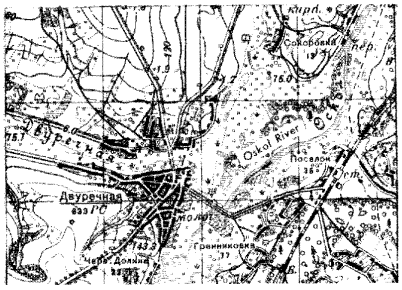
Many of the smaller towns and communities are bisected by rivers or smaller streams. Frequently, the old winding streets and inadequate bridges form bottlenecks to highway communications (TABLE VIII-6).

FIGURE VIII-4. *Village in White Russian SSR.* Wide dirt street between buildings.

In the villages, a rutted dirt road, often stretching many kilometers, may form the only local line of communication (FIGURE VIII-4).

TABLE VIII - 6
ANALYSIS OF SMALL TOWNS AND VILLAGES
Typical Plans and Characteristics
(2-km. grid)

TOWNS - COMPACT PLANS

Regular gridiron	Irregular gridiron	Triangular
		
Krasnograd, 35°25'E, 49°23'N (1,749 buildings) with suburb of Peschanka (1,098 buildings).	*Vol'noye, 35°16'E, 48°44'N* (722 buildings) (on Samara River) with suburb of Svobodnoye (173 buildings).	*Dvurechnaya, 37°41'E, 49°51'N* (633 buildings) (at confluence of Dvurechnaya and Oskol rivers).
1. Shape and Physical Characteristics Square, rectangular and elliptical. 3 or more sq. km. in area. Generally located on a level site, often elevated on the level plain above an adjacent river. Railroad alinements bypass areas generally outside urban built-up area.	Shape dependent upon terrain which affects regularity of gridiron and shapes and sizes of blocks. Railroad alinements bypass areas generally outside urban built-up area.	Generally located on a bluff at the confluence of two rivers. 2 or more sq. km. in area. Irregular triangular shape, connected with opposite bank by bridges.
2. Streets Blocks: 150 by 260 meters Streets: Vary in width; many still have dirt surfacing. There is some use of cobble stones. Few are paved.	Streets: Vary in width; many still have dirt surfacing. There is some use of cobblestones. Few are paved.	Interconnecting streets join bridges and roads radiating from point of confluence.
3. Buildings In center of town: some pretentious buildings with churches as prominent landmarks. Residential areas: Types E, F, and H (on outskirts). (FIGURES VIII-13, VIII-14, and VIII-16) Railroad station, if any, likely to be prominent.	In center of town: some pretentious buildings with churches as prominent landmarks. Residential areas: Types G with E, F, and H (on outskirts). (FIGURES VIII-13 to VIII-16) Railroad station, if any, likely to be prominent.	In center of town: especially at main street intersections and market square, some pretentious buildings with churches as prominent landmarks. Residential areas: Type C at center with Type F. Types H and I on outskirts. (FIGURES VIII-11, VIII-14, VIII-16, VIII-17)

TOWNS - OPEN PLANS

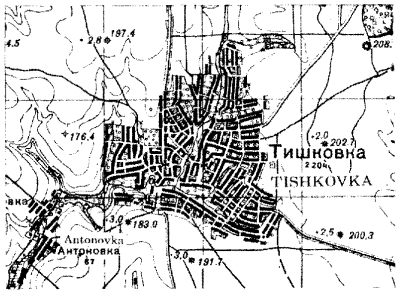
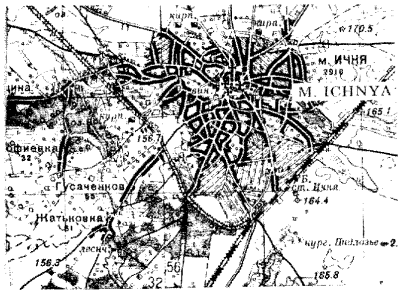
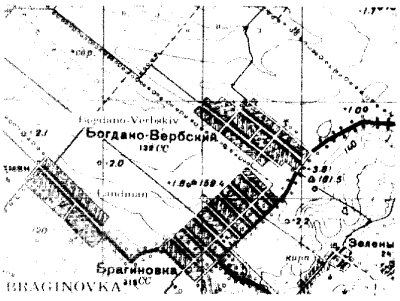
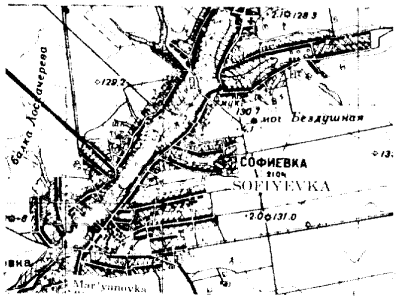
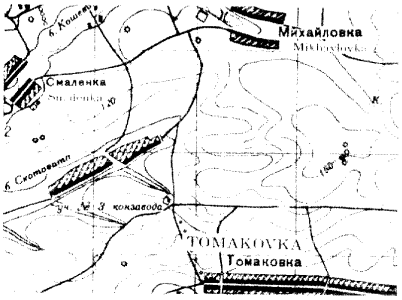
Irregular rectangular	Irregular radial
	
Tishkovka, 30°57'E, 48°29'N (2,204 buildings) with suburb of Antonovka.	*M. Ichnaya, 32°24'E, 40°51'N* (2,910 buildings) with Type I (FIGURE VIII-17) villages on radial roads.
1. Shape and Physical Characteristics. Agricultural community on a rectangular site which is generally sunk below the surrounding terrain. Level, with a stream or river running through its center. The land is relatively level.	Agricultural community on a circular or elliptical site which is generally sunk below the surrounding terrain level. Its shape is determined by the local ground profile.
2. Streets The street pattern is somewhat irregular, although street intersections are usually at right angles. However, through routes are poor and many bottlenecks exist.	The radial streets extend from a focal market place dominated by a church. Some circumferential streets complete the pattern.
3. Buildings A market square is often found in the center, dominated by a church.	

TABLE VIII - 6 (Continued)

VILLAGES

	Regular pattern	Irregular	Single street
			
	Braginovka, 36°21'E, 48°29'N (315 buildings) with Bogdano-Verbskiy (132 buildings) and Landman (64 buildings).	*Sofiyevka, 34°53'E, 48°03'N* (210 buildings) with Mar'yanovka (SE).	*Tomakovka, 34°19'E, 48°06'N* Includes Smalenka and Mikhaylovka.
1. Shape and Physical Characteristics	Rectangular (approx.) 1 to 6 sq. km. in area. Located on a level or slightly sloping site to one side of a main road.	Sinuous, following a gully's meanderings, with side settlements in branching gullies. Streams flow through the centers of the various parallel rows of cottages and houses.	This is the most common pattern, consisting of 2 parallel rows of dwellings with their individual enclosed gardens or plots of land. Straight on level ground. Sinuous in gullies.
2. Streets		Very poor streets; little more than dirt tracks on either side of a stream, but which may stretch for 20 to 25 km. through a number of adjacent settlements.	Three types: a. Dirt road with houses relatively close together. b. Wide common ground sometimes with 1 or 2 tracks. c. Common ground with stream or small river flowing through the center.
3. Buildings	Rows of individual, detached, wooden, 1-story buildings equally spaced with pitched roofs. Thatched, tiled, and metal roofing materials. Ridges perpendicular to streets. Usually log construction.	Rows of individual detached, wooden, 1-story buildings equally spaced with pitched roofs. Thatched, tiled, and metal roofing materials. Ridges perpendicular to streets. Usually log construction.	Usually 2 parallel rows of equally spaced detached buildings, 1 story high with pitched roofs. Wooden, often log, construction with thatched, tiled, or metal roof. Ridges perpendicular to street.

Note: These urban areas are not located on base map, FIGURE VIII-119.

CONVERSION FACTORS: 1 square kilometer equals 0.3861 square mile.
1 meter equals 3.28 feet.
1 kilometer equals 0.6214 mile.

(3) Differentiated sections

Urban areas in European USSR can generally be broken down into differentiated sections based on industry and trade. There are no indications of segregation based on racial or religious differences; especially has this been true since the revolution, when many of these barriers disappeared. In the western areas taken over since the war, Finnish, Lithuanian, Estonian, Latvian, Polish, Rumanian, and other racial groups have impressed their characteristics on the urban areas. The policy of shifting populations, however, which appears to be the practice of the USSR administration, has operated to reduce the concentration of racial groups. One of the most visible traces of former inhabitants is to be seen in the bulbous domes of the Greek Orthodox churches, which stand out as prominent landmarks and can be seen for long distances over the level plains of the steppes (FIGURES VIII-5 and VIII-6).

(4) Hospitals and health

(a) Hospitals in cities and towns.—Reports for 1941 show there were 491,543 hospital beds in the cities of the USSR. The number of beds per 1,000 population in cities

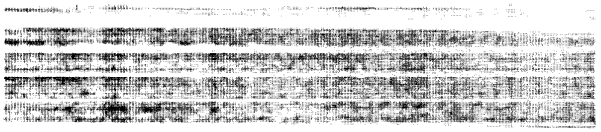


FIGURE VIII-5. *Typical small town with church, looking eastward.* Location, 11 km. east of Nikolayev. 13 March 1944.

rose from 3.9 in 1913 to 8.2 in 1941. The medical equipment in all hospitals is regarded as poor. The number of out-patient clinics grew from 2,337 in 1913 to 24,792 in 1941; the tendency is to further develop these facilities. There is still a lack of doctors, but latest reports indicate that medical schools are crowded.

(b) Health conditions in cities and towns.—The most common diseases are malaria, tuberculosis, and dysentery. There is a large malarious area in the European USSR.

FIGURE VIII-6. *Near Yaroslavl'.*
Bulbous cupolas of a typical church.

Sand-fly fever is encountered only in Krymskaya Oblast' (Crimean Oblast). Tuberculosis is common among civilians in all urban areas. Much progress has been made in retarding the more common diseases. The number of reported venereal patients is still very high by percentage of population.

(c) Rural conditions.—There were about 169,888 hospital beds in the rural communities in 1941. The number of beds per 1,000 population rose from 0.44 in 1913 to 1.47 in 1941. In the latter year there were 13,512 rural medical centers. The technical equipment in the hospitals is classed as poor. Bacillary dysentery and common diarrheas are widespread in the rural districts.

(5) Utilities

(a) Sanitation and sewerage

1. CITIES AND TOWNS.—The construction of sewerage systems has been very slow, even in the larger cities. As late as 1930 there were only 42 cities with disposal systems; by 1938 there were 107 cities with about 5,000 kilometers (3,000 miles) of sewer mains. Thus, only about 6% of the cities of 50,000 population and over had disposal systems. The large industrial plants and communities have provided their own systems. Little information is available as to waste and trash collection and disposal. There is a planned system of garbage collection in the city of Leningrad (FIGURE VII-90).

2. RURAL.—The only rural communities that have sewerage systems are those near the large industrial plants. The small villages have no collection or disposal systems. Waste and trash collection and disposal in small communities are still primitive.

(b) Water supply

1. CITIES AND TOWNS.—In 1936, 35.2% of the total water supply of the USSR was obtained from rivers; 20.7% from springs; 13.3% from artesian wells; and 30.8% from all other sources. There were 278 city water systems in 1924; by 1938, there were 411 urban areas providing water service with 14,000 kilometers (8,700 miles) of water mains. Some of these were primitive, using hollowed tree trunks (FIGURE VIII-7). The 24-hour consumption per capita was 55.2 liters (14.6 gal.) in 1924 and 51.3 liters (15.5 gal.) in 1926.

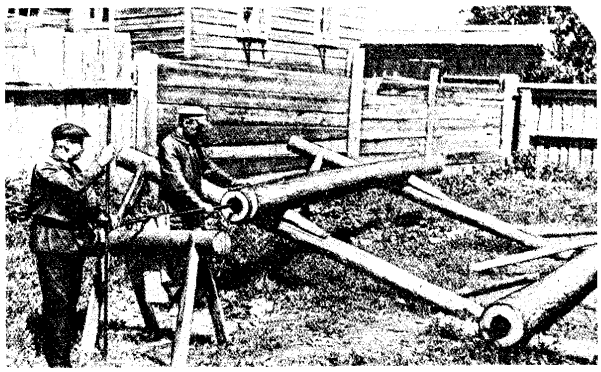


FIGURE VIII-7. *Drilling wooden pipes for water supply systems.*
Before 1934.

2. RURAL.—The very few rural water systems always were poor. Villages obtain their water in most cases from dug wells, the majority of which are of wooden construction and poor design. The building of concrete wells has been encouraged around Moscow *107* and Pskov (81) (FIGURE VIII-8).

FIGURE VIII-8. *Typical village water supply pump.*
Before 1940.

(c) Other utilities

1. CITIES AND TOWNS.—Electric light and power for domestic use are limited, due to the conservation for industry. Only the communities that have their own generating equipment have domestic service to any extent.

Natural gas and manufactured gas are available in most of the larger towns for domestic as well as industrial use. A network of natural-gas pipe lines is under development.

2. RURAL.—There are only a few villages that have electric facilities. Some large farms have generating plants of their own for the operation of farm machines and, to a limited extent, for domestic use.

Natural gas and bottled, liquid, and vapor gases are available to some villages.

(6) Buildings of possible military use

Practically every urban area of any importance possesses at least one or more areas allocated to military and governmental use. These have been indicated as far as possible on the accompanying city plans. Generally the most important buildings in a town belong to the government. On the older railroad lines, the railroad station is a most prominent structure (FIGURE VIII-14). Commercial buildings, as found in American cities, exist only in a few of the most important urban areas such as Moscow *107*, Leningrad *37*, and Khar'kov *208*.

(7) Analysis of residential areas

Certain basic residential patterns were typical throughout the prewar area of the USSR (FIGURES VIII-9 through VIII-17, a series of aerial stereographs). For purposes of identification in the text and tables, these patterns are referred to as Type A, Type B, and so on to Type I.

(a) Type A (FIGURE VIII-9).—In the centers of the major cities, such as Leningrad, Moscow, and Odessa, there has been considerable Western renaissance influence. The city blocks are generally rectangular. The buildings, forming a continuous structure along the building lines, have a uniform cornice height with pitched roofs (FIGURE VIII-93). Small square or rectangular courts provide light and air within the blocks. The buildings are substantial and somewhat monumental in character. In areas of Type A in Leningrad, about 70% to 80% of the space within the building lines is covered by structures. The sturdy construction survived serious damage in spite of the continual shelling which the center of this city received during the siege.

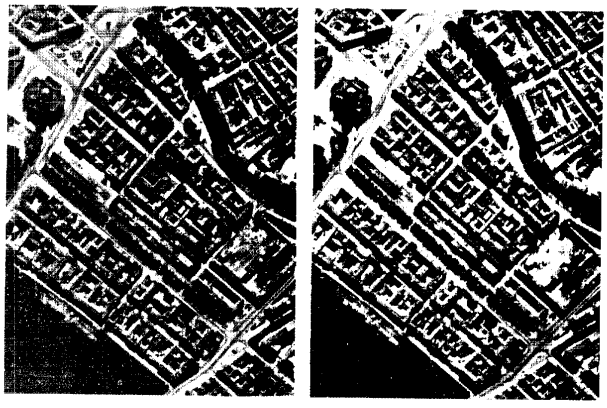


FIGURE VIII-9. *Leningrad.*
Left (south) bank of Bol'shaya Neva. 24 June 1942, 0850 hours.

(b) Type B (FIGURE VIII-10).—This is similar to Type A, but the blocks are more open in character. There are breaks between adjacent structures, and the light courts are larger, often open on one side. As in Type A, there is uniformity of cornice height and pitched roofs. Between 50% and 70% of the area within the building lines is occupied by buildings.

FIGURE VIII-10. *Leningrad.*
Right (north) bank of Bol'shaya Neva. 24 June 1942, 0850 hours.

(c) Type C (FIGURE VIII-11).—The post-revolution change from a rural to an industrial economy with its consequent population movement to and expansion of urban areas resulted in considerable residential construction and reconstruction. The simplest form consists of grouped arrangements of rectangular multidwelling units within the confines of the normal block. (In FIGURE VIII-11, a prewar Type B area has units of this type, occupying half of the bottom block and the middle of the center block.)

FIGURE VIII-11. *Leningrad.*
Section from center of Ostrov Vasil'yevskiy (island). 24 June 1942, 0850 hours.

(d) Type D (FIGURE VIII-12).—Examples of modern trends in residential planning in which an entire neighborhood is developed or replanned as a unit are common in most of the major urban areas of the USSR, especially in Leningrad and Moscow (FIGURE VIII-82). These consist of arrangements of multistoried apartment houses (FIGURE VIII-18) in which the usual gridiron pattern of minor streets between major streets is discarded. A partial development of such a unit is illustrated. In FIGURE VIII-84, a number of these areas can be seen. The triangular formation in the right center is one of the largest.

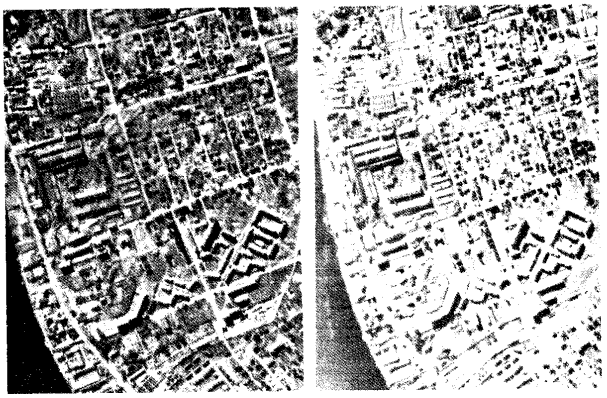


FIGURE VIII-12. *Leningrad.*
In southeastern part on left bank of the Neva. 9 September 1942, 1010 hours.

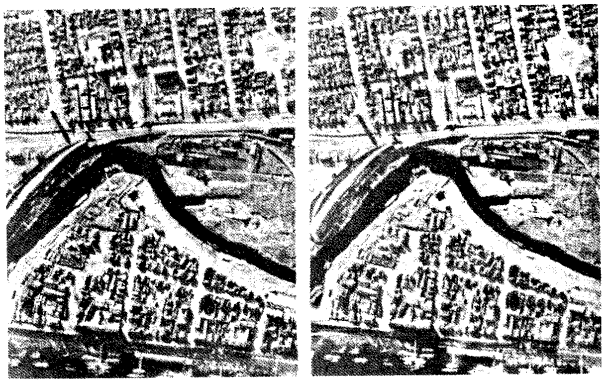


FIGURE VIII-13. *Shcherbakov (Rybinsk).*
Harbor area. Right bank of Volga (bottom). 2 September 1942, 1019 hours.

(e) Type E (FIGURE VIII-13).—In the central portions of the smaller cities and towns, where the Western influence is not so noticeable, the gridiron patterns generally consist of rectangular blocks. However, the terrain sometimes determines a more irregular pattern. The deep gullies often existing in urban areas may affect quite considerably both the gridiron pattern and the shape of the individual blocks. In the business section, large buildings stand out quite prominently. Residences are usually detached. The buildings have pitched roofs and are built fairly close together. FIGURE VIII-13, also illustrates the high right bank which is found along most of the major river valleys. This is a characteristic water-front condition in most USSR river cities and towns (FIGURE VIII-29).

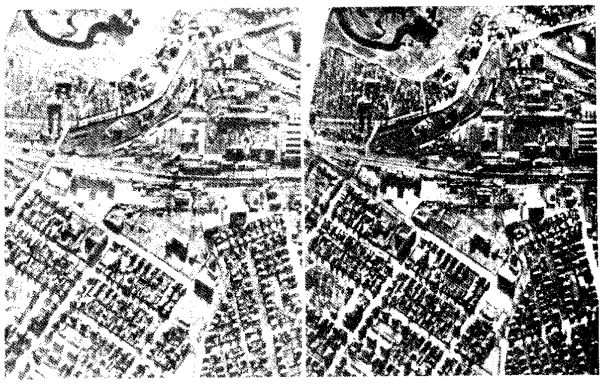


FIGURE VIII-14. *Shcherbakov (Rybinsk).*
Railroad station area. 2 September 1942, 1019 hours.

(f) Type F (FIGURE VIII-14).—Typical residential blocks have closely spaced detached houses lining the long sides of the blocks (with sometimes one or two on the short sides). Each house has a narrow walled or fenced garden. The gabled roofs are set almost invariably at right angles to the streets, giving a distinctive pattern from the air. This view also shows a characteristic small industrial plant, a pretentious railroad station, and a narrow bridge over a typical gully.

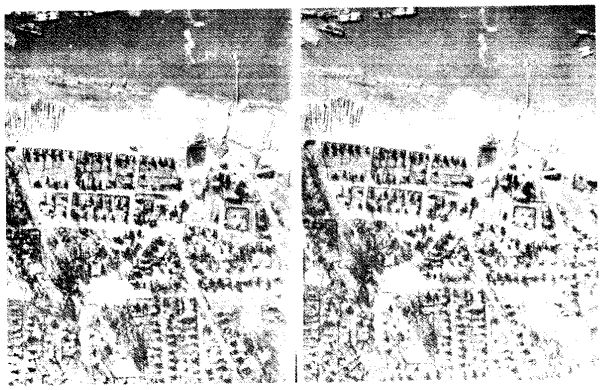


FIGURE VIII-15. *Shcherbakov (Rybinsk).*
Suburb on left bank of Volga. 2 September 1942, 1019 hours.

(g) Type G (FIGURE VIII-15).—On the outskirts of most cities and towns and in the larger villages, the houses are smaller and poorer, are spaced further apart, and have larger gardens. Normally, the blocks are divided into two parts with no houses facing the short sides of the blocks. In this example, the streets are somewhat irregular in pattern. It also illustrates a community on a low, gradually shelving left bank, typical of the major rivers in European USSR. The picture was taken directly opposite the point illustrated in FIGURE VIII-13.

FIGURE VIII-16. *Kazan'.*
Near motion picture plant in northwestern part of the city. 18 September 1942, 0715 hours.

(h) Type H (FIGURE VIII-16).—In the older communities, especially in the eastern and southeastern portions of European RSFSR, and Ukrainian SSR, the average residence consists of a small wooden house identical with its neighbors, each with the same sized plot of land set in rows on opposite sides of each block. Sometimes the

FIGURE VIII-17. *Typical one-street village near Leningrad.* 30 May 1942. 0942 hours.

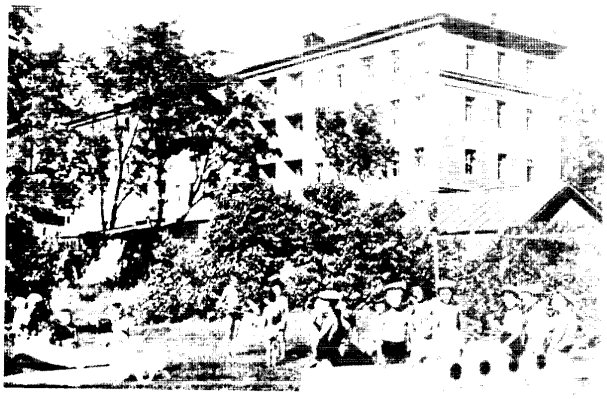


FIGURE VIII-18. *Type D superblock residential unit.* Before 1940.

streets are relatively narrow (compare Type G, preceding), or they may be quite wide as illustrated. Only 50% to 60% of the gross area has been used here for residential purposes, and only a relatively small percent actually has been built upon. In comparison, samples of Types C and D are shown in the upper left corner.

(i) Type I (FIGURE VIII-17).—One of the most characteristic residential patterns, which appears to be prevalent over the entire Russian portion of the USSR (excluding annexed areas), are the villages which are strung out along a road or trail, possibly on opposite sides of a small stream or gully (FIGURE VIII-19). Occasionally these may be found at intersections and crossroads. FIGURE VIII-20 illustrates how this typical pattern is symbolized on Russian maps by a black line, representing a row of small detached houses with a hachure indicating the individual

FIGURE VIII-19. *Small village east of Vil'nyus* Irregular pattern common in the Baltic States.

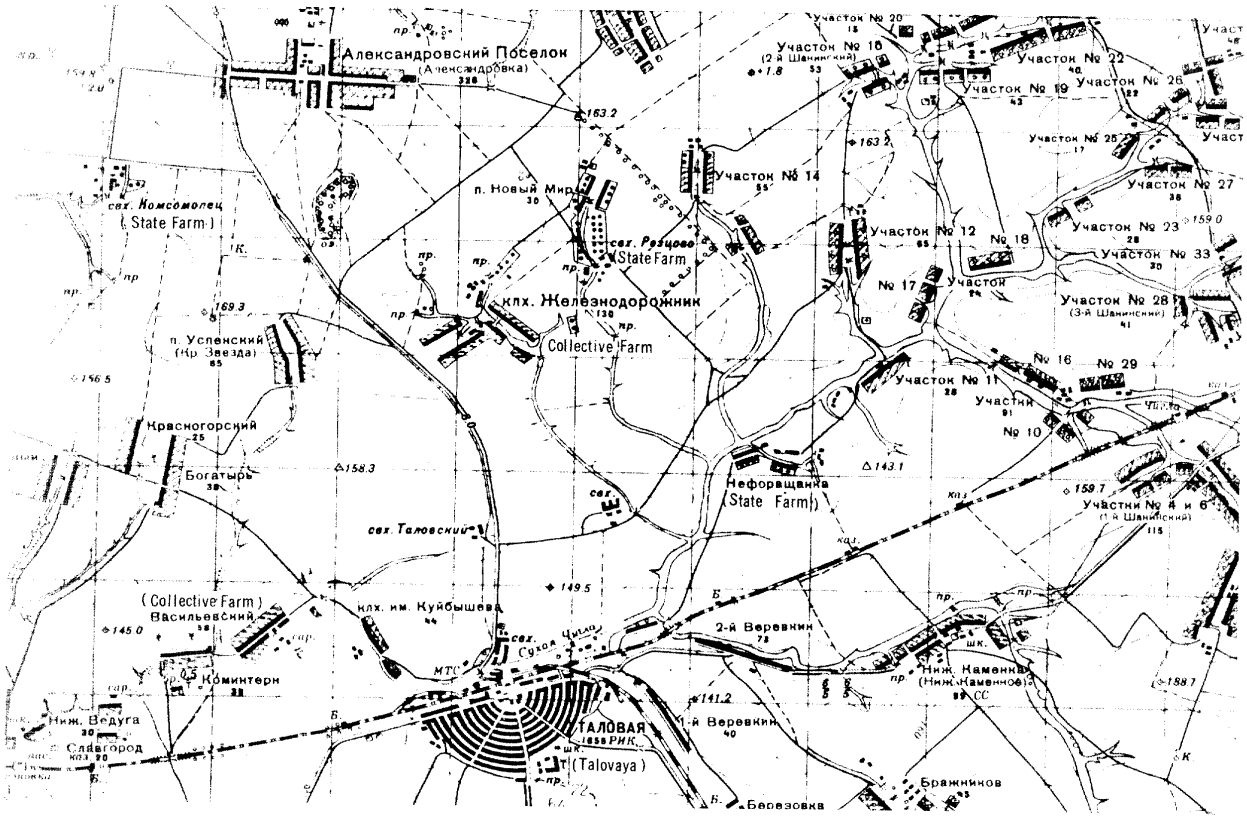


FIGURE VIII-20. *Talovaya and neighboring rural settlements, including collective farms. 1941.*

FIGURE VIII-21. *Village near Vil'nyus.*
Wooden buildings with hipped thatched roofs. Prewar.

FIGURE VIII-22. *Lower Volga.*
House of sun-dried brick or pounded earth. A Kalmuk home.

FIGURE VIII-24. *Kherson (foreground).*
Looking east-southeastward across the Dnepr. 12 January 1944.

gardens in the rear. In general these small houses are wooden (FIGURE VIII-21), but other construction such as sun-dried brick or pounded earth (FIGURE VIII-22) may be found. Thatched roofs are common (FIGURE VIII-23); tile and sheet metal also may be found (FIGURE VIII-24 and TABLE VIII-6).

(8) War damage and reconstruction

The total extent of the war damage is difficult to compile, due to lack of complete information, but is known to have been very severe in the occupied areas. Only one electric powerhouse is reported to have survived; most bridges were destroyed; factories were in ruins; residential areas were burned out. An indication of the extent of the damage is presented in TABLE VIII-5; this information has been compiled from many diverse sources and is not in any sense complete enough for adequate evaluation.

It has also been difficult to compile complete statistics on reconstruction plans or their progress. Reports in-

FIGURE VIII-23. ***Typical village on the steppes.***
Wooden cottages with thatched roofs. Before 1940.

dicate that even during the darkest days of the invasion, Soviet officials were working on plans for rebuilding their cities and towns, including the rebuilding and replanning of residential areas and the undertaking of street-widening projects with realinements to remove bottlenecks. In intercommunications, the railroads are being restored and imposing stations are proposed, if not already under construction, in many urban communities (FIGURE VIII-25).

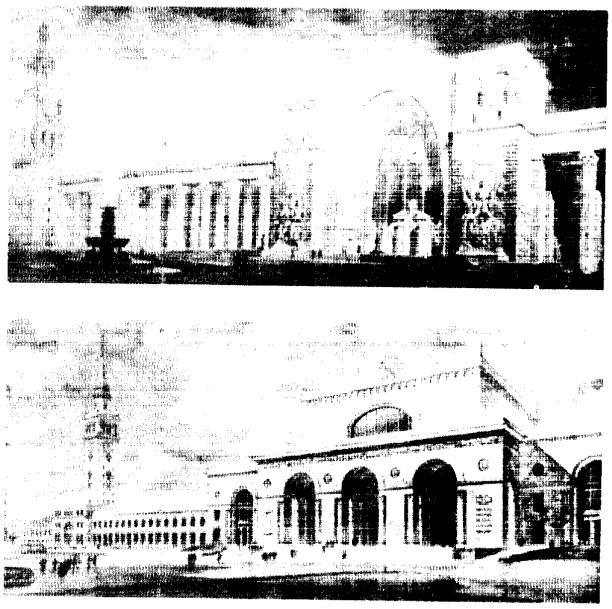


FIGURE VIII-25. *Kiev (top) and Kursk (below). Proposed new railroad stations.*
Illustrate trends in major landmarks within urban areas.

It appears that much of the prewar building construction, especially reinforced concrete, has proved somewhat faulty. The concrete has had a tendency to spall. How effectively this tendency to poor workmanship has been controlled in this immense program of reconstruction and restoration is not known. Observers have already commented adversely on the quality of the repairs to the Dneprostroy dam, where failure would be a serious matter.

F. Major urban areas

In this study 53 major cities are discussed and tabulated in detail. These include six of the seven largest urban communities in the entire USSR, Moscow *107*, Leningrad *37*, Kiev *171*, Khar'kov *208*, Gor'kiy *58*, and Odessa *238*. These cities are identified by an underlined index number on FIGURE VIII-119 and by italicized number in the text. Thirty of these cities are included in Topic 81, which covers the areas occupied by the Germans between 1941 and 1945.

The remaining 23 cities lie east of the line of farthest German penetration and are discussed in Topic 82. They include the two USSR cities with populations over 1,000,000, Moscow *107* and Leningrad *37*.

G. Minor urban areas

In addition to the 53 major cities, 211 smaller cities and towns are discussed in a condensed analysis in TABLE VIII-14, making a total of 264 urban communities considered. Three-fifths of the total number lie in the occupied zones and the remainder in the unoccupied zones. On FIGURE VIII-119, these minor communities are identified by an index number in parentheses, for example Azov (255). References to these minor towns in the text will include index numbers.

H. Analysis of small towns, villages, and farms

(1) General discussion

In European USSR (particularly south of the 65th parallel), the smaller urban units conform to a fairly standard pattern. The more densely populated the region, the closer the units. In fact, in the Ukrainian SSR many of these communities are so interconnected that it is difficult to determine the lines of separation between adjacent villages and towns.

The main difference between towns and villages is not area size. The average small town is smaller than the larger villages. This is due to differences in the basic pattern of the two types of community. The village consists of widely and evenly spaced detached houses, each with its individual garden or farm area. In the towns, the houses are built much closer together; the garden plots are much smaller; and the population densities are considerably greater.

Isolated farmsteads, so common in the United States and in Western Europe, were almost completely lacking in prewar USSR. However, they are found in the recently annexed western areas.

TABLE VIII-6 gives a comparative analysis of the smaller urban units illustrated by typical examples extracted from the USSR 1:100,000 series maps.

TABLE VIII-7 gives a comparative analysis of densities based on the numbers of buildings located within an urban area or village.

TABLE VIII - 7

COMPARATIVE BUILDING DENSITIES IN SMALL TOWNS AND VILLAGES

Type of plan	Community	Area	Buildings	Buildings
		Sq. km.		*Per sq. km.*
Compact towns				
a. Regular gridiron	Krasnograd**	3.5	1,749	499
b. Irregular gridiron	Vol'noye**	3.25	722	222
	Svobodnoye**	0.5	173	346
c. Triangular	Dvurechnaya**	3.5	633	181
Open-plan towns				
a. Irregular rectangular	Tishkovka**	7.6	2,204	290
	Peschanka** (suburb of Krasnograd)	7.0	1,098	114
b. Irregular radial	M. Ichnya*	7.0	2,910	414
Villages				
a. Regular pattern	Braginovka*	2.3	315	137
	Landman*	1.3	64	49
	Bogdano-Verbskiy*	1.6	132	83
b. Irregular	Sofiyevka*	10.0	210	21
c. Single street***	Vasil'yevskiy**	0.5	58	119
	Kolkhoz Zheleznodorozhnik**	1.3	130	100
	Uchastok No. 14**	0.5	55	110

* Located on inserts in TABLE VIII-6.
** Located on FIGURE VIII-20.
*** Buildings spaced approximately 25 buildings per kilometer, or on 40-meter spacing, in each row. For rows on both sides of a village street, these numbers are doubled.
CONVERSION FACTOR: 1 square kilometer equals 0.3861 square mile.

(2) Regional characteristics

Although many urban characteristics are common over most of European USSR, certain variations are caused by geographical, ethnographical, or climatic conditions peculiar to a particular area. These modify in varying degree the information contained in TABLE VIII-6.

(a) North and northeast (above the 65th parallel).—With the exception of the boom towns (for instance, Murmansk 3) most communities are small and are confined to clearings in the forest, often on the banks of navigable waterways or lakes. Except in the far north or tundra areas, they are closely surrounded by evergreen forests. Most of the villages are dependent upon fishing for their existence.

(b) Karelo-Finnish (Karelo-Finskaya) SSR.—The prevailing neatness and cleanliness of the Finnish race is reflected in the areas taken over by the USSR which were formerly part of Finland. This refers especially to the Karelian Isthmus directly northwest of Leningrad. In the residential areas, the wooden houses tend to be more elaborate and better constructed than the Slavic types.

(c) Baltic Lands (Estonia, Latvia, and Lithuania, with Kaliningradskaya Oblast').—The characteristics of this area are middle or western European and Scandinavian, rather than Russian as found in prewar USSR areas. There is considerable use of masonry, especially brick, in the towns, and to some extent in the rural areas, with the exception of Lithuania where the Russian type predominates. The regimented rows of rural buildings, so common to the USSR as a whole, are replaced by rambling villages and individual homesteads similar to eastern United States rural districts. The change from this distinctive Balt farmland type to the Slavic type occurs where the rolling Baltic Sea coastal hills level off into the relatively flat central European plain found in southern Lithuania and in the White Russian SSR.

(d) White Russian SSR (5).—Due to the considerable area of marshland there are relatively few, but often large, communities in the northern portions, especially in the Pripyat' river basin, while the southern portion along the Ukrainian SSR border is relatively densely populated. Most of the residential buildings are of wooden construction with thatched hipped roofs; some have gabled ends or hipped roofs with gabled peaks.

(e) Ukrainian SSR (6).—The great density of population in the Ukraine is reflected in the proximity to each other of urban areas, especially of villages. Very often a string of villages and small towns will follow a minor river valley for 20 to 25 kilometers (12.4 to 15.5 miles) without interruption. The majority of the smaller communities are the open type, although the older portions of cities and towns are compact. The recent expansions outside of the major urban areas tend to be regular in pattern.

(f) Black Sea Coast and Krymskaya Oblast'.—The coastal strip between Rumania and the Krymskaya Oblast' (Crimean Oblast) is rocky and the urban and village communities do not follow the typical patterns. Land travel has been hampered by the many lakes and major river estuaries; most communities are therefore situated on a waterway or on the coast. The Krymskaya Oblast' is quite mountainous and urban areas huddle in the valleys (FIGURE VIII-28). The influence of the Mediterranean countries is quite evident. Many villas (FIGURE VIII-26) line the Black Sea, and this entire section has been turned into a major recreation area for the whole of the USSR

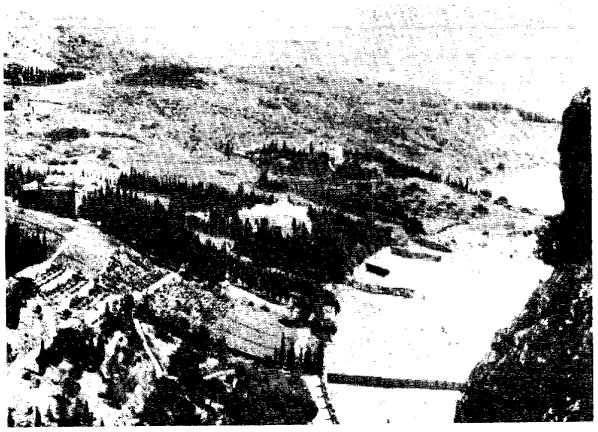


FIGURE VIII-26. *Yalta.*
A recreation section in the Crimean Riviera. Prewar.

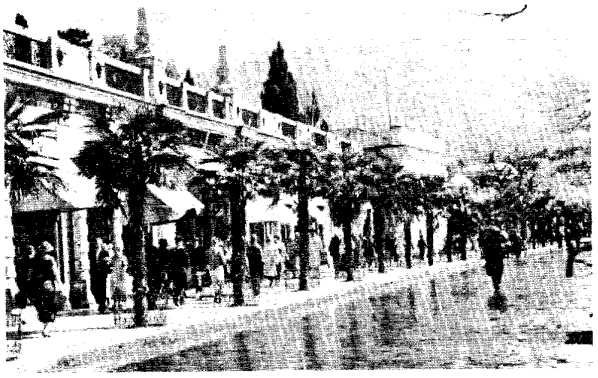


FIGURE VIII-27. *Yalta.*
A health resort. Before March 1945.

(FIGURE VIII-27). There is little rural population, the cities and towns holding a high percentage of the total, especially in the Krymskaya Oblast'. Considerable use of masonry with stucco finish is found, and the northern, relatively steep-pitched roofs are replaced with low-pitched Spanish tile roofs (FIGURE VIII-28). The wooden fences are replaced by stone walls and many of the towns possess an oriental or Turkish cast in their design and ornamentation.

FIGURE VIII-28. *Yalta.*
Looking northwestward. Prewar.

(g) Southeast steppes.—The lands between the lower Don and Volga rivers, known as the dry steppes, have relatively sparse rural populations as compared with the areas west of the lower Don valley. Villages are small and far apart and towns are usually compact gridirons, almost invariably located on a major river. The small residences, because of lack of wood, are built of sun-dried brick or pounded earth (FIGURE VIII-22).

(h) Former German Volga ASSR.—Although the large German population was deported to the east after the onset of the German invasion, their influence remains in the many towns and villages in the lower Volga basin. The residential unit consists of a western European courtyard with outbuildings enclosed within a wooden palisade. The living quarters are generally well-built, of neat appearance, and with many adaptations of German ideas to Russian methods and construction materials. Many have clay tile roofs with hipped gable peaks and brick chimneys (not common in Russian buildings). A usual variation is the generally steeper pitch to the roofs, common in Germany. The better residences may have masonry walls with wooden gable ends. Many of the German-type residences have two stories, while the typical Russian or Slav residence is a single-story rectangular building. The prewar German trend to groups of multifamily apartments is reflected in the residential grouped buildings in the cities, such as Engel's and Marks, for which the German colonists were responsible.

f. Soviet policies in recent urban residential developments

In all cities the basic unit of planning is the "superblock," organized as a neighborhood unit. A group of superblocks, surrounded by major traffic arteries, compose a residential section. The size of the superblock varies from 15 to 25 acres with elevator apartments, to between 30 and 37 acres with wooden two-story houses. The population density is about 80 persons per acre; with taller apartment houses, 120 to 160 persons; and 200 per acre in the central districts of the biggest cities. The percentage relationship of floor space to acreage varies between 60 and 120, and that of ground coverage by buildings between 16 and 35. In addition to the dwellings the superblock contains nurseries for children of two months to three years of age, and kindergartens for those of four to seven. These are always in one or two-story buildings; so also is the community center, called "the club," which contains at least one hall and several rooms for study and discussion groups, and for the work of the tenants' council and tenants' court.

Because of the pressure of housing needs, and the shortage of labor and materials, the erection of these auxiliary buildings was very often delayed and rooms were temporarily adapted for these purposes. However, the superblock is always planned as a complete unit and one by one the nurseries and kindergartens are built in the places provided for them, though often with changes in design.

Earlier planning of monotonously placed rows of houses made more unsightly by unused space filled with hanging laundry, garbage dumps, etc., was changed with popular approval to call for less uniform placement of buildings around the periphery. Currently plans are providing for a more flexible treatment, in order to integrate the buildings of the block with the contours and streets of the entire residential district.

Whatever the treatment of the dwelling houses, the children's institutions are always carefully orientated, with the playgrounds well protected from the street. The balance of the land is given over to service yards, playfields, and greens for recreation. Schools are usually not included in the superblock. The school with 22 classrooms, adopted as the standard type since 1935, serves a population of about 4,000; this is not so far in excess of the population of the average superblock as to exclude integration. However, schools and stores in general have been related not to the individual superblock but to the residential district as a whole.

Public ownership of land and urban houses has facilitated Soviet rehabilitation of the old city blocks. The best buildings are conserved and improved; the poorer ones torn down and replaced by new ones.

81. OCCUPIED AREA

A. Introduction

(1) General discussion

The area included under this topic lies west of the line of farthest German penetration, which is shown on FIGURE VIII-119. In some cases this line passes through an urban area, as in Sestroretsk (25), Novgorod (80), and Voronezh (181). Where the status of a major urban area was questionable, an arbitrary decision was made. Kalinin *74* and Stalingrad *197* are considered here; Leningrad *37*, Moscow *107*, and Tula *110*, however, despite their extensive war damage, are discussed under Unoccupied Area (Topic 82).

(2) Extent of area of occupation

The area of occupation lies west of a line which parallels the present boundary between Finland and the Karelo-Finnish SSR from a point west of Kandalaksha (7), southward to the head of Lake Onega (Onezhskoye Ozero). At the foot of the lake, the Finnish army reached a line which parallels southward some 10 to 20 kilometers (6.2 to 12.4 miles) the present SSR frontier westward to Lake Ladoga (Ladozhskoye Ozero). North of Leningrad *37*, the Finnish line was anchored to Sestroretsk (25), across the Karelian Isthmus some 15 kilometers (9.3 miles) north of the center of Leningrad.

During the siege of Leningrad the Germans failed to capture Oraniyenbaum (33), a vital bridgehead from which the Soviet forces launched the attack that finally broke the encirclement. However, Petrodvorets (34) was captured, and the German lines followed a curve south of Leningrad within 5 kilometers (3 miles) of the city's southwest corner, passing between Leningrad and the cities of Pushkin (35) and Kolpino (38). In their first advance, the Germans reached the Neva river outlet from Lake Ladoga (Ladozhskoye Ozero), capturing Petrokrepost' (Shlisselburg) (shown on enlarged insert of Leningradskaya Oblast', FIGURE VIII-119), and Tikhvin (40). Here the battle line for a while formed a salient and then followed an alinement southwest to Novgorod (80). From Novgorod to Stalingrad *197* on the Volga river, the alinement passes through Ostashkov (79) and Kalinin *74* to a point on the Moscow - Volga Canal (Kanal im. Moskvy) reaching Khimki some 8 kilometers (5 miles) northwest of the Kremlin in Moscow (PLAN 1). From here, in a

salient westward and southwestward, the line passed a few kilometers west of Serpukhov (109) and Tula *110*. In their last major attack in the Moscow area, the Germans pushed a salient northeastward, with the Soviet forces holding Tula as an anchor, and captured Stalinogorsk *117*. South of Stalinogorsk, the Germans captured Yefremov (142) and Yelets (143); fought in the streets of Voronezh (181), captured Svoboda (182) and Yevstratovskiy (184), but were held to the line of the Don river as far as its final bend southward due west of Stalingrad *197*. Here General von Paulus' Sixth Army pushed across the narrow 50-kilometer (31-mile) steppe between the Don and Volga rivers to lay siege to and fight in the city of Stalingrad. South of the city, German patrols reached isolated points along the 45th degree of longitude.

(3) Postwar status of urban areas

Postwar information concerning urban areas in the occupied area is limited. Some information has become available regarding reconstruction plans which may or may not be followed. In many instances, industrial plants may not have their prewar equipment returned if it was evacuated eastward. What was left of any value by the retreating Soviet forces was either taken westward by the Germans or destroyed during their final retreat. A general modernization of the entire area is, therefore, to be expected. How efficient this reconstruction and rehabilitation will be is questionable. Considerable use of reinforced concrete is to be expected, although reports of prewar construction in this material indicate that the Russians are not very efficient in its use.

Available city and town plans and captured German aerial photographs do not indicate how revisions of street lay-outs will be made. Certain fundamental functions such as river crossings and railroad alinements will not be changed very extensively; however, main streets probably will be widened, and prewar bottlenecks eliminated. It can also be assumed that any prewar information regarding bridges can be merely comparative, as practically every major street or railroad bridge in the occupied area was destroyed.

(4) Major urban areas

The area overrun by the Germans was the most populated part of European USSR; 30 of the 53 major urban communities fall within this area. Of these communities, all the large cities of the Ukrainian SSR, Kiev *171* (the capital), Khar'kov *208*, Odessa *238* (the most important seaport on the Black Sea), and Dnepropetrovsk *210*, as well as those located in the buffer fringe of SSR states, are included. Each of the 30 major urban units is discussed in Topic 81, B, in order of its importance as determined by prewar population statistics.

In the discussion of individual cities, reference to specific points is frequently followed by a number in parentheses. Such numbers are used to mark locations on the appropriate city map and are described in the list of identified points.

(5) Minor towns

Less detailed information on a total of 129 urban areas in the occupied area has been tabulated in TABLE VIII-13. In general, prewar USSR towns follow fairly consistent gridiron plans, and the residential areas follow one or more of the basic patterns (FIGURES VIII-9 to VIII-17 inclusive). In most instances, suburbs follow one or more of the typical village patterns (TABLE VIII-6). Types of construction are discussed in Topic 80, H.

In the Ukrainian SSR the prewar heavy urban population is reflected in the proximity of urban areas. The same condition existed in the portions of the White Russian SSR south of the Pripet Marshes. The area south of Leningrad was also heavily populated, but only in a relatively limited arc. On the steppes, in the southeast, urban areas are generally restricted to the main river valleys and concentrated in groups, as at Stalingrad.

(6) Villages and farms

The villages of the occupied area follow the general patterns outlined and illustrated in TABLE VIII-6, and, in the majority of cases, are of Type I (FIGURE VIII-17). In some localities, these small communities were wiped out; in others they survived. Buildings are usually constructed of wood and a high percentage have thatched roofs. Usually, each residence has a small fenced-in plot of land. In Tsarist days, the remaining land was divided by earthen walls into narrow strips for cultivation. With the enforcement of the collective farm program and the communal use of mechanized agricultural equipment, the strips have disappeared and most villages are within easy reach of a state tractor station or pool, from which mechanized agricultural machinery is loaned to the various villages and farmers. This change in agricultural economy is reflected in the large tractor plants which have been developed in strategic cities and, during the war, provided much of the USSR mechanized war matériel.

B. Major cities and towns

(1) Kiev (Kiyev, or Kiew) (50°26'N, 30°31'E). Kiyevskaya Oblast', Ukrainian SSR. Population: estimated at 850,000 in 1941 and 650,000 in 1946. (FIGURES VIII-30 and VIII-119, *171*)

(a) Importance.—Kiev, the capital of Ukrainian SSR and of Kiyevskaya Oblast', is the largest commercial center of the Ukraine; the naval base of the Dnepr river fleet; a major railroad junction; and an important intersection of highways.

(b) Physical characteristics.—The city lies in hilly terrain on the right bank of the Dnepr river, the latter being about 600 meters (1,970 feet) wide. The bank is 100 meters (328 feet) high in places, and is cut by deep gullies (FIGURE VIII-29). Kiev is divided into three sections: the old central section on the plateau, with a modern quarter; the Leninskiy Rayon (formerly Pechersk) in the southeast on the hills dominating the city, with citadel and fortifications; and the Petrovskiy Rayon, the business section, situated north of the central section and along the river. Suburbs are northwest, west, and southwest of the city proper.

Landmarks included many cathedrals, churches, and monasteries, the famous cave monastery (Pecherskaya Lavra), an observatory, and a bell tower 90 meters (295 feet) high.

(c) Transportation.—Kiev is a major railroad junction. Before 1941, there were four railroad and highway bridges (9, 20, 21, 22)* and a steamer ferry. All bridges were destroyed, but it is reported that the main railroad bridge, of wood construction and double-track, was restored to operation in September 1947. In addition to the main railroad station there are seven other stations, six freight stations, and two military freight stations. A new railroad station (FIGURE VIII-25) has been proposed.

* Numbers in parentheses refer to location on respective city plans.

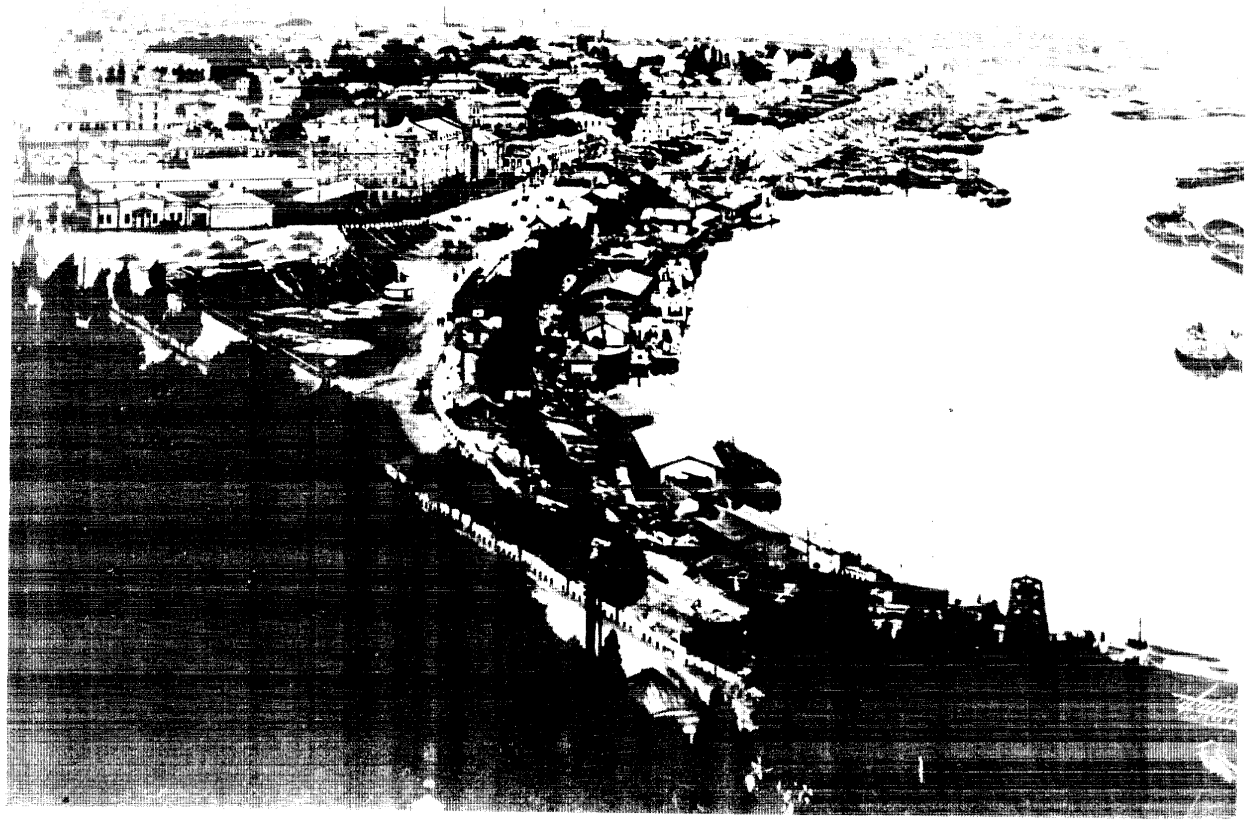


FIGURE VIII-29. *Kiev.*
View northward to main city on bluffs, right bank of the Dnepr. Low flat lands opposite. Prewar.

The city is an important junction of highways to various points. The main traffic artery within the city, Khreshchatyk (Vorovskogo) Street, is in a gorge. The main bottlenecks were in the central part of the city and in the Leninskiy Rayon with numerous twisting streets. Reports indicate that in replanning these cities, many of the prewar bottlenecks will be eliminated.

Kiev has three airfields with permanent facilities of which one (33), for both military and civilian use, is unimproved, and is practically useless in rainy weather. There are towers for practice parachute jumping.

The city has a street railway with three barns. A subway is planned with lines intersecting at the center of the city and connecting outlying sections, including the part on the left bank of the Dnepr river.

(d) Industry and commerce.—Prewar Kiev was an important shoe-manufacturing center. Shops were being reconstructed and new ones being built in December 1946. Sugar refineries produced more than 248,000 tons of sugar annually, but were probably all destroyed. A report of July 1946 states that 17 refineries were rebuilt and four more will be repaired by 1949.

The *Sukhomlina* shipyard (6) built river vessels. Plants for forging machine parts included the *Leninskaya Kuznitsa*, with 4,000 workers; the *Gor'kiy*, for automatic tools; *Bol'shevik* (28), for airplane motors and parts, presses, and sugar-factory and oil-well apparatus, using 15,000 tons of pig iron annually. Reconstruction and building of new shops for the latter were completed by November 1946.

A motorcycle factory was reequipped and was producing motors with the trademark *Kievlyanin* by November 1946.

Armaments plants included an arsenal for rifles and munitions, two gun factories, five munitions factories, and three tank factories.

Other industries included a newspaper printing plant; the *Ukrkabel'* cable plant; the *Artema* for machines; an assembly plant with 3,000 workers with an output of 12 to 15 airplanes daily; a rayon factory, the thread to be woven elsewhere; a tobacco factory with little automatic machinery, claiming a daily output of 8 million cigarettes (June 1947); and others producing machine tools, laboratory equipment, farm machinery, railroad cars, motors, leather, and woodworking.

Storage space included seven munitions storage places with munitions dumps (2); two storage installations for petroleum and gasoline; an elevator with 20,000 metric tons (22,000 short tons) capacity; and a cold-storage plant (24) with 1,000 metric tons (1,102 short tons) capacity.

(e) Billeting and hospitals.—There were numerous barracks (1), 11 hotels, numerous schools (30, 31, 32), scientific institutes (27), galleries, museums, two military summer camps (10), and an artillery firing range. There were at least three hospitals, including a military hospital (41), the university clinic, and a veterans' home. Information as to the present status of storage and billeting quarters is lacking, but it may be assumed that a considerable number of these facilities were wrecked and that some have been restored to operation.

(f) Utilities.—All the power plants and public utilities in Kiev were reported destroyed. Before the war, the utilities included a state regional electric power plant with a capacity of 25,000 kilowatts employing 1,000 workers; a main city power plant with 40,000 kilowatts; a regional plant with 5,000 kilowatts; the *Lukoyanovskaya* plant with 8,000 kilowatts; and *TETs* (heat and power) plant of the Southwestern Railroad with 80,000 kilowatts and 1,000 workers. In 1939, it was reported that 60 blocks of flats and four public baths were to be added to the municipal central heating system. Information regarding restoration of power plants is lacking, but natural-gas pipe lines from the Galician oil fields and Poltava (209) were said to be in operation in July 1947, and another line is reported being laid between Kiev and Odessa.

(g) Communications.—Kiev is on the main telephone-telegraph network. In 1945 a new automatic telephone exchange for 50,000 telephones was constructed. Facilities included post, telephone, and telegraph offices; a radio-telegraph station for interstate and intrastate communications; two military radio stations (18, 50); and ground and weather radio stations. There are a total of 22 radio stations in Kiev including 2 broadcasting stations; eight are for official use only.

(h) War damage and reconstruction.—The entire downtown section and all the power plants and public utilities were reported destroyed. The destruction included over 3,000 dwellings and public buildings and 5 to 7 kilometers (3 to 4.3 miles) of streets. According to rebuilding plans, many of the prewar bottlenecks will be eliminated. It is proposed that the city have an average maximum density of 22,200 to 29,600 persons per square kilometer (900 to 1,200 persons per acre).

(2) Khar'kov (Charkow) (49°59'N, 36°17'E). Khar'kovskaya Oblast', Ukrainian SSR. Population: 833,400 in January 1939; estimated at 950,000 in 1946. (FIGURES VIII-33 and VIII-119, *208*)

(a) Importance.—Khar'kov, the oblast capital and administrative center of the Donets Basin, is the largest economic center in Ukrainian SSR, and before the war was being developed into one of the major industrial centers of the entire USSR. It is an important railroad center and highway intersection.

(b) Physical characteristics.—The city, lying at the confluence of the Khar'kov and Lopan' rivers, has an area of 56 square kilometers (22 square miles). The old central section was surrounded before the war by modern workers' housing settlements. Khar'kov suffered heavily from war damage.

(c) Transportation.—Khar'kov has two large railroad terminals (9, 19), as well as five other stations (13 to 17), and is on lines connecting both the central Russian industrial area with the Chernozem (black earth) region and the Black Sea, and also the Donets Basin with White Russian SSR and the Baltic ports.

Highways intersect from Belgorod (178), Volchansk, Chuguyev (207), Zmiyev, Merefa, Poltava (209), and Bogodukhov. Five of these highways pass through the old central part of the city, with numerous sharp turns causing congestion of traffic. Before the invasion a certain amount of replanning, including straightening and widening of main streets, had been started. (FIGURES VIII-31 and VIII-32).

Five major airfields with permanent facilities and three minor fields operate in Khar'kov and vicinity. One of the airfields (12) is on the Moscow – Baku – Teheran airline route.

FIGURE VIII-31. *Khar'kov.*
Cobblestone paving of Dzerzhinskiy Square in front of Gospromyshelennost' (State Industry) Building.

FIGURE VIII-32. *Khar'kov.*
Plan of Dzerzhinskiy Square. One of the replanning schemes, covering 150,000 square meters (37 acres), which was nearing completion, or was completed, at the time of the city's capture. Although damaged, these buildings survived destruction and have been repaired. This is a prominent aerial landmark.

(d) Industry and commerce.—Before the war, Khar'kov was being developed into one of the USSR's major industrial centers and produced 50% of the industrial output of the Ukrainian SSR. In the course of the war the Germans destroyed 80% of the factories. Thirteen of the 50 coal mines have been restored. The Russians claim a prewar output of 1,000 tons daily. Plants destroyed and now again in operation include the *Ordzhonikidze* tractor plant; the *Stalin* tractor plant in partial operation with only four shops repaired; the *Gidroprivod* and *Elektrostanok* machine tool factories; the *Serp i Molot* factory for farm machinery, motorcycles, and machine guns; and a camera works which may be equipped with superior German machines to produce cameras.

Postwar factories produce household articles, sewing machines, bicycles, cars, and rifles.

Prewar factories included the *Khapeze-Komintern* locomotive works; the *Molotov* tool and machine-tool plant;

FIGURE VIII - 30
KIEV CITY PLAN
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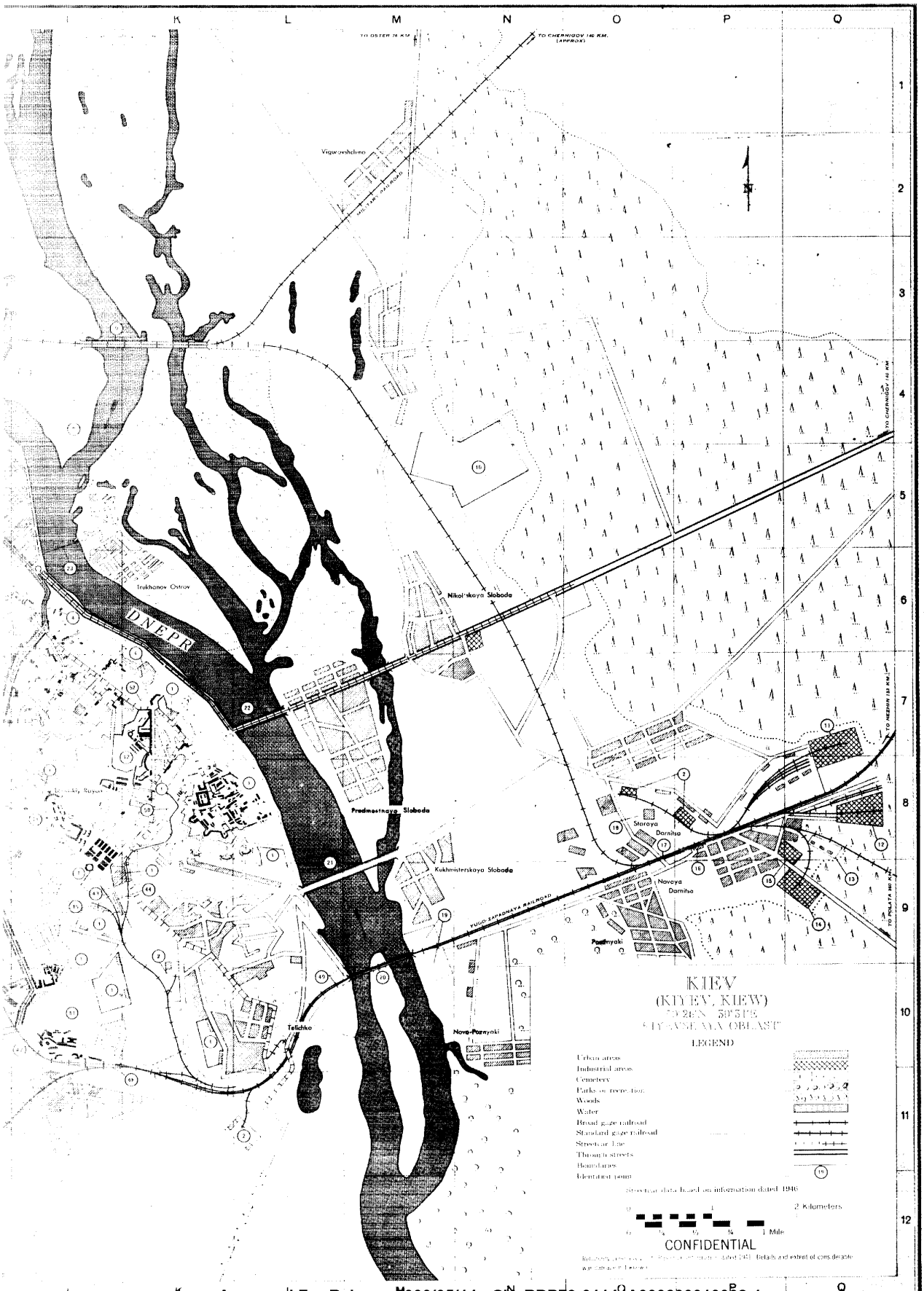

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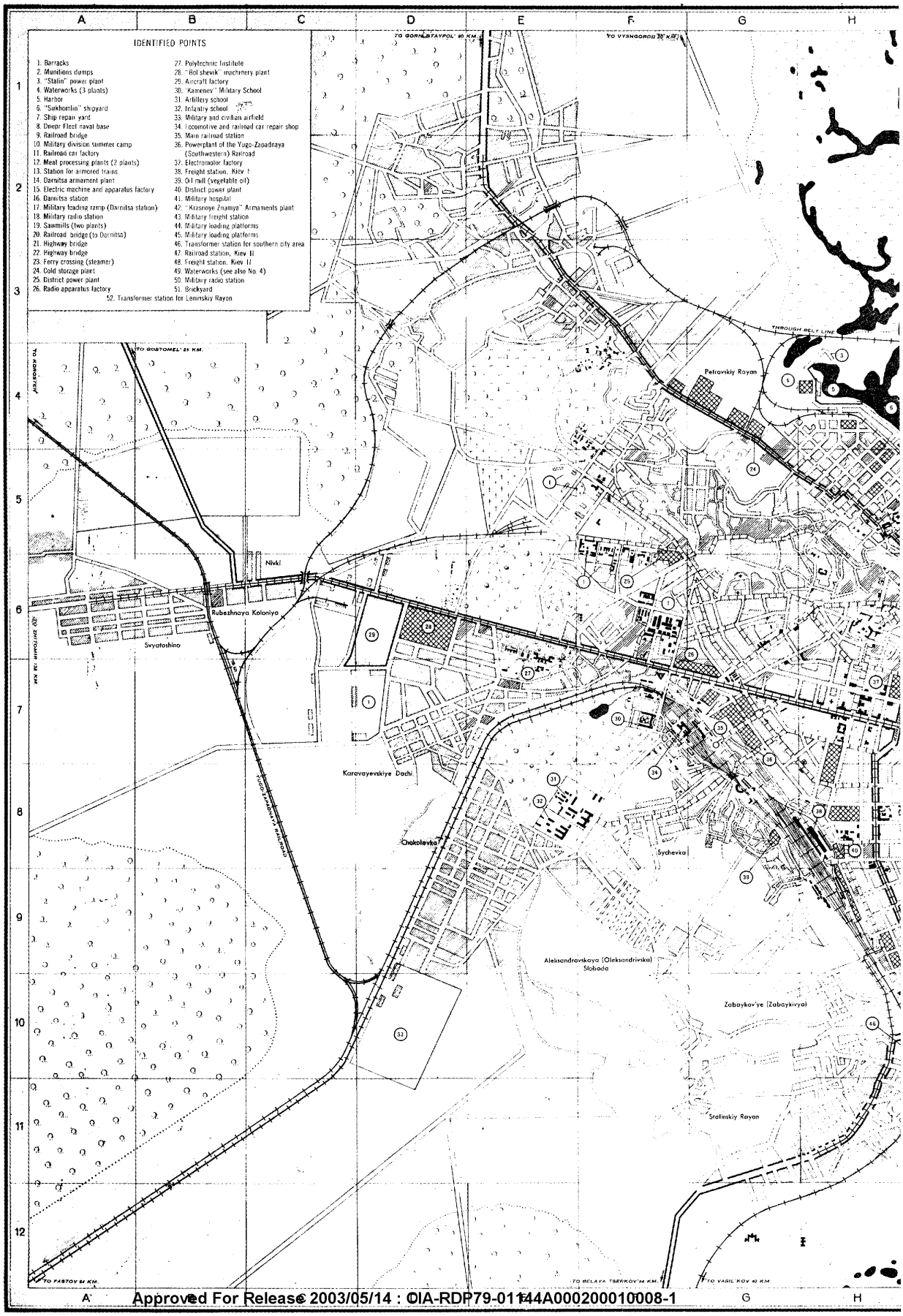

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FIGURE VIII 33
KHARKOV CITY PLAN
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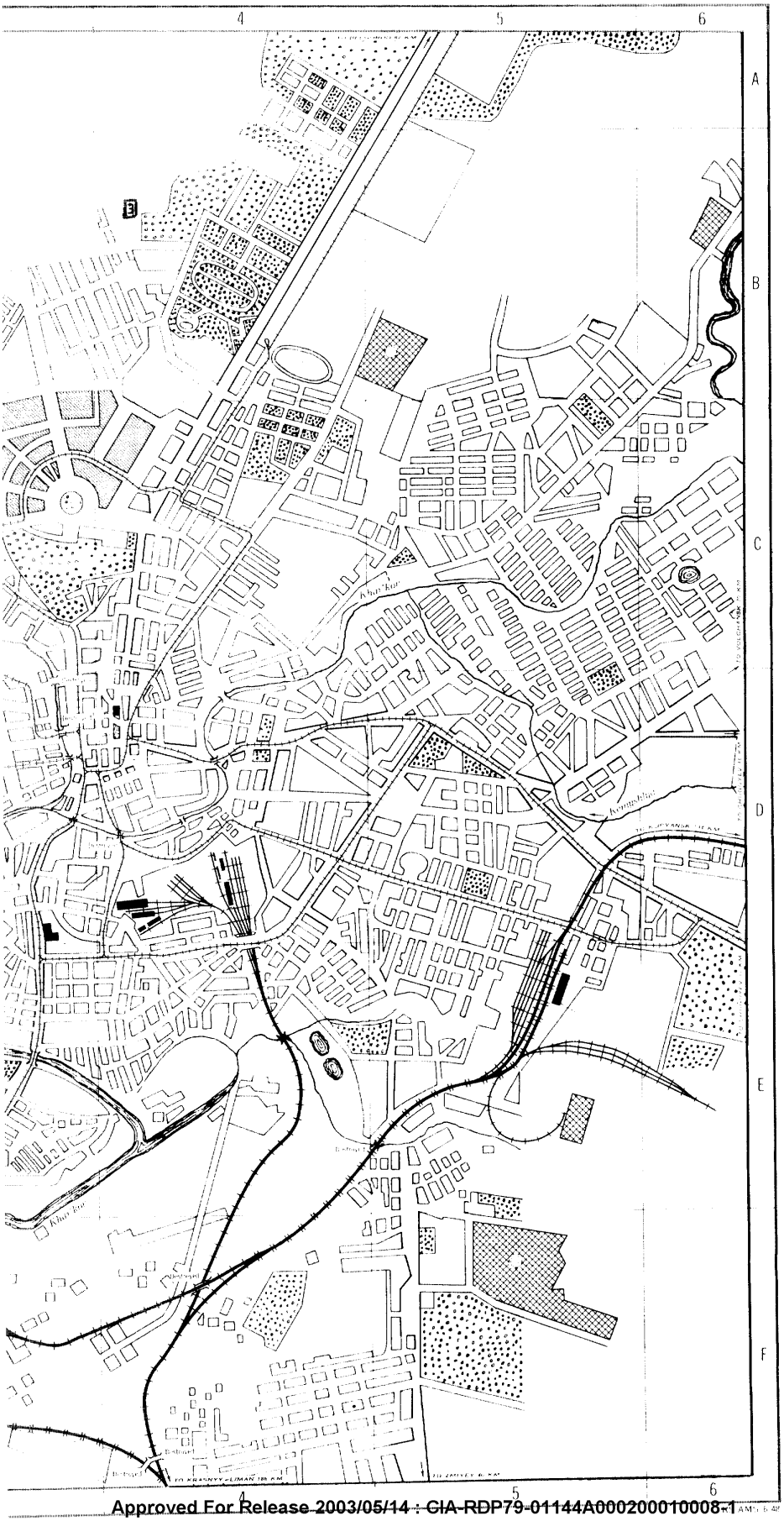

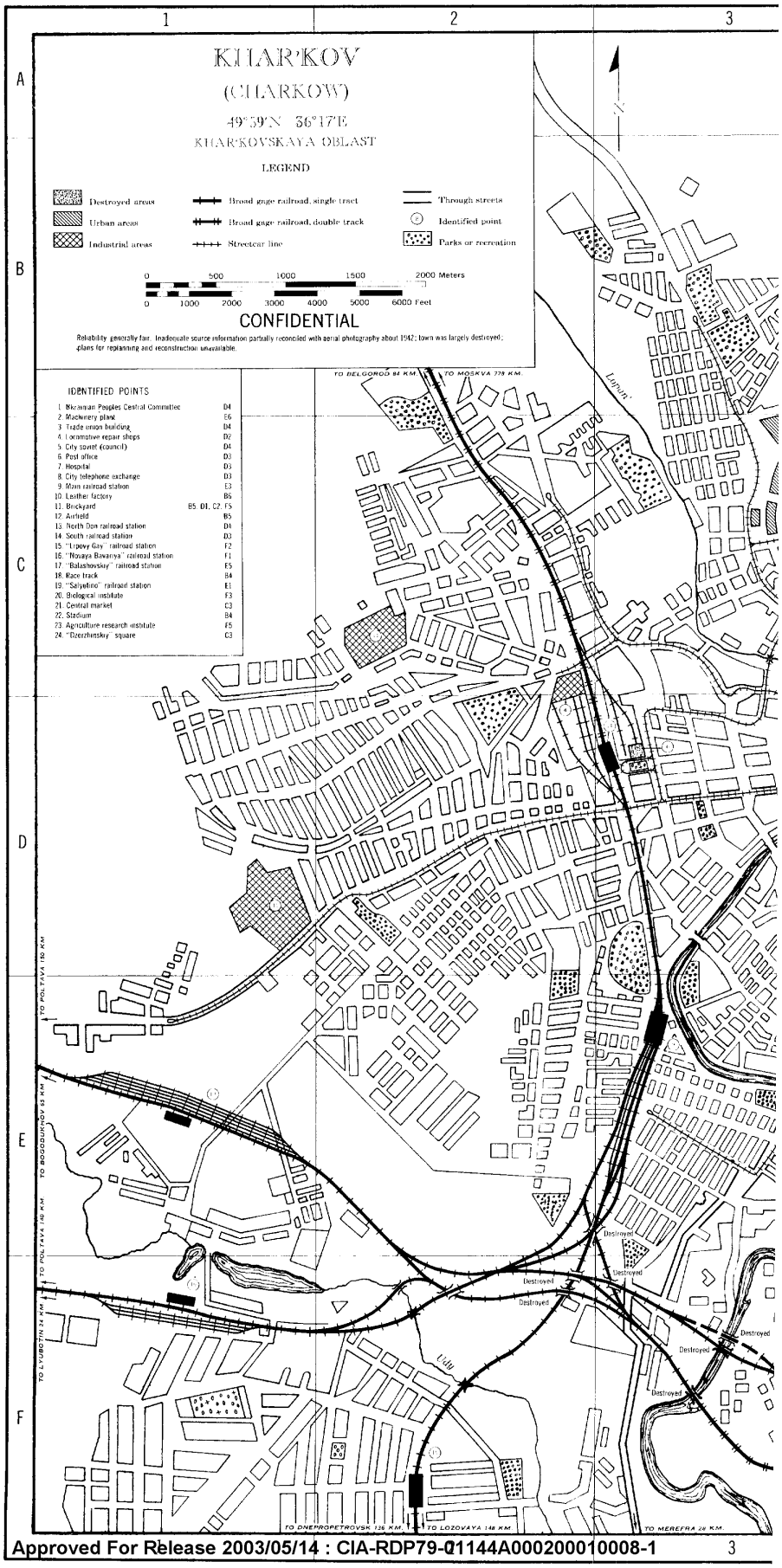

the *Khele* plant for electric motors; the *Svet Shakhturs* plant for machines; and the *Stalin Elektromekhanicheskiy* motor works. There were also plants for building railroad cars, agricultural machinery, business machines, and lathes. Five plants produced airplanes; three, tanks and tractors; and two, chemicals. Other plants manufactured textiles, leather, wood products, paper, soap, tobacco, and meat products. The city was an agricultural center for cattle, horses, and grain (21).

Storage facilities were provided for ordnance, chemicals, and munitions.

(e) Billeting and hospitals.—Billeting possibilities included barracks, hotels, scientific institutes (20, 23), and university buildings. Many of these structures, including the university, were destroyed. Postwar information indicates that early in 1947 the city had 23 functioning hospitals and 38 dispensaries. There was a sanatorium and a rest home for railroad employees.

(f) Utilities.—Three large power plants with a total capacity of 119,000 kilowatts, all interconnected, were known to have been restored prior to March 1947. The municipal central heating plant was being expanded in 1939.

(g) Communications.—Khar'kov is on the main telephone-telegraph network and has three amplifier stations in the area. A new automatic telephone exchange for 6,000 subscribers was constructed in 1945; and a large long-distance telephone exchange (8) was in service in May 1946. There was a post office (6) and 16 radio stations including an interstate and an intrastate radiotelegraph station, and two broadcasting stations.

(h) War damage and reconstruction.—In 1944, Khar'kov was 90% destroyed, including 80% of the factories and 60% of the dwellings; but by October 1946, approximately 75% of the city had been rebuilt.

(3) Odessa (46°28'N, 30°45'E). Odesskaya Oblast'. Population: 604,200 in 1939; estimated at 604,000 in 1941. (FIGURES VIII-34 and VIII-119, *238*)

(a) Importance.—Odessa, the capital of Odesskaya Oblast', is the third largest city in Ukrainian SSR, the sixth in European USSR, and seventh in the whole USSR. It is the most important port on the Black Sea and is a water-rail transshipment point for various items, principally grain. It was a minor prewar military and naval base.

(b) Physical characteristics.—Odessa is about 48 square kilometers (19 square miles) in area. The minimum elevation is on the coast at sea level, although the cliffs in that vicinity rise as high as 52 meters (170 feet). Toward the west, elevation generally increases to about 40 meters (130 feet). The maximum elevation in the city proper is 43 meters (140 feet), but there are some points of 40 to 60 meters (130 to 195 feet) elevation to the south.

The main built-up area is situated on a bluff on the southwest side of Odesskiy Zaliv overlooking the harbor area. A less densely built area lies between the main railroad station, on the south, and the cliffs along the sea. Suburbs include Peresyp', which stretches along the bay north of the main harbor; Slobodka Romanovka (Slobodka Chervona), to the northwest; and Vorontsovka and Moldovanka, to the southwest.

(c) Transportation

1. EXTERNAL.—Rail connections include a double-track line running north-northwest and two single-track lines, southwest and north-northeast. Three additional single-track lines run west, north, and east from Peresyp'. There are three passenger stations (6, 36, 46) and three freight stations (13, 35, 37). The classification yard, west of the Odessa Zastava Pervaya freight station (35), was reported in good condition in 1944.

More than 39 kilometers of the main east-northeast highway was paved in 1941; the remainder probably had a dirt surface. At that time, plans called for paving of the entire length as a "new strategic motor road to Nikolayev", with connections to Kherson. The paved road was to have been 12 meters (40 feet) wide.

A highway from Odessa to Moscow, 7 meters (23 feet) in width was under construction before the summer of 1946 and was to have been completed by spring, 1947. Materials were imported from Rumania and Czechoslovakia.

A minor road to the southwest, probably with dirt surface, was described as a good motor road in 1941. Another minor road, also probably dirt surface, leads westward.

Sea access to the port of Odessa is difficult in rough weather. Tidal fluctuation is about 1 meter (3.3 feet). Ice thickness usually varies from 5 to 10 centimeters (2 to 4 inches); the record thickness, 25 centimeters (10 inches), occurred in 1937. The ice breaker "Torus" is available at Constanţa, Rumania.

A total of 263 oceangoing vessels docked at Odessa in 1933. The port handled 3,313,000 registered tons in that year, including 669,000 tons of overseas shipping.

The prewar port included 5 piers with wharves and 51 berths. In 1944, as many as 15 liberty ships of 7.3 to 8.2 meters draft (24 to 27 feet) could be berthed or anchored at one time. The port could then accommodate vessels of up to 10,000 tons and had a monthly capacity of 9,040 metric tons. There were 9 commercial and 4 petroleum tanker berths available.

Reopening of regular ship service between Odessa and Izmail was planned in 1945. The five docks and facilities had been largely repaired by September 1946, although the northern port area was still being cleared. By April 1947, between 15 and 20 cranes, many of American manufacture, were in operation in the harbor.

Odessa has 4 airfields, 2 seaplane bases and 3 landing fields, the latter without permanent facilities. One of the latter is suitable for heavy bombers.

2. INTERNAL.—The main section is divided into fairly regular rectangular blocks, divided by the north - south and east - west streets. The principal north - south street leads from the main railroad station (46) and crosses the principal east - west street, which runs from the cliffs on the Black Sea to the western outskirts. Blocks average 150 meters (492 feet) on a side. Streets near the center of the city are mostly cobblestoned. In the outskirts, the blocks are generally rectangular, though irregular in arrangement; the streets are dirt-surfaced and very dusty in dry weather.

A system of streetcar lines, including seven routes radiating to the suburbs, was in operation in September 1946.

(d) Industry and commerce.—There is no mining in the vicinity. Steel and metal products were among the most important prewar industries, which included the *Dzerzhinskiy* rolling mill, the *Lenin* machine tool shops, the *Vanvarskoye Vostaniye* railroad car shops, the *Krasnaya Gvardiya Zavod* plant (electric cranes), and the *16 Parts'-yezda* plant (radial drills). An automobile assembly plant was being built in the Peresyp' area in April 1947, at which time some walls were still under construction, although the plant had already turned out about 4,000 cars.

A floating dock (16) and shipyard (17) were destroyed during the war.

The *Kreking Zavod* oil-cracking plant on Shkodova Hill was built in 1936 and 1937 with equipment from the United States. Put out of operation by war damage, it was not operating in March 1947, although expected to resume production that spring. It then consisted of five small units with an estimated capacity for less than 5,000 barrels of crude oil daily. However, additional units were probably to be added.

Chemical plants included a superphosphate plant, which was damaged during the war and subsequently restored.

In addition to identified industries (4, 5, 7, 11, 38), there were plants producing munitions, chemicals, and linoleum, the locations of which are not known.

Odessa is commercially important as the main transshipment point on the Black Sea between the USSR and the Mediterranean Sea lanes. Its imports include scrap iron, machines, tools, chemicals, coal, calico, tea, fruit, cotton, and other goods; exports include grain, petroleum, lumber, building materials, spirits, sugar, wool, fish, and cottonseed.

Prewar wheat-storage facilities, mostly at the port, included 67 warehouses with a total capacity of 93,550 tons, two mechanized silo-type warehouses with a capacity of 13,000 tons, and a grain elevator (25). Two oil-storage tanks and pumps in the vicinity of the oil basin and pier had been destroyed by November 1944. Two oil-storage areas in Peresyp', (8) and (14), were served by railroad spurs.

(e) Billeting and hospitals.—Billeting possibilities include various identified structures (1, 2, 3, 40, 41, 42, 45), the Vorontsov Palace, Shevchenko Park with its former fortress, five libraries, hotels, and numerous museums.

The city had five hospitals in 1941 (30, 31, 32, 33, 39). Beds in maternity hospitals had declined from a prewar total of 600 to 75 by May 1944, but had increased to 225 by March 1945. The 72 prewar nurseries were all destroyed, but 23 had been reconstructed by March 1945. None of the 66 prewar industrial first-aid centers were functioning at the end of the German occupation, but 31 were operating by March 1945.

(f) Utilities.—The city waterworks (9) draws water from White Lake (Ozero Beloye), at a point 40 to 45 kilometers (25 to 28 miles) west of the city. A reservoir is located on the western shore of the lake. With the exception of the oil basin (12), all docks are supplied with water from artesian wells. All piers are also provided with water pumped from the Dnepr river. Good water was available at the Intourist Hotel in September 1946.

The power plant (10), with a capacity of 35,000 to 50,000 kilowatts, was providing power for only a few hours daily in April 1947, and complete failures were frequent. There are also two thermal plants with long-distance connections. The current is probably alternating, 3-phase, 50-cycle, and 120/220/380 volts.

The gas works (15) is to be supplemented by a 50-centimeter (20-inch) natural-gas pipe line from Kiev, according to plans existing in April 1947.

(g) Communications.—Odessa is on the main telephone and telegraph network, with lines north to Kolosovka, east-northeast to Nikolayev, north to Pervomaysk, and north-northwest to Razdel'naya, and has an automatic exchange for 1,500 telephones. The combined post and telegraph office (29) is connected by a one-strand underwater cable to Kilyos, in European Turkey.

In addition to a broadcasting station, (the city has a coastal radio station, a mobile army station, a commercial airport station, and two intrastate radio-telegraph stations, which with others total 14 radio stations.

(h) War damage and reconstruction.—Most war damage around the port area had been repaired by September 1946, although some gutted buildings remained. The heaviest damage occurred in the southwest area, especially near the intersection of the Bessarabia road and railroad.

(4) Rostov-na-Donu (Rostov-on-Don) (47°13'N, 39°42'E). Rostovskaya Oblast', RSFSR. Population: 510,300 in 1939. (FIGURES VIII-36 and VIII-119, *256*)

(a) Importance.—Rostov-na-Donu, a river port and commercial center, is also the capital of the Rostovskaya Oblast'. It is not under the jurisdiction of the oblast, but directly subordinate to the republic government.

(b) Physical characteristics.—The city, with an area of 142 square kilometers (55 square miles), is situated on the banks of the Don river about 40 kilometers (25 miles) above the Sea of Azov. The Temernik river flows from the north into the Don river in the southwestern section of the city. Elevations range from 20 meters (65 feet) in the south to 90 meters (295 feet) in the northeastern sector.

(c) Transportation.—Two railroad lines serve the city; one runs northeast to Novocherkassk and the other, the Severo-Kavkaskaya Railroad, crosses the Don and Temernik rivers and connects with Bataysk and Taganrog. Four railroad bridges, two of which are steel, span the Don and Temernik rivers. The main railroad station, which had a classification yard, was damaged in 1942.

Highways in the area are extremely poor. Three main roads extend northeast, south, and west from the city. Bottlenecks are formed in and near the city by highway bridges (35, 37, and 39) over the Don and Temernik rivers and by sharp street turns.

The harbor, which accommodates both ocean and river shipping, is icebound for an average of 107 days, from the middle of December to the end of March. The water depth fluctuates considerably and is especially affected by wind direction. The harbor had moorings for 64 ships. Estimated prewar capacity of the port was 1,000 tons monthly. As of January 1944, the estimated monthly discharge capacity was 1,000 to 2,000 tons with a possible increase to 10,000 tons within six months. The port is served by 17 kilometers (10.5 miles) of railroad tracks. There were repair facilities (36), especially for small vessels. The port was seriously damaged by enemy action and occupation, but the portions most seriously damaged are reported to have been repaired. River boats with cargoes of grain, coal, and timber travel up the Don river to Kalach and up the Donets river to Voronezh.

Rostov-na-Donu is served by four airfields: one, a military and commercial airfield 20 kilometers (12.5 miles) northwest of the city; another (40) in the eastern suburb of Nakhichevan'; the third (5), a large field equipped with repair shops, located on the northern edge of the city; and the fourth, a landing field, southwest of the city. Ininformation regarding their present status is unavailable.

(d) Industry and commerce.—The city had numerous industries in both heavy and consumer products. Among the heavy industries were shipyards, railroad-car works (25,000 workers) and car-repair shops (60,000 workers), and plants for the manufacture of munitions, machinery, chemicals, cement, lime, and zinc dye. Consumer products included hinges, shoes, textiles, leather goods, furniture, radios, paper, soap, foodstuffs (canned goods, spirits, canned fish, flour), and tobacco products.

FIGURE VIII - 34
ODESSA CITY PLAN
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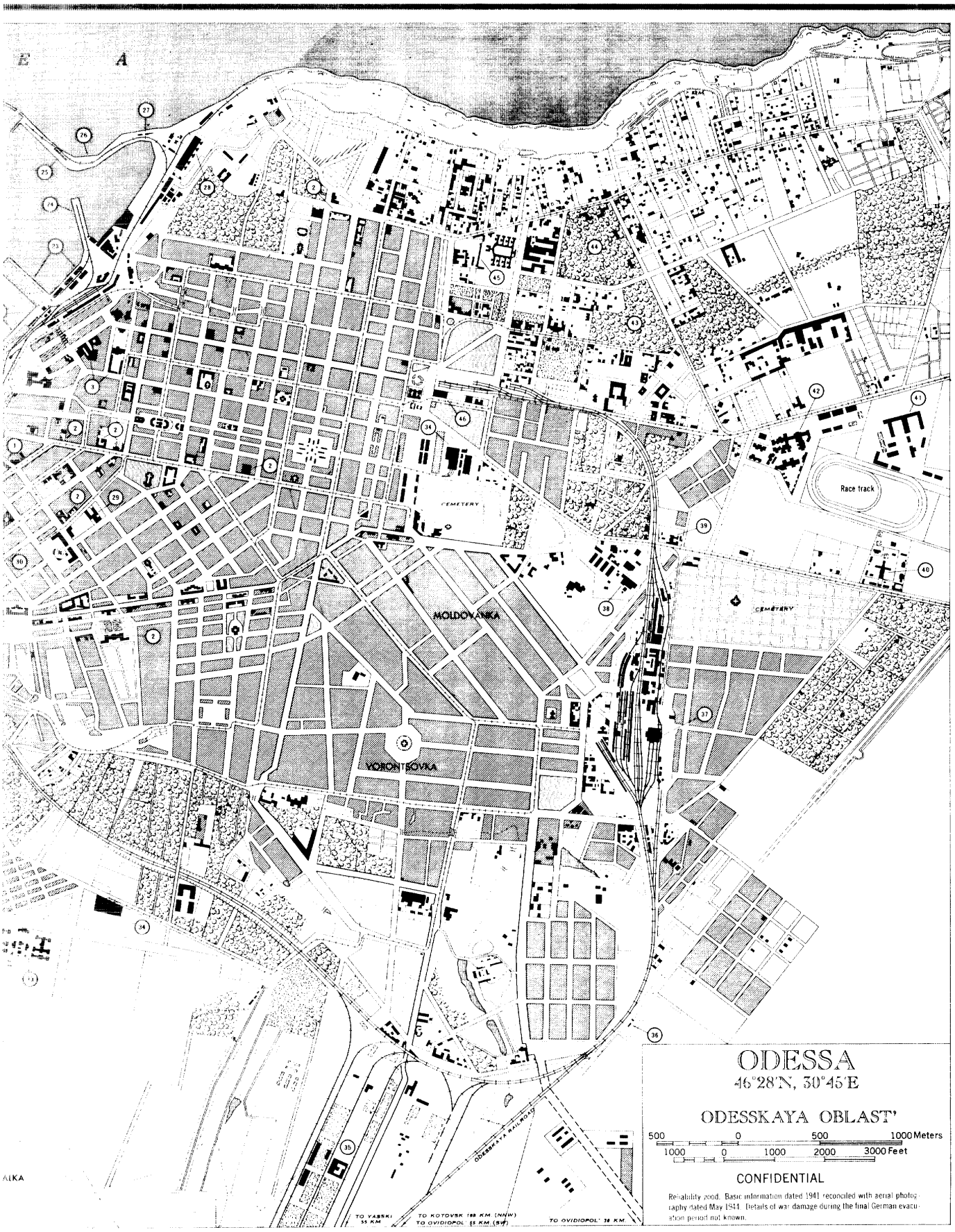

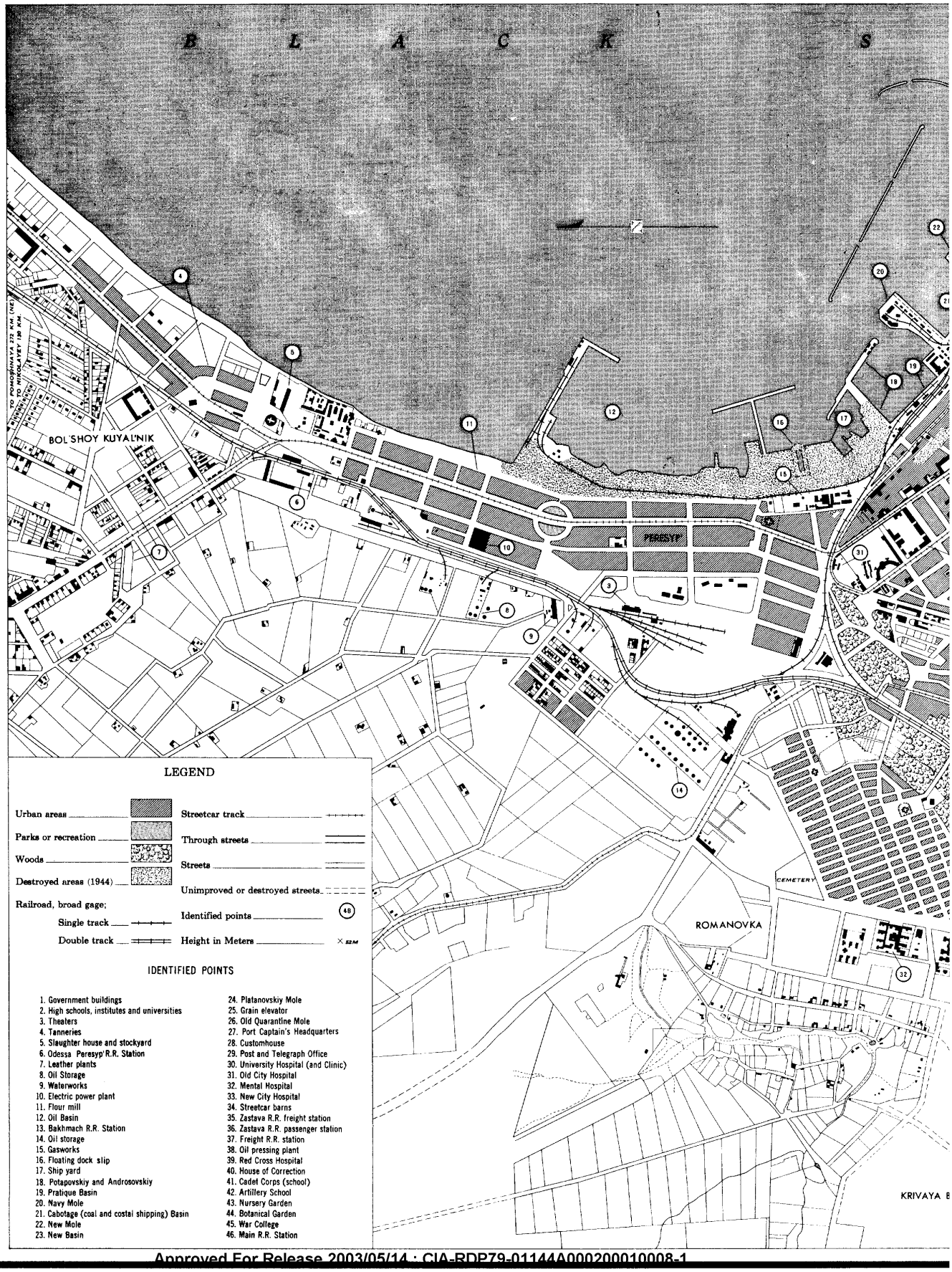

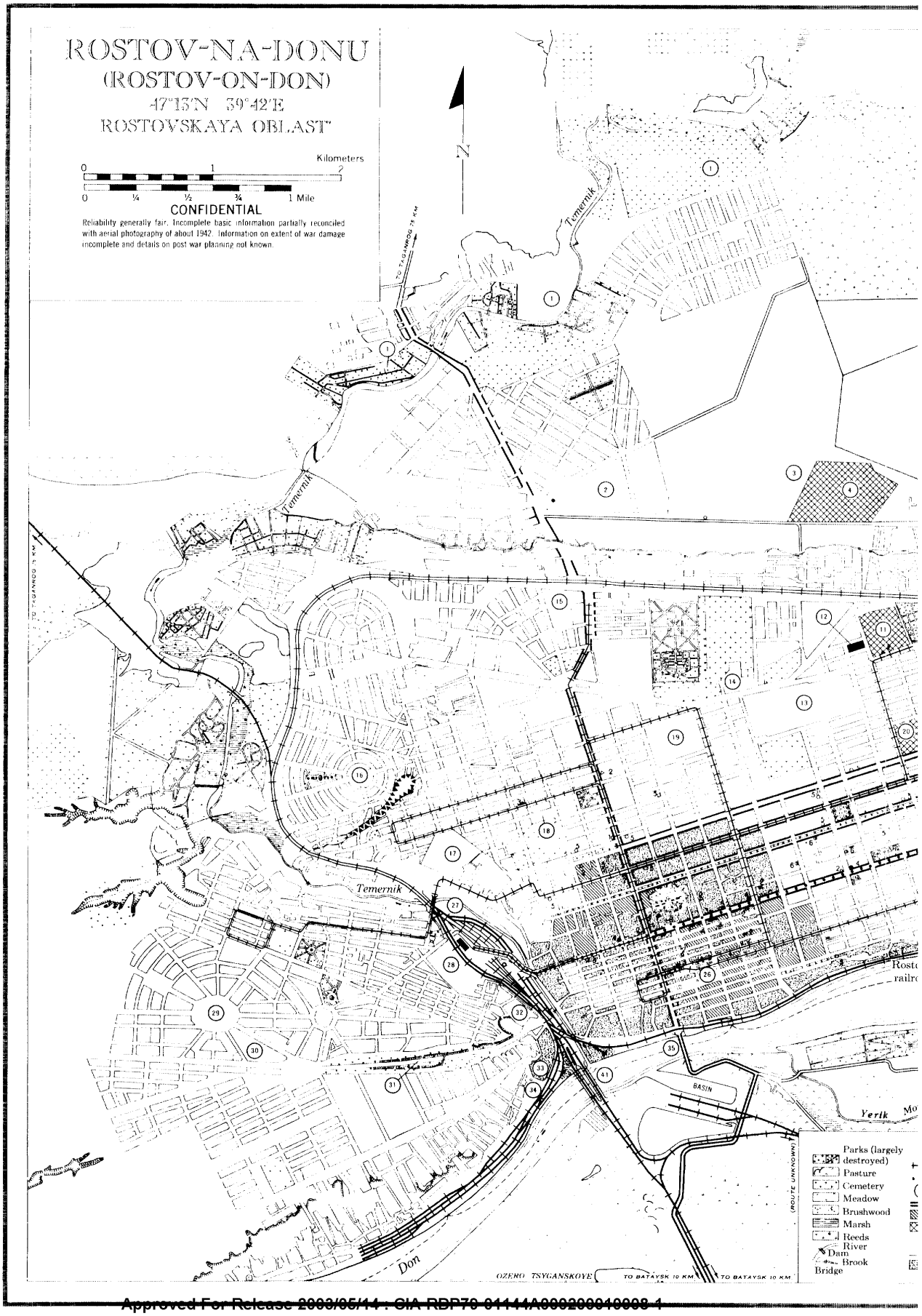

FIGURE VIII - 36
ROSTOV-NA-DONU CITY PLAN
JANIS 40
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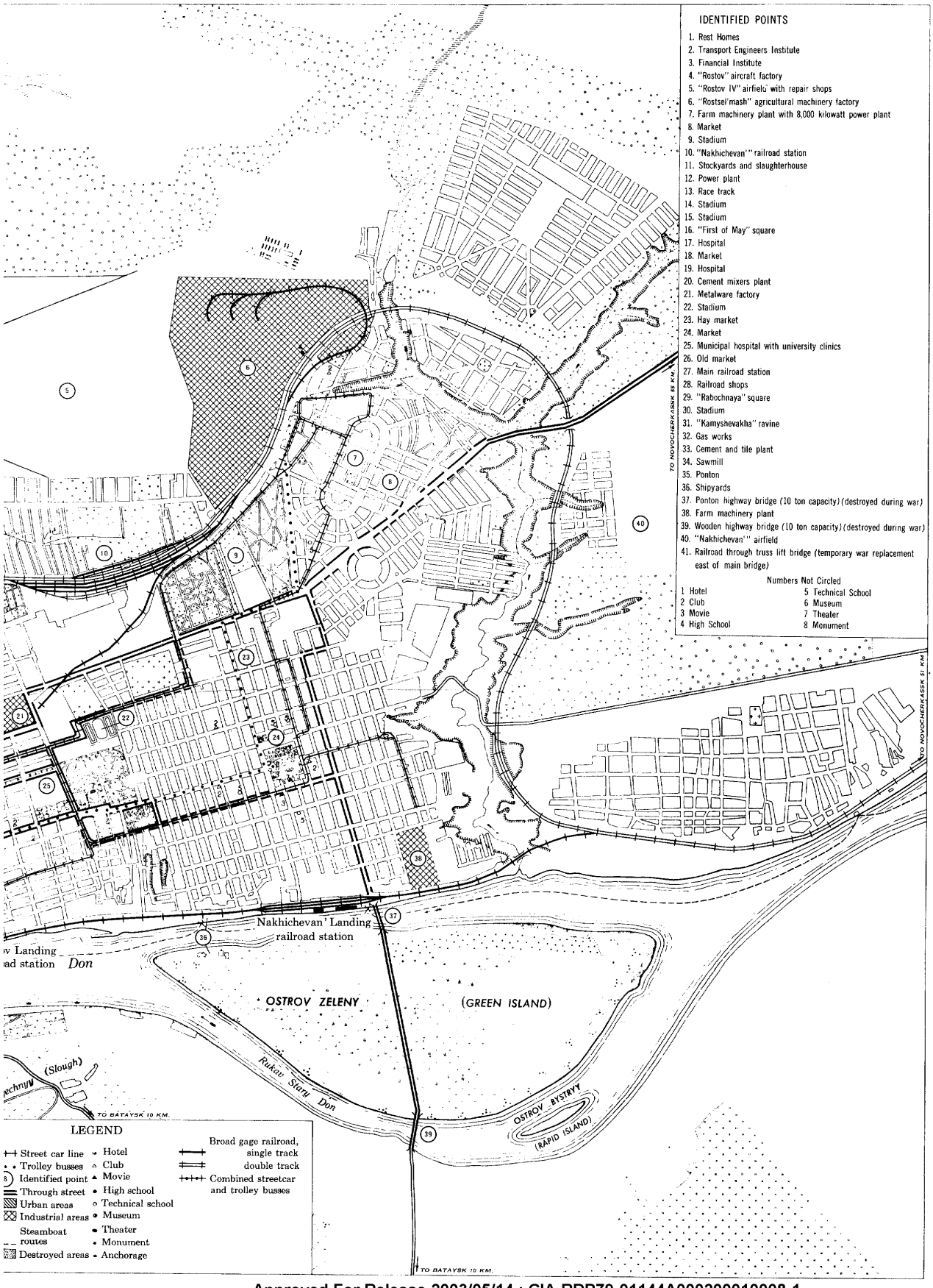

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War damage to industry was severe, but it is reported that before January 1944 over 100 industrial plants had been reconstructed within a year. Although complete information regarding reconstruction is not available, recent data on a few of the plants have been obtained.

The *Molotov* Combine, a very large plant producing farm machinery of all types, is located on the west side of the Novocherkassk – Rostov railroad line, about 16 kilometers (10 miles) east-northeast of Rostov (1944). Another farm machinery plant, the *Rostel'mash*, produces a reported 12,000 combines annually, as well as other types of agricultural machinery. Destroyed during the German occupation, the plant was in the process of reconstruction in 1946. An aircraft factory, No. 168, located 1 kilometer (0.6 mile) northeast of Rostov and employing 1,500 workmen, produced approximately 70 single-engine, two-seater training planes monthly in 1946. The *Mekhanicheskiy Zavod*, a factory for army boats, employs 350 workers. This plant, which is located in the western section of the city, has been supplied with dismantled German machinery (1946).

There were two state farms in the vicinity of Rostov-na-Donu. The area was noted for the breeding of merino sheep and for fruit growing. The wide belt of orchards and woods, which protected the city from the dry steppe winds, was destroyed. By the spring of 1944, 140,000 trees had reportedly been planted to replace those destroyed.

In 1935 there were over 100 warehouses, with a capacity of 12,000 metric tons and a floor space of 96,000 square meters (1,033,000 square feet), of which 70% was for grain. Five of these warehouses were of reinforced-concrete construction, with an area of 4,558 square meters (49,000 square feet) each and were located on the left bank of the Don near the inner basin. They were serviced by three traveling tower grain loaders, one floating elevator, one 45-metric-ton crane, and one 13.5-metric-ton crane. There were also five vegetable storehouses and one cold-storage plant.

(e) Billeting.—Billeting facilities included hotels, military schools, and barracks. Many of these buildings were undoubtedly destroyed or damaged during the war.

(f) Utilities.—By the end of 1943, 150 kilometers (93 miles) of sewers and 250 kilometers (155 miles) of water main are reported to have been rebuilt. Before the war the city had a municipal power plant (12) which has since been restored, and seven other plants, most of which were for industrial purposes. Central steam heating was introduced in 1934 (FIGURE VIII-35). The city was supplied with oil from the Armavir – Trudovaya pipe line.

FIGURE VIII-35. *Rostov-na-Donu.*
Experimental work on steam heating the city. The first steam heating conduits in the USSR are being laid directly in the ground insulated only by a cheap straw casing. They have acetylene welded joints. Before 1934.

(g) Communications.—Communication facilities included a post office, a radio-telegraph station, a broadcasting station and 10 other radio stations. In 1944, a 35,000-telephone system was repaired.

(h) War damage and reconstruction.—The city suffered war damage or destruction to the extent of 1,700,000 square meters (18,300,000 square feet). Plans for reconstruction included new street routings and the addition of squares and park. The central area was to be on a larger scale and to have a number of squares.

(5) Dnepropetrovsk (formerly Yekaterinoslav) (48° 27'N, 35° 03'E). Dnepropetrovskaya Oblast', Ukrainian SSR. Population: 500,700 in 1939; estimated at 600,000 in 1946. (FIGURES VIII-37 and VIII-119, *210*)

(a) Importance.—Dnepropetrovsk, the oblast capital, is the largest lumber center in Ukrainian SSR. It is near the Donets coal basin, in the vicinity of salt mines and iron and manganese-ore deposits.

(b) Physical characteristics.—The city is situated on the southwest bank of the Dnepr river in the steppe region. The industrial town of Nizhne-Dneprovsk is across the river; northeast of the city are two workers' settlements, Podgorodnoye and Kulebovka.

(c) Transportation.—Railroads connect with Krasnoarmeyskoye and the Donets coal basin, with Novomoskovsk, and with Kherson (241). There are several railroad stations (3, 6, 48, 49, 53), and a classification yard. Two bridges cross the Dnepr river; one a railroad bridge (72), the other a combined two-level railroad and highway bridge (71). Highways run to Khar'kov *208*, Nikopol' (243), Zaporozh'ye *250*, and Krivoy Rog (242). Other transportation facilities include a harbor and basin (1); a landing for ships of the State Upper Dnepr Steamship Company (2); and 5 landing fields of which 3 have permanent facilities.

(d) Industry and commerce.—Of prime importance are the metallurgical plants (58, 60, 61, 65, 66, 67). Of the total prewar production in the USSR of cast iron, steel, and rolled products 33% was produced in Dnepropetrovsk. Among new or reconstructed plants in operation since 1944 are the *Karl Liebknekht* (Trubostal) steel mill (66) in Nizhne-Dneprovsk; *Promparazov* locomotive repair plant; *Kalinin* coke-chemical plant, with 2,500 square meters (26,900 square feet) of living space for workers; and a foundry shop. A large truck factory was started; production was planned for 30,000 vehicles, but had not started at the beginning of 1947. An automobile factory may be in production. Other plants operating before the war, about which information regarding their present status is lacking, include the "Lenin" rolling mill (10); a gunpowder and explosive factory; chemical warfare agent plants; the Petrovskiy metal works (with at least two blast furnaces) employing 35,000 workers in three shifts in 1937; *Khatayevich* plant for smelting equipment; *Karl Marks* steel rolling mill (65); *Spartak* spade (rolling) plant; *Komintern* and *Dzerzhinskiy* metallurgical plants; *Molotov* paving materials works; railroad car shop; locomotive repair shops; and a shipyard. Other industries were leather, fur, furniture, woodworking, paper foodstuffs and beverages. Steel pipes were produced for gas conduits in the *Lenin* prisoner-of-war camp.

Commercially, Dnepropetrovsk is the largest lumber center in the Ukrainian SSR, and is an important grain and coal center. There were facilities for fuel storage (79).

(e) Billeting and hospitals.—Barracks (4, 75 to 78), schools, scientific institutes, and hotels provided billeting facilities. The city had several hospitals and sanatoria, but information regarding their present status is lacking.

(f) Utilities.—There was a waterworks (20). A steam power plant (16) with a capacity of 30,000 kilowatts is reported.

(g) Communications.—Facilities included post (21), telephone, and telegraph offices, a radio-telegraph station, and a broadcasting station. In 1944, a new automatic telephone exchange for 3,000 subscribers was made available, and a new, powerful broadcasting station was built. Four other radio stations are in operation.

(h) War damage and reconstruction.—Over 4,800 residences and many industrial plants were destroyed, but by April 1944, 20,000 square meters (23,920 square yards) had been reconstructed.

(6) Stalino (Hughesovka, Yuzovka, or Yuzovo) (47°58'N, 37°48'E). Stalinskaya Oblast', Ukrainian SSR. Population: 462,400 in January 1939; estimated at 462,000 in 1941. (FIGURES VIII-38 and VIII-119, *252*)

(a) Importance.—Stalino, the capital of Stalinskaya Oblast', is located in rich coal and iron ore fields. Its industries are chiefly consumers of these minerals.

(b) Physical characteristics.—The city is located in the western part of the Donets Basin on the unnavigable Kal'mius river. It occupies about 40 square kilometers (15 square miles) at a fairly uniform elevation of 110 meters (361 feet). Public gardens and boulevards cover an area of 6.5 square kilometers (2.5 square miles).

(c) Transportation.—Single-track rail lines extend in four directions. Highways are numerous; excluding branches formed outside the city, there are at least seven exit roads. The city has an airfield capable of operational use by heavy bombers.

In 1939 the city streetcar line totaled 42 kilometers (26 miles).

(d) Industry and commerce.—Substantial deposits of coal and iron ore are found in the vicinity. The *Lidiyevka* Donbass mines Nos. 2-7 use mining machines. Monthly productivity per machine was about 4,207 tons in 1940 or earlier, was below this figure in February 1947, but had been increased to 5,890 tons by March 1947.

The principal industries, (including metallurgical and chemical works) are consumers of coal and iron ore. A structure with numerous smokestacks, which stood in the western part of the city in July 1944, is believed to be the *Stalin* metal works. Metal-fabrication industries include a gun factory, a tractor combine, and a machinery plant. There are two munitions factories. Chemical installations include a nitrogen plant, a powder and explosives plant, and one plant the specific products of which are not known.

Light industries include production of shoes and other leather goods, woodworking, and meat processing.

An underground dynamite storage facility is located about 4 kilometers (2.5 miles) northeast of the city and 2 kilometers (1.2 miles) west of the main highway. It formerly supplied all coal mines in the region. In July 1944, the only surface structures were a small secret police (MVD) barracks and watchtowers on each street corner.

(e) Billeting and hospitals.—Information on these facilities is lacking. However, it is known that residential structures provided 930,000 square meters (10 million square feet) of floor space in 1939.

(f) Utilities.—In 1939 the city had a water supply system comprising 64 kilometers (40 miles) of water mains, and a sewerage system totaling 35.5 kilometers (22 miles) of pipes. A steam power plant with an installed capacity of 22,000 kilowatts is reported restored.

(g) Communications.—Stalino is on the telephone-telegraph network and reportedly has lines north to Avdeyevka Pervaya, northeast to Parokachka, and south to Rutchenkovo. An automatic telephone exchange was under construction in 1945. Radio facilities include a broadcasting station, two intrastate radio-telegraph stations, and a commercial airport radio station.

(h) War damage and reconstruction.—Postwar information is generally lacking.

(7) Stalingrad (formerly Tsaritsyn) (48°40'N, 44 30'E). Stalingradskaya Oblast', RSFSR. Population: 500,000 in 1941; over 300,000 in January 1947; 600,000 (planned). (FIGURES VIII-41 and VIII-119, *197*)

(a) Importance.—Stalingrad was founded in 1615 and began to grow after 1862. Although it is the oblast capital, the municipality itself is not under the jurisdiction of the oblast but of the RSFSR. It is a river port, the greatest lumber-trading center in the Volga area, and an important manufacturing center.

(b) Physical characteristics.—Stalingrad stretches for 50 kilometers (31 miles) along the right bank of the Volga, averages 5 kilometers in maximum width, and is built partly on bluffs which line the bank. Gullies cut the area.

(c) Transportation.—There are railroad connections with Likhaya, the Donets Basin, Sarepta, Povorino, and with the Caucasus by ferry across the Volga river to a railroad line. No main highways run through Stalingrad, but roads intersect from Krasnoarmeyskoye and Kachalinskaya. Before the war there were steamer landing places on the right bank of the Volga river and at least one airfield. Now there are 8 airfields, 3 of them with permanent facilities.

Rebuilding plans call for rail lines within the city to run in cuttings below the street level. There were 120 kilometers (74.5 miles) of street railway tracks destroyed, but these are being replaced by a high-speed electric train system with local bus line feeders. Within the city, the replanned streets will follow natural contours rather than the prewar gridiron pattern. Three main road arteries connect subdevelopments over a distance of 50 kilometers (31 miles). The rectangular open space on the embankment at the city's center will be connected to the old city square by a broad avenue and will become the new civic center. Main streets are to be 30 meters (98.4 feet) wide and paved with concrete or asphalt. The lower arterial road connects the center of the city with the big Stalingrad Park and with the industrial section; this road is closest to the river. The central arterial road connects the residential areas with the center of the city. The upper arterial road, running along the western outskirts, is the main motor road for heavy traffic.

(d) Industry and commerce.—Prewar Stalingrad was an important industrial center. Most of the industrial capacity was destroyed during the fighting, but reports indicate that considerable reconstruction has been done and in some cases new factories are being built.

The *Krasny Oktyabr'* metallurgical plant (3) had a built-up area in November 1941 of approximately 243,000 square meters (2,614,680 square feet). By November 1944,

FIGURE VIII - 37
DNEPROPETROVSK CITY PLAN
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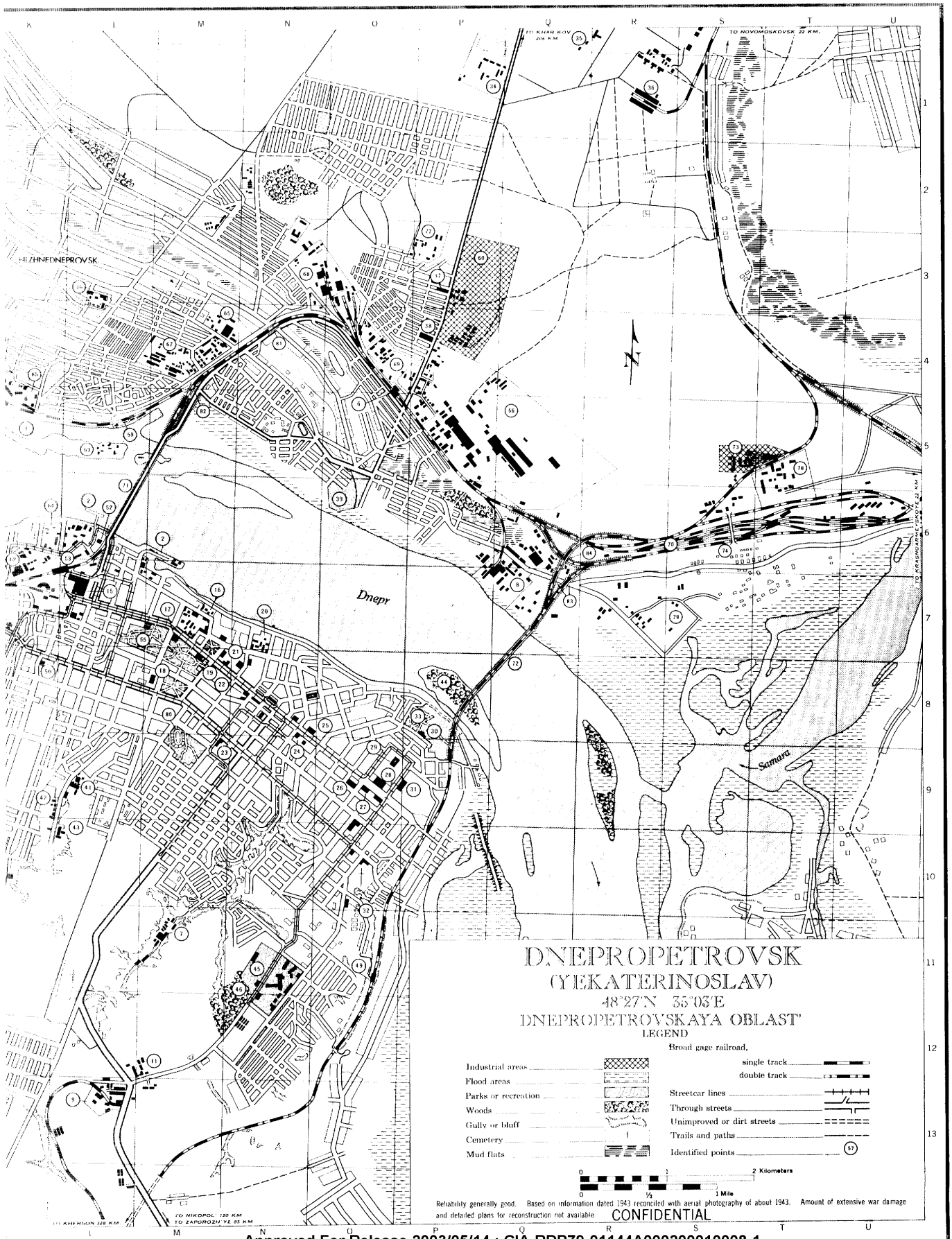

DNEPROPETROVSK
(YEKATERINOSLAV)
48°27'N 35°03'E
DNEPROPETROVSKAYA OBLAST'

LEGEND

Industrial areas
Flood areas
Parks or recreation
Woods
Gully or bluff
Cemetery
Mud flats

Broad gage railroad,
single track
double track
Streetcar lines
Through streets
Unimproved or dirt streets
Trails and paths
Identified points

0 1 2 Kilometers
0 ½ 1 Mile

Reliability generally good. Based on information dated 1943 reconciled with aerial photography of about 1943. Amount of extensive war damage and detailed plans for reconstruction not available.

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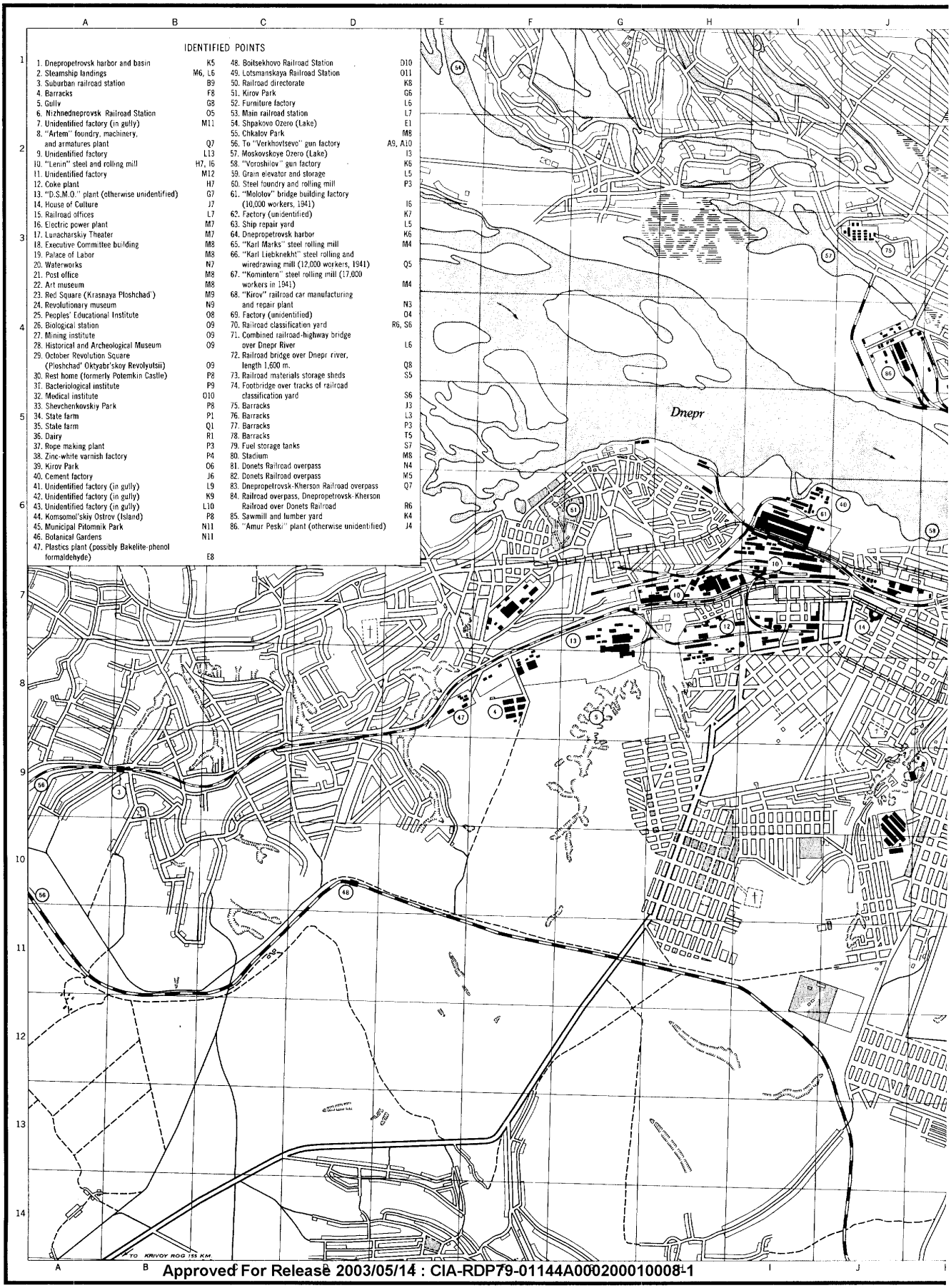

FIGURE VIII - 38
STALINO CITY PLAN
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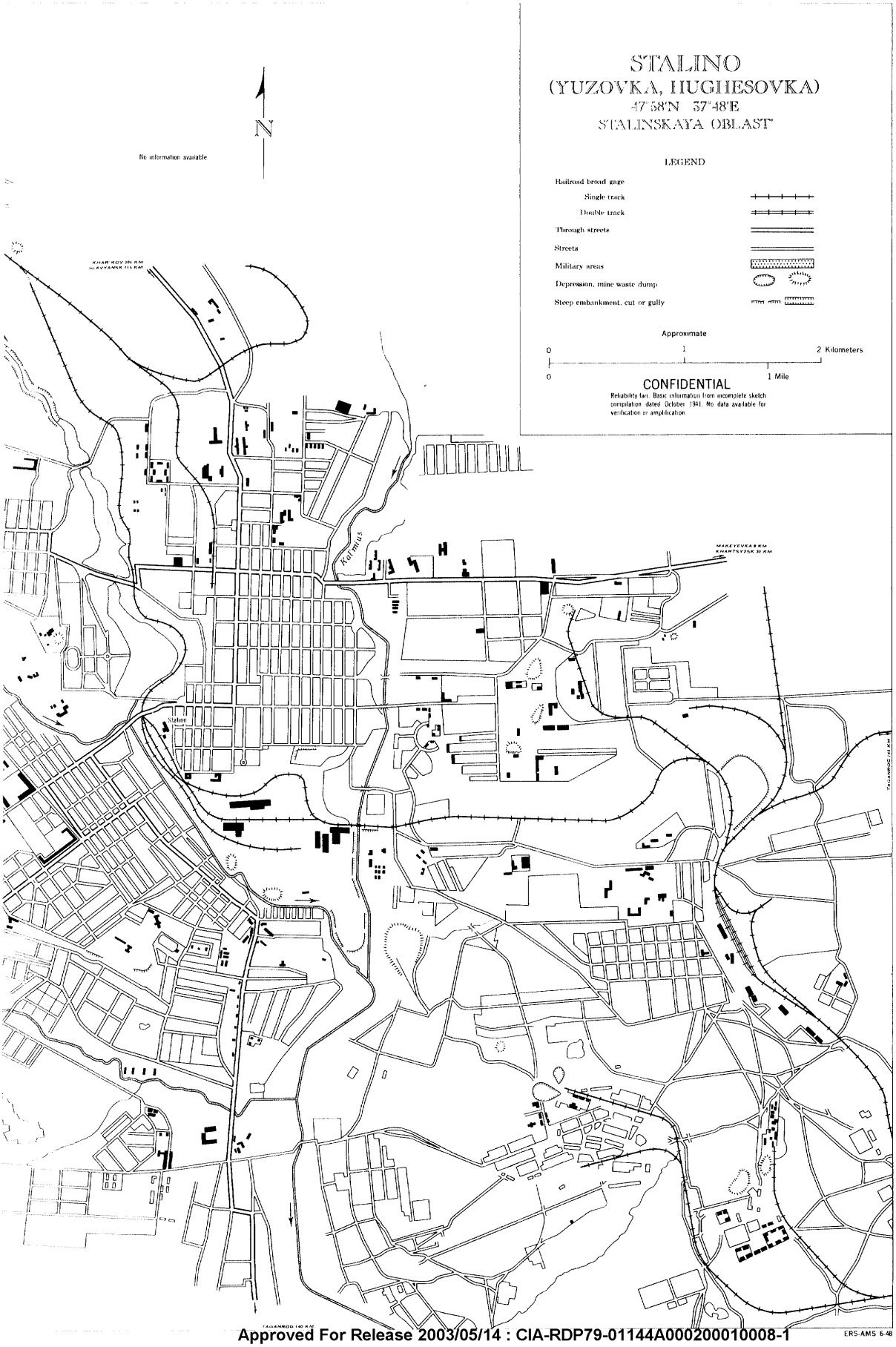
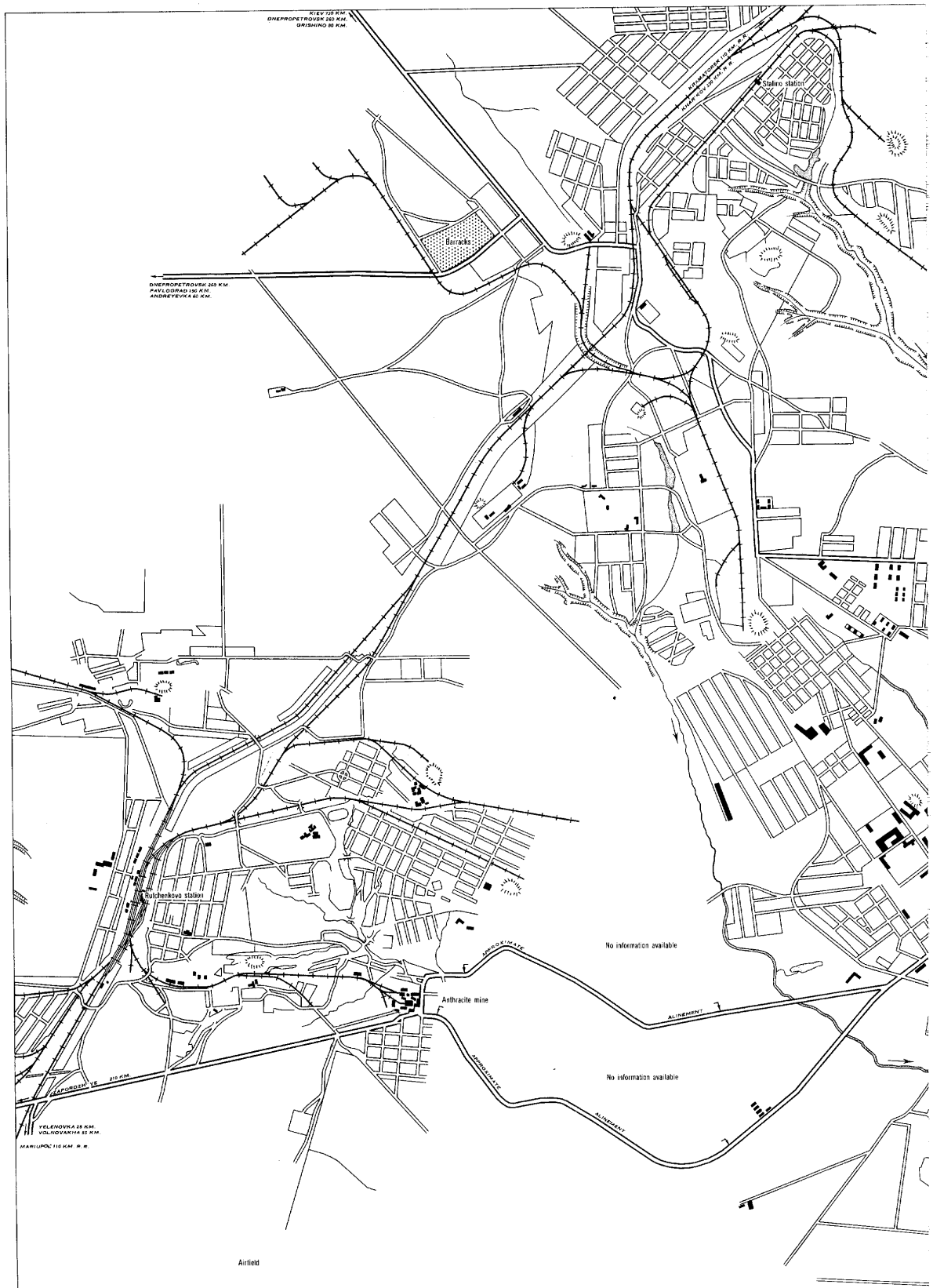




the plant had eight open-hearth furnaces operating. Although destroyed by the Germans, it is gradually being restored. The 1946 goal was reached and the quota of smelting furnaces was exceeded by 8,600 tons of steel. Open-hearth furnaces, each of 100-ton capacity, began operating in 1946, and other sections had begun operating by January 1947.

The *Dzerzhinskiy* tractor plant (1) produced 5,000 tractors annually; in 1930 there were 5,000 workers. The Stalingrad tractor plant, with slow rehabilitation, had produced 8,000 tractors by the end of January 1947. In February and March production was below quota. There were long delays in receiving equipment. On 20 April 1947, the 10,000th tractor was completed. This plant, with 12,000 employees, is claimed to produce 35 tractors per day, 75% of prewar production. In June 1947, the plant appeared to be modern and well-equipped.

Chemical combine No. 91, at Otradnoye on the right bank of the Volga, 16 kilometers (10 miles) south-southwest of Stalingrad, had a built-up area of about 37,500 square meters (403,500 square feet) in December 1941.

A shipyard (6), in operation since 1931, by the end of 1941 produced 120 vessels including large diesel-powered refrigerator ships and welded oil barges. In spite of damage from bombing, the shipyard remained in operation during the war repairing tanks and river craft and making steel turrets. About July 1947, a 3,000-ton river boat was launched. Planned capacity will exceed prewar level seven times by 1950.

The *Krasnaya Barrikada* (2), one of two gun factories, was restored in 1944. Motor vehicles were produced in the *Gor'kiy* works. There were a large oil refinery and fuel-oil storage installations (4). New shoe factories were being built in December 1946. Other industries included soap, leather, lumber, furniture, brick, and flour. There were two munitions works, a chemical warfare agent plant, and two tank and combat-car plants.

There are deposits of fire-resistant clay and quartz sand near the city.

Commercially, Stalingrad has been the lumber center of the Volga area.

Prewar storage facilities included an artillery arsenal.

(e) Billeting and hospitals.—Hotels, military schools, and scientific institutes would provide potential billeting facilities. There were several hospitals.

(f) Utilities.—During the fighting in Stalingrad, 300 kilometers (186 miles) of water mains were destroyed. Power plants were destroyed; but some have been restored. The main power plant, located near Beketovka Station, operated by coal, has been reported restored to a capacity of 150,000 kilowatts. There is a municipal power station with a capacity of 30,000 kilowatts (1943); two other industrial power plants totaling 74,000 kilowatts have probably been restored.

It is planned to use available natural gas along the Volga river for central heating plants or stations. Gas will be supplemented by coal and oil, if necessary. Excess heat from industrial plants will also be utilized.

(g) Communications.—Before the war there were post and telegraph offices, a radio broadcasting station. Postwar information shows that there is a new automatic exchange for 1,000 telephones and three additional radio stations.

(h) War damage and reconstruction.—During the battle of Stalingrad, in 1942-1943, the city was almost entirely destroyed. However, plans have been formulated for rebuilding, and reconstruction has already been un-

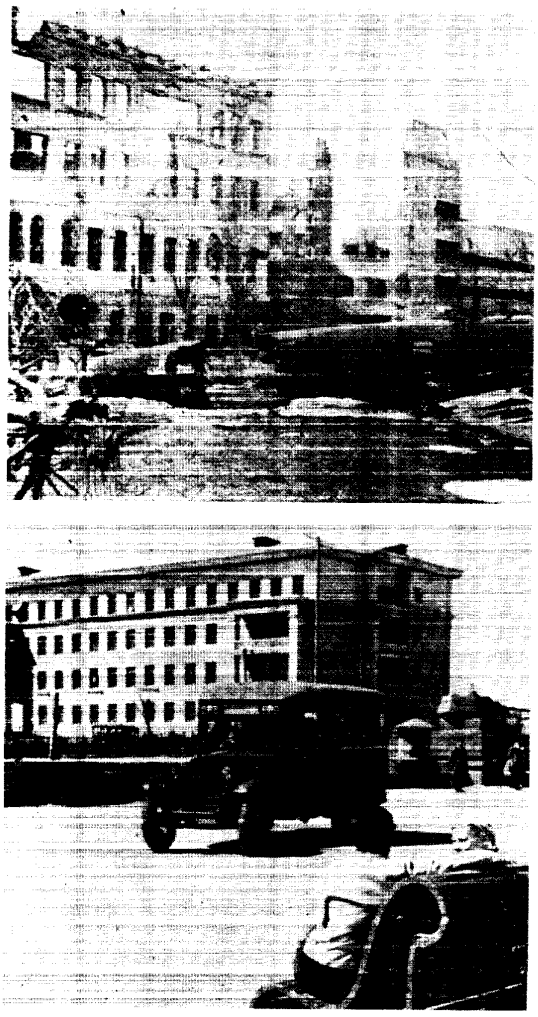


FIGURE VIII-39. *Stalingrad.*
Postwar reconstruction. War damage at end of siege (top); restored buildings and streets, with small busses again in operation (below). 1943 and 1946.

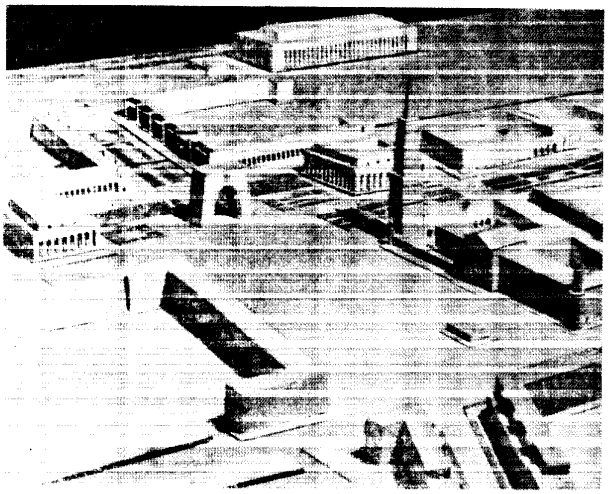


FIGURE VIII-40. *Stalingrad.*
Model of proposed replanned civic center, looking eastward. 1946.

dertaken (FIGURE VIII-39). The civic center is to be revised in an elaborate manner (FIGURE VIII-40).

The city will be divided into units with parks; residential areas will have direct access to a new embankment along the Volga river, and the height of buildings along the embankment and in other sections will be restricted. Four- and five-storied buildings will be erected in central sections only; along embankments the average will be two stories; and houses to be located on the second terrace will be small.

(8) Rīga (Riga) (56°57'N, 24°05'E). Latvia. Population: 385,000 in 1935; estimated 480,000 in 1946. (FIGURES VIII-43 and VIII-119, *86*)

(a) Importance.—Rīga, aside from its status as capital of Latvia, is a cultural and economic center, and the largest port of that state.

(b) Physical characteristics.—Rīga is situated on both sides of the Daugava (Zapadnaya Dvina) river, 15 kilometers (9.5 miles) above its mouth (at the Gulf of Riga, Rīgas Juras Līcis). The river is about 800 meters (0.5 mile) wide at this point and contains a series of islands. The Lielupe river empties into the Daugava just below the city.

Rīgas Jūrmala (Riga Beach) is located 18 kilometers (11 miles) westward, between the Gulf of Riga and the Lielupe river. It consists of the following resorts: Priedaine, Lielupe, Bulduri, Avoti, Dzintari, Majori, Dubulti, Melluzi, and Asari.

The oldest part of the city of Rīga, a fortress until 1857, is on the right bank. It is distinguished by its two public squares and its narrow crooked streets (FIGURE VIII-42).

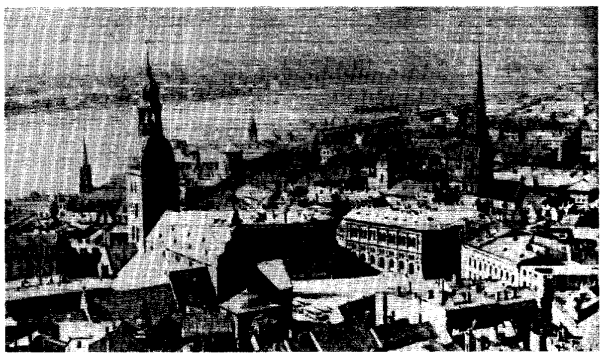


FIGURE VIII-42. *Rīga.*
Center of city looking northwestward. Typical Baltic States town. Prewar.

The new sections, on both right and left banks, have wider streets with fewer turns. Church spires are landmarks.

Elevation varies from about 0.2 meters (0.7 feet) along the river to 10 meters (33 feet) on the east and 15 meters (49 feet) on the west. The total area of the city is about 211 square kilometers (81 square miles); the total area, excluding water, is about 175 square kilometers (68 square miles).

(c) Transportation.—Double-track lines * provide rail service by two routes south-southeast, and by one route to the southwest. Single-track lines run west and northwest. A second route to the northwest may be double-track. All are wide gage. The city had 19 passenger and freight stations, of which eight have been identified (6, 13, 14, 24, 26, 29, 30, 33). Other important points include the large junction yard and the combined highway and railroad bridge (28).

Six highways provide connections northeast, southeast, south-southeast, south, southwest, and west-southwest. A seventh extends westward to Rīga Jūrmala. Motor traffic crosses the Daugava over two bridges (27 and 28).

Although the Daugava river is frozen between December and February, the flow of traffic is maintained by use of ice breakers. The prewar harbor could accommodate vessels of up to 7.3-meter (24-foot) draft, and had 5.5 kilometers (3.4 miles) of improved quays with transfer equipment, some with rail connections. In March 1946, the docks and naval harbor could accommodate ships of up to 8,000 tons. By September of the same year, it was planned that the entire working area of the wharves (10,000 square meters, or 107,600 square feet) would be rebuilt in concrete. Extensive reconstruction was under way by March 1947. In June, it was reported that increasing amounts of construction equipment and material were being shipped from Rostock, and that an unloading platform had been installed. This project, with an appropriation of 80 million rubles, is the largest item of Latvia's participation in the current Five-Year Plan. The plan contemplates increasing harbor capacity by 150%, with the addition of new concrete piers, marine railways, and motorized loading equipment.

Air facilities at Rīga include a field located on the left bank of the Daugava and west of the city (19), 2 other fields, and 2 auxiliary seaplane bases at Kīševers (Kīš Lake) to the north-northeast. Minor airfields also were located at Bolderaja and at two other places near Rīga.

The old city has narrow crooked streets; those in the newer sections are wider and straighter. Although it is reported that streetcars are being replaced by trolley busses, plans existing at the close of 1946 called for expansion of the streetcar system as a whole. A fleet of 50 cars was to be installed, and improved service was to be extended to the suburbs of Daugavgrīva Jaunciems, Belluciems, and the cement factory area. A fleet of ferries was also contemplated. The road to Milgravis had been asphalted, and a bridge 226 meters (741 feet) in length was being built at the confluence of the Mīlgrāvja Caurteka.

(d) Industry and commerce.—Rīga's prewar industries were largely metalworking, electrical, and chemical. Although industries suffered heavy war damage, the shipyards and principal factories had been restored to operation by the spring of 1947.

Shipbuilding was an important industry. The Latvian State Shipyards, which produced submarines during the war, employed 10,000 workers according to the most recent postwar information. The product at that time was not known. In addition, two ship-repair yards were in operation in 1946.

Armament may be produced at several plants. The former Latvian Tractor Factory, which employs 8,000 workers, was operating on a quota of two T-34 tanks daily in March 1947. An automobile plant, with 6,000 workers, was producing the same item. Shop 29, a tank- and tractor-repair plant, was located at the railroad station.

Facilities for rail equipment included the *Vairog* railroad car shops and the *Rizhskiy Vagonostroitel'ny Zavod* trolley-car plant. The latter was rehabilitated by January 1947 and was then engaged in the manufacture of rolling stock for the new suburban trolley line from Rīga to Rīgas Jūrmala.

Among other metalworking plants was the Rīga bicycle plant, which had been reconstructed, enlarged, and

* More recent information states that in 1947 these lines were single-track for some distance out of the city.

equipped by April 1947. Its quota for that year was 20,000 bicycles, and a planned output of 100,000 annually was to be achieved by 1950.

A rubber factory located near the railroad station produces automobile and bicycle tires, rubberized clothing, and other rubber products.

The electrical and radio industries are of considerable importance. A large radio and radar factory, located at the naval port, in its postwar operation employed about a thousand German prisoner-of-war specialists under strict supervision. Electrical apparatus was also produced at the *Etalon* and *Avto-Elektropribor* plants.

Chemical plants produced both ammunition (*Rizhskiy Sudoremontny Zavod* plant) and pharmaceuticals. A china factory, located at the edge of town near the Skirotava railroad station, was converted to production of phosphorus inserts for incendiary bombs, of which it produced 7 million between October and December 1945.

Prewar industries included leather tanning and shoe manufacture. The shoe factories were being restored and new units were being built in December 1946.

Other products included construction materials (asphalt, cement, tiles, wood, glass) and consumer goods (foodstuffs, canned goods, tobacco, textiles, paper).

Prewar storage included considerable military goods (arsenals, munitions dumps, quartermaster stores, and an automotive pool). Refrigeration and storage facilities were located at the harbor. No specific information is available as to reconstruction of these facilities; however, the expansion of port facilities has included construction of a new warehouse.

(e) Billeting and hospitals.—In addition to billeting facilities at identified points (1, 15, 23, and 25), there are 12 large hotels, various schools and educational structures, and the buildings occupied by Latvian ministries and by 21 foreign embassies before Soviet annexation. There are many boarding houses and about 20 thousand summer cottages at Rīgas Jūrmala. A large camp is located at Kīševers.

In addition to the eight city hospitals (2), there are tuberculosis and various sanitaria at Rīgas Jūrmala.

(f) Utilities.—Information concerning water supply is limited. There were several prewar water towers.

Six prewar power plants were located in or near Rīga: a) the municipal plant (21), which had 985 transformers in its network and produced 88,342,400 kilowatt-hours in 1937; b) a plant located near Jugla, east of Rīga on the Rīga-Tīnūži highway; c) the Augstprieds plant, about 23 kilometers (14.3 miles) east of Rīga and north of Ikškile, exact location unknown; d) the Dobelnieki plant, 27 kilometers (16.8 miles) east of Rīga and 6 kilometers (3.7 miles) north of Ikškile; e) an underground plant at Babites Ezers (lake); and f) the Kegums power station, on the Daugava river. Information on war damage is generally lacking, although the Kegums plant is known to have been destroyed. The dam and two turbines had been restored by December 1946, and it was planned to expand the installation to several times its prewar capacity. This plant now has a capacity of 51,000 kilowatts. The characteristics of current distribution are: a.c., 3-phase, 50-cycle, and 220/380 volts.

There were two gas plants before the war.

(g) Communications.—The prewar city had postal, telegraph, and telephone service. It also had a radio transmitter (three towers) and a military radio station. Most of these services have probably been restored. Four radio stations, including one broadcasting station, are reported (1946) in operation.

(h) War damage and reconstruction.—Rīga suffered extensive war damage, particularly with respect to its port facilities and industries. Little specific information is available as to the extent of destruction, but a considerable amount of reconstruction has been accomplished. In some instances, plants or facilities will be rebuilt on a larger scale.

(9) L'vov (Lwow, Lvyv, or Lemberg) (49°56'N, 24°02'E). L'vovskaya Oblast', Ukrainian SSR. Population: 317,800 in 1937. Population analysis of March 1947: 85% or more Russian, 10% Ukrainian, 2% Polish. (FIGURES VIII-44 and VIII-119, *227*)

(a) Importance.—L'vov is the capital of L'vovskaya Oblast', a commercial center, and important rail junction. Planned additions to its present industries will make it an important industrial center.

The university (16) and citadel (17) may serve as landmarks. In 1931, there were 14,058 dwellings.

(b) Physical characteristics.—The city is located on the Pel'tev river, a tributary of the Bug, and is surrounded by wooded mountains. The urban area is about 56 square kilometers (21.6 square miles), varying in elevation from 320 meters (1,050 feet) in the north and west to 340 meters (1,115 feet) in the east, with an intermediate level of 330 meters (1,083 feet) in the south. The older, central section is made up of congested structures and narrow winding streets. The surrounding sections, of more recent construction, are more spacious, with parks, gardens, and wide streets. On the outskirts are numerous suburban developments..

(c) Transportation.—Eight rail lines extend from L'vov, providing service in most directions. There are numerous stations (3, 6, 13, 19, 21, 25). The main station (19), which had repair shops, locomotive sheds, and various other facilities, was destroyed during the war but was being rebuilt by April 1947.

Six main highways, plus two minor roads (the latter alternate routes to Kolodruby), carry traffic in and out of L'vov.

There were two airfields (military and civilian) before the war. One field, located 12 kilometers (7.5 miles) from the city, is known to have been destroyed. A new office building had been constructed and some repairs effected by April 1947. On this date, a military hangar was reported to have been recently completed at one of these fields.

An electrified street railway has car barns (18, 20) and repair shops.

(d) Industry and commerce.—Production of machines and parts, particularly precision types, was among the most important prewar industries. The city had both foundries and producers of finished end products, such as railroad equipment, small arms, armatures, and files. Aluminum was also produced.

A large petroleum refinery with storage tanks is served by a railroad spur.

Chemical production included both commercial or industrial types and chemical warfare agents (the latter produced at a plant in Vinniki). An oxygen plant, destroyed by the Germans, was fully restored by April 1947, and a new branch had been planned for carbide production.

Various other factories produced paper, soap, bricks, textiles, shoes, alcohol, and ceramics, including enamelware. Among food products were flour (three motorized mills), beer, canned goods, sugar, and margarine.

L'vov will become an important industrial center if the objectives of the Fourth Five-Year Plan are realized. First

priority is being given to expansion of machine-construction facilities, with emphasis on construction of precision and electrotechnical machines. Other projected plants will assemble automobiles and agricultural machinery and produce electric light bulbs and telephone-telegraph equipment.

Prewar L'vov was an important commercial center, dealing in agricultural products, petroleum, and lumber. Storage facilities included two storehouse areas, food and clothing warehouses, oil storage installations, a large powder magazine, and two large munitions-storage installations.

(e) Billeting and hospitals.—Prewar billeting facilities included a number of barracks (three infantry, two cavalry, two artillery, and at least one each armored, engineering, quarantine, police and secret service). Eleven additional places including a hospital, fairground, stadium, and sports fields, were used for quartering troops. Military and police command buildings were also available. Structures of political use included the Party Building, the city and oblast administration buildings, and the city hall. Schools, institutes, and the university occupied other structures (including a university library). Various other possibilities included the museum, the railroad administration building and the hotels.

In prewar times six hospitals, one military, plus a sanatorium and university clinics were available for billets.

(f) Utilities.—The prewar water supply system was destroyed but was fully restored by November 1946 according to a report which also described the system as having 42.4 kilometers (26.3 miles) of incoming mains, a distribution network of 215 kilometers (133.5 miles), 7 water-supply stations, and a capacity of 35,000 cubic meters (9,000,000 gallons) daily (a supply of 100 liters, or 26.4 gallons, per person).

The municipal power plant (24) had a prewar capacity of 25,900 kilowatts and transmitted 5,500-volt current. A report of November 1946 claims complete restoration of prewar capacity, including two substations (serving trolleys) with a general capacity of over 5,000 kilowatts. It is planned to increase the municipal plant capacity to 444,000 kilowatts, and to provide reserves by construction of a new L'vov-Borislavskiy power circuit.

Other prewar power plants were operated in conjunction with a railroad (560 kilowatts), a shoe factory (113 kilowatts), and a brewery (208 kilowatts).

The city gas works and distributing stations were built in 1858. Gas supply was doubled in 1941 following construction of a supply pipe line 75 kilometers (46.6 miles) in length and 30 centimeters (12 inches) in diameter. Distribution is effected through two high-pressure pipe lines, one for industrial and central heating, the other for general use. Daily gas supply is reported to have increased from 60,000 cubic meters (2.1 million cubic feet) in 1939 to 500,000 cubic meters (17.7 million cubic feet) by early 1947.

The present situation with respect to water, power, and gas supply is probably not as favorable as reported, since observers have stated that all three services are inadequate.

(g) Communications.—L'vov is a main switching station on the main telephone-telegraph network, with nine lines as follows: 1) north to Zholkhva, 2) northeast to Kamenka-Bugskaya, 3) east to Krasne, 4) southeast to Potutory, 5) south-southeast to Rogatin, 6) south to Stryy, 7) southwest to Rudki, 8) west to Przemysl, and 9) west-southwest to Yavorov. A new automatic telephone exchange was completed in 1945. The post and telegraph offices are supplemented by branch offices.

Wireless facilities include radio-telegraph, three broadcasting stations, and four official radio stations for air service.

(h) War damage and reconstruction.—War damage was not extensive; the main railroad station, an airfield, and some scattered buildings were destroyed.

(10) Zaporozh'ye (formerly Aleksandrovsk) (47°48'N, 35°11'E). Zaporozhskaya Oblast', Ukrainian SSR. Population: 289,200 in January 1939; 290,000 in 1941. (FIGURES VIII-46 and VIII-119, *250*)

(a) Importance.—Zaporozh'ye, the capital of its oblast, was a prewar center of the metallurgical industry, with one of the largest steel mills in the USSR.

(b) Physical characteristics.—The city occupies an area of 128 square kilometers (49 square miles) on the left bank of the Dnepr river near the Dnepro-GES power plant and the dam (2, 1). Elevation varies from about 16 meters (52 feet) on the river bank to 50 meters (164 feet) in the southeast and 70 meters (230 feet) in the northeast.

The street pattern is generally gridiron, with considerable irregularity in the older sections. Some housing developments are modern in style (FIGURE VIII-45).

FIGURE VIII-45. *Zaporozh'ye.*
Type "D" residential area, showing typical modern construction and design. Note open areas.

(c) Transportation.—Railroads extend in four directions and make use of five stations (5 to 9). There are several railroad bridges, plus a combination railway-highway bridge (4). In September 1942, it appeared that the middle span of the combination bridge had been destroyed.

A main highway from the north provides connections south and east-southeast. The Dnepr dam (1) is used as a street and railroad bridge, and several smaller structures span a canal and the Dnepr tributaries.

A canal with locks (3) enables large ships to pass the otherwise impassable rapids at the Dnepr dam. A military harbor and an airfield (10) are the only other known prewar transportation facilities. In 1946 there were 5 airfields, 4 with permanent facilities.

(d) Industry and commerce.—Zaporozh'ye was a center of prewar metallurgical industry, with production of iron and steel, copper, aluminum, and manganese. The *Zaporozhstal'* steel plant (12), one of the largest in the country, was reportedly being re-equipped with machines and equipment from Leningrad in May 1947. Electric furnaces were in use before the war, and a new power plant was nearly completed in June 1947. According to a 1946

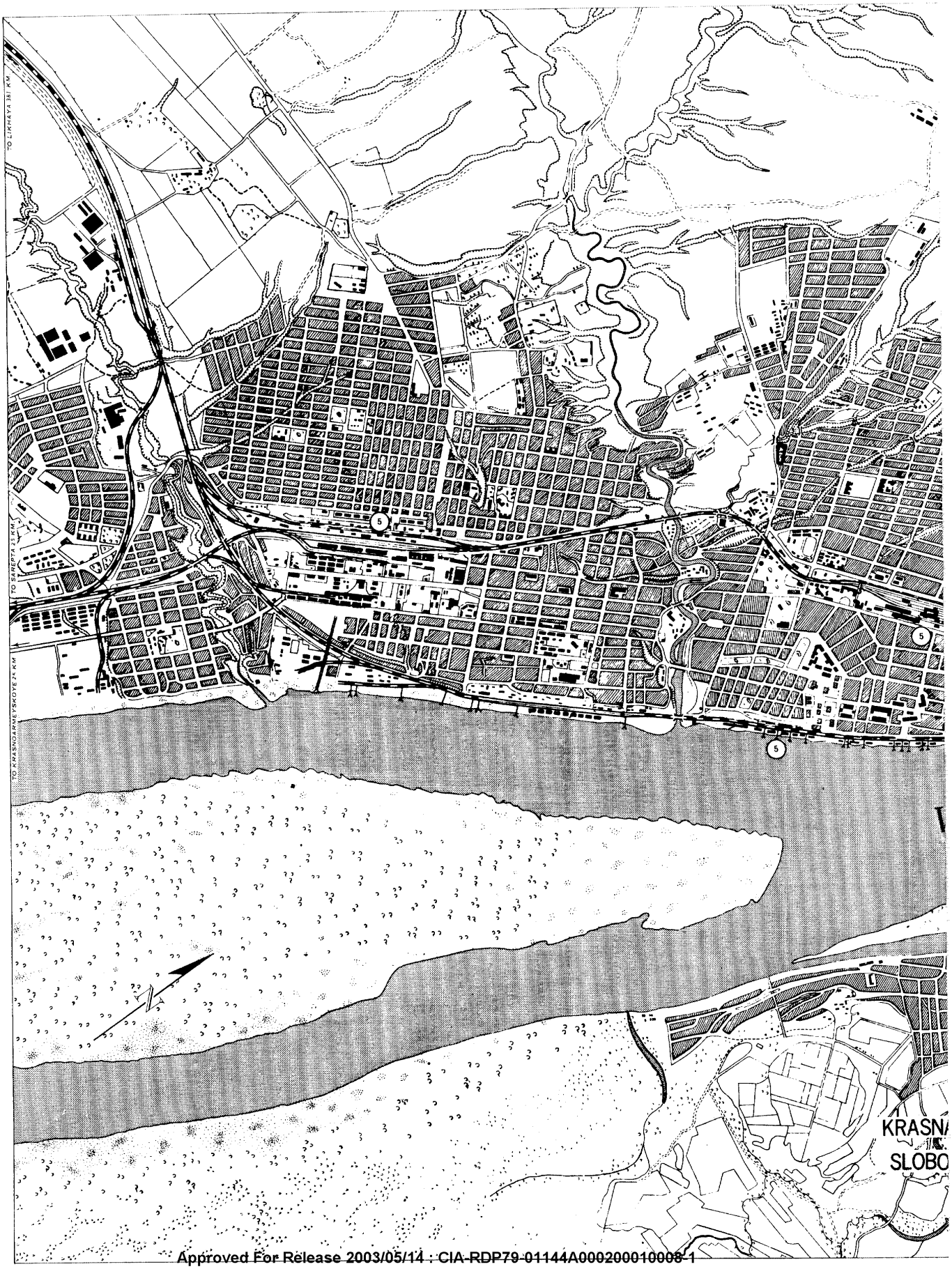


FIGURE VIII - 41
STALINGRAD CITY PLAN
JANIS 40
CONFIDENTIAL

STALINGRAD
(TSARITSYN)
48°40'N 44°30'E
STALINGRADSKAYA OBLAST'

0 1 2 Kilometers

0 ½ 1 Mile

CONFIDENTIAL

LEGEND

- Urban areas
- Gully or bluff
- Parks or recreation
- Woods
- Mud flats
- Marsh
- Broad gage railroad
- Through streets (Note: Due to destruction, postwar alinements in city not known)
- Unfenced, dirt, unimproved streets
- Identified point (8)

Reliability fair. Basic information agrees with aerial photography dated June 1942 during siege. Present status of reconstruction and details of replanning not known.

NOTE: This map includes only central sections of town which extends to north and to southeast.

IDENTIFIED POINTS

1. "Dzerzhinskiy" tractor plant
2. "Krasnaya Barrikada" gun factory
3. "Krasny Oktyabr'" metallurgical plant
4. Oil refinery and fuel storage dump
5. "Stalingrad" railroad stations
6. Shipyard

NOTE: Due to the excessive destruction, only the most important prewar industrial plants and railroad facilities have been identified.
Right bank of river almost entirely destroyed.
Considerable replanning of streets proposed.

ERS-AMS 6-48

RIGA
56°57'N 24°05'E
LATVIAN SSR

LEGEND

Urban areas
Industrial areas
Church
Military areas
Parks or recreation
Woods
Cemetery
Railroad, broad gage
Single track
Double track
Streetcar line
Through streets
Streets
Unimproved or dirt streets
Identified points

0 1 2 Kilo
0 1 Mile

CONFIDENTIAL

Reliability generally good. Based on intelligence information prior to war (1941). Amount and extent of war damage not available.

2000 Meter Grid

IDENTIFIED POINTS

1. Schools, universities, etc.	
2. Hospitals	
3. Public buildings	
4. Chemical factory	5A
5. Yacht club	6B
6. "Ciekurkalns" railroad station	6C
7. "Phoenix" factory (products not known)	6D
8. "Elricha" mineral factory	5B
9. Shipyard	4A
10. Brewery	5B
11. Rubber factory	5C
12. Chemical factory	5C
13. "Brasla" railroad station	5C
14. Freight station	6D
15. Artillery barracks	6D
16. Municipal common land	5D
17. Slaughterhouse	5C
18. Export harbor	4D
19. Airport	3C
20. Cement plant	3D
21. Power plant	4D
22. Main freight station	4D
23. Theater	5E
24. Main railroad station	5E
25. Infantry barracks	3E
26. "Zasulauka" railroad station	2E
27. Ponton bridge, streetcar tracks	4E
28. Combined railroad-street bridge	4E
29. "Tornakalna" freight station	4F
30. "Tornakalna" railroad station	4F
31. Munitions plant	2F
32. Radio station	2E
33. "Imantas" railroad station	1E

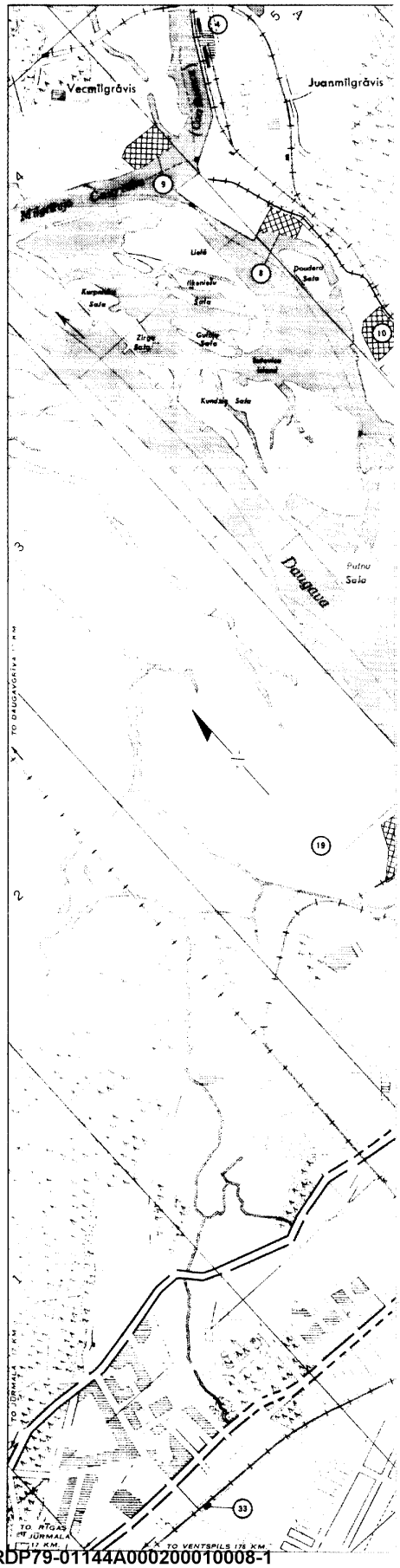
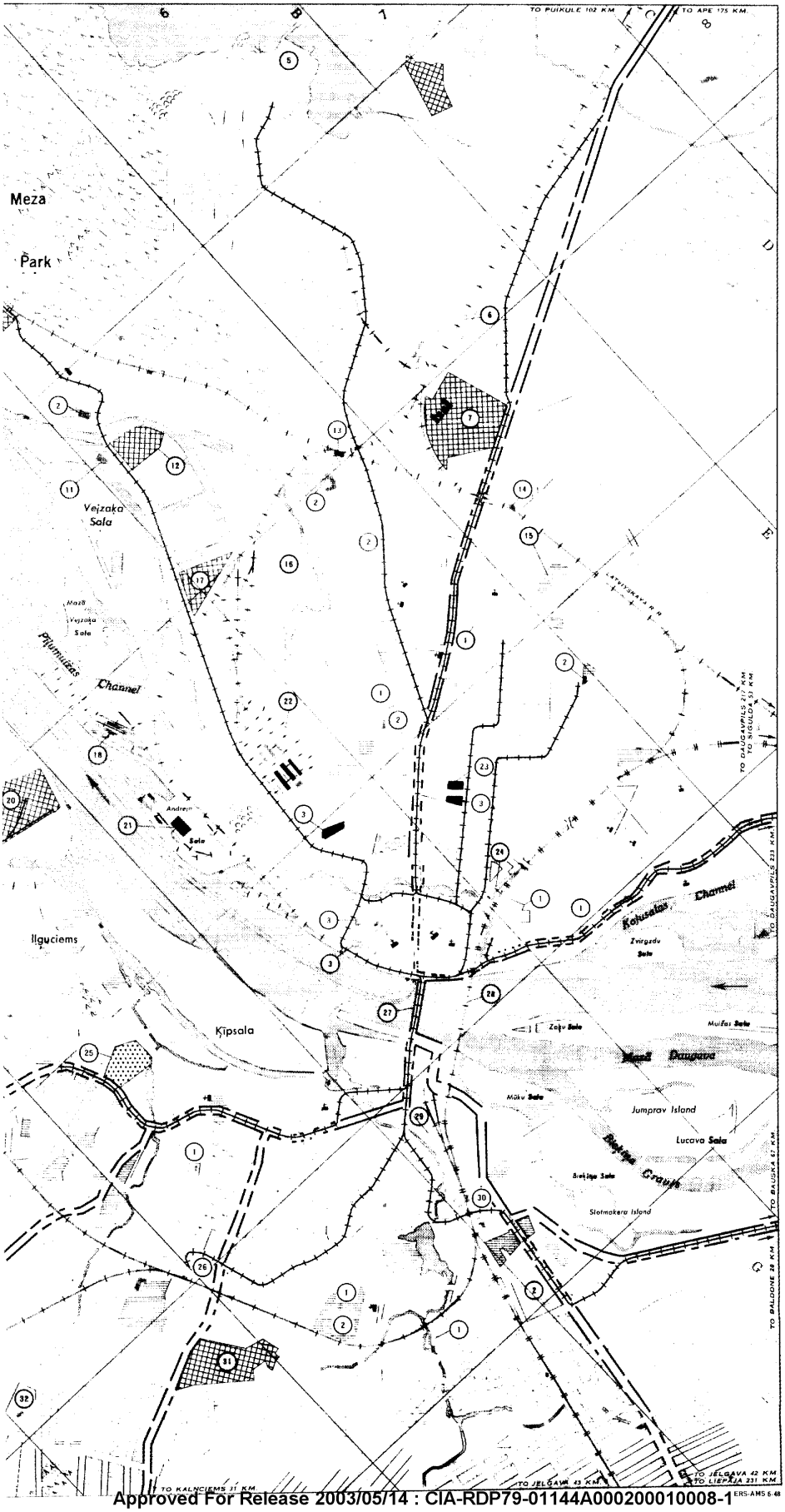


FIGURE VII - 43
RIGA CITY PLAN
JANIS 40
CONFIDENTIAL



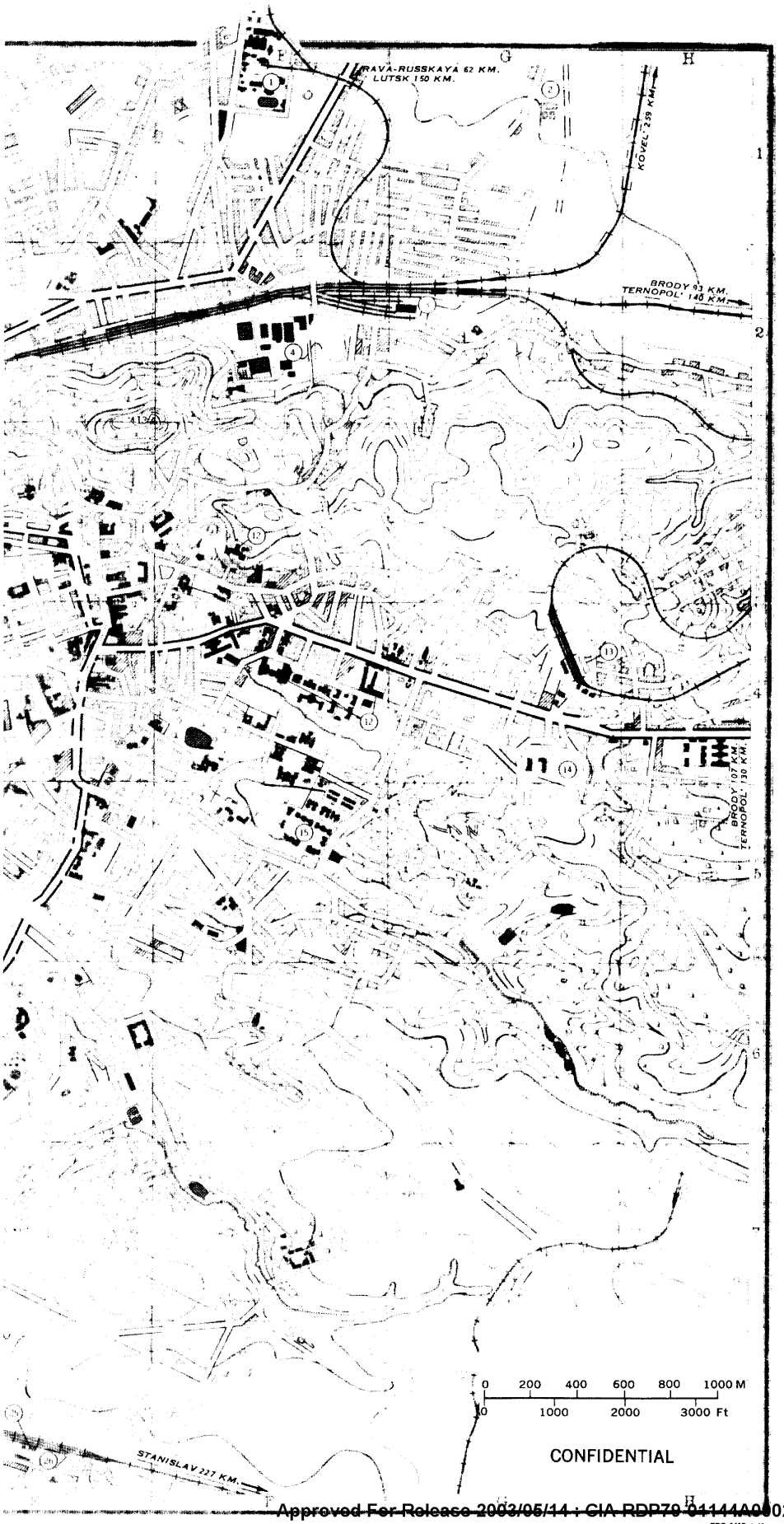
ERS-AMS 6-48

FIGURE VIII - 44
L'VOV CITY PLAN
JANIS 40
CONFIDENTIAL

L'VOV
(LWÓW)
(LVYV)
(LEMBERG)

49°56'N 24°02'E

L'VOVSKAYA OBLAST'



LEGEND

- Urban areas
- Parks, recreation, or woods
- Cemetery
- Broad gage railroad, single track
- double track
- Through streets
- Proposed streets
- Identified point (8)

Reliability good. Basic information, dated March 1941. War damage to railroads was considerable.

1 KILOMETER GRID

IDENTIFIED POINTS

1. Municipal slaughterhouse
2. Blue dye plant
3. Podzamche railroad station
4. Government alcohol plant
5. Brewery
6. L'vov-Kleparov railroad station
7. Bicarbonate of soda plant
8. Military depot
9. Barracks
10. Prison
11. Two theatres
12. Hospitals, medical school, etc.
13. Lichakov railroad station
14. Stadium
15. Barracks
16. University
17. Citadel
18. Streetcar barn
19. Main railroad station
20. Streetcar barn
21. Kul'parkuv railroad station
22. Barracks and radio station
23. Radio station
24. Municipal power plant
25. Persenkovka railroad station
26. Producer gas plant
27. Municipal cement plant
28. Insane asylum
29. "Merkury" factory

ERS-AMS 6-48

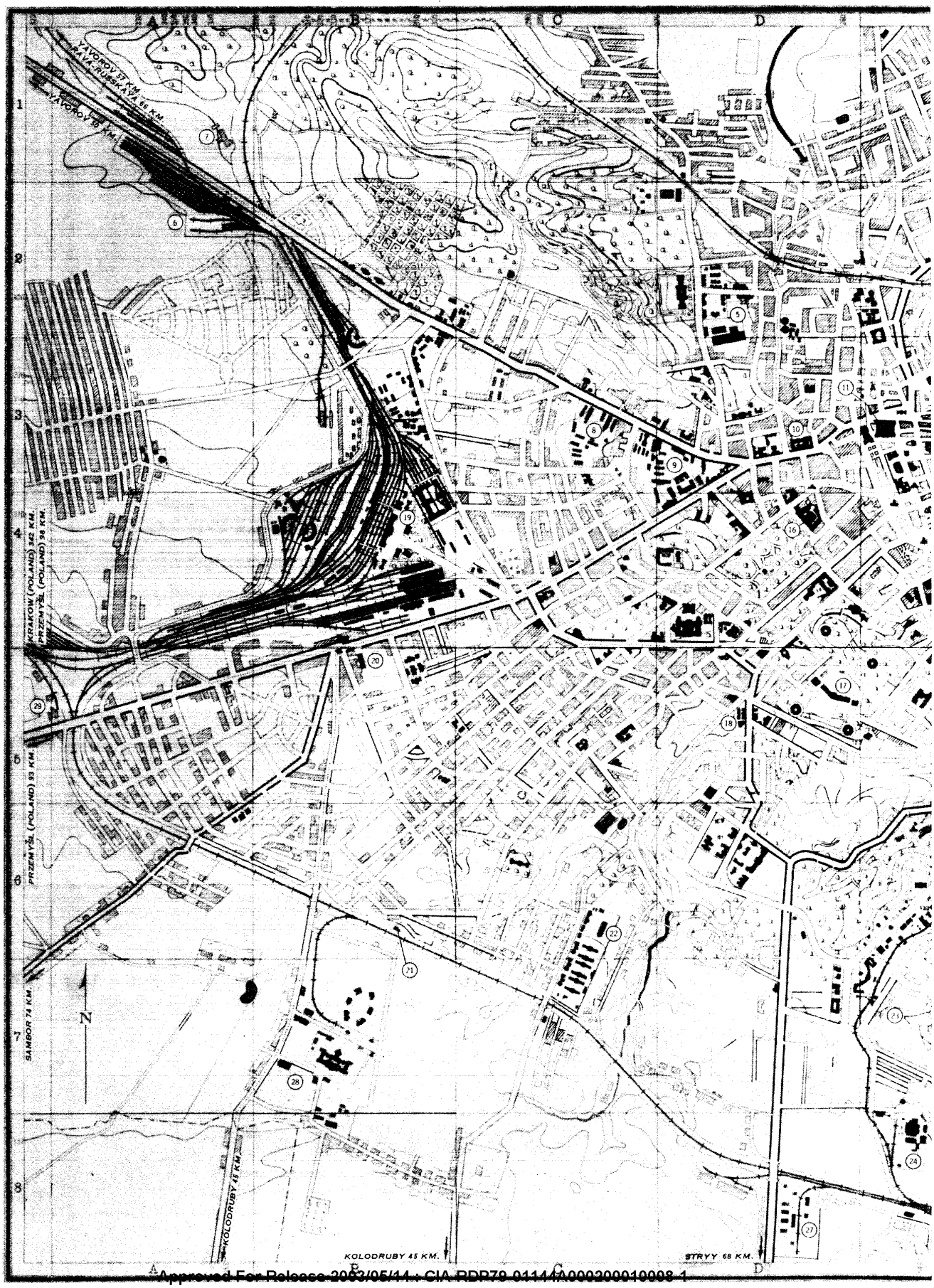
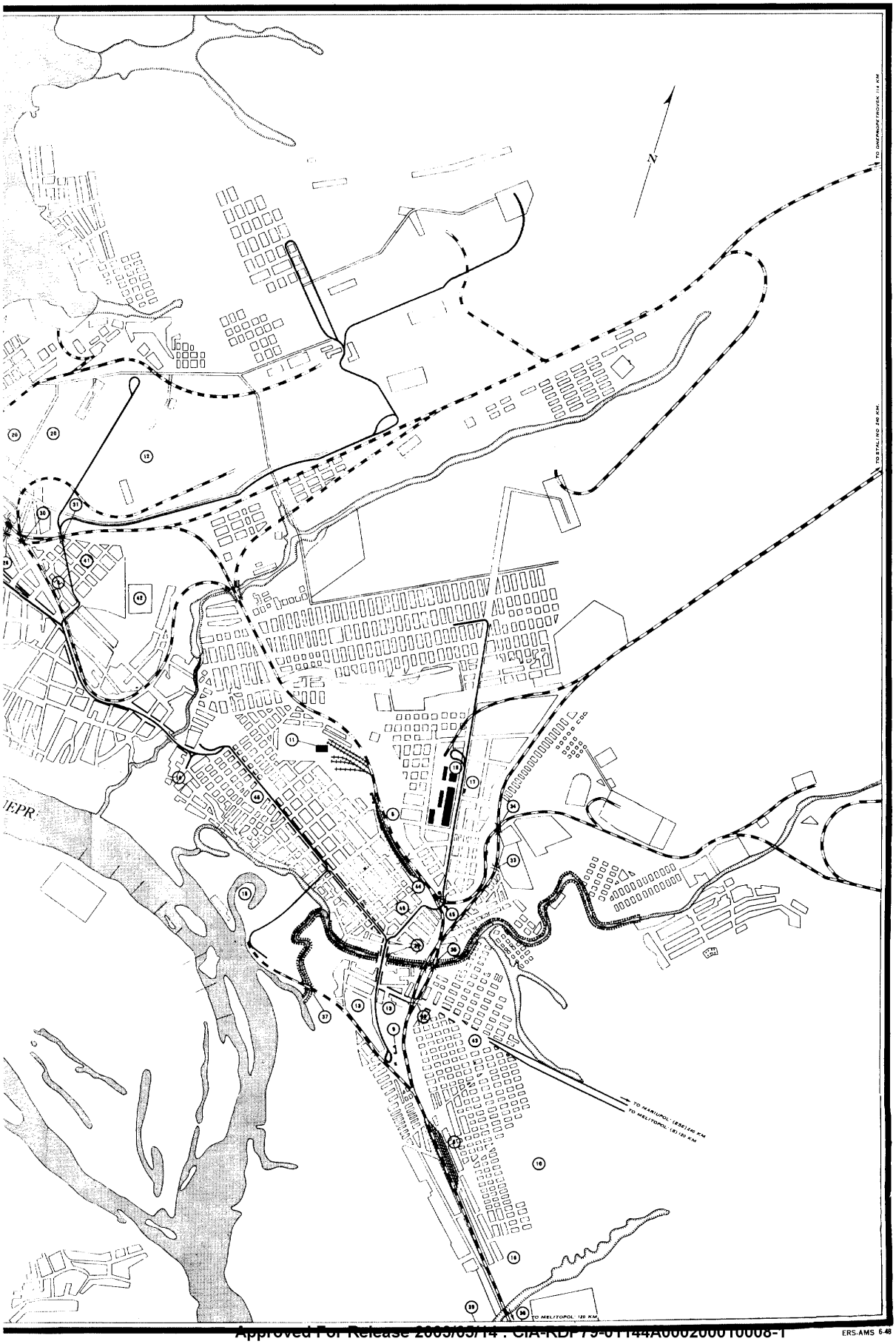
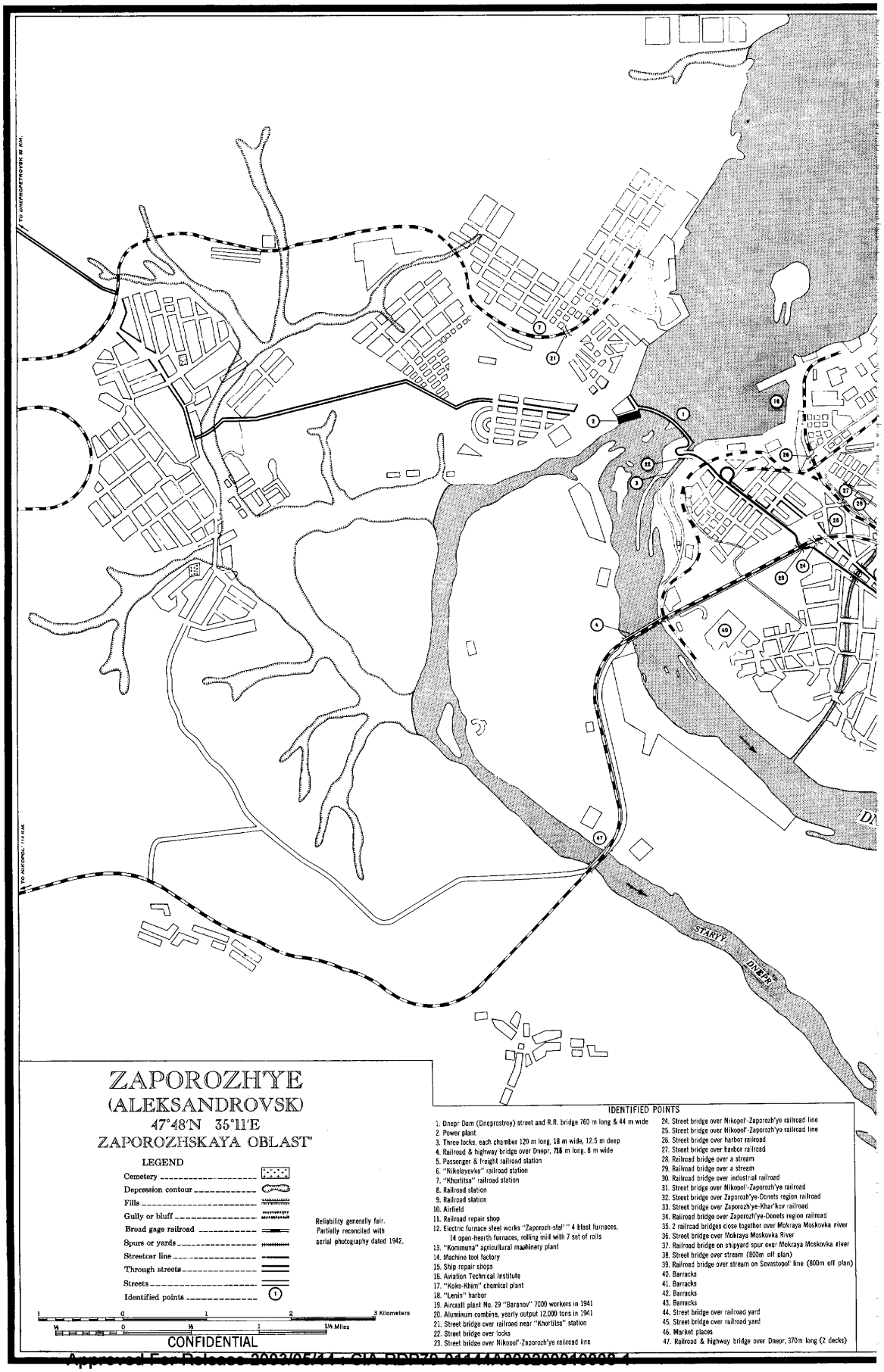


FIGURE VIII - 46
ZAPOROZH'YE CITY PLAN
JANIS 40
CONFIDENTIAL



ERS-AMS 6-48



ZAPOROZHYE
(ALEKSANDROVSK)
47°48'N 35°11'E
ZAPOROZHSKAYA OBLAST'

LEGEND

- Cemetery
- Depression contour
- Fills
- Gully or bluff
- Broad gage railroad
- Spurs or yards
- Streetcar line
- Through streets
- Streets
- Identified points

Reliability generally fair. Partially reconciled with aerial photography dated 1942.

1 0 1 2 3 Kilometers

½ 0 ½ 1 1½ Miles

IDENTIFIED POINTS

1. Dnepr Dam (Dneprostroy) street and R.R. bridge 760 m long & 44 m wide
2. Power plant
3. Three locks, each chamber 120 m long, 18 m wide, 12.5 m deep
4. Railroad & highway bridge over Dnepr, 715 m long, 8 m wide
5. Passenger & freight railroad station
6. "Nikolayevka" railroad station
7. "Khortitsa" railroad station
8. Railroad station
9. Railroad station
10. Airfield
11. Railroad repair shop
12. Electric furnace steel works "Zaporozh-stal'" 4 blast furnaces, 14 open-hearth furnaces, rolling mill with 7 set of rolls
13. "Kommuna" agricultural machinery plant
14. Machine tool factory
15. Ship repair shops
16. Aviation Technical Institute
17. "Koks-Khim" chemical plant
18. "Lenin" harbor
19. Aircraft plant No. 29 "Baranov" 7000 workers in 1941
20. Aluminum combine, yearly output 12,000 tons in 1941
21. Street bridge over railroad near "Khortitsa" station
22. Street bridge over locks
23. Street bridge over Nikopol'-Zaporozh'ye railroad line
24. Street bridge over Nikopol'-Zaporozh'ye railroad line
25. Street bridge over Nikopol'-Zaporozh'ye railroad line
26. Street bridge over harbor railroad
27. Street bridge over harbor railroad
28. Railroad bridge over a stream
29. Railroad bridge over a stream
30. Railroad bridge over industrial railroad
31. Street bridge over Nikopol'-Zaporozh'ye railroad
32. Street bridge over Zaporozh'ye-Donets region railroad
33. Street bridge over Zaporozh'ye-Khar'kov railroad
34. Railroad bridge over Zaporozh'ye-Donets region railroad
35. 2 railroad bridges close together over Mokraya Moskovka river
36. Street bridge over Mokraya Moskovka River
37. Railroad bridge on shipyard spur over Mokraya Moskovka river
38. Street bridge over stream (800m off plan)
39. Railroad bridge over stream on Sevastopol' line (800m off plan)
40. Barracks
41. Barracks
42. Barracks
43. Barracks
44. Street bridge over railroad yard
45. Street bridge over railroad yard
46. Market places
47. Railroad & highway bridge over Dnepr, 370m long (2 decks)

CONFIDENTIAL

FIGURE VIII - 47
MINSK CITY PLAN
JANIS 40
CONFIDENTIAL

MINSK

53°54′N 27°34′E

MINSKAYA OBLAST; WHITE RUSSIAN SSR

LEGEND

Urban Areas
Swamp
Parks or recreation
Cultivated land
Destroyed areas
Railroad; broad gage
Single track
Double track
Narrow gage military depot railroad
Through streets
Through streets destroyed in city
Unimproved or destroyed streets
Lanes or footpaths
Identified point (8)

1 0 1 2 Kilometers

½ 0 ½ 1 Mile

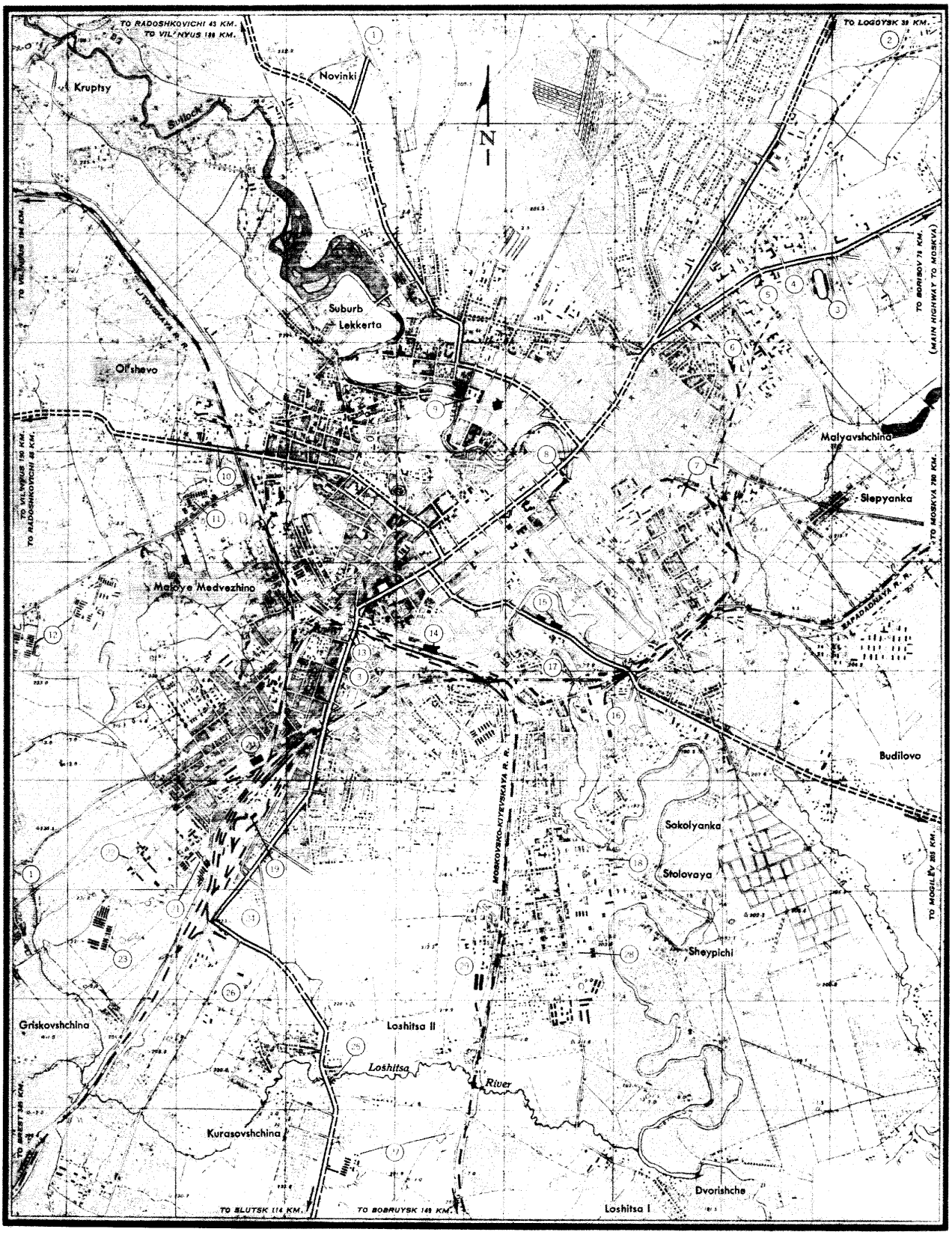
CONFIDENTIAL

Reliability good. Reconciled with aerial photography dated prior to 1944. Extent of additional war damage prior to final evacuation by Germans unknown.

1 Kilometer Grid

IDENTIFIED POINTS

1. Waterworks
2. Military camp
3. Stadium
4. Waterworks
5. Hospital
6. Baked goods plant
7. Tank farm (fuel storage)
8. Power plant No. 1
9. City (municipal) hospital
10. Furniture factory
11. Brickyard
12. Brickyards
13. Single track steel truss overpass
    R.R. bridge 34 m long
14. Passenger R.R. station
15. Liquor and vodka distillery
16. Power plant No. 2
17. Double track R.R. steel truss bridge 37.10 m long
18. Flour mill
19. Freight station
20. R.R. repair shops
21. Brickyard
22. Brickyard
23. Brickyard
24. Garages
25. Timber bridge 16 m long, 16 metric tons capacity
26. Brickyard
27. Brickyards
28. Vulcanizing plant
29. Tractor station (pool)



ERS-AMS 6-48

estimate, complete reconstruction will require three to four years. Two other plants on which location data are lacking were an electro-steel works and the *Dzerzhinskiy* steel works.

Various steel products were formerly manufactured. The State Machine Factory produced farm machines. There was also an airplane factory (19). Harvester combines and crankshafts were produced at unidentified points.

The prewar chemical industry was being supplemented by construction of nitrogen plants. Other products included leather, knitted goods, lumber, furniture, and foodstuffs (meat, milk, butter, and flour).

(e) Billeting and hospitals.—Barracks (40, 41, 42, 43) were available in 1941. The extent of hospital facilities is unknown.

(f) Utilities.—No information is available on water supply or sewerage systems. The Dnepr hydroelectric development, in prewar condition, had a capacity of 558,000 kilowatts. The Zaporozhstal' thermoelectric plant with 25,000-kilowatt capacity is being rebuilt.

(g) Communications.—The city is on the main telephone-telegraph network, in addition to being connected with towns in the immediate vicinity over a local network. Lines extend north-northeast to Vstrechnyy, east to Chapayeva, and south to Fedorovka. There are two intrastate radio-telegraph stations.

(h) War damage and reconstruction.—Except for information relative to the *Zaporozhstal'* steel plant, the extent of war damage and subsequent reconstruction is largely unknown.

(11) Minsk (53°54'N, 27°34'E). White Russian SSR, Minskaya Oblast'. Population: 238,800 in 1939; estimated 150,000 in 1946. (FIGURES VIII-47 and VIII-119, *155*)

(a) Importance.—Minsk, besides being the capital of both Minskaya Oblast' and the White Russian SSR, is also a cultural center. Theaters, stadiums, libraries, several museums, and churches are located there, as well as a university. The city dates from the eleventh century.

(b) Physical characteristics.—Situated in hilly terrain on both banks of the small Svisloch' river, Minsk comprises an area of 63 square kilometers (24 square miles). Elevation varies from 211 meters (692 feet) in the southern section to 230 meters (755 feet) in the east and northeastern portions of the city. The Lozhitsa river flows into the Svisloch' river south of the city.

(c) Transportation

1. EXTERNAL.—Four railway lines radiate from the city. There are two steel truss railroad bridges, one an overpass (13), the other (17) over the Svisloch' river. The lines are served by a passenger station (14), a freight station (19), and railroad repair shops (20). Minsk is also a junction point for six highways, one a motor highway to Moscow. Several highway bridges cross the Lozhitsa river. Two fighter airfields are located near the city, three other landing grounds are in the vicinity.

2. INTERNAL.—Before the war, streets were well paved and a street railway system was operating. Bottlenecks are formed by turns in the highways and by bridges over the river. It is reported that plans have been made for building three circumferential "ring" highways to relieve traffic congestion and that two bus lines started operation in 1946.

(d) Industry and commerce.—Prewar Minsk possessed a large variety of industries, including the *Kirov* and *Voroshilov* tool shops, foundry and machine plants, an aircraft plant, railroad-car shops, chemical plants, vulcanizing plant, distilleries, numerous brickyards, and factories for various types of consumers' goods. It also produced farm machinery, radios, leather, cloth, uniforms, shoes, furniture, cereals, canned goods, flour, and bakery products.

Information regarding war damage and reconstruction is incomplete, but at least 23 large industrial plants have been reported destroyed. Among new industrial plants under construction are a tractor plant to be completed in the first half of 1948, a large woolen mill, and a large bicycle plant. The factory building and workmen's dwellings have been erected, but according to a report of April 1947, delay in manufacture of essential dies has retarded the progress of equipping the plant.

Minsk was the center of a flourishing agricultural area, and several state and collective farms were located near the city.

Storage facilities included warehouses, an underground munitions dump, two supply depots, an oil depot, numerous garages, and a fuel tank farm (7).

(e) Billeting and hospitals.—Billeting facilities or possibilities were provided by hotels, university buildings, museums, a theater, several groups of barracks, a military camp (2), two stadiums (3), and a tractor pool.

During the war three children's hospitals and 121 medical institutions were destroyed. Twenty-five such centers survived, although they required considerable repairing.

(f) Utilities.—Before the war, the city had a good sewerage system, serving most of the city. There were also two waterworks (1, 4) and at least two power plants (8, 16). One steam power plant with a reported capacity of 5,000 to 25,000 kilowatts was fully restored in August 1947.

(g) Communications.—Minsk was a switching station on the main telephone-telegraph network. These services were badly damaged or destroyed, but have now been restored. In 1946 an automatic telephone exchange was being restored to service, and a new plant for telephone and telegraph equipment was under construction, to be completed and begin production in 1948. The city now possesses one broadcasting station.

(h) War damage and reconstruction.—Aside from extensive war damage to the industries of Minsk, 80% of the dwellings, 47 schools, and 24 kindergartens are reported destroyed. The city is being completely replanned and will have new streets, squares, and parks. Zoning restrictions are being adopted for tall apartment buildings and individual houses, and the new industrial area is to be located on the outskirts of the city.

(12) Kalinin (formerly Tver) (56°52'N, 35°54'E). Kalininskaya Oblast', RSFSR. Population: 216,100 in 1939; estimated at 216,000 in 1941. (FIGURES VIII-48 and VIII-119, *74*)

(a) Importance.—Kalinin is an oblast capital and is located on an important double-track railroad. It has a number of industries, including at least four textile mills.

(b) Physical characteristics.—The city is located on both sides of the Volga and on both sides of its right and left tributaries, the T'maka and Tvertsa rivers, respectively. The main portion (also the older) is on the right bank of the Volga. Zavolzhskaya, on the opposite bank, is of more recent origin. The urban area is about 16 square kilometers (6.2 square miles). Elevation varies from 120 meters (394 feet) on the river banks to points up to 130 meters (427 feet) in the northeast and west, and up to 140 meters (459 feet) in the south.

The cathedral, numerous churches, and monasteries are of possible use as landmarks.

(c) Transportation.—The double-track Oktyabr'skaya Railroad is of major importance. Other traffic passes through the river port (5), over the six highways which radiate from the city, and through the airfield (17). The total air facilities comprise one large airfield capable of accommodating heavy bombers and two fighter landing fields.

The streets are generally formed in gridiron sections modified by the curves of the rivers. The oldest section (east of the T'maka river) has two diagonal streets radiating from the monumental civic center. The main street (Sovetskaya Ulitsa) is part of the Moscow – Leningrad highway. Entering the city from the east, it passes through the old section, turns sharply northward to cross the Volga by a bridge (4); it then resumes its *westward* direction. This bridge is reported to be the Lt. Shmidt bridge, formerly located in Leningrad but dismantled and reerected in 1947.

(d) Industry and commerce.—The chief industry is the manufacture of textiles (12, 18, 19, and the unlocated *Pervolotskaya Manufaktura* mill). In addition to the identified industries (FIGURE VIII-48), there are a number of sawmills and a newspaper printing plant.

Storage space includes a munitions dump.

(e) Billeting and hospitals.—Structures suitable for billeting (other than those identified) include two hotels, the old palace, a state theater and state museum, a city park, the Pedagogical Institute, and a military aviation school and barracks. The only prewar hospital is an oblast institution.

(f) Utilities.—Kalinin has two thermal electric power plants. The thermal plants use peat as fuel and have a total capacity of 34,000 kilowatts. One additional power plant is located at a silk combine. One of the city plants, No. 8, is in the northwestern section (3).

(g) Communications.—In addition to postal service, the city has telephone and telegraph connections. Wireless facilities include one radio broadcasting station and a radio-telegraph station.

(h) War damage and reconstruction.—Kalinin, destroyed by fire in 1763 and subsequently rebuilt on a more modern plan, became part of the battlefield during the German offensive in the autumn of 1941 and received considerable damage before the German retreat.

(13) Voroshilovgrad (formerly Lugansk) (48°35'N, 39°18'E). Voroshilovgradskaya Oblast', Ukrainian SSR. Population: 213,000 in 1939. (FIGURES VIII-49 and VIII-119, *201*)

(a) Importance.—Aside from its status as an oblast capital, Voroshilovgrad is the most important industrial and cultural center of the Donets Basin.

(b) Physical characteristics.—The city is located at the confluence of the Ol'khovaya and Lugan' rivers, 16 kilometers (10 miles) south-southwest of the Lugan' and Severnyy (North) Donets confluence. The city area is about 48 square kilometers (19 square miles). Elevation varies considerably. The river is about 40 meters (131 feet) above sea level. Various sections of the urban area have elevations as follows: northwest, 45 meters (148 feet); southwest, 60 meters (197 feet); southeast, 120 meters (394 feet); east, 90 meters (295 feet); and north, 140 meters (459 feet).

(c) Transportation.—Double-track railroad lines radiate from the city in three directions. Highways are less adequate, there being only one road of importance (west-southwest). Six minor roads lead to small adjacent communities. Traffic bottlenecks are formed by sharp turns in city streets and by the highway bridges (2, 6, and 13). No information is available concerning the present condition of four prewar airfields (two civilian and two military). Two additional airfields were built during the war.

(d) Industry and commerce.—Prewar industries were largely metallurgical, including the *Molotov* metal works, the *Yakubovskiy* tube-rolling mill (welded tubes), and various metal-fabrication plants. The new *Oktyabr'skaya Revolyutsiya* locomotive plant was built to replace an older installation. Other fabrication plants produced airplanes (one factory), mining equipment, files, and nails. A number of shops provided repairs for railroad cars.

War production facilities, other than previously mentioned, included three munitions plants, ammunition factory No. 60 which employed 1,500 workers in 1937, a powder and explosives plant, and a poison-gas plant.

The city had a newspaper printing plant, enamel works, distilleries, and stone quarries. Various plants produced or processed leather, shoes, rubber goods, textiles (woolen goods, clothing), felt, furniture, coke, and canned meats.

A state grain farm is located in the vicinity. Storage facilities included a grain storehouse, a munitions storehouse, and an artillery arsenal. The present status of productive and storage facilities is unknown.

(e) Billeting and hospitals.—Buildings of possible use for billeting included several of military use (infantry barracks, an armored vehicle and automobile pool, and an aviation school). Public buildings included hotels, structures of the People's Educational Institute, a theater, an amphitheater, and a museum. No information is available on hospitals.

(f) Utilities.—The city's one power plant has a capacity of 25,000 kilowatts.

(g) Communications.—In addition to postal service, the city is served by the telephone-telegraph network, to which it is linked by three lines: east-northeast to Kondrashevskaya, south to Lutugino, and west to Radakovo. A new automatic telephone exchange was completed in June 1945. It also has an intrastate radio-telegraph station, a commercial airport radio station, and two other radio stations.

(h) War damage and reconstruction.—The extent of war damage or subsequent reconstruction is unknown.

(14) Vil'nyus (Vilnius, Wilno, or Vilna) (54°41'N, 25°16'E). Lithuanian SSR. Population: 209,500 in 1939; estimated at 250,000 in 1946. (FIGURES VIII-51 and VIII-119, *92*)

(a) Importance.—Vil'nyus, the capital of Lithuanian SSR, is primarily an administrative center. It has good transportation and a number of industries.

(b) Physical characteristics.—The city is located at the confluence of the Neris and Vileyka rivers south of the upper Lithuanian lake region. It lies in a large depression which runs northeast – southwest. The city elevation varies from 60 meters (197 feet) in the south to 80 meters (262 feet) in the north, while the heights outside the city reach an elevation averaging about 130 meters (427 feet).

The urban area covers about 30 square kilometers (12 square miles). It includes an old section, formerly walled, at the foot of Vilnius Castle Mountain; this has narrow crooked streets. More regular patterns and wider streets have been provided in the newer areas (FIGURE

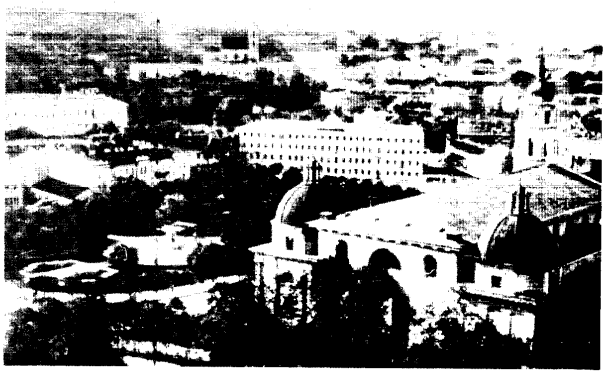


FIGURE VIII-50. *Vil'nyus.*
View southwestward. City in annexed area, predominantly middle European in characteristics. Prewar.

VIII-50). The suburbs include Pohulanka, to the west; Snipiszki, Tuskulanum, and Zwierzyniec, to the north; Antokol and the residential area of Tuskulanum, to the northeast.

(c) Transportation.—Rail lines provide exit in four directions (three by double track). One double-track line leads to Novaya Vileyka, 9 kilometers (6 miles) eastward; this is a junction for two single-track lines, one to Daugavpils (173 kilometers, or 107 miles, north-northeast), the other to Molodechno (190 kilometers, or 118 miles, east-southeast).

Highways extend in six directions. There are three bridges on these main routes; and there are a number of street bridges. Through traffic is impeded at the many turns and at the various bridges.

The Porubanok airfield, which serves both military and civilian functions, is located to the south.

(d) Industry and commerce.—Prewar industries included railroad car shops (one with foundry), artillery shops, and factories producing farm equipment and radio apparatus. Building materials produced locally were glass, bricks, lumber (six sawmills), and veneer. Food-processing plants included military bakeries, cereal mills, and a slaughterhouse. There were nine printing plants. The *Baltija* fertilizer plant was equipped with a fat refinery. Other plants produced or processed chemicals and pharmaceuticals, textiles, leather goods, brushes, linen, matches, cardboard, paper, soap, turpentine, pitch, lubricants, and tobacco.

Prewar storage facilities included munitions dumps and various storehouses for military supplies, some underground.

(e) Billeting and hospitals.—Structures existing before the war included barracks used by artillery, engineers, and air force, and eight others of unknown use. A number of universities, museums, the city hall and other administrative buildings, a prison, a stadium, the Bishop's palace, and various drill fields have not been identified.

In addition to at least six hospitals and clinics (2), the city had an orphan's home.

(f) Utilities.—Prewar utilities included a water supply system (12), a sewer and drainage system, a gas works (9), and a municipal power plant of 4,800 kilowatts capacity (6). Two small power plants supplied current of 500 and 6,300 volts.

(g) Communications.—Prewar facilities included a post and telegraph office (13) and a broadcasting station (8). A new automatic telephone system is reportedly in operation and planned to serve 10,000 subscribers by 1950.

(h) War damage and reconstruction.—In addition to previously mentioned structures, Vil'nyus had 12,083 dwellings in 1931. Information as to the extent of war damage and subsequent reconstruction is not available.

(15) Taganrog (47°12'N, 38°55'E). Rostovskaya Oblast', RSFSR. Population: 188,800 in 1939; estimated at 190,000 in 1941. (FIGURES VIII-52 and VIII-119, *254*)

(a) Importance.—Taganrog is a port city on the high north shore of Taganrogskiy Zaliv (gulf), which is part of the Sea of Azov. Its harbor facilities and location on two double-track rail lines make it an important transshipment point.

(b) Physical characteristics.—The city is roughly triangular in shape and covers an area of approximately 19 square kilometers (7 square miles), with elevations varying from sea level to 20 meters (66 feet) in the north and 40 meters (131 feet) in the west. Streets follow a modified radial pattern, leading from a circular park near the harbor in the southeastern point of the city. The prewar city had a large number of churches and chapels. The Uspenskiy Cathedral (7) and the lighthouse (2) were outstanding landmarks.

(c) Transportation.—There are three rail lines from Taganrog, two of which are double-track. Both double-track lines make use of the same station (25).

The highway from Mariupol' enters the city from the west and then turns southeast toward the harbor area. The two other highways have only a few turns, but cross two bridges as they enter the town from the north. All three have one or more railroad grade crossings, and there is a bridge over the Kasperovskaya Balka (gully) (27). A dirt road runs westward to coastal villages.

The port area is located in the southeastern part of town. Its water approach is by a winding channel of 5-meter (16-foot) depth. It is usually closed by ice from mid-December to mid-March. The prewar harbor consisted of three basins. The Petrovskiy Basseyn, which served the grain trade, had a water area of 6 hectares (15 acres). The Novyy Basseyn (New Basin), serving the grain and coal trades, had a 12-hectare (30 acre) area. A repair basin, with shipbuilding and repair yard, had a 28-hectare (69-acre) water area, 3.5-meter (11.5-foot) depth, and a 2,000-meter (6,562-foot) wharf. Facilities for the port area as a whole included movable loading apparatus, a 40-ton floating crane, and repair facilities for vessels up to 300 tons and up to 46 meters (150 feet) in length.

The port is believed to have been almost completely demolished. The extent of reconstruction is not definitely known. The most recent information is dated January 1944. At that time a larger repair yard was reportedly under construction. The port had an estimated monthly capacity of 2,000 to 3,000 tons, and a 6,000-ton capacity was expected by June.

There were three prewar airfields, one in the western section, one in the northwest, and one 15 kilometers (9 miles) outside the city to the west. During the war another landing ground and an auxiliary seaplane base were added.

(d) Industry and commerce.—Facilities for handling heavy transportation equipment are located at railroad car-repair shops and at the shipbuilding and repair yard.

Several prewar plants produced or were subsequently converted to production of war matériel. A tool factory, which employed 8,000 persons in 1937, produced machine guns, gun parts, motorcycles, and instruments. The *Krasny Kotel'shchik* boiler factory, the largest in the USSR made bombs during the war. Despite war damage, its

capacity had been almost fully restored by February 1947. One factory, which employed 10,000 men in 1938, produced 80 airplanes monthly. An aircraft engine factory was producing 5-cylinder air-cooled engines as late as December 1946. One munitions plant has not been identified by specific product.

Certain other plants are not known to have produced directly for war purposes. One produces farm machinery. Another, with 4,000 workers, produces hydraulic presses and machines for food and chemical industries. The *Andreyev* metal working plant, which employed 12,000 workers and produced at a rate of 80,000 tons annually in 1936, has completely regained its prewar capacity.

Other products include leather (2 factories), building materials, and foodstuffs (canned meats, fish, spirits, and flour).

The city formerly had a printing plant.

Taganrog was a commercial center for grain, coal, lumber, agricultural products, and fish. Storage facilities at the harbor included space for grain (30,000 tons), coal (8,000 square meters, or 9,568 square yards), petroleum (unknown capacity) and other cargo (3,000 square meters, or 3,588 square yards). An artillery depot (29) was located in the city. Most, if not all, of these installations were destroyed and information regarding their present status is not available.

(e) Billeting and hospitals.—Potential prewar billeting facilities, other than those identified, included hotels, an aviation technical school, and various public buildings. Prewar medical facilities included a hospital and medical station (24), the present condition of which is unknown.

(f) Utilities.—Taganrog had a good water supply system in 1943, the date of the most recent detailed information. The principal source was the Mius river, from which water was pumped to a tank 3.5 kilometers (2.2 miles) east of Nikolayevka, thence to pumping and filter stations (39). Daily capacity was about 10,000 cubic meters (2.6 million gallons). The old pumping station (40) was used for peak loads only. Three deep wells equipped with pumps provided an additional 3,000 to 4,000 cubic meters (800,000 to 1,000,000 gallons) daily. The city's daily consumption (through the piped system only) was about 14,000 cubic meters (3.7 million gallons). Water pipes are laid 1.75 to 2 meters (5.75 to 6.6 feet) below the surface. Public faucets are numerous, particularly in the southeastern section. In other sections most houses are connected to the system.

The low southeastern section has about 40 wells which in an emergency could supply the population of that section (about one-third of the total). Water is drawn from horizontal limestone beds at slightly above sea level. It is very hard, somewhat salty as a result of sea-water infiltration, and sometimes unsafe to drink. The water level lies about 4 to 6 meters (13 to 20 feet) below ground level.

Few wells are found in the sections of higher elevation. Most houses in these sections are provided with cisterns to hold reserves, largely carried over from the March and April snow melt. Mean annual precipitation is 385 millimeters (15.16 inches). Cistern water is unsafe for consumption.

Sea water constitutes a large part of the supply of some industrial plants, especially the leather factories. It has also been used by the city population when other sources were inadequate. Danger of impurity is less during the winter, although salt content goes up at that time. Salt content in the gulf is normally very low (between 1.0% and 1.2%), but varies with the amount of Don river drainage and wind direction. Strong westerly winds raise the level of the gulf as much as 2.5 meters (8.2 feet) and increase salinity not only in the gulf, but also in the city wells.

Water supply mains reportedly had been extended to the quays in January 1944.

A prewar thermal power plant (14), utilizing coal, had an output of 10,000 to 25,000 kilowatts. Three power plants were operated as part of various industrial installations. There was also a gas plant (26).

(g) Communications.—Prewar facilities for communication included a post office, four radio stations including radio-telegraph and ground-to-ship service.

(h) War damage and reconstruction.—The port area was reported to have been almost totally destroyed. Although some specific reconstruction projects previously noted are known to have been accomplished, information on progress as a whole is lacking.

(16) Nikolayev (Nikolaev, or Vernoleninsk) (46°58'N, 32°00'E). Nikolayevskaya Oblast', Ukrainian SSR. Population: 167,100 in 1939. (FIGURES VIII-53, and VIII-119, *240*)

(a) Importance.—Nikolayev, capital of the Nikolayevskaya Oblast', is the largest shipbuilding and industrial city on the Black Sea, as well as an important shipping center.

(b) Physical characteristics.—The city covers an area of 15 square kilometers (6 square miles) on the left bank of the Yuzhnyy Bug (Southern Bug) river 21.6 kilometers (13.5 miles) above its mouth.

(c) Transportation.—Nikolayev has a good harbor. Before the war, it accommodated both naval and civilian vessels and had a floating dry dock for seagoing vessels. During the war, submarines were based in the harbor. The harbor had quays (23, 27), totaling 3,270 meters (10,728 feet) in length for petroleum, oil, coal, freight and merchandise, repairs, and mines. There were 24 loading places and an oil-transfer point. Although the Bug river freezes over about 84 days annually, shipping lanes are kept open by ice breakers.

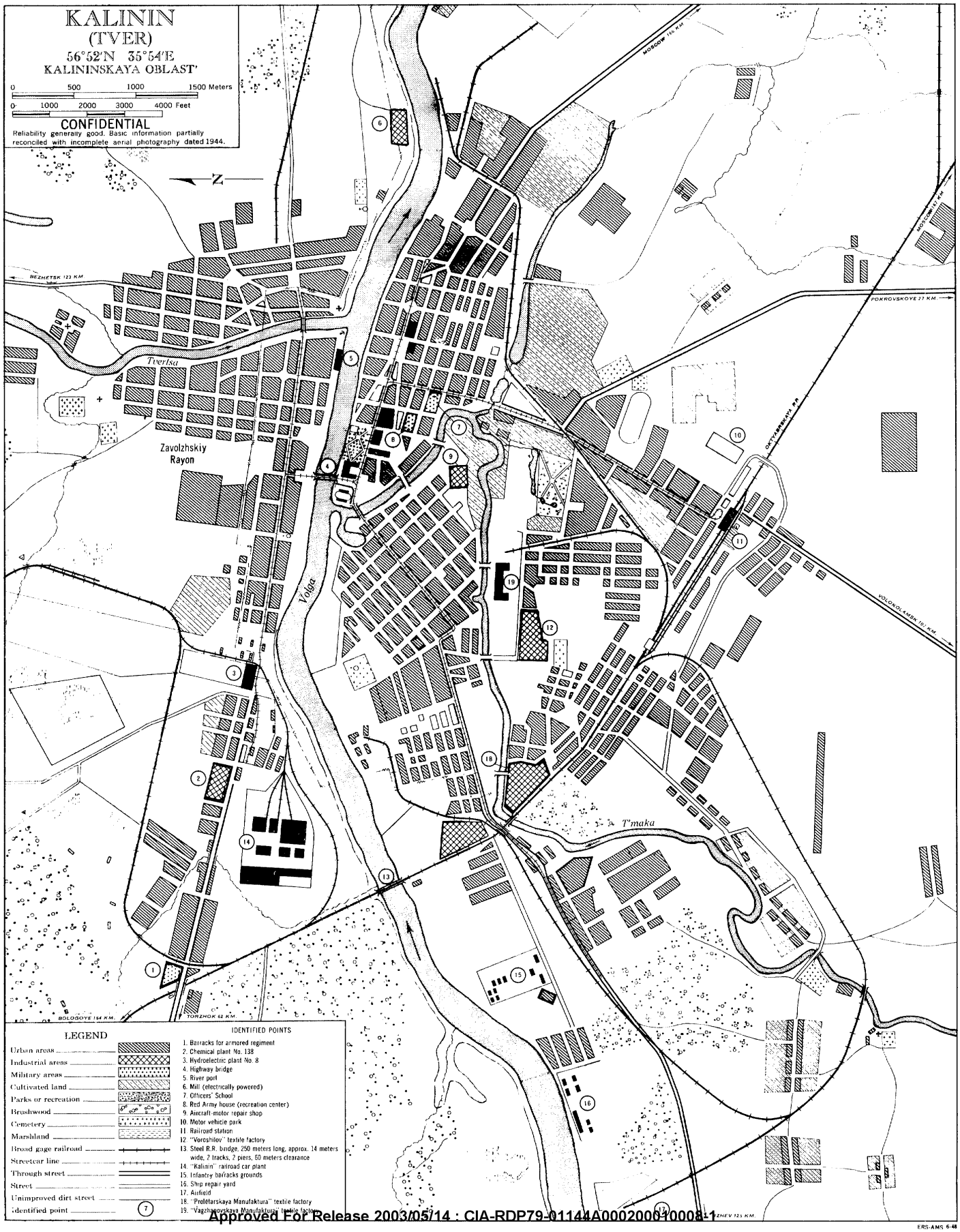
Besides being an important river port, Nikolayev is the terminus for four railroad lines and four main highways. Air facilities include a landing field at (2), three other fields, and two seaplane bases, one with hangar (59). The city has an electric street railway system.

(d) Industry and commerce.—The industry of the city was concentrated chiefly on the building and repairing of naval vessels and the manufacture of guns and munitions. Other industries produced railroad equipment, farm machinery, textiles, leather, soap, and foodstuffs. The extent of war damage is not known, but it is reported that two shipyards, the *Andrey Marti* (46) and the 61 Communards (10), have been rehabilitated and were in operation as of April 1947.

Nikolayev was a transshipment point handling ores, grain, sugar, coal, lumber, petroleum products, machines, and building materials.

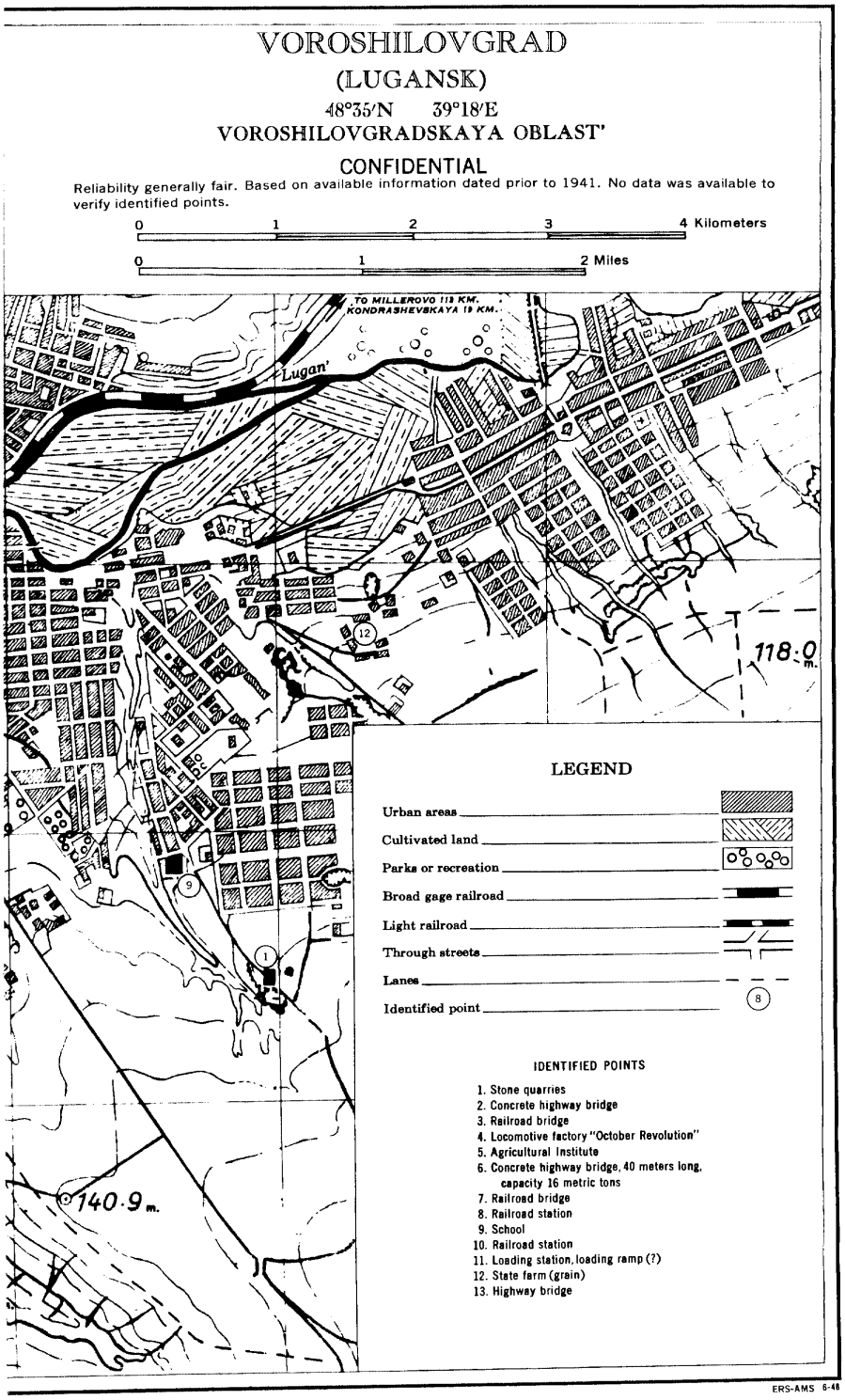
Storage facilities were primarily used for grain, oil, and munitions. At the harbor there were two grain elevators (16, 18) having a 54,000-ton capacity; two wooden storehouses with a 5,770-ton and a 1,650-ton capacity (17); four covered wooden storehouses, each having a 1,360-ton capacity; and a river shipyard used for the storage of arms and munitions. Oil tanks, with a capacity of 8,000 tons with pipe-line connections to the mainland, were located one kilometer off shore. Fifty to 60 tons of oil per hour could be pumped into the tanks.

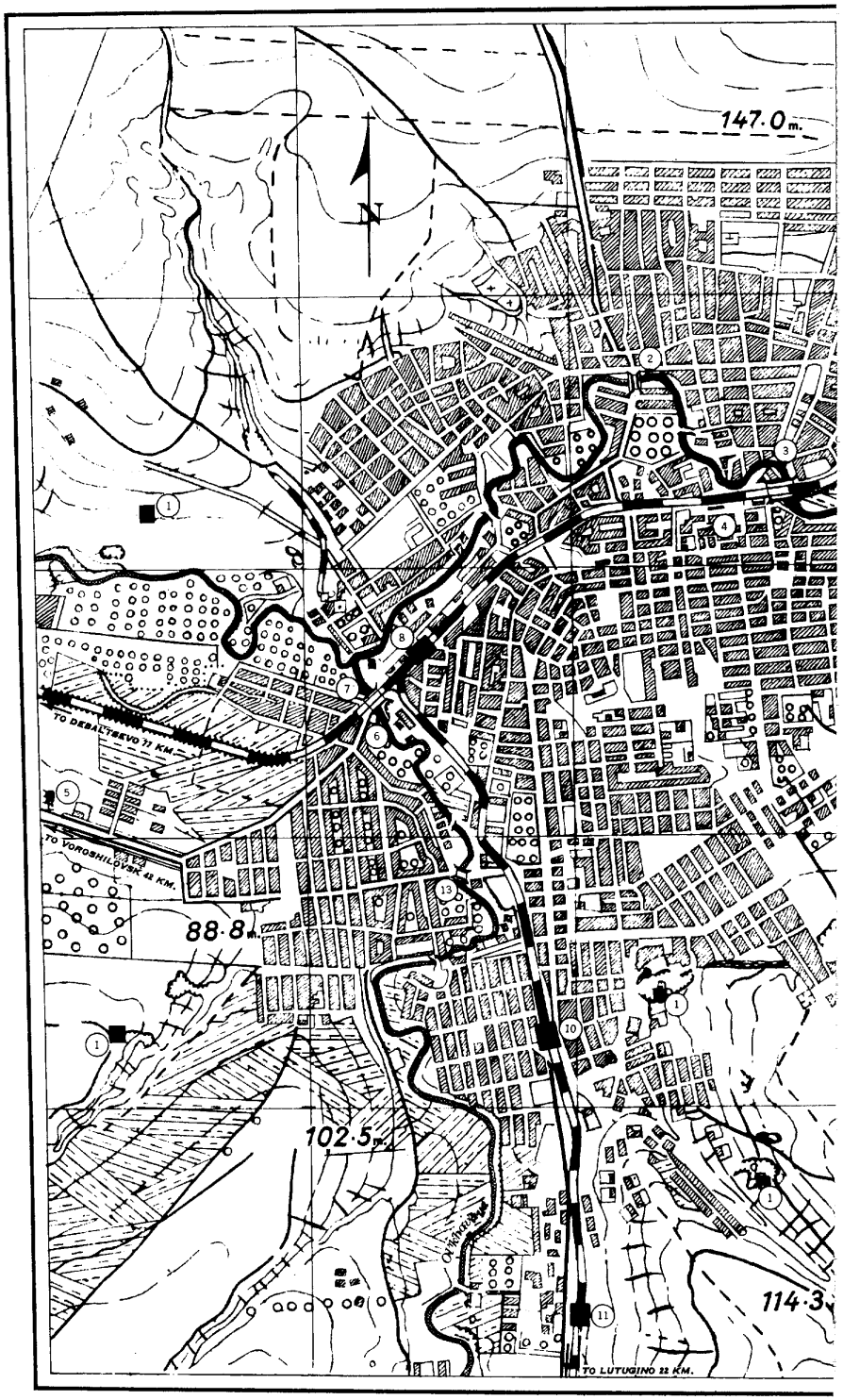
FIGURE VIII - 48
KALININ CITY PLAN
JANIS 40
CONFIDENTIAL



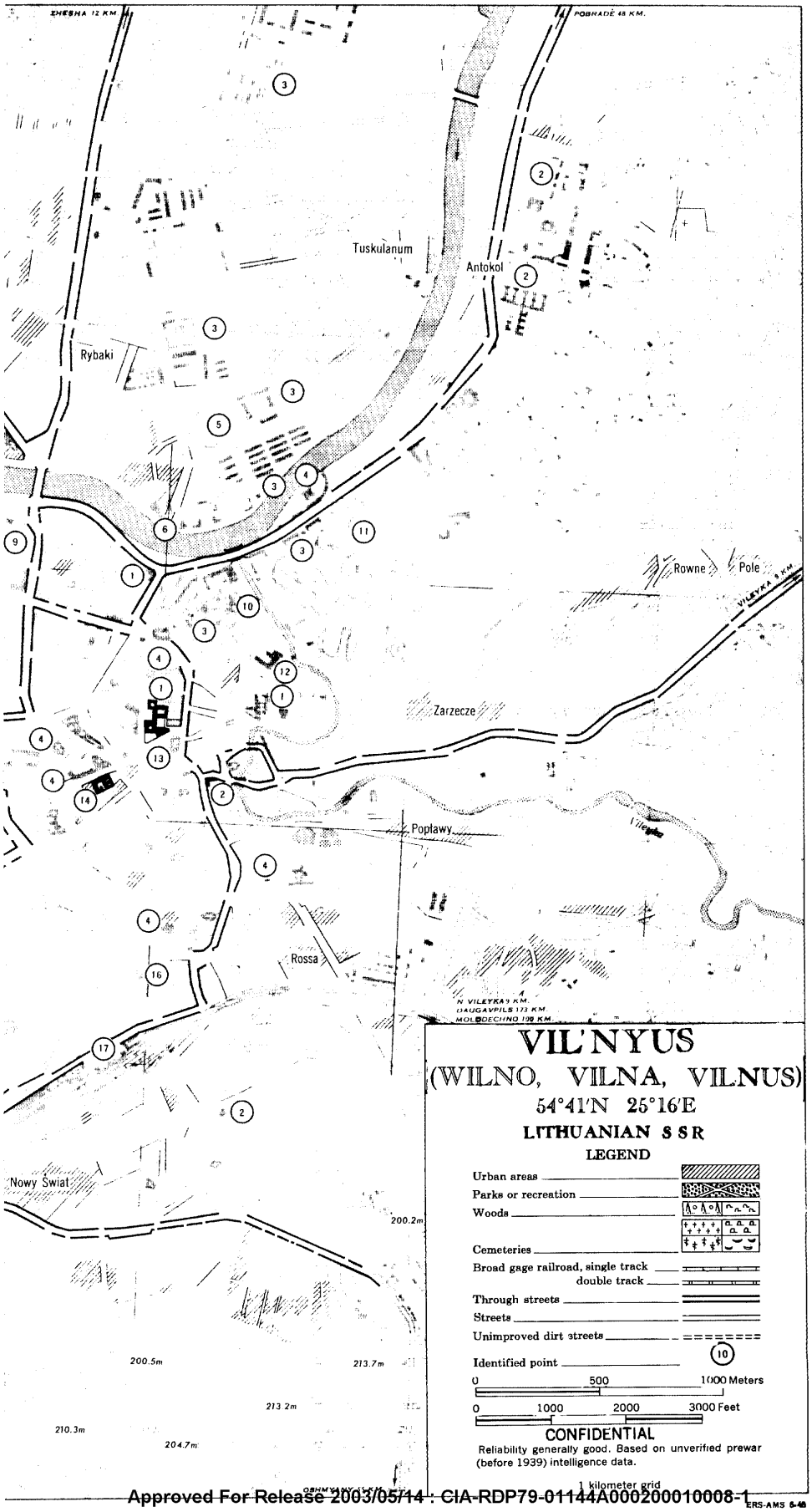
ERS-AMS 6-48

FIGURE VIII - 49
VOROSHILOVGRAD CITY PLAN
JANIS 40
CONFIDENTIAL





VIL'NYUS CITY PLAN
JANIS 40
CONFIDENTIAL



VIL'NYUS

(WILNO, VILNA, VILNUS)

54°41'N 25°16'E

LITHUANIAN S S R

LEGEND

Urban areas
Parks or recreation
Woods
Cemeteries
Broad gage railroad, single track
double track
Through streets
Streets
Unimproved dirt streets
Identified point (10)

0 500 1000 Meters

0 1000 2000 3000 Feet

CONFIDENTIAL

Reliability generally good. Based on unverified prewar (before 1939) intelligence data.

1 kilometer grid

ERS-AMS 6-46

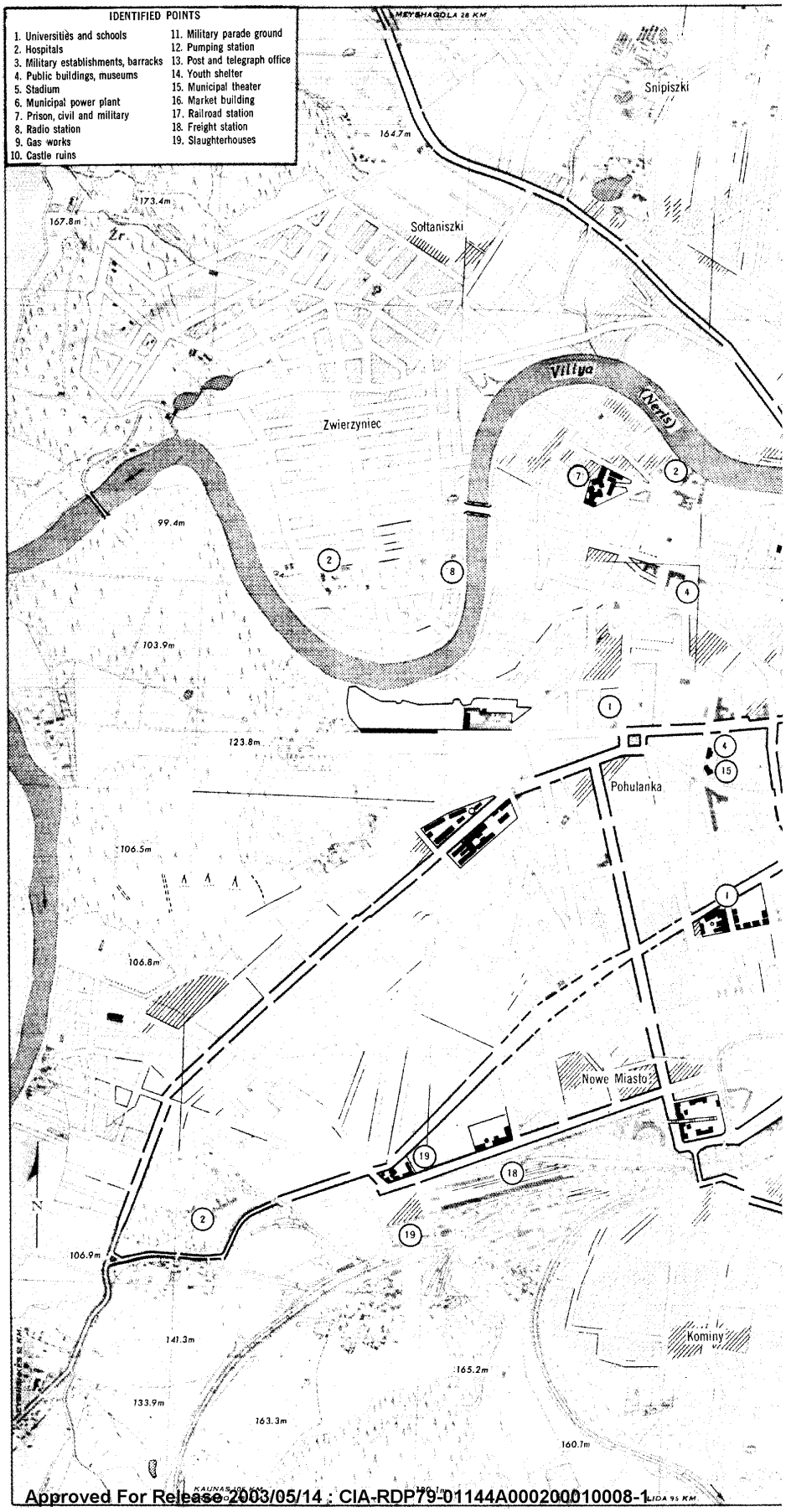
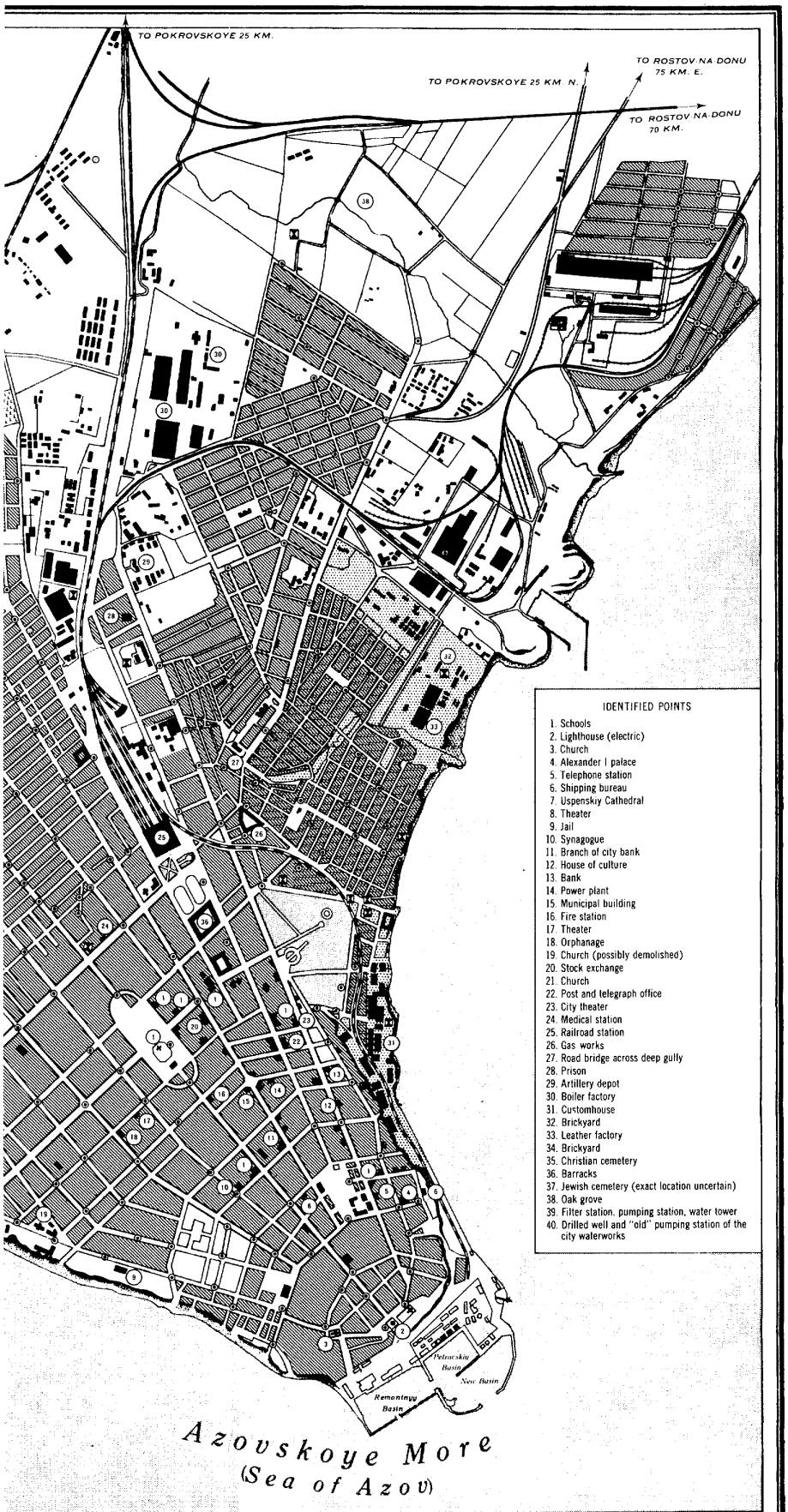


FIGURE XIII-52
TAGANROG CITY PLAN
JANIS 40
CONFIDENTIAL



ERS-AMS 6-48

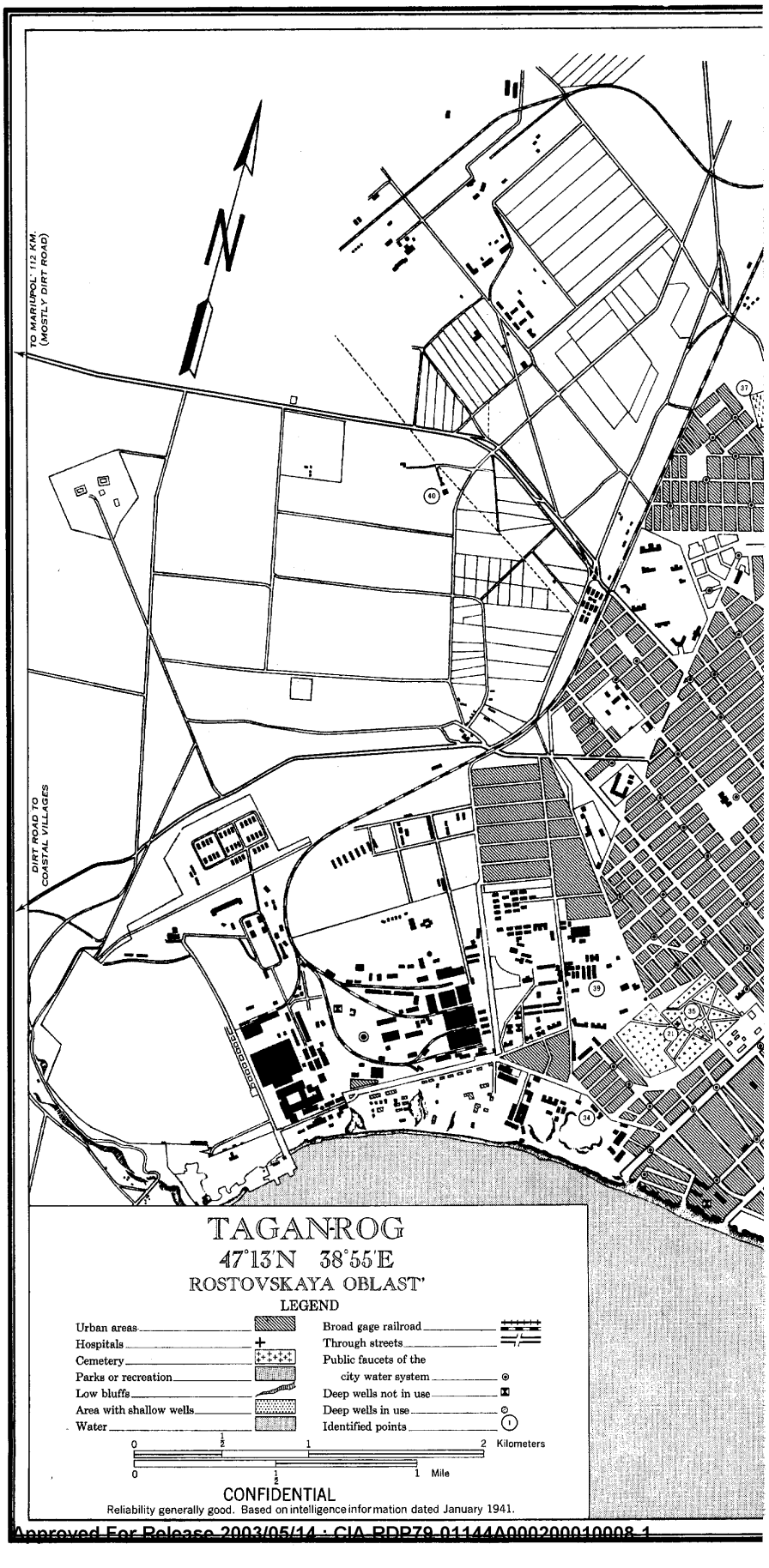
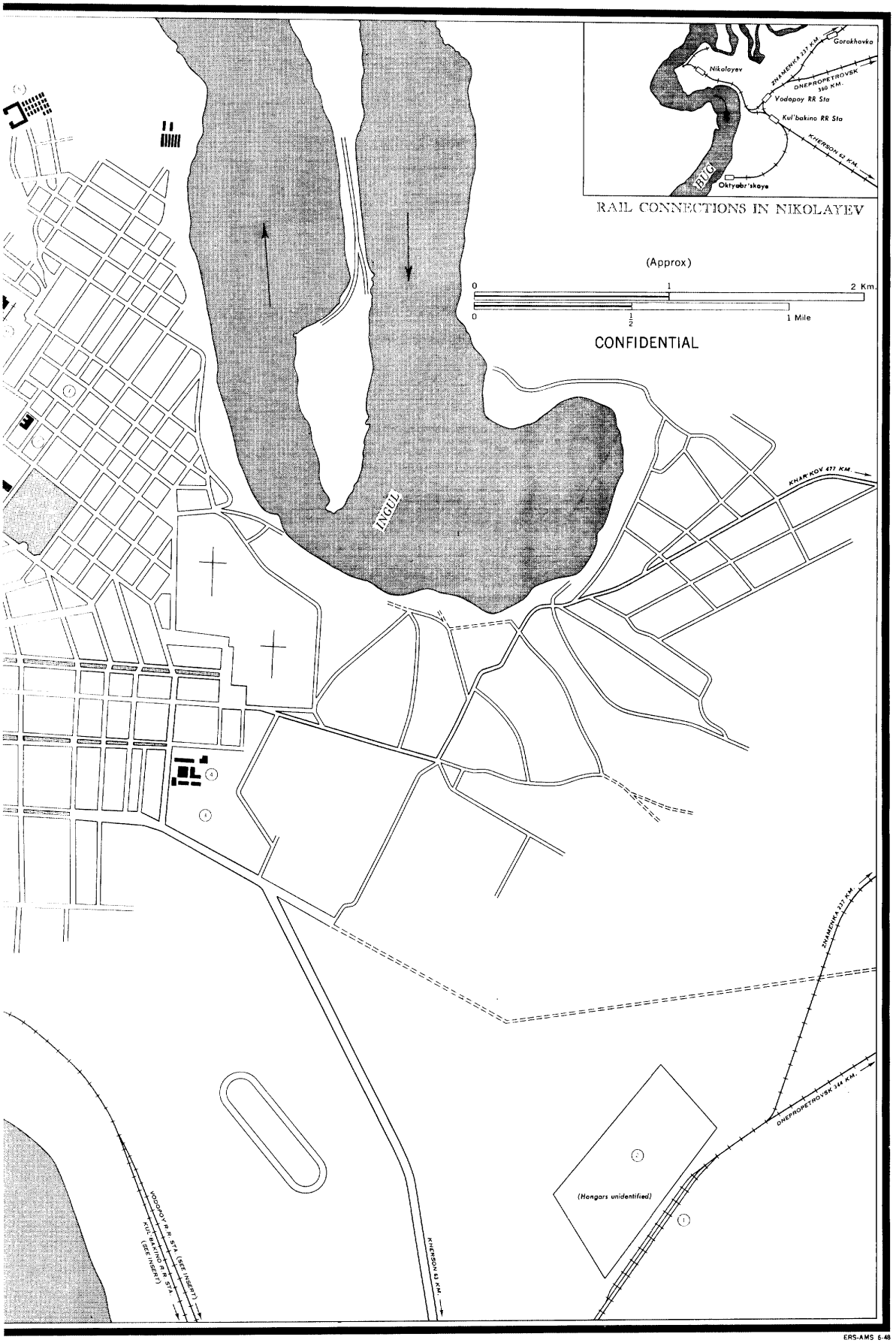


FIGURE VIII - 53
NIKOLAYEV CITY PLAN
JANIS 40
CONFIDENTIAL

NIKOLAYEV
(VERNOLENINSK)
(NIKOLAEV)

46°58'N 32°00'E

NIKOLAYEVSKAYA OBLAST'



LEGEND

- Military areas
- Parks or recreation
- Cemetery
- Broad gage railroad, single track / double track
- Through street
- Street
- Unimproved or dirt street
- Identified points ⑤

Reliability generally good. Basic information partially reconciled by aerial photography dated 1941.

IDENTIFIED POINTS

1. Railroad station, probably Vodopoy
2. Commercial and Military Airfield, 2 long hangars for 30 light planes (approx)
3. City motor pool
4. Slaughter and packing house
5. Artillery barracks
6. Supply sheds for garrison
7. Streetcar barn
8. Hospital
9. Storehouse for arms and ammunition
10. "The 61 Communards" shipbuilding plant
11. Barracks with drill field
12. Infantry barracks
13. Bread factory (supplies entire city)
14. Electric power plant
15. Transmitting station with 2 masts
16. New grain elevator, 41,000 (metric?) ton capacity, largest building in harbor area
17. Old grain storehouses
18. Old elevator
19. Flour mill
20. "Dormash" factory, street building materials and vehicles
21. Hotel
22. Newspaper printing plant
23. Quay for mines and coal (2.5 meters)
24. Floating wooden bridge (capacity 3 to 4 tons)
25. Powder magazine for division (underground with embankment)
26. Supply sheds for garrison
27. Quay for handling coal and general cargo. Repair quay
28. Broadcasting station
29. Admiralty
30. Main post office and telephone office
31. Telegraph office
32. Hospital
33. State bank
34. Trade union building
35. Hotel
36. Shoe factory
37. Hotel
38. Hospital
39. Market with large cold storage
40. Tractor and motor repair shops
41. Hospital
42. School
43. Electric power plant
44. Harbor office; customs and pilot station
45. Mole with wooden sheds. Inner side wharf for large ships
46. "Andrey Marti" shipbuilding plant with steel and rolling mills and foundries
47. Railroad station, yards, storage sheds, locomotive sheds and water tower, workshops for rolling stock
48. Deep well with pumping station
49. "Selintern" factory, ship signal devices and armatures
50. Water pump station with high tower
51. Barracks for armored battalion
52. Secret police prison and iron foundry
53. Powder magazine
54. Training ground for reserve officers and wooden building
55. Floating wooden bridge (logs chained together with removable part)
56. Wharf
57. Boat repair shops
58. Naval aviation school, residences with gardens and parks
59. Naval airplane hangar (red sandstone, bowstring truss roof)

ERS-AMS 6-48

(e) Billeting and hospitals.—Billeting facilities included hotels (21, 35, 37), barracks (5, 11, 12, 51), museums, and schools (42). The city had at least four hospitals (8, 32, 38, 41).

(f) Utilities.—The water supply system included a pumping station and tower (50). Two thermoelectric power plants (14, 43) totaling 37,000 kilowatt capacity are reported.

(g) Communications.—The city is on a main telephone-telegraph network (30, 31). Radio facilities include two intrastate radio-telegraph stations, two coastal radio stations, a commercial airport station, and in prewar times a broadcasting station (28).

(h) War damage and reconstruction.—The city was occupied by the Germans from about July 1941 to May 1944. Little is known of the extent of war damage or reconstruction.

(17) Smolensk (54°48'N, 32°03'E). Smolenskaya Oblast', RSFSR. Population: 156,700 in 1939; 156,000 (estimated) in 1941. (FIGURES VIII-54 and VIII-119, *103*)

(a) Importance.—Smolensk is the capital of the Smolenskaya Oblast'.

(b) Physical characteristics.—The city has an area of 19 square kilometers (7 square miles) and is built on both sides of the Dnepr river 85 meters (279 feet) above river level. The older central section on the left bank is partially surrounded by the old city wall (10). Elevation varies from 220 meters (722 feet) in the southern and western sectors to 225 meters (740 feet) in the northern and eastern areas.

(c) Transportation.—Railroad lines run to Sukhenichi, Bryansk (146), Vyaz'ma (104), Orsha (102), and Vitebsk (101). A road connects the city with the Minsk-Moscow superhighway, which runs 8 kilometers (5 miles) north of the city. Smolensk is also the intersection of highways to Vyaz'ma, Roslavl', Orsha, Vitebsk, Demidov, and Dukhovshchina. Prewar Smolensk had an airfield to which another has been added. In 1945, a bus line began operating between the two sections of the city.

(d) Commerce and industry.—Prewar industries were chiefly machinery, munitions, and other metalworking plants. There were also two printing plants, five brickyards, and industries producing consumer goods: furniture, textiles, and shoes. The city is in an important flax-growing area and had at least one flax mill before the war. Peat cutting is also a local industry. In late 1946, shoe factories were being rehabilitated and new ones built. More detailed information regarding the extent of reconstruction is unavailable.

Storage space consisted of a munitions dump and an airplane pool.

(e) Billeting.—Billeting facilities included university buildings, barracks, schools, hotels, and various public buildings, all or most of which were destroyed.

(f) Utilities.—The city had a power plant which was destroyed.

(g) Communications.—Prewar communication facilities included post, telegraph, telephone, and radio-telegraph offices, and a broadcasting station. Present radio facilities include one broadcasting station and two other radio stations.

(h) War damage.—About 90% of Smolensk was entirely destroyed. It is reported that only 40 structures of all types were left standing and that 4,000 trees were destroyed.

(18) Tallinn (Reval) (59°27'N, 24°45'E). Estonia. Population: 146,000 in 1939; estimated at 150,000 in 1946. (FIGURES VIII-55 and VIII-119, *27*)

(a) Importance.—Tallinn, the capital of Estonia, is an important seaport, usually navigable throughout the winter without aid of ice breakers. In addition it is an industrial center, especially for the manufacture of machinery and textiles.

(b) Physical characteristics.—The city is situated on the steep coast of the Tallinna Laht (Gulf of Reval), which lies off the Gulf of Finland. The oldest part of the city is a walled area, with narrow, crooked streets, and is located on a limestone plateau about 80 meters (262 feet) above the beach level. Sections of more recent origin, with broad, regular streets and parks, lie along the beach shelf at an elevation of around 6 meters (19 feet). The urban area is about 16 square kilometers (6.2 square miles).

Landmarks include the Cathedral, Cathedral Castle, Nicholas Church, and St. Olaf's Church with its 124-meter (407-foot) tower.

Nõmme, a residential area to the southwest, is reportedly consolidated with Tallinn. This area had a population of 15,110 in 1934.

(c) Transportation.—Rail lines (two of narrow gage) extend from the city in three directions and are served by four stations. Five highways provide connections south of the city. Several damaged bridges on the Leningrad highway were being repaired and enlarged in January 1947.

The port is closed only during severe winters. Prewar facilities were distributed among three harbor areas: the old, the new, and the fishing harbors. The old harbor had four basins and covered an area of 28.3 hectares (69.9 acres). Its quays totaled 12,470 feet in length. It had four floating docks of various sizes (1,000; 1,800; 2,000; and 3,000 tons). The new harbor, located 1.5 nautical miles west of the former installation, had two basins with quays totaling 4,790 feet, and covered an area of 32.9 hectares (81.3 acres).

The prewar port (including all three harbor areas) covered a total of 60 hectares (148 acres) and had quays with a total length of 6 kilometers (3.7 miles), all served by rail connections. Depths varied from 5.5 to 10 meters (18 to 33 feet). Four floating cranes and four floating docks were reported.

Postwar reports indicate that the port is functioning well, though considerable repair work has yet to be performed. Only 25% of the warehouses were in usable condition. The western pier was out of operation, but divers were at work removing obstructing sunken vessels. There was alongside water depth up to 31 feet. Only a few cranes were in operation, including one floating and one 80-ton crane. The port had daily arrivals of merchant vessels from Stettin and served as base for approximately 70 small craft, including mine sweepers and coastal vessels. The entire port area is restricted and under close guard.

Tallinn has two airfields, a seaplane and an auxiliary seaplane base. One of the airfields includes also a seaplane base.

Electric trains were in operation to the suburbs by January 1947 or earlier.

(d) Industry and commerce.—Prewar industries included production or processing of the following: metals, cotton woven fabrics, rope, leather (tanning), footwear, furniture, plywood, matches, wood pulp, paper (two fac-

tories), varnish, cement, bricks, chemicals, sausages, confectionery, lumber (fire sawmills), and cigarettes (five factories). Food products were provided by a dairy, a municipal slaughterhouse, a distillery, and a number of cereal mills. There were three shipyards.

The *Marskoy Zavod* (*Tallina Meretehas,* in Estonian) shipyard received no war damage. It is located west of the port area, to which it has recently been connected by a railroad line. The yard has facilities for repair of ships of large and medium size, in addition to special equipment for ship demagnetization.

The *Suta Remont* (*Tallinn Sadamatehased,* in Estonian) shipyard, in the port area, has a foundry and can repair small vessels.

Tallinn has a number of machinery plants, including the *Kopli, Etkol,* and First machinery plant. The *Punane Krull* (Red Krull) plant (9), formerly the *Krull* plant, employs 2,000 workers in repair of locomotives. The *Ilmarine* plant (2), which produces oil-drilling machines, streetcars, and other items, is one of the largest in Estonia. It was in full production on a postwar date. The *Volta* plant (8) produces principally machines for the Donbass coal industry; operating at capacity, it delivered over 300 units in 1946. Plant No. 9 of the State Industry produces spare parts for oil-drilling machines.

A cement factory was under construction near the city power plant after the war. The *Punane Ret* (formerly *Ret*) radio plant (25) was in postwar operation. No information is available on the present status of the *Vega* wagon plant or the *Union* shoe factory.

Four textile mills were in operation by January or February 1947. The *Marat* yarn mill had received recognition in a government award of October 1946. The *Balti Manufaktur* (formerly *Tallinna Sitsivabrik*) cotton mill, which had a prewar employment of 2,000, was employing 260 workers in three shifts. The *Punane Koit* (Red Dawn), (formerly *Kilgas*), mill was damaged but had been repaired and was producing yarn and stockings. The *Juuni Voit* (June Victory) mill was also in operation.

Some other plants in operation in 1947 were the *Vineeri Ja Mööbli Vabrik* (plywood and furniture), the *Viko* soap factory, the *Ahto* tobacco factory (reconstructed early in the year), and the *Pöhjala* rubber factory.

According to information of May 1946, a new factory with a floor area of 25,000 square meters (269,000 square feet) is to be erected on the site of the *Dvigatel'* railway car factory. Its principal products will be machine tools, hoists, and condensers.

Prewar storage facilities were provided for fuel, powder, and other explosives. The main munitions dump was on Paljassaar.

(e) Billeting and hospitals.—Prewar structures of possible use for billeting included three museums, four hotels, 23 schools, and a number of barracks. The Red Army made wartime use of the Dvigatel' plant, an insane asylum, and underground quarters on Paljassaar. The 40 officers of Soviet Regimental Headquarters (No. 291) were billeted on the *Tartu Maantee* (Tartu Road), at a point south of the streetcar crossing. In January 1947, the bulk of this regiment was billeted in barracks in the southern section of town. A second regiment was billeted at an unknown place.

In addition to the identified hospitals (18, 32, 35), two hospitals, two clinics, and an insane asylum are located at unknown points. One hospital (35) for contagious diseases has 350 beds.

(f) Utilities.—The city waterworks (36) makes use of a gravity tower.

The city power plant (west of the port area) was lacking in modern equipment at the close of the war. Equipment from a dismantled Berlin plant was received in December 1946 and installation began in the following month. The new plant has an installed capacity of 20,000 kilowatts and makes use of oil shale as fuel.

The city also has a gas works.

(g) Communications.—Tallinn has three post and telegraph offices, one broadcasting station, and three short-wave transmitters.

(h) War damage and reconstruction.—The susceptibility of the city to bombing and conflagration is indicated by the fact that 6,680 of its 8,627 dwellings were of wooden construction. In Nõmme, prewar wooden dwellings numbered 2,369 out of a total of 2,466.

Industrial plants received wartime damage of unknown extent. A number of plants had resumed operation in 1947.

(19) Simferopol' (44°58'N, 34°03'E). Krymskaya Oblast', RSFSR. Population: 142,700 in 1939. (FIGURES VIII-56 and VIII-119, *245*)

(a) Importance.—Simferopol', the capital of the Krymskaya Oblast', is located in a flourishing fruit-growing area.

(b) Physical characteristics.—Simferopol' lies on the Salgir river in the northern foothills of the Khrebet Yayla, which is the second range of the Krymskiye Gory (mountains). On the left bank of the river in the north and northeast is a new section containing public administrative buildings; in the south and southeast is the old Greek-Tatar section with narrow, winding streets. A new residential area, Novy Gorod, is located on the right bank. The city covers an area of 35 square kilometers (13.5 square miles) with an elevation varying from 240 meters (787 feet) to 290 meters (951 feet). A landmark in the city was the famous White Mosque.

(c) Transportation.—The city is on the Moscow-Sevastopol' railway line which leads southwest to Sevastopol' *246* and northeast to Melitopol'. It is a junction of highways to Feodosiya (248)*, Yalta (247)*, Sevastopol', and Perekop. A small landing field is in use (18).

(d) Commerce and industry.—Industrial plants in the city included a machinery plant, an automobile repair plant, printing plants, a foundry, and industries for the production of consumer goods: textiles, furs, leather, glass, furniture, soap, tobacco, canned fruit, and flour.

The region surrounding Simferopol' is noted for the growing of fruit, especially grapes. There were several state farms in this area.

(e) Billeting.—Billeting facilities included hotels, barracks (1, 2, 6, 7, 8), museums, the university, and other public buildings.

(f) Utilities.—The city was served by a power plant with a 500-kilowatt capacity.

(g) Communications.—Communication facilities were provided by post, telephone, and telegraph offices, a broadcasting station, and an intrastate radio-telegraph station.

(h) War damage and reconstruction.—Information regarding the extent of war damage and reconstruction in Simferopol' is not available.

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* FIGURE VIII-119.

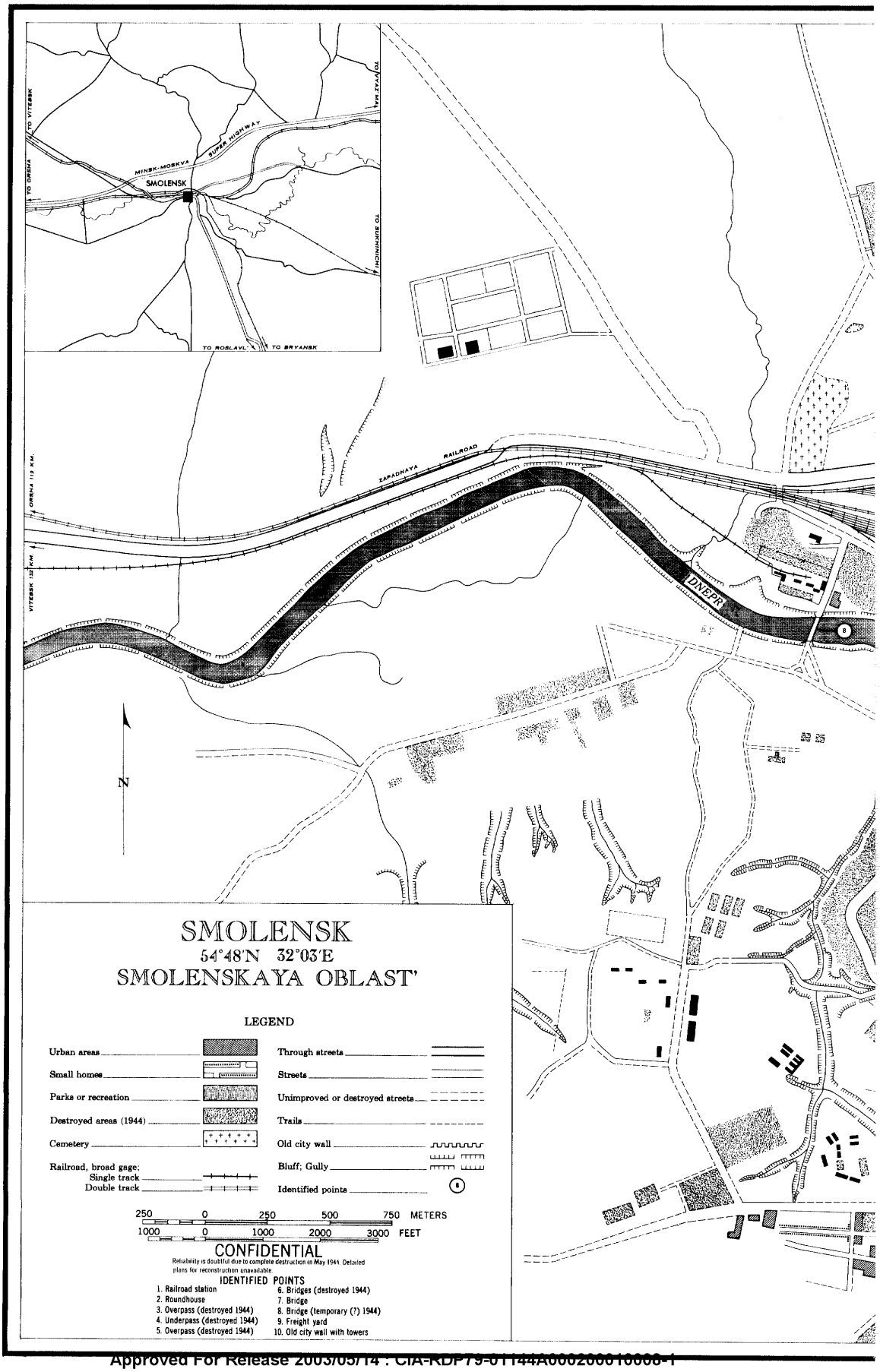


FIGURE VIII - 54
SMOLENSK CITY PLAN
JANIS 40
CONFIDENTIAL

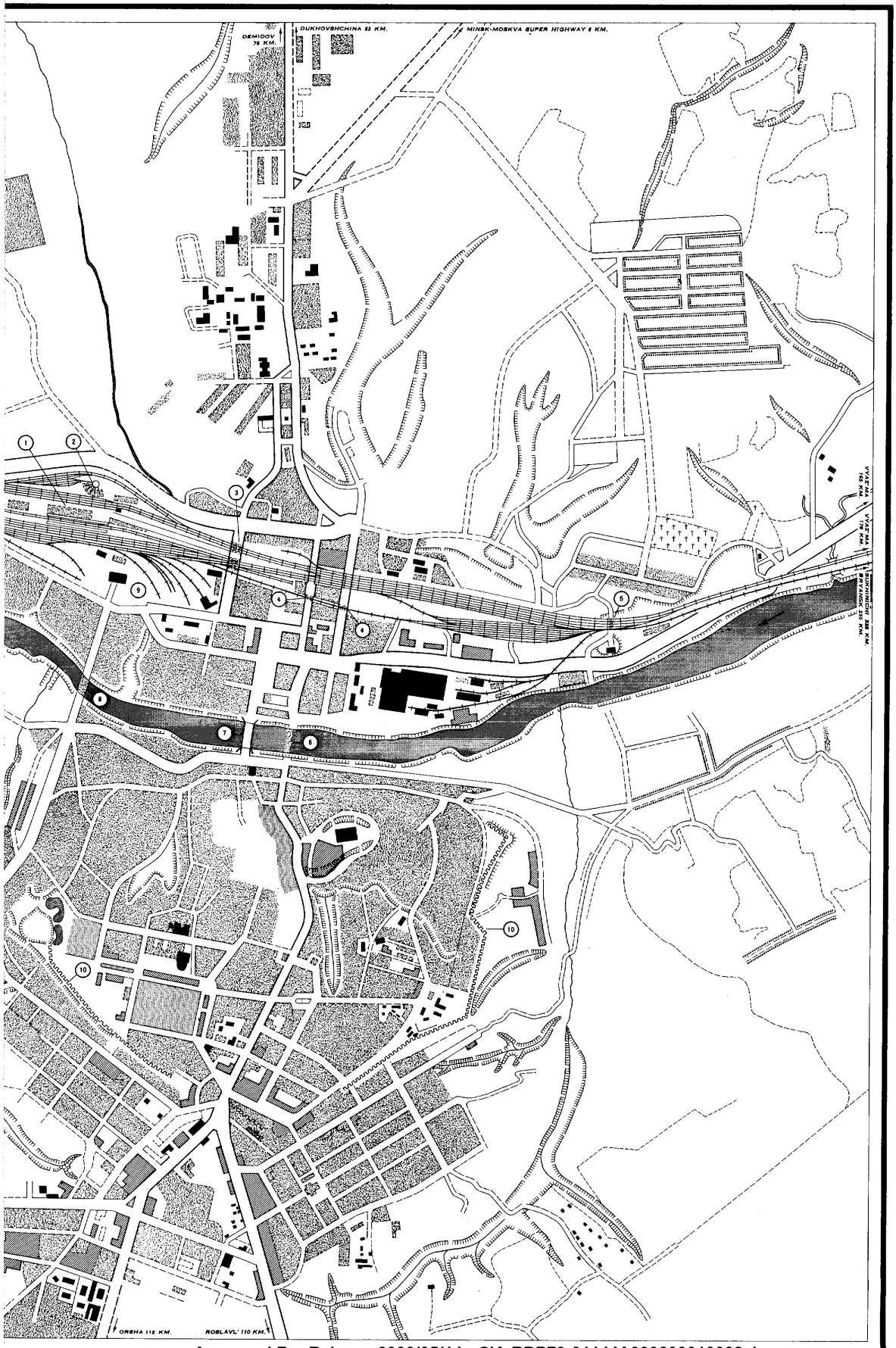


FIGURE VIII-55
TALLINN CITY PLAN
JANIS 40
CONFIDENTIAL

TALLINN
(REVAL)
59°27'N 24°45'E
ESTONIAN SSR

LEGEND

Urban areas
Waste or common land
Parks or recreation
Woods
Marsh
Broad gage railroad
Narrow gage railroad
Through streets
Excavations and bluffs
Church
Identified point

Reliability generally good. Based on intelligence information dated prior to 1943.

1 Kilometer grid

IDENTIFIED POINTS

1. Storage tanks (surface and underground) 791 cubic meters; pump capacity 3-10 cu. m /hr.
2. "Ilmarine" machinery plant
3. Oxygen and acetylene plant
4. Shipyard
5. Barracks
8. A.E.G. Volta; manufacture of electric motors and underwater sound gear
9. Krull machinery plant
10. Freight railroad station
15. Naval repair and manufacturing yard
18. Municipal hospital
19. Harbor power plant
22. Naval shipyard (new construction and repair); floating dry docks
25. Radio equipment factory
26. Insulated wire and ship cables
27. Storage tanks cap. 5,770 cu. m ; loading ramps for freight cars; pipe line for ships
32. Municipal hospital
35. Contagious hospital, 350 beds
36. Waterworks
37. Railroad passenger station
38. Ülemiste railroad station
39. Peat cutting bog
40. Highway bridge, length 9.4 m ; one span masonry arch; 5 meter roadway; cap. 15 tons
41. Highway bridge; reinforced concrete arch, three spans, 59.37 m ; 5.5 m roadway; capacity 24 tons
42. Highway bridge over canal; reinforced concrete arch, one span; 7 m roadway, cap. 15 tons
43. Railroad bridge; 27.25 m ; reinforced concrete (3 spans)
45. Road building materials plant
49. Municipal printing plant

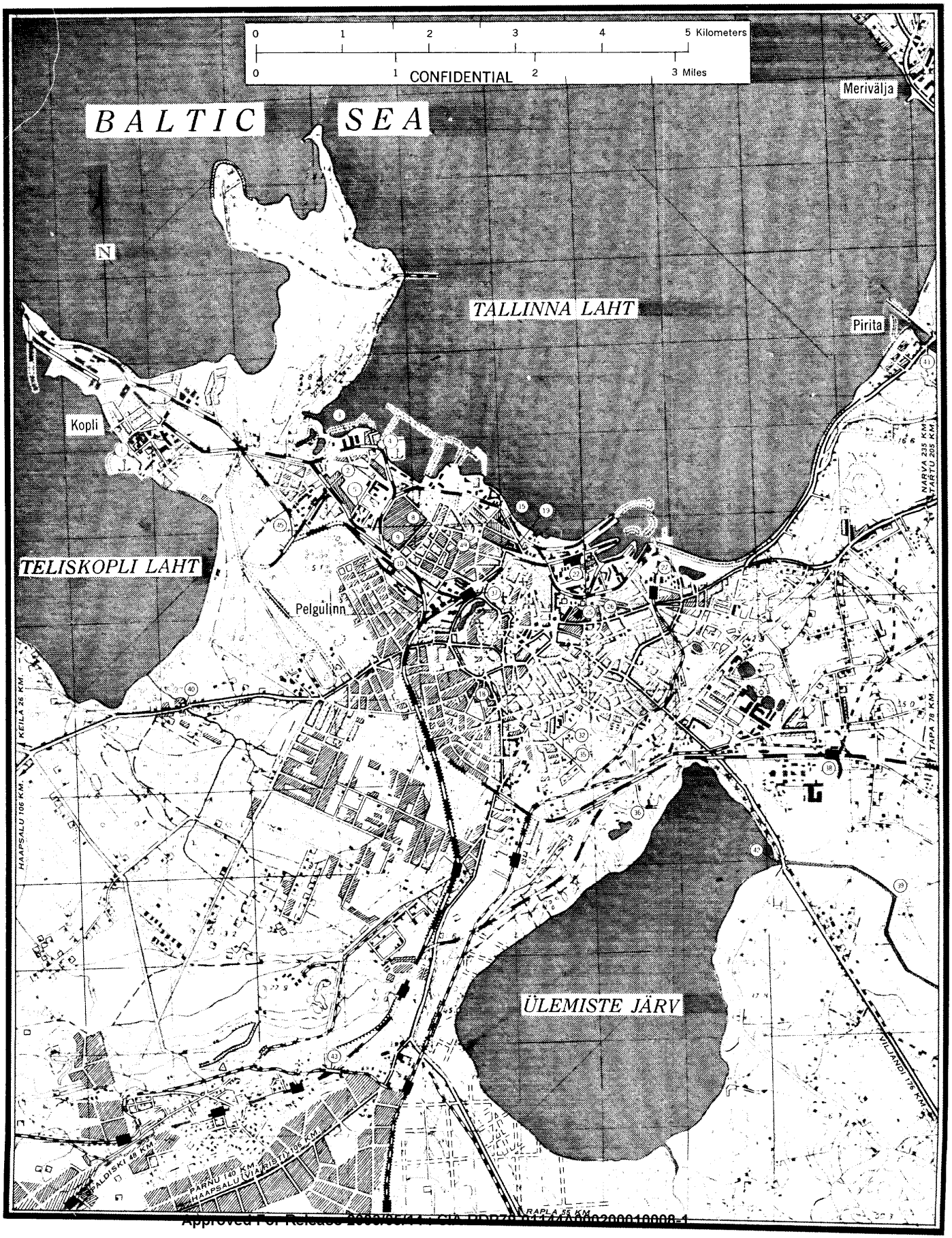


FIGURE VIII - 56
SIMFEROPOL' CITY PLAN
JANIS 40
CONFIDENTIAL

SIMFEROPOL'

44°58'N 34°03'E

KRYMSKAYA OBLAST'

LEGEND

Urban areas
Cemeteries, Christian and Moslem
Parks or recreation
Woods
Broad gage railroad
Through streets
Unfenced, dirt, unimproved streets
Identified point (2)

(Approx)

0 ½ 1 1½ Kilometers

0 ½ 1 Mile

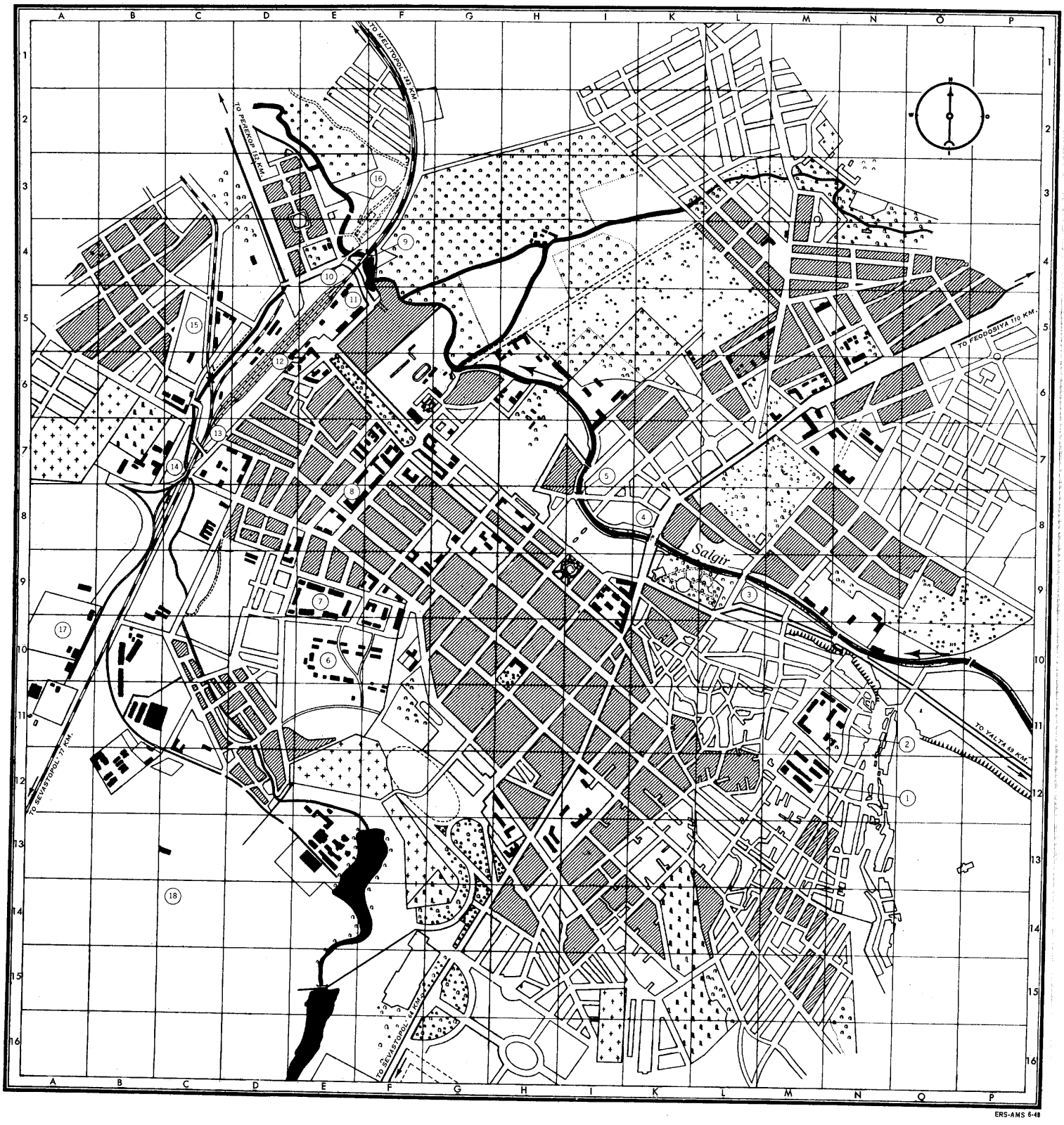
CONFIDENTIAL

Reliability generally fair. Basic information dated 1941 unverified. Extent and amount of war damage unknown.

(420 meter grid)

IDENTIFIED POINTS

1. Barracks
2. Barracks
3. Highway bridge
4. Highway bridge; short distance downstream two more bridges
5. Highway bridge
6. Barracks and storehouse
7. Barracks
8. Barracks
9. R.R. bridge, Moscow-Sevastopol' line, over the Salgir river
10. Highway bridge to sawmill over the Salgir river
11. Passenger station
12. Freight station
13. Highway overpass over R.R. to Sevastopol'
14. R.R. overpass, Simferopol' line, over a street
15. Storehouses
16. Sawmill
17. Fuel dump
18. Airfield



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(20) Kursk (51°45'N, 36°12'E). Kurskaya Oblast', RSFSR. Population: 120,000 in 1939. (FIGURES VIII-57 and VIII-119, *177*)

(a) Importance.—Kursk, the capital of Kurskaya Oblast', is the center of an important fruit-growing area in the Chernozem (black earth) region.

(b) Physical characteristics.—The major part of the city, including the older sections, is located on two hills on the west bank of the Tuskor' river. The Kur river flows through a deep, narrow valley between the hills, subsequently joining the Tuskor'. A settlement of comparatively recent origin is located on the left bank of the Tuskor' opposite the confluence of the Kur. The Tuskor' joins the Seym river at the southeastern edge of the city.

The urban area is about 36 square kilometers (13.9 square miles). Elevation varies from 150 meters (492 feet) in the south to 220 meters (722 feet) in the west. The northern and eastern sections average around 160 meters (525 feet).

The city had numerous monasteries, churches, and cathedrals before occupation.

(c) Transportation.—Kursk, being a junction of two railroad lines, has rail connections in four directions, three of which are double-track. In addition to its two passenger stations, the city has a freight station and a classification yard (both unidentified). The only through highway runs north - south. Three airfields are based on Kursk, two with permanent facilities. Although the city is known to have had a street railway system, no postwar data on its status is available.

(d) Industry and commerce.—The vicinity has vast deposits of iron ore, discovered in 1922. Anthracite deposits are located near Laurentevskiy Monastyr' about 3 kilometers (1.9 miles) from the city.

Since the discovery of iron ore, Kursk has become an important smelting center, with at least part of its facilities located in the suburb of Stary Sokol. Metal fabrication industries included the Kursk small arms factory which employs 7,200 workers, and plants manufacturing motors and machinery. Railroad-car repair shops were also located there.

Artillery arsenal No. 48 had prewar storage facilities.

Sugar beets are grown locally, and the city had a large sugar refinery. Synthetic rubber was produced at the *SK-6* factory. The prewar shoe factories were damaged but had been restored by December 1946, at which time some new facilities were under construction. Various prewar products, either manufactured or processed, included bricks, tobacco, soap, candles, furniture, leather goods, and furs.

Kursk is located in one of the most important grain areas of Europe; millet, rye, and oats are major crops. It is a rich agricultural area, with a considerable output of foods other than grains. Fruit, especially apples, were a large item of commerce. The orchards suffered considerable war damage, but rehabilitation had begun with the planting of 20,000 young trees by June 1944. Potatoes, beets, hemp, and various other products are grown. The area was also noted for its breeding of fine horses and sheep.

The principal products of export trade are grain, linen, leather, and fruit.

(e) Billeting and hospitals.—Billeting possibilities include a castle containing the oblast museum, noncommissioned officers' and military aviation schools, barracks, and five hotels.

There were four prewar hospitals.

(f) Utilities.—The city had some type of water supply system, as evidenced by its water tower. Its small power plant was destroyed but had been reconstructed by June 1944. Its capacity is 24,000 kilowatts.

(g) Communications.—The city had postal, telephone, and telegraph services. In 1944 Kursk had a telephone exchange serving 1,200 numbers. Radio facilities include a broadcasting station and a station operated in connection with the commercial airfield.

(h) War damage and reconstruction.—The city and surrounding country suffered considerable war damage. By June 1944, the reconstruction of 600 apartment houses and 22 dwellings had been effected.

(21) Chernovtsy (Cernăuti, or Czernowitz) (48°17'N, 25°57'E). Chernovitskaya Oblast', Ukrainskaya SSR. Population: 112,000 in 1937. (FIGURES VIII-58 and VIII-119, *223*)

(a) Importance.—Chernovtsy, an oblast capital, was formerly the site of a university and the cultural and economic center of Bukovina.

(b) Physical characteristics.—The city occupies an area of 49 square kilometers (19 square miles) on a terrace south of the Prut river, and averages about 60 meters (197 feet) over the Prut valley. The northern section, at the river bank, is 160 meters (525 feet) in elevation. Other sections reach higher elevations, 250 meters (820 feet) in the east 260 meters (853 feet) in the south, and 300 to 375 meters (984 to 1,230 feet) in the west.

(c) Transportation.—A double-track railroad line passes through the city, and highways extend in five directions. The worst bottlenecks in the highway traffic system are the bridges (4) and the main thoroughfare, just north of the Post and Customs Offices (9). An electric trolley system was in use before the war. The prewar airfield (19) measured 1,300 by 800 meters (4,265 by 2,625 feet) and had a hangar with capacity for 50 fighter or 25 reconnaissance planes. Another landing field has since been added.

(d) Industry and commerce.—Prewar factories produced machines, nails, chain, wire, textiles (thirty factories), rubber, varnish, wax, pharmaceuticals, soap, candles, bricks, ceramics, lumber (two sawmills), furniture, and barrels. There was also a petroleum refinery. A variety of plants produced or processed various food or beverage commodities, including sausage, beer, liqueur, chocolate, candy, pastries, vinegar, mustard, sugar (three factories), preserves, oil, and condensed milk.

Grapes and fruit are grown in the vicinity. The principal items of commerce are lumber, cattle, hides, wool, grain, and spirits.

Liquid-fuel storage facilities include both a large gasoline and crude-oil storage installation and the storage tanks used in connection with a number of large garages.

(e) Billeting and hospitals.—Structures suitable for billeting include six hotels (3) and eighteen schools (1), of which only part have been located. Not included among identified structures is the Palace of Culture, which houses business, military, and local government offices. There are also two hospitals and one sanatorium which have not been located.

(f) Utilities.—The one reported thermoelectric power plant operates on oil and has an installed capacity of 6,820 kilowatts. It supplies both city and industry.

(g) Communications.—In addition to postal service, the prewar city had a variety of telecommunications facilities. It was a main amplifier station on the telephone-telegraph network and had lines north to Ternopol', east

to Oknitsa, southwest to Berkhomet, west-northwest to Kolomyya, and to points south, southeast, and east-southeast in Rumania. Present radio facilities include one station (10).

(h) War damage and reconstruction.—Information on Chernovtsy is almost entirely prewar. The city probably suffered some damage during the German retreat, but the extent of damage or subsequent repair is unknown.

(22) Sevastopol' (Akhiar) (44°36'N, 33°31'E). Krymskaya Oblast', RSFSR. Population: 111,900 in 1939; estimated at 112,000 in 1941. (FIGURES VIII-59 and VIII-119, *246*)

(a) Importance.—Sevastopol' is the main naval base of the Black Sea Fleet. It is also a bathing and health resort.

(b) Physical characteristics.—The city is located on the southwest coast of the Krym (Crimea). The most important section is situated on high ground on the west side of the Yuzhnaya Bukhta (South Inlet). Other sections lie on the east side of this inlet and across the Sevastopol'skaya Bukhta (North Inlet) to the north and northeast. The latter inlet is 900 meters (3,000 feet) wide and extends inland 7 kilometers (4 miles), with chalk cliffs on either side. The Chernaya river flows through the deep Inkerman valley and enters the upper part of the inlet.

The city area is approximately 24 square kilometers (9 square miles).

(c) Transportation.—A rail line provided prewar service to Simferopol', 77 kilometers (48 miles) northeast. A short line ran to Mekenziyevy Gory railroad station 18 kilometers (11 miles) northeast and was connected with the Simferopol' line. Many rail facilities were destroyed in the summer of 1942. Operation was suspended by the obstruction of a tunnel (6) in November 1944, but clearance was to have been completed early in 1945.

A highway extends to the Mekenziyevy Gory railroad station. A military coast road runs north and south from the city. Two roads, which leave the town southward curve to the east and north. They meet and continue as a single highway to Simferopol'.

The natural ice-free harbor provides good anchorage for large vessels. Facilities existing in December 1943 included good wharfage and quays, three drydocks, and a floating dock for ships up to 91 meters (300 feet) in length. Naval yards formerly had five 120-meter (394-foot) shipbuilding ways. The port had been cleared of mines by July 1944.

The harbor of Balaklava is located approximately 13 kilometers (8 miles) south-southeast of Sevastopol'.

Air facilities include two airfields, one at least with barracks (28), two naval air bases with seaplane moorings (5, 8, 60, 61). Two other airfields are located in the area.

(d) Industry and commerce.—Prewar industry consisted almost entirely of naval plants producing airplanes and parts (7, 78) or explosive-type munitions (2, 80, 84). Ship facilities included repair shops (18) and three shipyards. The *Sergo Ordzhonikidze* shipyard (4a) was functioning early in 1947.

Prewar commerce was limited to the importation of machinery and coal for government installations and railroads.

Except for grain storage (36), the numerous identified storage facilities are for various forms of munitions. Not shown on FIGURE VIII-59 are one cold storage plant in Sevastopol' and warehouse space of 14,000 square meters (17,000 square yards) in Balaklava harbor.

(e) Billeting and hospitals.—Numerous potential billeting quarters have been identified. They include twelve barracks, naval office buildings, and schools (14, 52, 59). In addition, naval barracks at Balaklava harbor have 46,600 square meters (56,000 square yards) of floor space.

Four hospitals (16, 34, 39, 85), three military and one civilian, have been identified.

(f) Utilities.—Sevastopol' has two waterworks in addition to the municipal system (55). All three had been restored and a fourth was under construction in April 1947. The supply is supplemented by wells.

There were at least two prewar power stations (22, 64). Two stations were exceeding their prewar output in April 1947.

(g) Communications.—Sevastopol' is on the main telephone-telegraph network, with lines northeast to Simferopol'. It is also served by an intrastate radio-telegraph station, and five radio stations (9, 54, 74, 75, 76, 77), of which three are ground-to-ship.

(h) War damage and reconstruction.—The extent of war damage is not known in detail. Some reconstruction has been previously noted. In addition, an area of 170,000 square meters (203,000 square yards) and 3,206 houses had been rebuilt by 1947.

(23) Orël (52°58'N, 36°05'E). Orlovskaya Oblast', RSFSR. Population: 110,600 in 1939. (FIGURES VIII-60 and VIII-119, *145*)

(a) Importance.—Orël, the capital of Orlovskaya Oblast', is located in a rich agricultural area and is provided with rail and road connections valuable to commerce.

(b) Physical characteristics.—The site of Orël, at the confluence of the Orlik and Oka rivers, is known as the Chernozem, or "black earth" region.

(c) Transportation.—From Orël, double-track railroad lines lead northeast, west-northwest, and south. A single-track line runs east, subsequently connecting with a line to Verkhov'ye, 92 kilometers (57 miles) distant.

Roads extend in seven directions (north-northwest, north, northeast, east, southeast, south-southeast, and south). Outside the city, a further connection is formed to Novosil', 68 kilometers (42 miles) east. The Tula – Kursk highway (northeast to south) runs through the city without sharp turns, but a bottleneck is formed at the bridge over the Oka river. Other highways are more restricted by turns in and near the city.

The prewar city had two airfields: a commercial field with air line connections to Moscow and Khar'kov, and a military field in connection with military district headquarters. There are now seven airfields, three with permanent facilities.

A street railway system was in operation before the war.

(d) Industry and commerce.—Prewar metallurgical and metal fabrication plants included Iron Smelting Plant No. 5 producing ventilators and mine-safety equipment, the *Medved'yev* machinery plant (tractor parts, cylinder blocks, etc.), and the *Rykov* machinery plant (textile machines). There were also two printing plants (one newspaper), tanneries and shoe factories, chemical plants, distilleries (vodka and other spirits), furniture factories, flour mills, and hemp, linen, and jute mills.

Local commerce consisted largely of grain, hemp, cattle, poultry, eggs, butter, leather, wax, honey, and soap. The principal exports were eggs and poultry.

A munitions dump was reported.

FIGURE VIII - 57
KURSK CITY PLAN
JANIS 40
CONFIDENTIAL

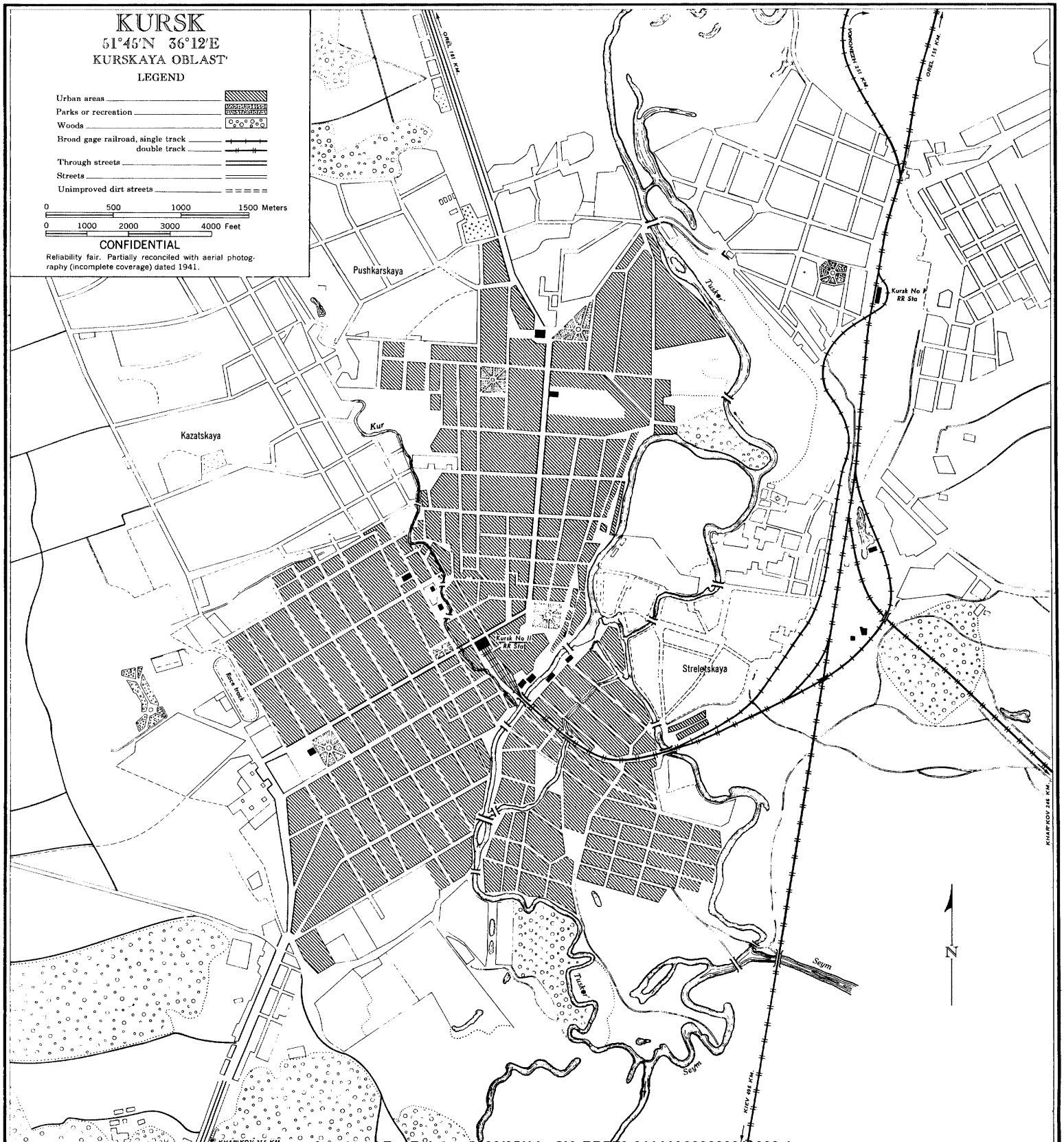


FIGURE VIII - 58
CHERNOVTSY CITY PLAN
JANIS 40
CONFIDENTIAL

LEGEND

Urban area

Cemetery

Parks or recreation

Woods

Water

Broad gage railroad

Through streets

Identified point (8)

IDENTIFIED POINTS

1. Schools
2. Barracks
3. Hotels
4. Highway bridges (two bridges)
5. Railroad bridge
6. Railroad passenger station
7. Railroad freight station
8. Jewish hospital
9. Post and Customs office
10. Radio station
11. Eye clinic
12. Children's hospital
13. Maternity home
14. Military eye clinic
15. Army hospital
16. "King Carol II" hospital
17. Sanatorium
18. Clinic for mental and nervous diseases
19. Airfield

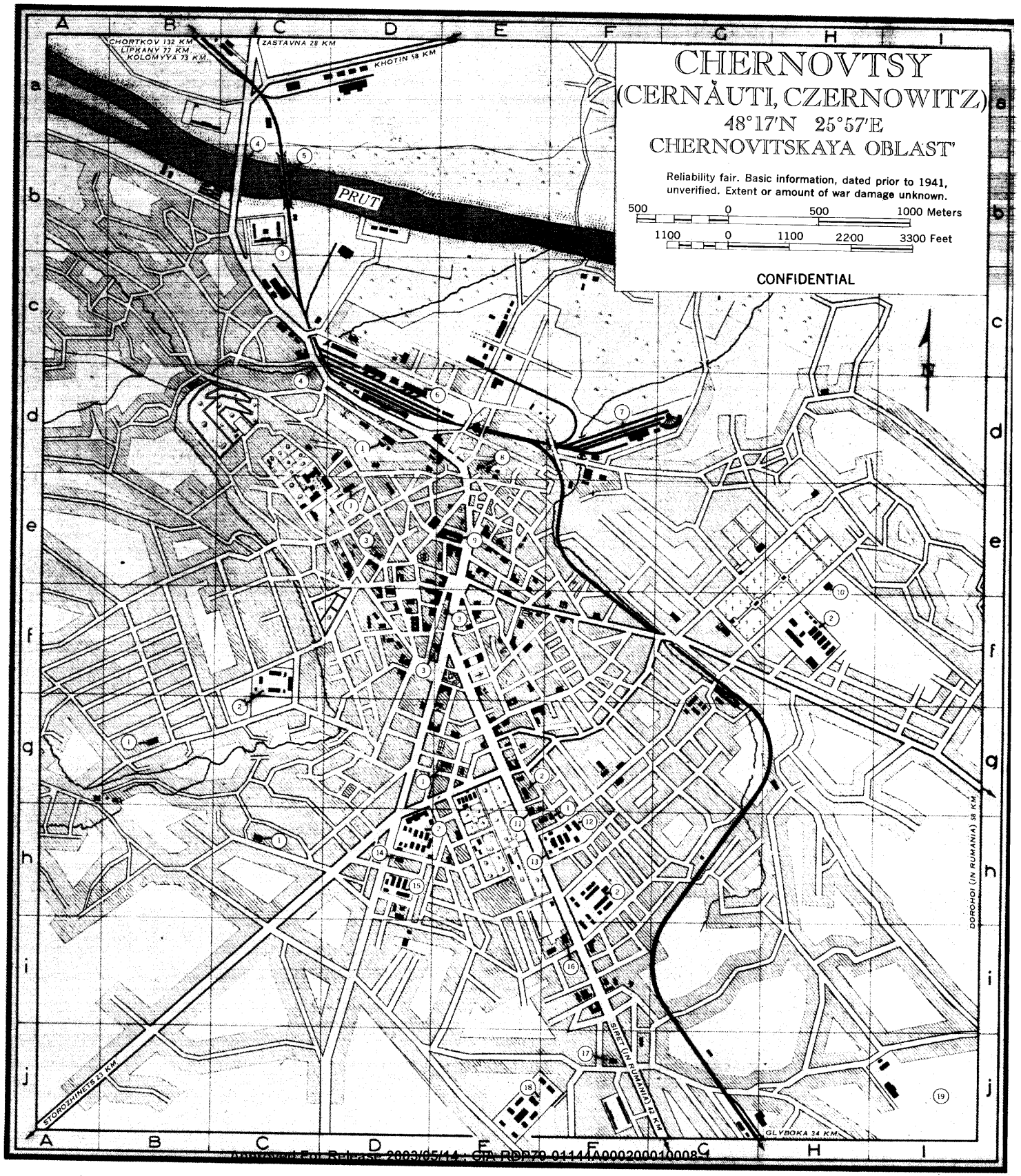
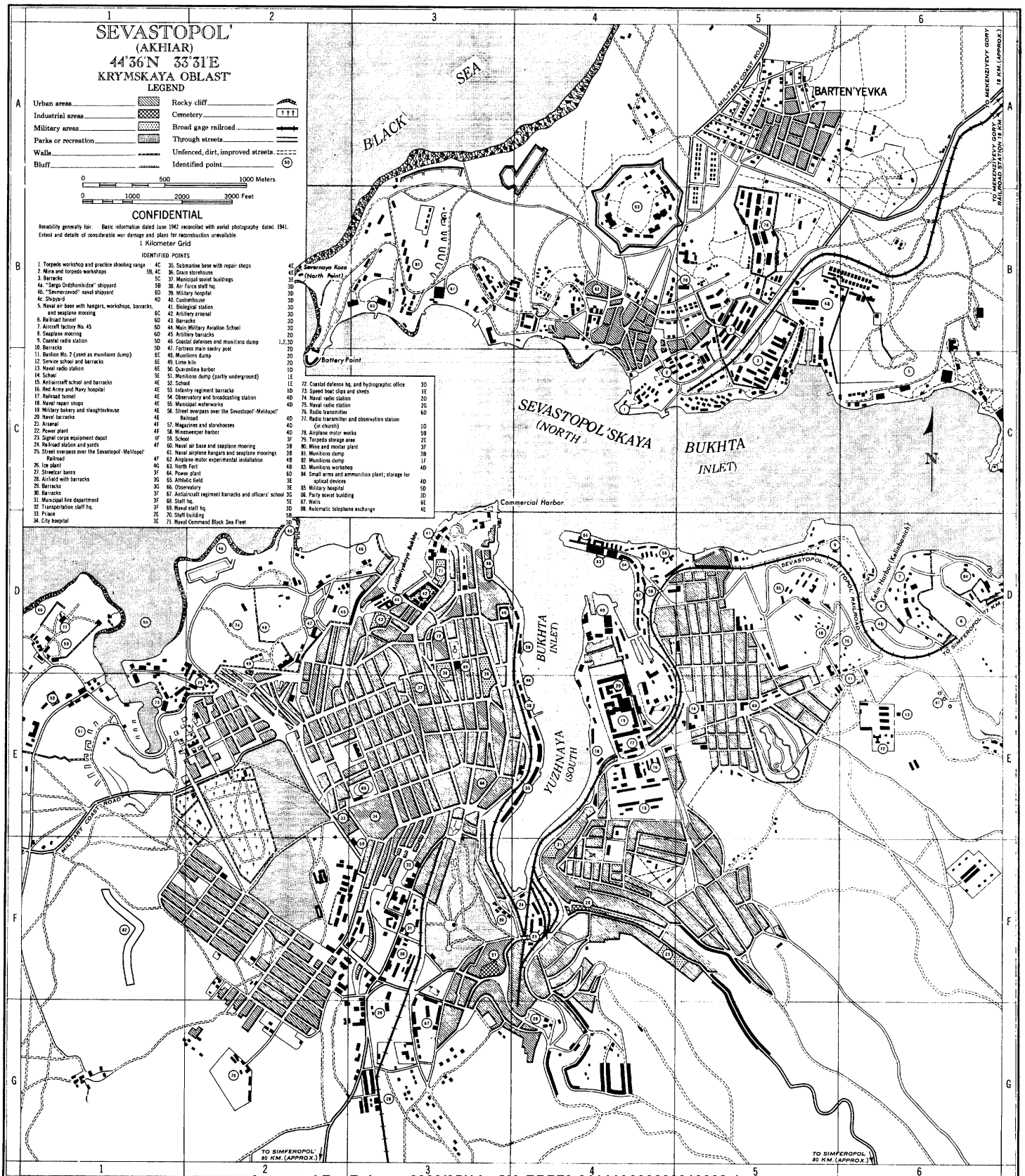
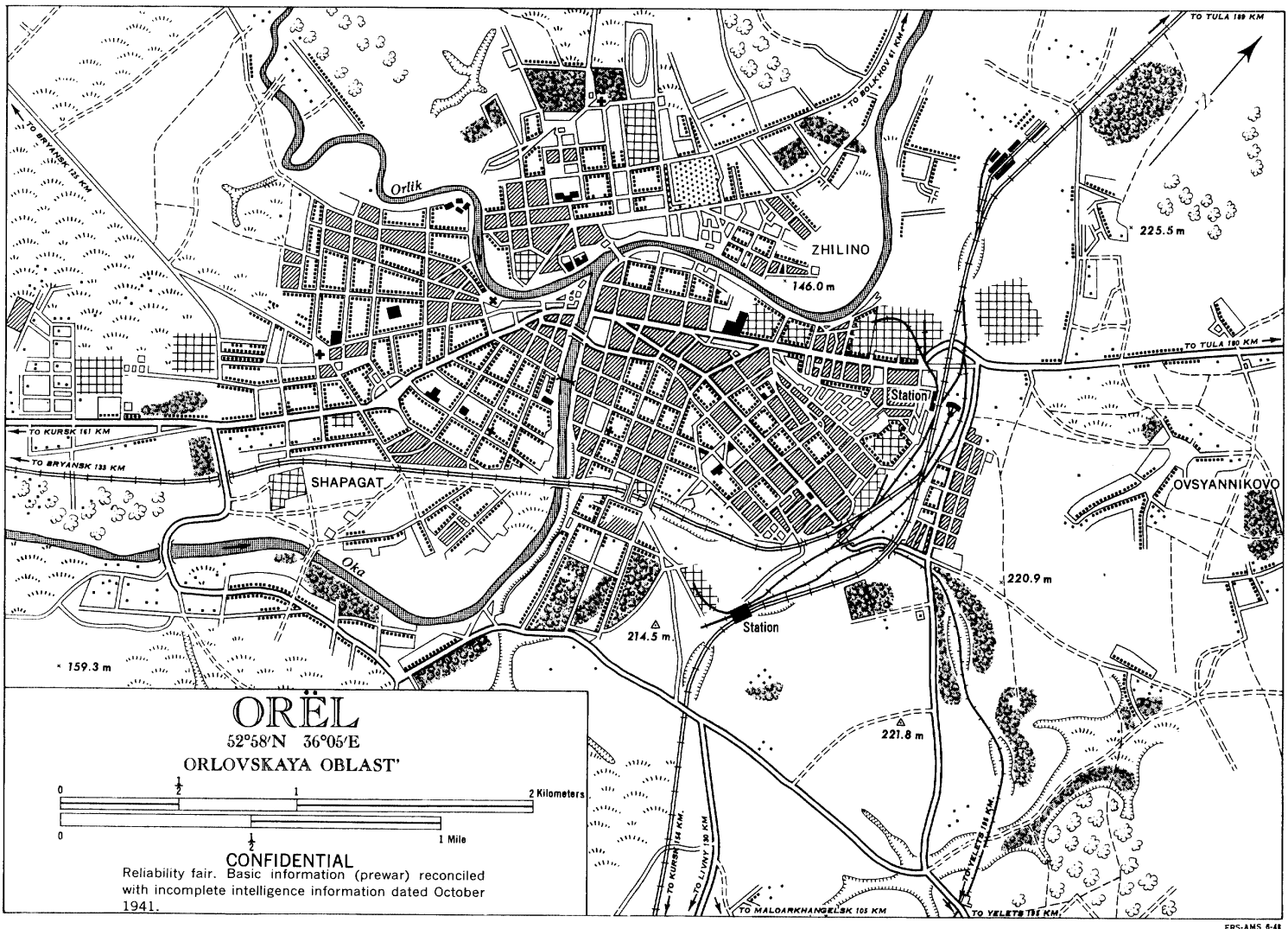


FIGURE VIII - 59
SEVASTOPOL' CITY PLAN
JANIS 40
CONFIDENTIAL



ERS AMS 6-48

FIGURE VIII - 60
OREL CITY PLAN
JANIS 40
CONFIDENTIAL



OREL

52°58′N 36°05′E

ORLOVSKAYA OBLAST'

0 ½ 1 2 Kilometers

0 ½ 1 Mile

CONFIDENTIAL

Reliability fair. Basic information (prewar) reconciled with incomplete intelligence information dated October 1941.

ERS-AMS 6-48

LEGEND

- Urban areas
- Industrial areas
- Military areas
- Gully
- Woods (parks) large, small
- Meadow
- Water
- Broad gage railroad
  - single track
  - double track
- Narrow gage railroad
- Through streets

(e) Billeting and hospitals.—Structures of possible use for billeting include four museums, three hotels, the archives (formerly a monastery), the administrative building (formerly a bishop's palace), the Frunze Tank School, and the Observers' School. There were also three hospitals.

(f) Utilities.—The city has one power plant. Information on other utilities is lacking.

(g) Communications.—Postal, telephone, and telegraph service is provided. There are two radio stations in operation.

(h) War damage and reconstruction.—Although it is known that Orël suffered severe war damage, details as to the extent of destruction or subsequent reconstruction are unavailable.

(24) Kramatorsk (Kramatorskaya) (48°44'N, 37°32'E). Stalinskaya Oblast', Ukrainian SSR. Population: 93,350 in 1939. (FIGURES VIII-61 and VIII-119, *203*)

(a) Importance.—The city has become an important metallurgical center under the Soviet regime.

(b) Physical characteristics.—Kramatorsk, with a built-up area of 8.5 square kilometers (3.3 square miles), is situated on the banks of the Kazennyy Torets river in the northwestern part of the Donets Basin. Elevations vary from 100 meters (328 feet) to 130 meters (427 feet) in the northern section of the city.

(c) Transportation.—There are rail lines to Stupki, Konstantinovka, and Slavyansk (205), and connections with other points in the Donets Basin network. The Slavyansk – Konstantinovka highway runs through the city from north to south without bottlenecks, but road conditions are reported to be bad. Within the city there were five railroad and eight highway and street bridges. The city has one airfield.

(d) Industry and commerce.—The industrial development of Kramatorsk has taken place within the last fifty years, a factor which accounts for the 759% increase in population between 1926 and 1939. The development of the iron and steel industry under the Tsarist regime began in the early part of the century, but the city's development as a metallurgical center under the Soviet government is comparatively new. Among the factories destroyed during World War II was the *Stalin* plant (1), claimed to be the world's largest for producing metallurgical factory machinery. In three years it turned out equipment for 12 blast furnaces. Much of the war damage is reported restored and plants are said now to be producing hoisting equipment for blooming and slabbing mills, intricate machine tools, equipment for construction and restoration of factories, and various other types of heavy machinery. Equipment for 10 out of 45 proposed blast furnaces, as well as high-pressure turbines, are reported being built in the *Stalin* plant.

(e) Billeting and hospitals.—No information available.

(f) Utilities.—Previous to the war there were two large power plants with a total capacity of 50,000 to 100,000 kilowatts. The municipal heat and power plant, reported partly in operation in 1944, is probably completely restored. The status of two other plants supplying the armament and the *Stalin* plants is not known.

(g) Communications.—Telecommunications included telephone and telegraph connections, but postwar information regarding their status is lacking. The city is known to have two radio stations.

(h) War damage and reconstruction.—Before their retreat from the Donbass region, the Germans subjected Kramatorsk and its industrial plants to systematic destruction.

(25) Stalinogorsk (Bobriki) (54°05'N, 38°13'E). Moskovskaya Oblast', RSFSR. Population: 76,200 in 1939. (FIGURE VIII-119, *117*)

(a) Importance.—Coal mining in the vicinity and the thermal electric power plants are factors of importance.

(b) Physical characteristics.—Stalinogorsk, on the left bank of the Lyubovka river, has an area of 4 square kilometers (1.5 square miles). The city is made up of two sections: Stalinogorsk II and Stalinogorsk I. Stalinogorsk II, the main city, located near the adjacent Maklets station on the Uzlovaya to Ozherel'ye railroad line, is laid out as a regular gridiron, except for two large irregular areas in the northern corner. The streets run north-northeast and south-southwest and at right angles. Stalinogorsk I, a small community of little importance, is 8 kilometers (5 miles) to the south.

The river is dammed and has a spillway at the right bank. A canal follows the right bank to the southeast corner of the power plant. The Belkolodez' (reservoir) formed by damming the Shat river is located northeast of the plant. This artificial lake also dams the headwaters of the Don river.

(c) Transportation.—There is a single-track railroad line from Stalinogorsk II to Ozherel'ye. The Maklets station is on this line. There are a few poor roads; the only highway crosses the dam across the Lyubovka river and then proceeds south. Internal streets are asphalt. There is an airfield and a landing field.

(d) Industry and commerce.—There are coal mines in the vicinity. The major industry in Stalinogorsk II is the large Chemical Combine No. 11, with a built-up area of approximately 112,000 square meters (133,900 square yards), including power installations, pumping station, five large cooling towers, and work buildings (1941). This combine, which had 2,000 workers in 1937, produced sulfuric acid, nitrogen, explosives, chemical warfare agents, and fertilizers. A machinery plant made compressors. There is a state farm in the vicinity.

(e) Billeting and hospitals.—Information is not available.

(f) Utilities.—There was a sewerage system and a water supply system. The central power plant has been restored and covers an area of approximately 29,300 square meters (35,000 square yards). It has a capacity of 350,000 kilowatts and operates on lignite. The plant had a long rectangular building, containing a boiler house and a machine shop, with a row of 10 to 12 smokestacks in line running approximately north - south. High-power lines run to Moscow, 240 kilometers (149 miles) distant.

(g) Communications.—There are telephone and telegraph connections, and two radio stations.

(h) War damage and reconstruction.—Stalinogorsk was overrun by the Germans in their final attempt to cut back of Moscow from the south, and was damaged in the fighting.

(26) Stanislav (Stanislawow, Stanislau, or Stanislavyv) (48°56'N, 24°44'E). Stanislavskaya Oblast', Ukrainian SSR. Population: 63,500 in 1937; 60,000 in December 1940. (FIGURES VIII-62 and VIII-119, *226*)

(a) Importance.—A Polish city before the war, Stanislav is now the capital of the Stanislavskaya Oblast'.

(b) Physical characteristics.—Stanislav covers an area of 20 square kilometers (8 square miles) on a gently rising hill which is bounded by three rivers. Many minor

streams with numerous oxbows limit movement from northwest to southeast. The elevation is approximately 260 meters (853 feet). In 1921 the city had 5,913 dwellings.

(c) Transportation.—A railroad line connects the city with L'vov to the northwest and Kolomyya to the southeast. The rivers are crossed by two main bridges (5, 53). The city is at the intersection of roads from Nizhnev to the east, Nadvornaya to the southwest, and Dolina to the northwest. Major bridges (20, 46) cross the rivers. There is no distinctive street pattern. Streets are irregular and winding, and through routes require many turns. There was a military airfield south of the city.

(d) Industry and commerce.—Stanislav had numerous and varied industries prewar. Railroad coaches and freight cars were manufactured; there were also two machine factories with foundries, two motorized tanneries, slaughterhouses (3, 7), a sawmill (4), brickyards (51, 52), a yeast factory and distillery (50), and gasoline and oil refineries (18, 19). One petroleum refinery and machine-oil factory had an annual capacity of 24,000 tons. Other industries produced textiles, furniture, shoe polish, soap, candles, ceramic products, asphalt, wood products, confections, flour, cordials, and beer.

There were warehouses for spirits, foodstuffs, and military medical supplies.

(e) Billeting and hospitals.—Billeting facilities included a museum, a library (29), two theaters, 38 schools, office buildings, a military prison (11), and barracks (10, 12, 15, 36). There were military and civilian hospitals (13, 25, 44) as well as a sanatorium (31).

(f) Utilities.—The city was served by a gas works (33), a 1,152-kilowatt power plant (6), and two smaller power plants, one for railroad shops (240 kilowatts) and the other for a leather goods factory (540 kilowatts). Information regarding water supply or a sewerage system is lacking.

(g) Communications.—Prewar Stanislav was served by postal, telephone, and telegraph offices. There is also a broadcasting station and one other radio station.

(h) War damage and reconstruction.—Information is lacking.

(27) Liepāja (Léepāja, Lepaya, Libau or Libava) (56°31'N, 21°00'E). Latvia. Population: 57,000 in 1935. (FIGURES VIII-63 and VIII-119, *90*)

(a) Importance.—Prewar Liepāja was noted for its fine harbor, and with the completion in 1948 of a large fish combine, together with the facilities of a new fishing harbor, the city is planned to be an important center for the fishing industry.

(b) Physical characteristics.—Liepāja, with an area of 17 square kilometers (6.5 square miles), is situated on a narrow strip of land between the Baltic Sea and Liepājas Ezers (Liepāja Lake). The Municipal Canal, 1.38 kilometers (0.86 miles) long and 100 meters (328 feet) wide, joins this lake with the Baltic Sea and forms the dividing line between the old city south of the canal and the newer section north of it. The terrain is flat and the elevation varies from sea level to about 10 meters (33 feet). Landmarks included several imposing churches and a belt of forts on the northern edge.

(c) Transportation.—The city is the terminus of railroad lines from Rīga *86* and from Alsunga. Highways connect with Ziemupe, Rīga, Saldus, Jelgava (87), and Rucava. The canal is crossed by a railroad bridge (27) and a highway bridge (26). A second highway bridge (28), 15 meters (50 feet) wide, crosses the Military Harbor Channel.

Prewar Liepāja harbor facilities were very good. It had moorings for many large ships, extensive warehouse and storage space, 2,895 meters (9,500 feet) of quays, two drydocks, one floating dock, and one marine railroad. The harbor is usually open to navigation all winter, with only occasional obstruction from drift ice. Complete information regarding war damage or reconstruction is not available, but a new harbor with special facilities for loading and unloading fishing vessels is reported under construction.

The city had two airfields; one had a hangar and improved runways; the other, a smaller field, was located at Tosmare. There was also a seaplane landing. During the war a new military airfield was built.

The city has an irregular plan, and the Municipal Canal restricts traffic between the two main sections. Bottlenecks are formed by frequent turns of the highways and by the two highway bridges. Liepāja has a street railway system.

(d) Industry and commerce.—Industries consisted principally of metalworking and machinery plants, including foundries, forges, sheet metal, armament and shipbuilding plants and railroad car and repair shops. There were also sawmills, brick kilns, barrel and match factories, sugar and cereal mills, a slaughterhouse, woolen mills, breweries, distilleries, oil presses, three newspaper-printing plants, electrical shops, and chemical laboratories. Finished products included wire, belts, nails, farm implements, batteries, glue, leather, linoleum, rope, soap, cardboard, and tobacco products. The new fish combine is to have a capacity of 13,500 metric tons (14,800 short tons) of codfish, plaice (flounder), sprats, and other Baltic Sea fish. The city was a center of the dairy industry before the war.

Imports included anthracite coal, grain, iron, artificial fertilizers, cement, seeds, herring, sugar, and petroleum; exports included woodworking products and band iron.

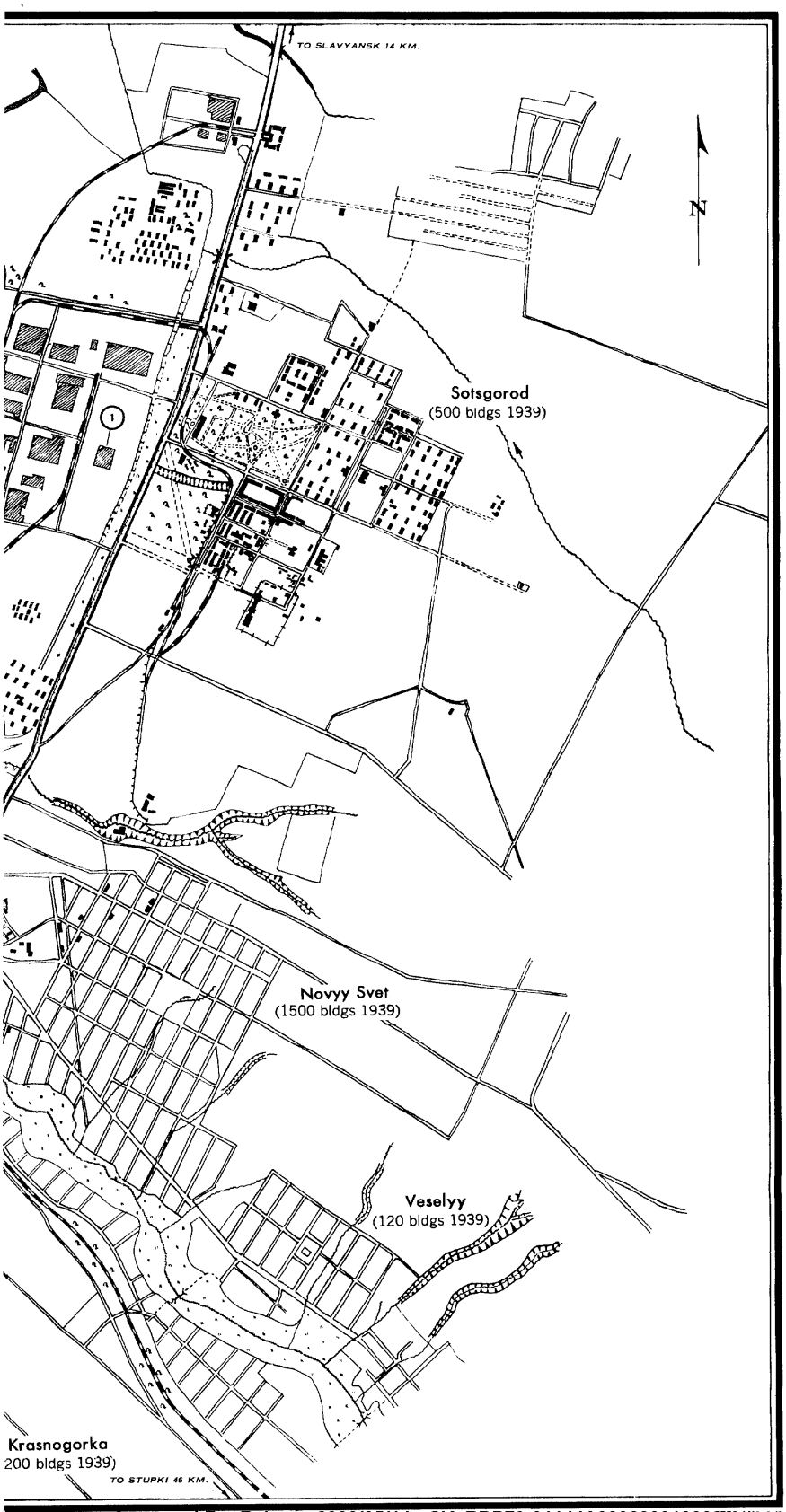
Storage facilities were principally harbor installations. In the Municipal Canal section of the harbor, there were the following: a grain storehouse with a 15,000-ton capacity; sheds and warehouses having a space of 30,000 square meters (322,920 square feet) for custom goods, with 375 meters (1,230 feet) of wharf; 33 storehouses and sheds having an 85,000-ton capacity; 47 herring storehouses, with a 150,000-barrel capacity; anthracite coal yards; freight storerooms at the railway freight station, 25,000-tons; a cold-storage plant; and lumber yards. The winter harbor had five petroleum cisterns, with a total capacity of 5,000 tons and 600 meters (2,090 feet) of pipe line. Sheds having a capacity of 1,500 square meters (16,146 square feet) were located on the wharf in the southern portion of the new harbor. On the south side of the Military Harbor channel there was a large fuel tank, 8 by 10 meters (26 by 33 feet).

(e) Billeting and hospitals.—Billeting facilities consisted of three hotels, boarding houses, artillery and infantry barracks (3, 11), the summer camp of the Liepāja garrison, six large two-storied barracks at the Military Harbor Channel, a municipal theater, and the city hall. There were two hospitals (2, 25) and a sanatorium.

(f) Utilities.—Information regarding sewage disposal and water supply is lacking. There was a gas plant, and at least one prewar electric power plant (14) is reported, which has a capacity of 13,000 kilowatts.

(g) Communications.—Telecommunication facilities included post, telephone, and telegraph offices (6), and

FIGURE VIII - 61
KRAMATORSK CITY PLAN
JANIS 40
CONFIDENTIAL



KRAMATORSK
(KRAMATORSKAYA)
48°44'N 37°32'E
STALINSKAYA OBLAST'

LEGEND

Parks or recreation
Woods
Meadows
Broad gage railroad
Destroyed bridge
Through streets
Unimproved or destroyed streets
Gully
Identified point

$\frac{1}{2}$ 0 $\frac{1}{2}$ 1 $1\frac{1}{2}$ Km

$\frac{1}{4}$ 0 $\frac{1}{4}$ $\frac{1}{2}$ $\frac{3}{4}$ Miles

CONFIDENTIAL

IDENTIFIED POINTS

1. "Stalin" plant
2. Smelting plant
3. Railroad station

Reliability generally good. Basic information incomplete; approximate date 1942.

TO SLAVYANSK 14 KM.

Torets

Kazennyy

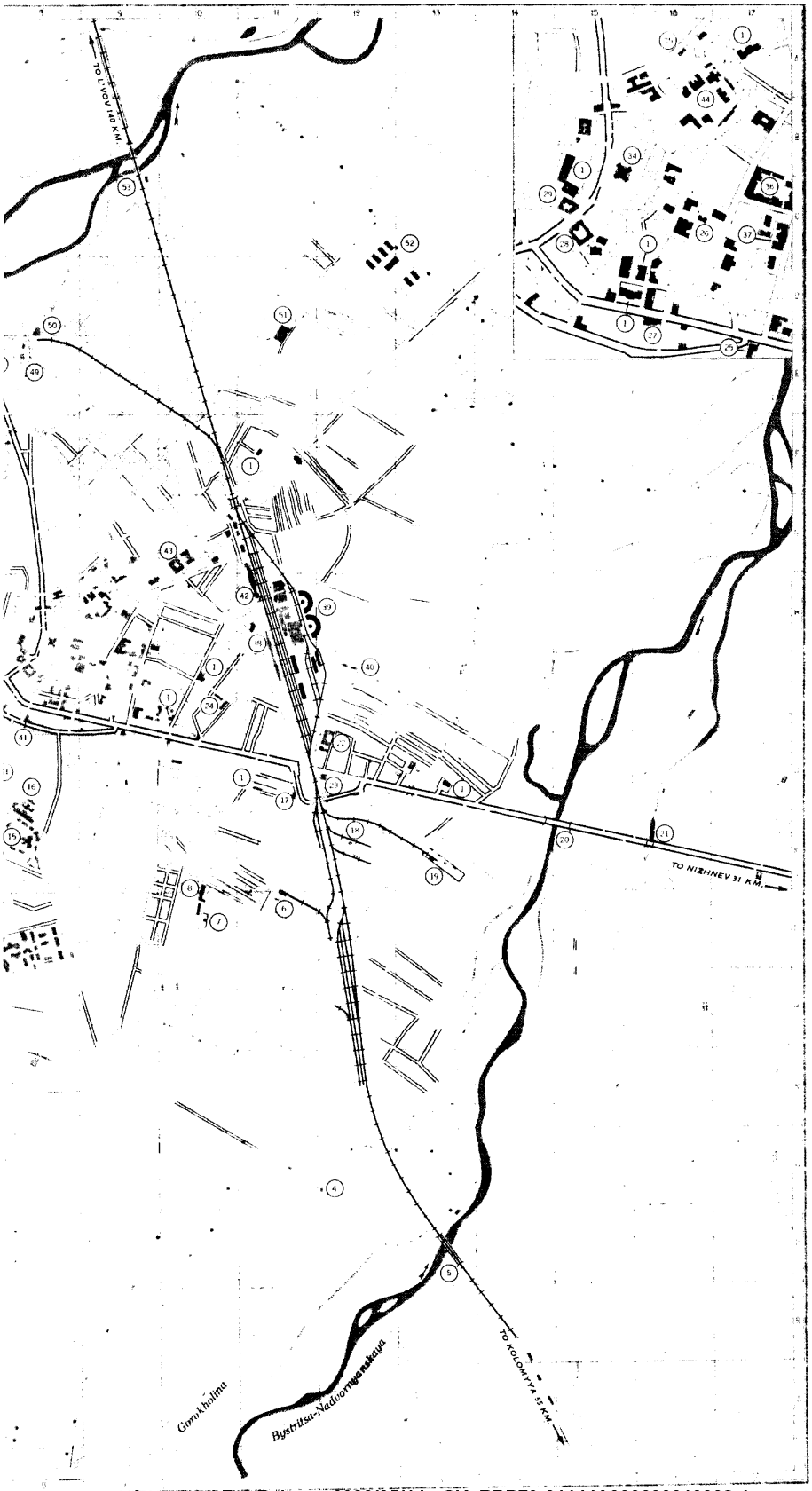
Kramatorsk
(5500 bldgs 1939)

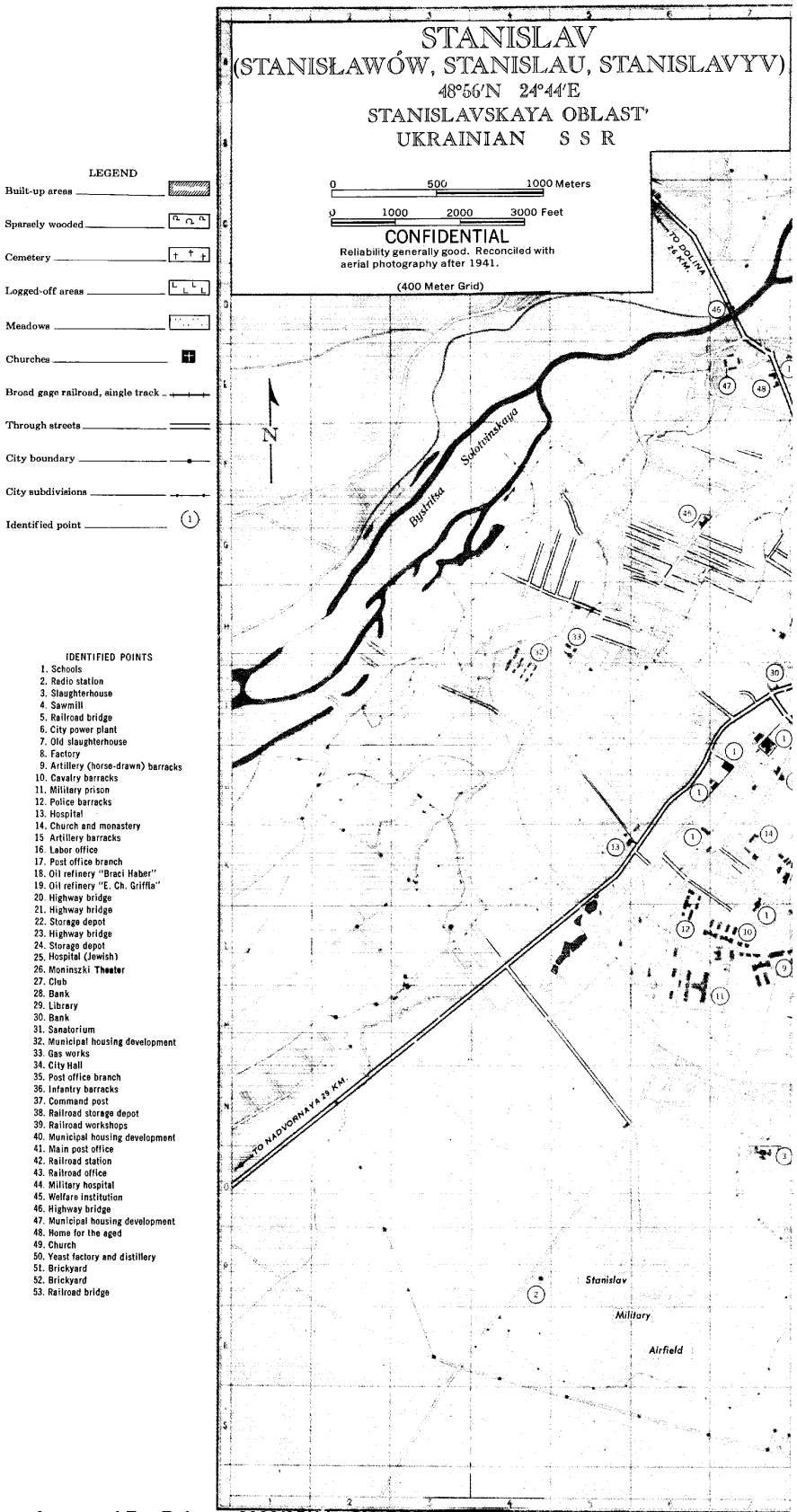
Gorki

TO KONSTANTINOVKA 31 KM.

TO KONSTANTINOVKA 27 KM.

FIGURE VIII - 62
STANISLAV CITY PLAN
JANIS 40
CONFIDENTIAL





LIEPAJA CITY PLAN
JANIS 40
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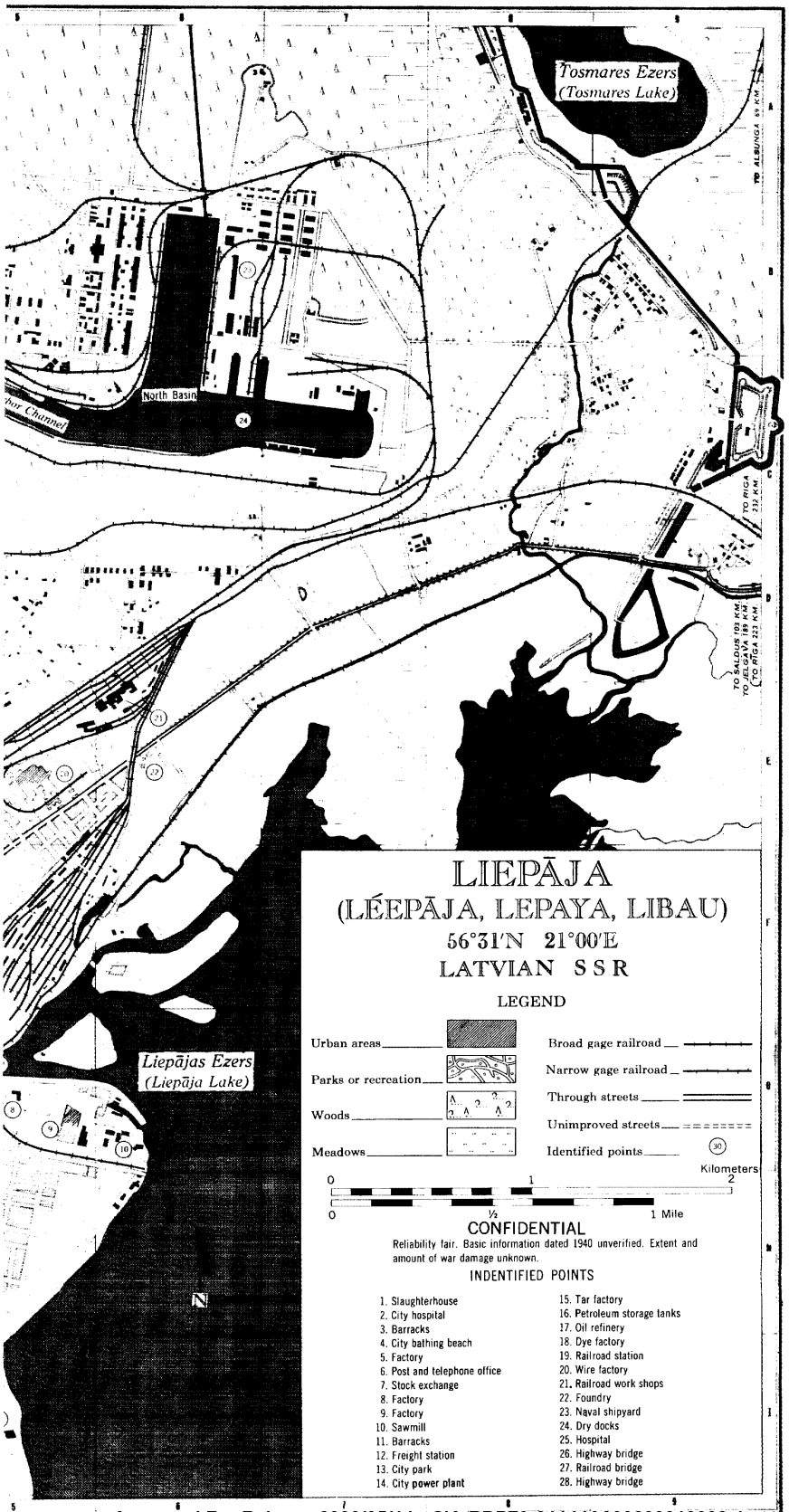


LIEPĀJA

(LÉEPĀJA, LEPAYA, LIBAU)

56°31'N 21°00'E

LATVIAN S S R

LEGEND

Urban areas
Parks or recreation
Woods
Meadows
Broad gage railroad
Narrow gage railroad
Through streets
Unimproved streets
Identified points (30)

Kilometers 0 1 2

0 ½ 1 Mile

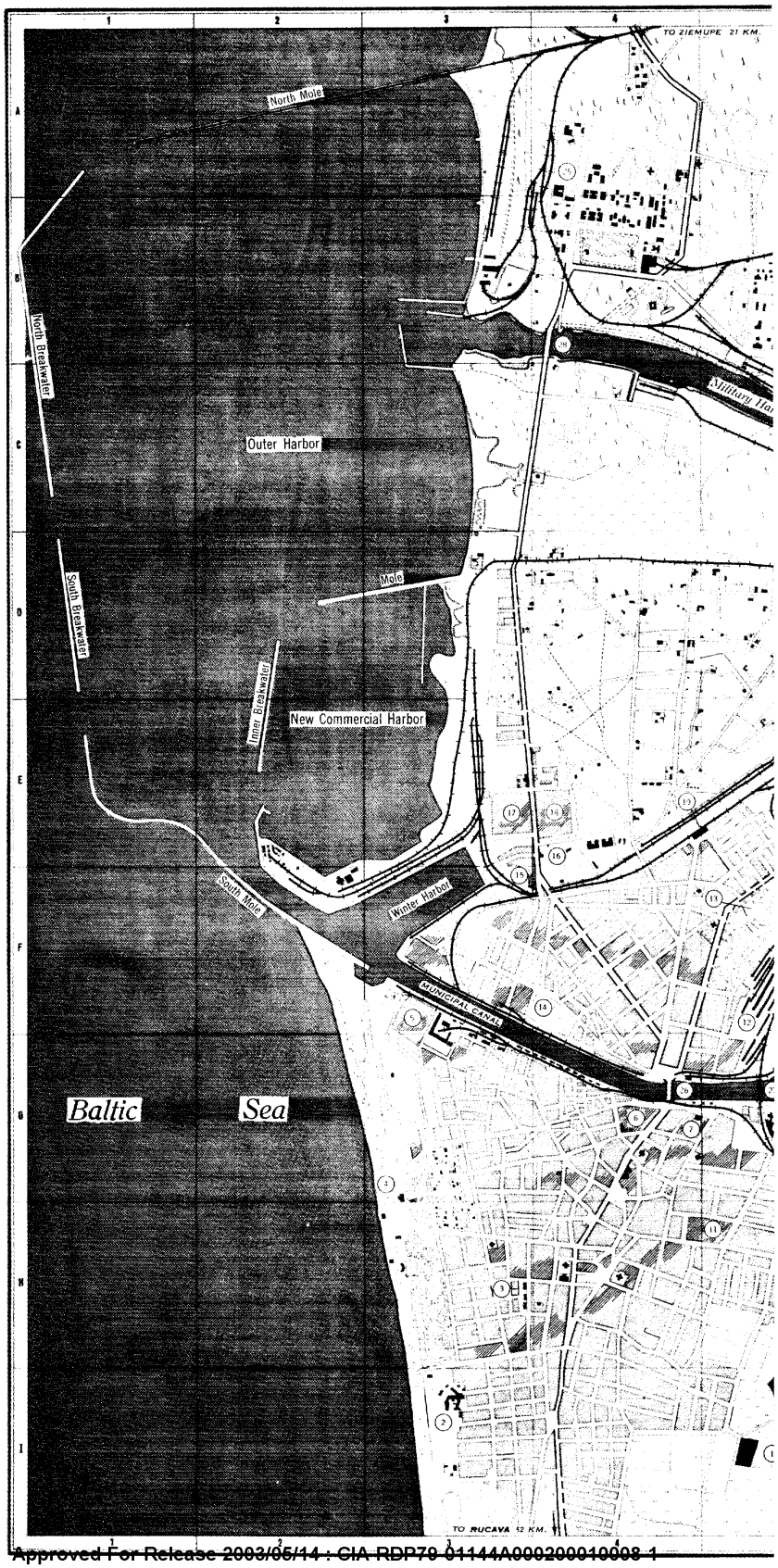
CONFIDENTIAL

Reliability fair. Basic information dated 1940 unverified. Extent and amount of war damage unknown.

INDENTIFIED POINTS

1. Slaughterhouse
2. City hospital
3. Barracks
4. City bathing beach
5. Factory
6. Post and telephone office
7. Stock exchange
8. Factory
9. Factory
10. Sawmill
11. Barracks
12. Freight station
13. City park
14. City power plant
15. Tar factory
16. Petroleum storage tanks
17. Oil refinery
18. Dye factory
19. Railroad station
20. Wire factory
21. Railroad work shops
22. Foundry
23. Naval shipyard
24. Dry docks
25. Hospital
26. Highway bridge
27. Railroad bridge
28. Highway bridge

ERS-AMS 6-48



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four radio stations, including one broadcasting station. Three submarine cables connect respectively with Helsinki (Finland), Rodvig (Denmark), and Snogebaek (Bornholm I.).

(h) War damage and reconstruction.—Postwar information is generally lacking, except as previously mentioned.

(28) Brest (Brześć nad Bugiem, or Brest Litovsk) (52°06'N, 23°41'E). Brestskaya Oblast', White Russian SSR. Population: 54,200 in 1937; 50,000 in December 1940. (FIGURES VIII-64 and VIII-119, *164*)

(a) Importance.—The border city of Brest, formerly Polish, is now the capital of Brestskaya Oblast', and an important junction of railroad lines from points eastward in the USSR and from Poland, to the west.

(b) Physical characteristics.—Brest is located on the right bank of the Bug river at the mouth of the Mukhavets river. It occupies an area of 30 square kilometers (11.6 square miles). Elevations vary from 129 meters (423 feet) in the southern section, to 154 meters (505 feet) in the west, with an intermediate level of about 140 meters (459 feet) in the north and east.

In 1931 the city had 4,615 residential structures.

The urban area consists of three sections: the ancient citadel (5) at the confluence of the Mukhavets and Bug; the main section located upstream (eastward) from the citadel, on the right bank of the Mukhavets; and a suburb to the north of the main urban area. The citadel, with its belt of forts in the Vauban pattern, is a landmark.

(c) Transportation.—Brest is served by five rail lines (three from points eastward in the USSR, two from Poland). Six roads radiate from the city. Through routes are obstructed by numerous right-angle turns where they cross the railroad tracks and pass through the citadel area. Street bridges also form potential bottlenecks. A winding bypass road provides an alternate route for through traffic from the east, north, or west.

The city has one airfield provided with hangars, barracks, a railroad spur, a radio and weather station, and an underground munitions dump.

(d) Industry and commerce.—Important prewar industries included woodworking and brickmaking. There were a number of sawmills (four steam-powered), cereal mills (three motor-driven), breweries, and a slaughterhouse. Other plants pressed oil and manufactured metal goods, leather goods, and musical instruments.

Prewar munition dumps numbered at least three, one of which was an underground dump located at the airfield. Other underground ammunition magazines are located about 1,000 yards north of the Russian-Polish border station. There are a large garage and a large storehouse with rail connections and oil and gasoline storage facilities.

(e) Billeting and hospitals.—Potential billeting facilities include 38 schools, several barracks, and a troop training ground. There were four hospitals, including a former Polish military hospital.

(f) Utilities.—The prewar city possessed a waterworks (14) with water tower and mains, a sewerage system, and fire-protection facilities. Electricity is provided by a thermoelectric power plant with a reported capacity of 5,000 to 25,000 kilowatts.

(g) Communications.—Brest is served by post offices and is on the main telephone-telegraph network, with lines east to Zhabinka, south-southeast to Malorita, and northwest to Kleszczele. There is one broadcasting and one other radio station in operation.

(h) War damage and reconstruction.—Almost all the available information on Brest is from prewar sources. The extent of war damage and postwar reconstruction is unknown, although some damage probably occurred during the German retreat.

(29) Klaipėda (Memel', or Memel) (55°42'N, 21°10'E). Lithuania. Population: 38,500 in 1937. (FIGURES VIII-65 and VIII-119, *260*)

(a) Importance.—A strategic city since World War I, Klaipėda has been a focus for international controversy. It was once the eastern outpost of East Prussia and an important port on the Baltic Sea. Now included in Lithuania, it is being developed as a naval base by the USSR and is being fortified. The city is both a seaport and an inland waterways port and before the war had a considerable import-export trade.

(b) Physical characteristics.—Klaipėda is located on the east bank of the Zaliv Kurishes-Khaff (Kurisches Haff) at the northern end near its outlet into the Baltic Sea. The elevation ranges from sea level to 20 meters (66 feet) and the area is 66 square kilometers (25 square miles). Ice breakers are required to keep the harbor open from December to March.

(c) Transportation.—Railroad lines and highways run to Sovetsk (Tilsit) (262) and to Kaunas (91). A highway also runs to Liepāja *90*.

Port facilities were damaged during the war. Early in 1946, complete restoration was started and by September 1946 four 2- to 7-ton cranes, and a 15-ton steam crane were in use. Shipyards were being rebuilt and extended, and a mobile electric crane was being assembled. A radio beacon was erected near the old lighthouse (4) at the harbor entrance. At this entrance, navigation channel depth was maintained at 7 to 8 meters (23 to 26 feet); in the Haff channel, 6 meters (20 feet); and in the Dange river, 5.5 meters (18 feet). There was an airfield (18) though none is included in recent reports. Internally, streets are laid out in an irregular pattern.

(d) Industry and commerce.—Most of the prewar industry was destroyed or damaged, including shipyards (12), iron foundries, and chemical plants (19). Other industries were soap, amber-working, and brewing, and distilling. Since the war, emphasis has been placed on the restoration of sawmills (45, 52, 53) and other industries connected with the rebuilding program, such as bulk cement, lumber, and reinforcing steel. A plywood factory had been restored in February 1947. A paper mill requiring 250 workers was rebuilt.

Imports included timber, coal, coke, cement, iron, ironwares, metals, kerosene and other petroleum products, pyrites, fertilizers, limestone, salt, phosphates, and sugar. Exports were lumber, wood pulp, paper, furniture, machines, roasted pyrites, linseed fats, chemicals, steel, cotton, wool, and textiles. There was trade in cattle and horses.

(e) Billeting and hospitals.—Possibilities for billeting included hotels (31, 32, 58, 65), barracks (37, 38), the municipal building (57), customhouse (43), high school, navigation school, library, theater (33), and orphanage. There were two hospitals (26, 49).

(f) Utilities.—The city had a gas works (21), and a waterworks (22). A thermoelectric power plant (35) with

installed capacity of 4,500 kilowatts is reported in operation.

(g) Communications.—A radio beacon is near the old lighthouse (4) at the harbor entrance, and in connection with the radio beacon there is a radio-telephone station. The coastal radio-telegraph station has been transferred to the lighthouse. There is a post office (27).

(h) War damage and reconstruction.—Although it is known that the city received war damage, neither the extent of the damage nor the plans for restoration are known.

(30) Vyborg (Viipuri, or Viborg) (60°43'N, 28°47'E). Leningradskaya Oblast', RSFSR. Population: 30,000 in 1941. (FIGURES VIII-66 and VIII-119, *24*)

(a) Importance.—Vyborg is the ancient seaport of the Karelian Isthmus near Finland. It is the main frontier city between Leningrad *37* and Helsinki, the Finnish capital, and lies on the main rail and road routes connecting these cities. The subject of much contention, Vyborg was ceded to the USSR following World War II and is now a rayon center and port of Leningradskaya Oblast', RSFSR.

The city was an important industrial center before the Russo-Finnish War of 1939 - 1940.

(b) Physical characteristics.—The urban area is separated into two main parts, one on a peninsula and the other on an adjacent island in the Vyborgskiy Zaliv (Vyborg Bay), which extends northeastward from the eastern shore of the Gulf of Finland. The total area is about 16 square kilometers (6.2 square miles).

The medieval Vyborg Castle (38), a landmark, is located on a small island between the peninsula and main island. Bridges southwest of the castle form major traffic bottlenecks.

Streets follow a gridiron pattern.

(c) Transportation.—In addition to the through rail line from Leningrad to Helsinki, Vyborg is served by a strategic branch inside the international boundary northeastward to the northwestern shore of Lake Ladoga (Ladozhskoye Ozero).

Highway connections, including the strategic Leningrad-Helsinki highway, radiate in four directions.

The Vyborgskiy Zaliv, on which Vyborg is located, is connected to the Saymenskiy Kanal by way of Zaliv Suomenvedenpokh'ya. The main port area is divided into north and south harbors by the bridges southwest of the castle (38). The Uuras (an outer harbor) is used by the largest ships. A lumber harbor, served by a rail spur, is located 12 kilometers (7.5 miles) southwest of the city.

An auxiliary seaplane base is reported.

(d) Industry and commerce.—Prior to the Russo-Finnish War, the city's 90 industrial plants included a shipyard, machinery plants, cereal mills, and sawmills. It was an important trading center, with connections into Finland, USSR, and the Baltic States. Most factories were destroyed in 1939 and 1940 and no information on reconstruction is available. Timber has been an important export item.

(e) Billeting and hospitals.—Data on hospitals and billeting are not available, but these facilities were probably greatly reduced by wartime destruction.

(f) Utilities.—No information is available on utilities.

(g) Communications.—Vyborg is connected to the main telephone-telegraph network by two lines: one north-northeast to Khiytola (Hitola), the other southeast to Leningrad. A 10-kilowatt radio broadcasting station operates on a frequency of 527 kilocycles and a wave length of 569.0 meters. The airport operates its own radio station.

(h) War damage and reconstruction.—The city was almost completely destroyed. Information is lacking regarding its present status.

82. UNOCCUPIED AREA

A. Introduction

(1) General discussion

The area included under this topic lies generally east of the line of farthest German penetration, indicated on FIGURE VIII-119 (Topic 81, A, (1)). It includes the major cities of Moscow *107* and Leningrad *37*.

(2) Extent of area

The unoccupied area is entirely confined to the RSFSR and includes the six ASSR's in European USSR discussed in this chapter. It does not include the European Ural region, nor the unoccupied portions of European Caucasus which lie outside this study.

(3) Postwar status of urban areas

Cities adjacent to the fighting lines, such as Moscow and Leningrad, received considerable damage from ground forces, while those farther east were bombed by air. However, either type of damage was relatively insignificant when compared with that in the occupied area.

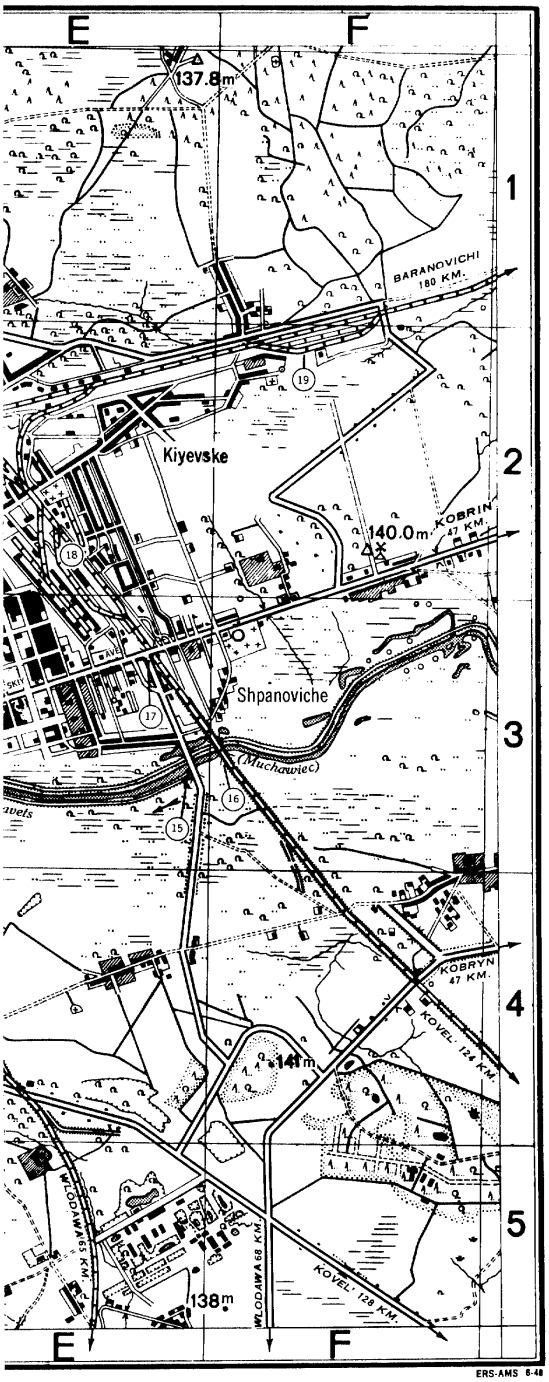
It appears that the cities in the unoccupied area of European USSR did not receive much of the machinery or the operating personnel evacuated from the west. Because of the uncertainties as to the success and extent of the German advance, the Soviet government insured continued and expanded production by moving most of the equipment and personnel into the Ural region, mostly east of the mountain range, or still farther away into Siberia. However, considerable industrial expansion had been effected during the prewar Five-Year Plans. The major cities, such as Gor'kiy *58*, Saratov *192* with Engel's *193*, and Kuybyshev *130*, are now surrounded by major industrial plants. Available city and town plans as modified by captured German aerial photography, and captured German city plans revised in accordance with their aerial photo-interpretation, have generally made possible a fairly up-to-date analysis. Since this area was not seriously damaged, prewar information is more applicable and changes will occur less rapidly than in the cities and towns of the occupied area.

(4) Major urban areas

Of the 53 major urban areas of European USSR, 23 were in the unoccupied area and are discussed in Topic 82, B. Although the occupied area was, as a whole, the more densely populated part of European USSR, the greatest population density is in the vicinity of Moscow, east of the line of occupation. Most of the unoccupied area is handicapped by irregular terrain, lack of raw materials, unfavorable climate, or other factors. Consequently, the area as a whole is not so densely populated, has fewer urban centers, and a smaller percentage of urban population (TABLES VIII-1 and VIII-2).

These cities and towns, with the exception of Kronshtadt, are located on major rivers. Eight are located on the Volga and all are important river ports. Kronshtadt *32*, on an island in the Gulf of Finland near the estuary

FIGURE VIII - 64
BREST CITY PLAN
JANIS 40
CONFIDENTIAL



BREST
(BRZEŚĆ NAD BUGIEM)

52°06'N 23°41'E

BRESTSKAYA OBLAST'

LEGEND

Urban areas

Open and swampland

Embankment

Woods

Water

Broad gage railroad

Through streets

Unfenced, dirt or unimproved streets

Identified point (8)

1 0 1 2 Kilometers

1/2 0 1/2 1 Mile

CONFIDENTIAL

Reliability fair. Basic information (prior to 1941) unverified. War damage not known.

IDENTIFIED POINTS

1. Pilsudsky barracks
2. Old electrical power plant
3. Main station
4. 3 street bridges over railroad; center bridge has 67 m long steel truss
5. Citadel
6. Highway bridge (under construction) – 421 m long, 24 tons capacity
7. Two railroad bridges over the Bug river:
   (a) north: 296 m long, single track, 20 trestles, rolled girder, timber abutments;
   (b) south: 295.7 m long, single track, 6 spans, 5 stone piers, 2 stone abutments
8. Terespol' railroad station
9. Two street bridges over the Bug river – 95 m and 80 m long:
   (a) one lane, 3 tons
   (b) two lanes, movable bridge 5.5 m, 6 spans, navigation opening 16.2 m, 3 tons
10. Street bridge over fortress trench – 20 m long, one lane
11. Street-bridge over the Mukhavets – 75.3 m long, movable bridge 5.4 m navigation opening 36.0 m, timber and steel, 16 tons
12. Railroad bridge over the Mukhavets – 113.15 m long, 2 spans of 52.0 m each, navigation opening 40.0 m, 1 steel truss pier
13. New electrical power plant
14. Waterworks
15. Street bridge over the Mukhavets – 106.3 m long, two lanes, timber, 16 tons
16. Two railroad bridges over the Muchaviec:
   (a) 107.5 m long, 6 spans of 17.2 m each, 5 timber piers
   (b) span 104.63 m, 6 spans of 17.8 m, 16.8 m, 17.7 m, 17.6 m, 11 m, and 4.3 m
17. Street bridge over railroad – 27 m long, steel arch
18. South railroad station
19. East railroad station

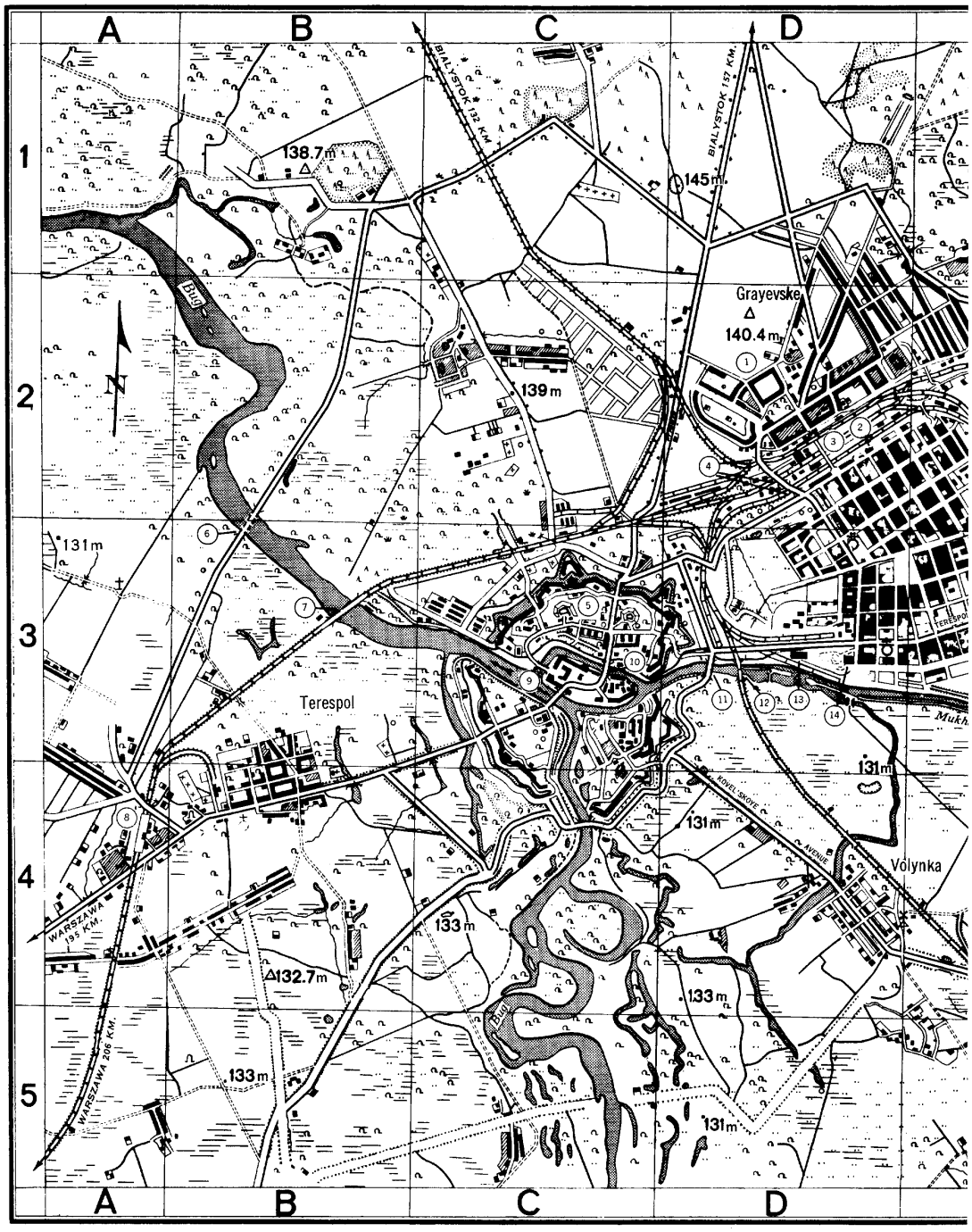
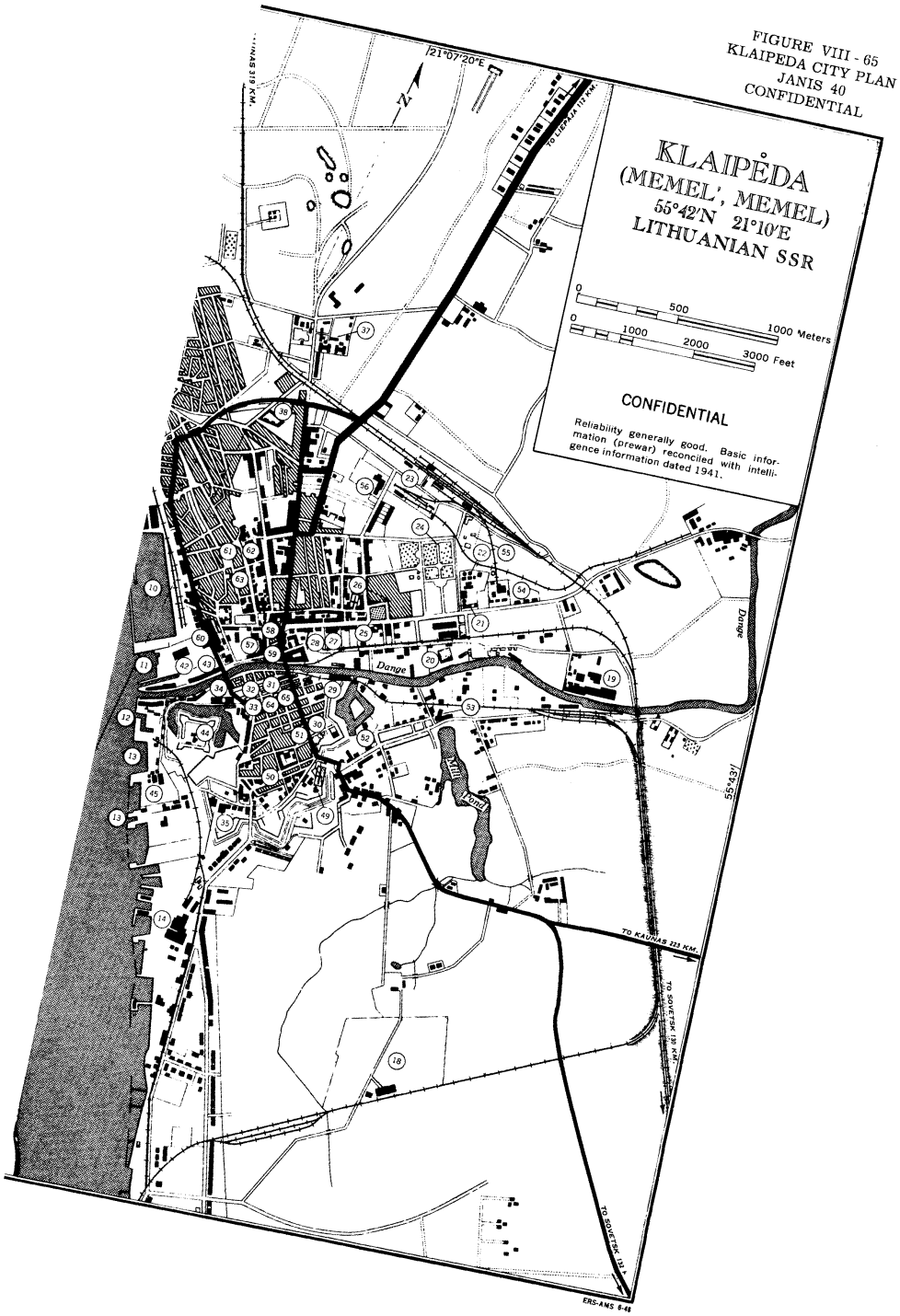


FIGURE VIII - 65
KLAIPEDA CITY PLAN
JANIS 40
CONFIDENTIAL



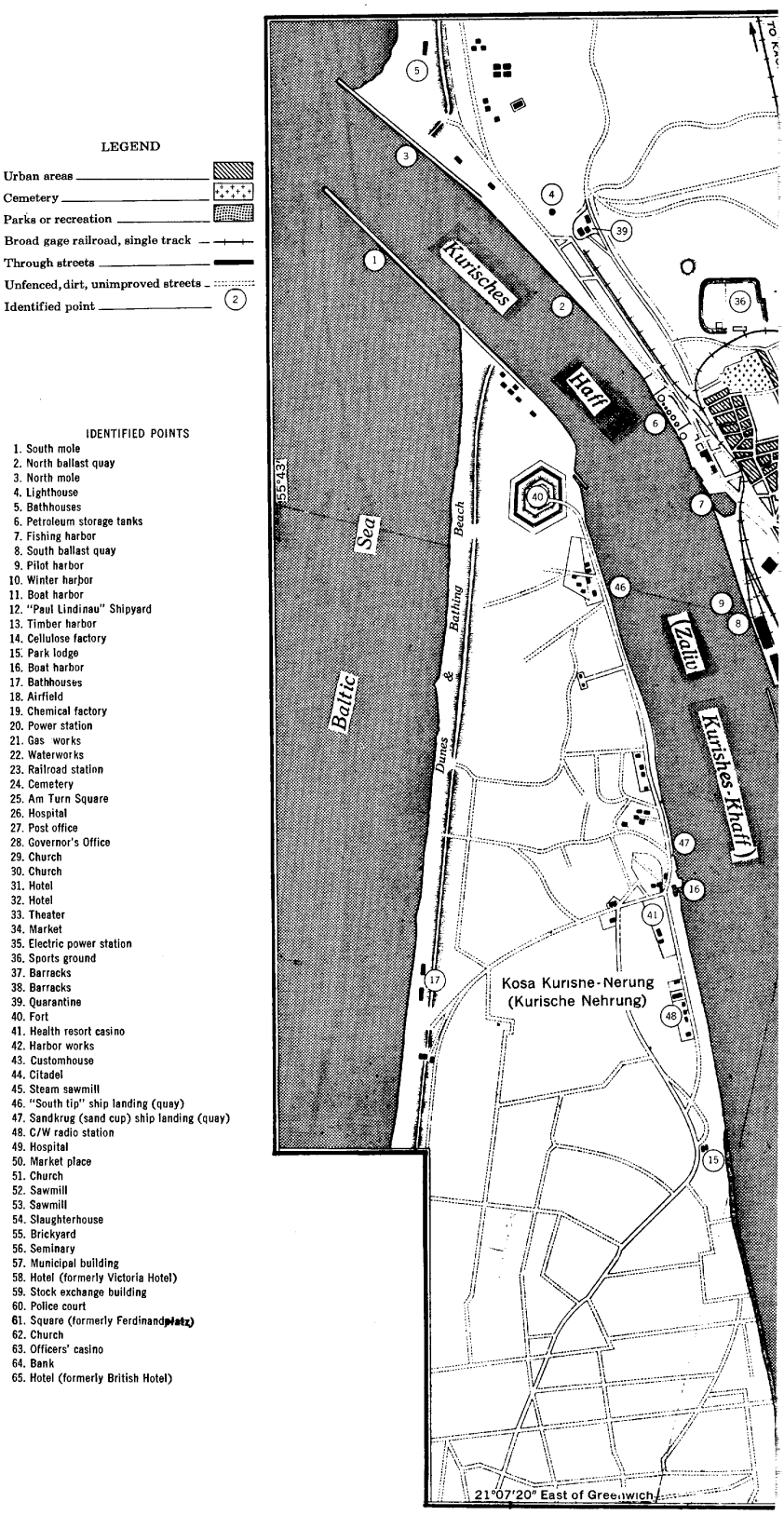
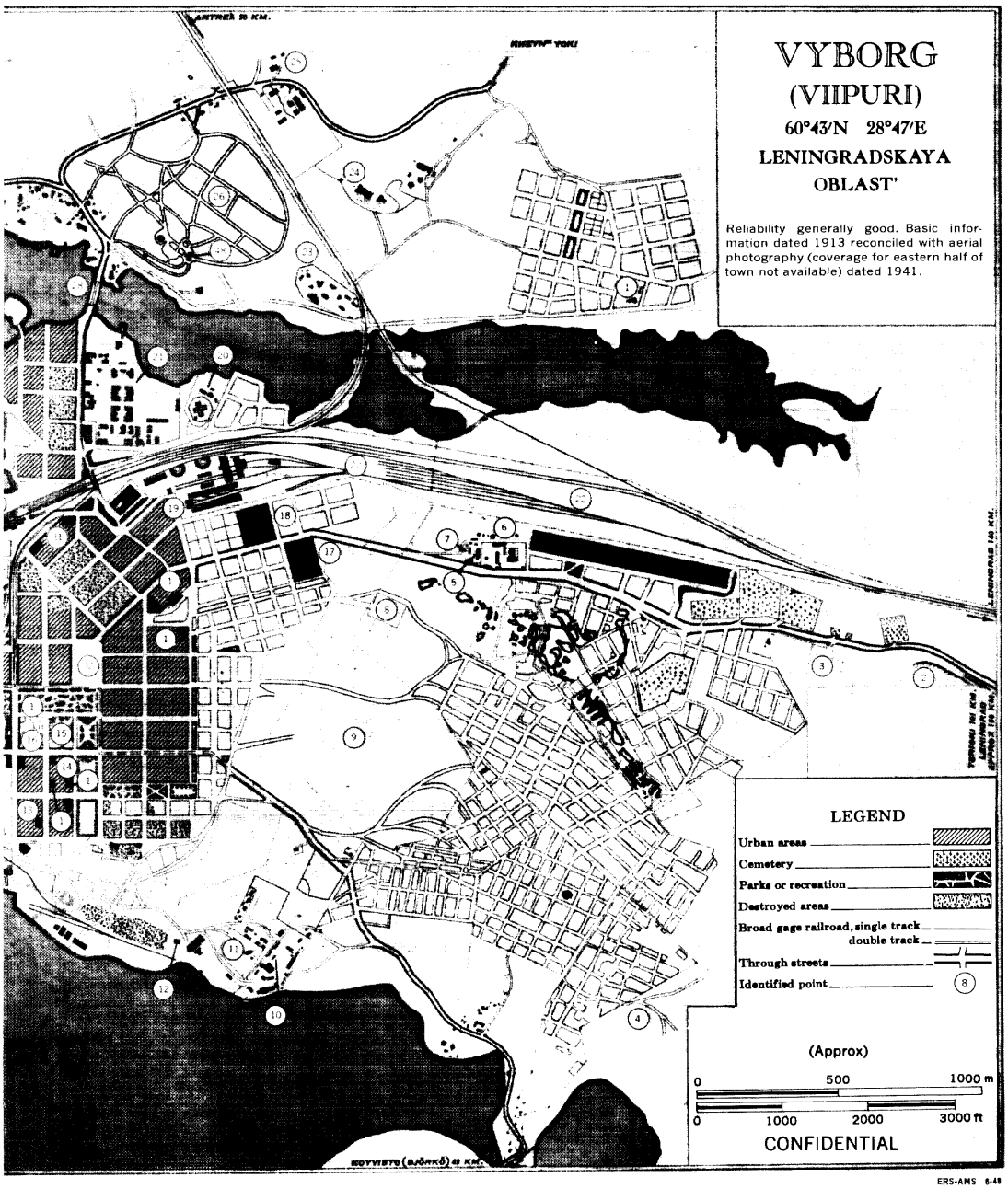
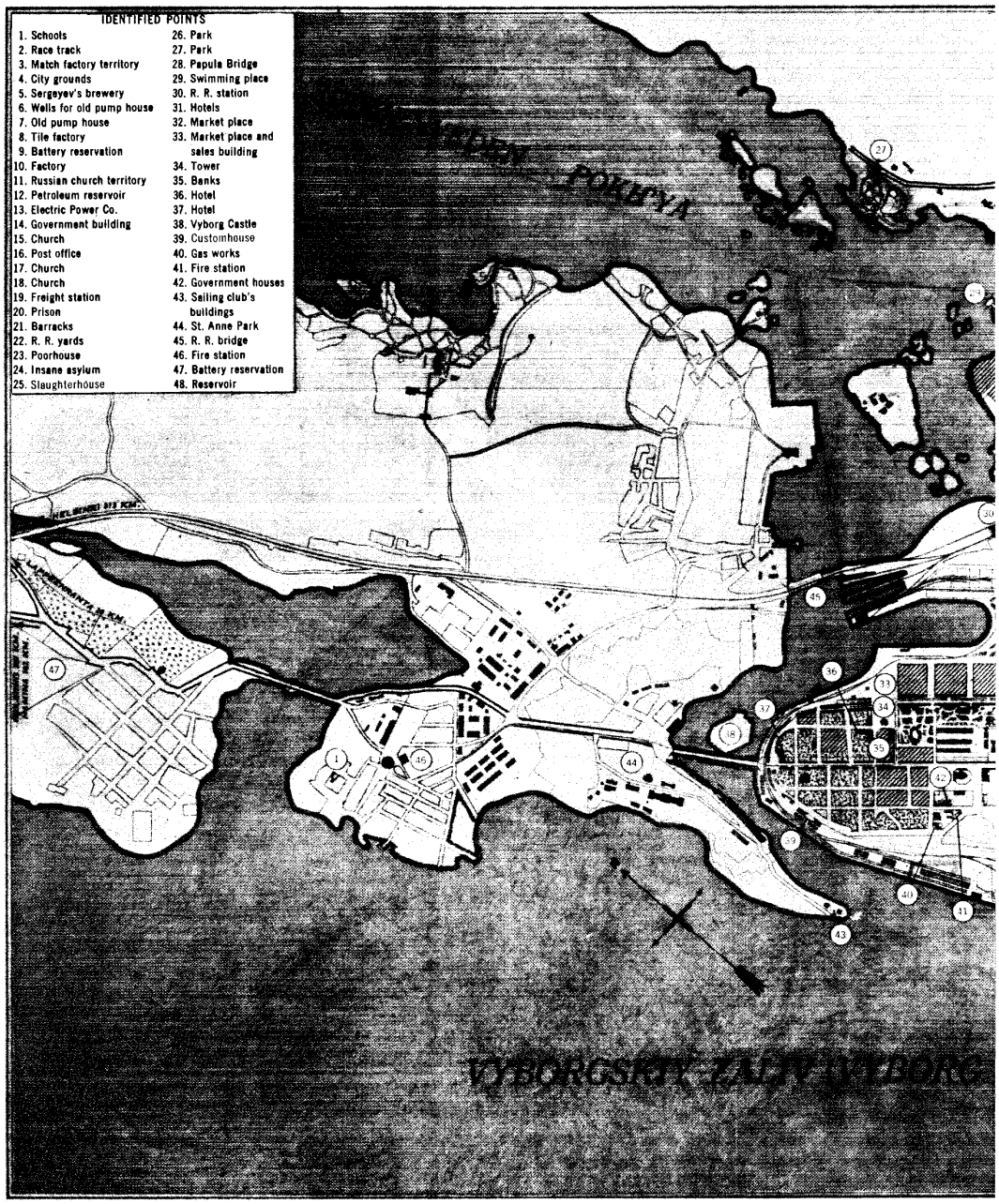


FIGURE VIII - 66
VYBORG CITY PLAN
JANIS 40
CONFIDENTIAL





of the Neva river, was formerly a commercial port but is now exclusively a naval base.

(5) Minor towns

Less detailed information on a total of 82 urban areas in the unoccupied area is tabulated in TABLE VIII-14. With the exception of the communities in the immediate vicinity of Moscow *107*, and Leningrad *37*, the usual pattern is a regular gridiron, and the buildings follow one or more of the basic patterns E to I inclusive, as described in Topic 80, E, (7) and FIGURES VIII-13 through VIII-17. In most instances, suburbs follow one or more of the typical village patterns illustrated in TABLE VIII-6. Construction generally conforms with types discussed in Topic 80, E.

Most of the population is located in the basin and valleys of the Volga and its tributaries, and in portions of the Don river basin (only part of which is in the unoccupied area). To the north, the population is scanty and mostly limited to a few towns, such as Murmansk (TABLE VIII-1 and FIGURE VIII-3). Very little information pertaining to the Komi ASSR, and its capital Syktyvkar (15) has been available for study.

(6) Villages and farms

The villages of the unoccupied area follow the general patterns outlined in TABLE VIII-6, and in the majority of cases follow Type I (FIGURE VIII-17), as discussed in Topic 81, A, (6).

B. Major cities and towns

(1) Moscow (Moskva) (55°45'N, 37°37'E). Moskovskaya Oblast', RSFSR. Population: 4,137,000 in 1939; 4,342,000 (estimated) in 1941; 4,500,000 estimated in 1946. (PLAN 29, FIGURE VIII-19, *107*)

(a) Importance.—Moscow is not only the capital of the entire USSR (Union of Soviet Socialist Republics), but is also the administrative center of the RSFSR (Russian Soviet Federated Socialist Republic) and Moskovskaya Oblast'. In addition, the following major cities are directly administered from Moscow even though in all cases they are the capitals or administrative centers of an oblast or an ASSR (Autonomous Soviet Socialist Republic):

Gor'kiy	*58*
Kuybyshev	*130*
Leningrad	*37*
Molotov	Ural area
Novosibirsk	Siberia area
Rostov-na-Donu	*256*
Saratov	*192*
Stalingrad	*197*
Sverdlovsk	Siberia area
Chelyabinsk	Ural area

The ancient triangular citadel or Kreml' (232), better known as the Kremlin, is both the seat of the government and the headquarters of the Communist Party (FIGURE VIII-67). Within a ring of broad streets surrounding the Kremlin in a radius of 2 kilometers (1.24 miles), a large percentage of the buildings, including entire blocks, have been taken over or rebuilt for government and party bureaus and agencies, and for other functions (FIGURE VIII-68).

Prior to 1941, construction on the new monumental Palace of the Soviets (265) a few blocks west of the Kremlin had been started, but the steel framework was torn down during World War II to provide scrap steel. The structure has been projected to be the tallest building in the world (FIGURE VIII-69).

FIGURE VIII-67. *Moscow.*
Moskvoretskiy Bridge (273) across Moskva river with Kremlin in background. View northwestward. Probably after 1940.

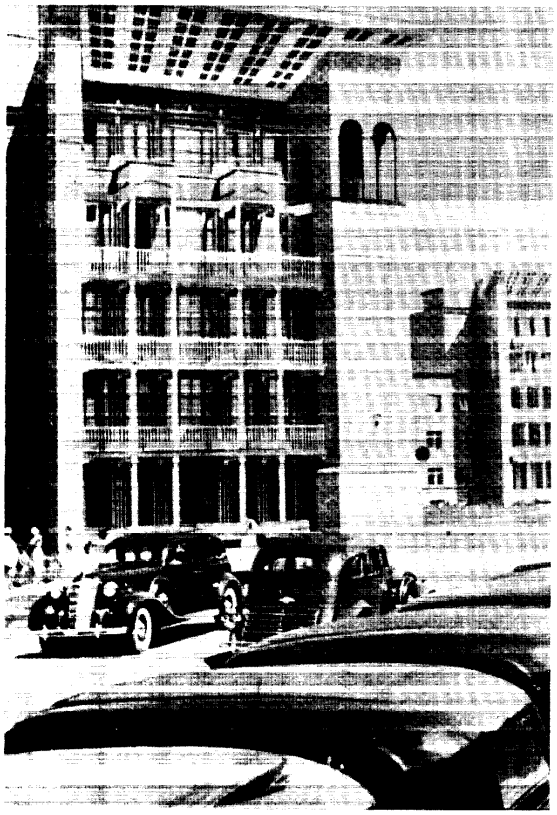


FIGURE VIII-68. *Moscow.*
New building of the Trade Unions, Kaluzhskaya Street.

The city is strategically located in the center of European USSR on the Moskva river, one of the country's navigable inland waterways. Networks of railroads and highways radiate from the city and are major elements in the Soviet. Moscow's importance as a major manufacturing and industrial center has been emphasized by the Soviet Government, and it is competitive with Leningrad as the major industrial city in European USSR.

Since the revolution of 1917, Moscow has gradually developed into a modern city and has become the center of

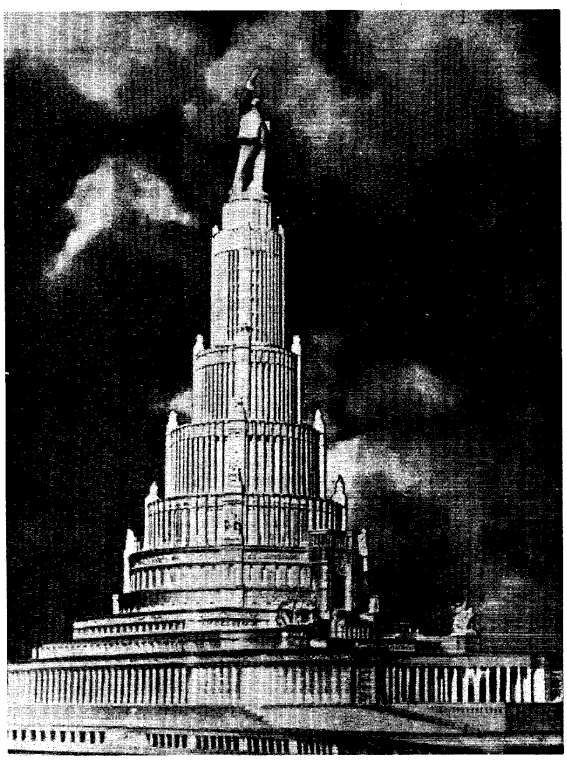


FIGURE VIII-69. *Moscow.*
Palace of the Soviets. Not yet completed in 1947.

USSR culture. The Lenin Public Library is one of the world's largest, and the city has 50 theaters and 80 higher institutions of learning, including the Academy of Sciences.

(b) Physical characteristics.—The city is situated on the banks of the Moskva river. The Yauza river, a tributary of the Moskva, passes through the northeastern part and joins the Moskva river directly south of the Bol'shoy Ustinskiy Bridge (275). The elevation of the urban area varies from 120 meters (394 feet) along the river valleys to a maximum height of 199.5 meters (654.5 feet) on the bluff of Vorob'yevo where the Moskva river makes a loop through the southwestern suburbs. The Kremlin rises to about 170 meters (558 feet), and north of the Moskva the urban area averages 155 meters (508.5 feet).

The city has an average of 100 days of snow per year. The climate is not, however, as rigorous as might be expected. Summers are comparable to those of western Europe and the winters no colder than in southern Canada or northern Korea.

The area covered by the city (1939 data) is 325 square kilometers (125.5 square miles) and is an irregular oval of 21 kilometers (13 miles) north to south, and 26 kilometers (16 miles) east to west.

The physical expansion and increase of population since 1928 (especially for the industrial portion in the southern and southeastern suburbs) have been reflected in the replanning and reconstruction of the older, central area, as well as in the construction of the many modern housing developments. In spite of residential expansion, reports of observers indicate a continuing serious housing shortage. Overcrowding of the city is indicated by the estimated present density of over 13,000 persons per square kilometer (4,900 per square mile) for the entire area. However, large sections, especially in the northern and northeastern environs, are open country or forest lands. Concentration of population, therefore, is in the built-up central areas.

(c) Transportation

1. EXTERNAL

a. Rail.—Moscow is the hub of the entire USSR railroad system, with eight railroads (one with two routes) and nine main-line stations (68, 94, 127, 128, 131, 146, 228, 255, 336). All stations are interconnected by either the Belt Line or the Connecting Line (FIGURE VIII-75). In recent years considerable expansion of these facilities has been undertaken; it includes the addition of a single-track bridge (251) across the Moskva river on the Belt Line. Besides the passenger facilities, there are numerous freight stations (43, 68, 95, 120, 128, 286, 292, 295, 302, 318, 336), and several large storage depots (21, 31, 83, 155, 156, 159, 244, 342, 355). Classification and terminal yards serve all lines. The entire system, within and encircling the city, appears to be most flexible, both as to serving the city and for through traffic. This is considered one of the major factors in the ability of the Russian forces to defend the city against the German attack in 1941. See Chapter VII, 71.

Due to the meandering of the Moskva river, the Kanal im. Moskvy (Moscow – Volga Canal), and the valley of the Yauza river, the railroads require a number of major bridges. In addition, the many street overpasses and underpasses, as well as the numerous crossings of one railroad by another, necessitate a large number of minor bridges (TABLE VIII-8).

Railroads which enter the city have been expanded. The central Connecting Railroad has been improved so that it provides flexible connections between the different freight and passenger terminals. The connections between the main lines and the double-track Okruzhnaya (Belt) railroad, which encircles the main urban area at an average radius of 7 to 10 kilometers (4.4 to 6.2 miles) from the Kremlin, have been improved. Conflicting train movements have been obviated by providing overhead and underpass crossings. Grade separations, especially within the built-up central area, have intersected the city with embankments or cuttings. These form possible military obstacles. Especially is this true of the routes of the Connecting Railroad which have severed some old through streets and forced relocation of others.

b. Road.—The city is also the center of a road network. Some of the main routes are the famous prewar superhighway running west to Minsk *155* which leaves the city by Mozhayskoye avenue, the modern highway to Gor'kiy *58* which leaves the city by Entuziastov avenue through Noginsk *115*, and the highway to Leningrad *37* which leaves the city by Leningradskoye avenue, passing through the Severnyy Port (Khimkinskoye harbor) area (1) and the suburb of Khimki northwest of the city. Highway through-communications within the city are good (Chapter VII, 72).

The Moscow – Odessa 7-meter (23-foot) highway, under construction in 1946, was scheduled for completion by the spring of 1947. Materials were imported from Rumania and Czechoslovakia.

c. Water.—Improvements to the Moskva river and those recently completed on the Kanal im. Moskvy, bring Moscow into increased importance as a major port of the RSFSR inland waterway system. Severnyy Port or

TABLE VIII - 8

SELECTED BRIDGES IN MOSCOW

Bridge	Over	Total length (approx.)	Number of spans (all fixed)	Capacity in tracks or lanes	Construction	Remarks	PLAN 29 Reference no.
Railroad		*Meters*					
Okruzhnaya (Belt) R.R.	Yauza river	Unknown	Unknown	Double track	Unknown	.....	8
Yaroslavskaya R.R.	Okruzhnaya R.R.	60	Single span(?)	Single track	Steel	.....	11
Okruzhnaya R.R.	Oktyabr'skaya R.R.	42	Single span	3 tracks	Steel girder	.....	13
Kalininskaya R.R.	Moskva-Volga Canal	250	3 spans	Single track	Steel plate deck arch. Plate girder approach spans each end	2 piers at 130 m. (approx.) high. Appears to have footpath. Destruction would block canal.	37
Kalininskaya R.R.	Oktyabr'skaya R.R.	110	Unknown	Single track	Steel (?)	.....	45
Kazanskaya R.R.	(1) Yauza river	42	3 spans	3 tracks	Reinforced concrete	.....	111
	(2) Street	35	Single span	3 tracks	Steel	.....	
Connecting R.R.	Yaroslavskaya R.R.	60	Unknown	3 tracks	Skew	.....	130
Connecting R.R.	Komsomol'skaya Square	(1) 60	3 spans	Double track	Both: steel through plate girder	2 masonry piers.	188
		(2) 50	2 spans(?)	Double track		1 masonry pier (?)	
Two Okruzhnaya R.R.	Belorusskaya R.R.	(1) 60	Unknown	Single track	Both: steel and skew	.....	242
		(2) 60	Unknown	Double track		.....	
Belorusskaya R.R.	Moskva river (130 m. wide)	165	Main span, with approach spans each end	Double track (10 m. wide)	Steel truss	2 piers; height unknown.	250
Okruzhnaya R.R.	Moskva river (100 m. wide)	170	3 spans	Single track	Steel truss	2 piers; height unknown.	251
Okruzhnaya R.R.	Moskva river (100 m. wide)	205	3 spans	Double track	Steel truss	2 piers; height unknown. On important link on belt route.	252
Kurskaya R.R.	Yauza river (22 m. wide)	42	3 spans	3 tracks	Steel girder	2 piers (?). It is believed that plans exist to replace this bridge with 4-track single-span arch.	282
Kurskaya R.R.	Okruzhnaya R.R.	45	Single span(?)	3 tracks	Steel girder	.....	297
Okruzhnaya R.R.	Kiyevskaya R.R.	140	.....	Double track	Unknown	.....	322
Okruzhnaya R.R.	Moskva river (140 m. wide)	200	Main span 140 m. 2 approach spans at 25 m.	Double track	Steel through-arch with 50% suspended deck	On important link in belt route.	323
Okruzhnaya R.R.	Kurskaya R.R.	(1) 50	North: single span	Single track	Both: steel plate girder	.....	349
		(2) 50	South: single span	Double track			
Okruzhnaya R.R.	Moskva river (140 m. wide)	208	Main span 138 m. 2 approach spans at 30 m.	Double track	Main span steel through-arch	On important link in belt route.	381
Okruzhnaya R.R.	Moskva river (175 m. wide)	250	3 spans	Double track	Through-arch	2 piers, 90 m. high.	396
Donbasskaya R. R.	Okruzhnaya R.R.	40	Single span (?)	Double track	Steel girder	.....	398
Metro	Moskva river (140 m. wide)	320	Main span 150 m. long Approach spans each end	Double track (12 m. wide)	Unknown	4 piers, 55 m. high. Total length includes ramps at each end. Tracks enter tunnels each end.	256
Street							
Yaroslavskoye Ave.	Yauza river	Unknown	.....	Unknown	Unknown	On main northeastern exit route.	29
Leningradskoye Ave.	Okruzhnaya R.R.	40	Single span (?)	3 lanes	Unknown	On main northwestern exit route; possible bottleneck.	35

Notes: All dimensions are approximate.
(?) indicates that information is assumed.
CONVERSION FACTORS: 1 kilometer=0.6214 mile.
1 meter=3.281 feet.

TABLE VIII - 8 (Continued)

Bridge	Over	Total length (approx.)	Number of spans (all fixed)	Capacity in tracks or lanes	Construction	Remarks	PLAN 29 Reference no.
Street (continued)		*Meters*					
Leningradskoye Ave.	Kalininskaya R.R.	60	Single span (?)	3 lanes	Unknown	On main northwestern exit route; possible bottleneck.	40
Yaroslavskoye Ave.	Oktyabr'skaya R.R.	160	Unknown	6 lanes	Skew	2 pavements, separated by center strip.	63
Street bridge	Connecting R.R.	100	Unknown	5 lanes	Unknown	Length includes approaches.	93
Matroskiy St.	Yauza river	30	Single span	6 lanes	Unknown	On main exit road to east; nearest detour bridge 0.8 km. north (57) on secondary roads.	98
Elektrozavodskiy St.	Yauza river	25	3 spans	4 lanes	Unknown	On secondary exit road to east. Nearest bridges across Yauza River 1.5 km. north or south.	110
Street Bridge	Kazanskaya R.R. yards	65	Unknown	3 lanes	Unknown	.....	123
Leningradskoye Ave.	Connecting R.R.	180	Single span at 40 m. (?)	6 lanes	Unknown	Length includes ramp approaches.	145
Street bridges	(1) Connecting R.R.	55	Single span	3 lanes	Unknown	Important secondary bridges across railroads.	165
	(2) Belorusskaya R.R.	160	Unknown	3 lanes	Unknown	No bridge across railroads between this bridge and Moskva river 2.75 km. to southwest.	
Entuziastov Ave.	Kazanskaya R.R. freight lines	40	Single span (?)	2 lanes	Unknown	Preliminary construction for street widening evidenced in 1941.	204
Entuziastov Ave.	Kazanskaya R.R. passenger lines	170	40 m. single span	4 lanes	Unknown	Length includes approach ramps.	212
Lefortovskiy St.	Yauza river	90	Unknown	4 lanes	Unknown	.....	222
Mozhayskoye Ave.	Okruzhnaya R.R.	60	Unknown	4 lanes	Unknown	.....	253
Dorogomilovskiy St.	Moskva river (144 m. wide)	160	3 equal arched (?) spans	4 lanes (26 m. wide)	Unknown	2 piers, 55 m. high.	257
Bol'shoy Kamenny Bridge	Moskva river (105 m. wide)	495	Main span, 100 m. long 2 approach spans each end at 45 m.	8 lanes (40 m. wide)	Steel deck arch	Relatively new bridge. Streetcar tracks in center; important bridge on secondary north - south route.	266
Maly Kamenny Bridge	Vodootvodny canal (60 m. wide)	60	Single span	8 lanes	Skew	This bridge is combined with Bol'shoy Kamenny Bridge (266).	271
Chugunny Bridge	Vodootvodny canal (32 m. wide)	32	Single span	8 lanes	Skew	Important bridge on north - south route using Moskvoretskiy Bridge (273).	272
Moskvoretskiy Bridge	Moskva river (95 m. wide)	515	Main span 95 m. long 2 approach spans at 40 m.	8 lanes (40 m. wide)	Flat arch, main span with masonry facing	Relatively new bridge; length includes approach ramps; 2 piers. On main north - south through route.	273
Bol'shoy Ustinskiy Bridge	Moskva river (135 m. wide)	470	Main span 135 m. long 2 approach spans at 30 m.	8 lanes (40 m. wide)	Unknown	Relatively new bridge; not too important for through traffic as southern approach requires detours.	275

TABLE VIII - 8 (Continued)

Bridge	Over	Total length (approx.)	Number of spans (all fixed)	Capacity in tracks or lanes	Construction	Remarks	PLAN 29 Reference no.
Street (continued)		*Meters*					
Maly Ustinskiy Bridge	Mouth of Yauza river (35 m. wide)	40	Single span	8 lanes	Skew; flat arch	North end under Bol'shoy Ustinskiy Bridge; important link on transverse route along north bank of Moskva river.	276
Vysokiy St.	Yauza river (25 m. wide)	105	Main span 50 m. long Approach span north end 20 m. long	4 lanes	Main span double-system deck Warren truss; approach spans appear to be reinforced concrete	Length includes approach ramps.	280
Street bridge (new)	Yauza river (26 m. wide)	230	Main span 75 m. long	8 lanes	Unknown	Under construction in July 1941. Length includes approach ramps. In 1941, connection to north not cut through to Kurskiy station (228).	281
Krasnokholmskiy St.	Moskva river (133 m. wide)	720	Main span 170 m. long 2 approach spans at 50 m.	8 lanes (40 m. wide)	All spans skew. Main span, steel deck arch.	2 piers; height unknown; important bridge on southern loop of main circumferential route.	304
Maly Krasnokholmskiy St.	Vodootvodny Canal (40 m. wide)	40	Single span	8 lanes	Unknown	.....	305
Krymskiy Bridge	Moskva river (160 m. wide)	500	Main span 170 m. long 2 approach spans at 35 m.	4 lanes (38.5 m. wide)	Suspension with chain link and pin cables	2 masonry piers, with steel towers for suspension cables. Footpaths outside cables. Length includes approach ramps.	311
Overpass	Paveletskiy Station yards	250	Span over tracks 80 m. long	3 lanes	Unknown	Length includes western approach.	335
Overpass	Okruzhnaya R.R.	60	Unknown	4 lanes	Unknown	.....	360
Novospasskiy St.	Moskva river (160 m. wide)	570	3 main spans at 50 m. 2 approach spans at 25 m.	4 lanes	Steel deck arch	4 piers; height unknown.	339
Ostapovskoye Ave.	(1) Okruzhnaya R.R.	60	Single span (?)	4 lanes	Unknown	Relatively recent double overpass on southeastern through-route exit.	348
	(2) Connecting R.R.	30	Single span	4 lanes	Unknown	.....	
Kaluzhskiy St.	(1) Krovyanka river	30	Single span	2 lanes	Unknown	Bottleneck on main exit to the west toward Vyaz'ma.	378
	(2) Okruzhnaya R.R.	45	Single span (?)	2 lanes	Unknown	.....	
Overpass	Okruzhnaya R.R.	60	Unknown	3 lanes	Unknown	.....	380
Danilovskiy St.	Chura river	44	Unknown	2 lanes	Unknown	.....	387
Street bridge	Moskva river (160 m. wide)	630	Main span 150 m. 2 approach spans at 25 m.	4 lanes	Unknown	Length includes approach ramps.	389

Notes: All dimensions are approximate.
(?) indicates that information is assumed.
CONVERSION FACTORS:
1 kilometer=0.6214 mile.
1 meter=3.281 feet.

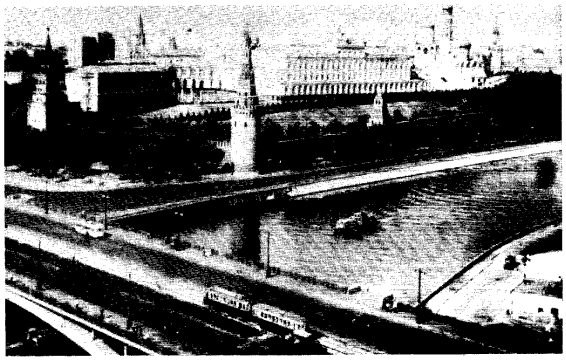


FIGURE VIII-70. *Moscow.*
View northeastward. Bol'shoy Kamenny (266). Bridge across Moskva river, Kremlin in background. Before March 1945.

Khimkinskoye harbor, terminus of the Kanal im. Moskvy, has been completed; the Yuzhnyy Port (South Port) (392), under development, has major retaining walls and some buildings completed. In addition to these larger facilities there is a smaller landing place on the right bank for Moskva river boats, the Zapadnyy Port (West harbor) (243). In order to provide greater clearance, all six of the old street bridges over the main channel of the Moskva river have been replaced by modern structures (TABLE VIII-8 and FIGURE VIII-70, Chapter VII, 73).

d. Air.—Moscow has an airport (88) within 5 kilometers (3 miles) of the Kremlin, with direct communication to the center of the city by means of Leningradskoye Avenue. There is also an airstrip (246) connected with the Gorbuna aircraft factory No. 22 (245). Moscow city and its immediate vicinity are provided with a total of 22 airfields and landing fields of which 15 have permanent facilities (Chapter XII).

2. INTERNAL

a. Streets.—Moscow is an unusual example of the development of a modern city with a radial-circumferential street pattern from a medieval walled town. The normal congestion found within the central portions of cities of this type has been eliminated by the opening of the main streets to the extent that vehicular intercom-

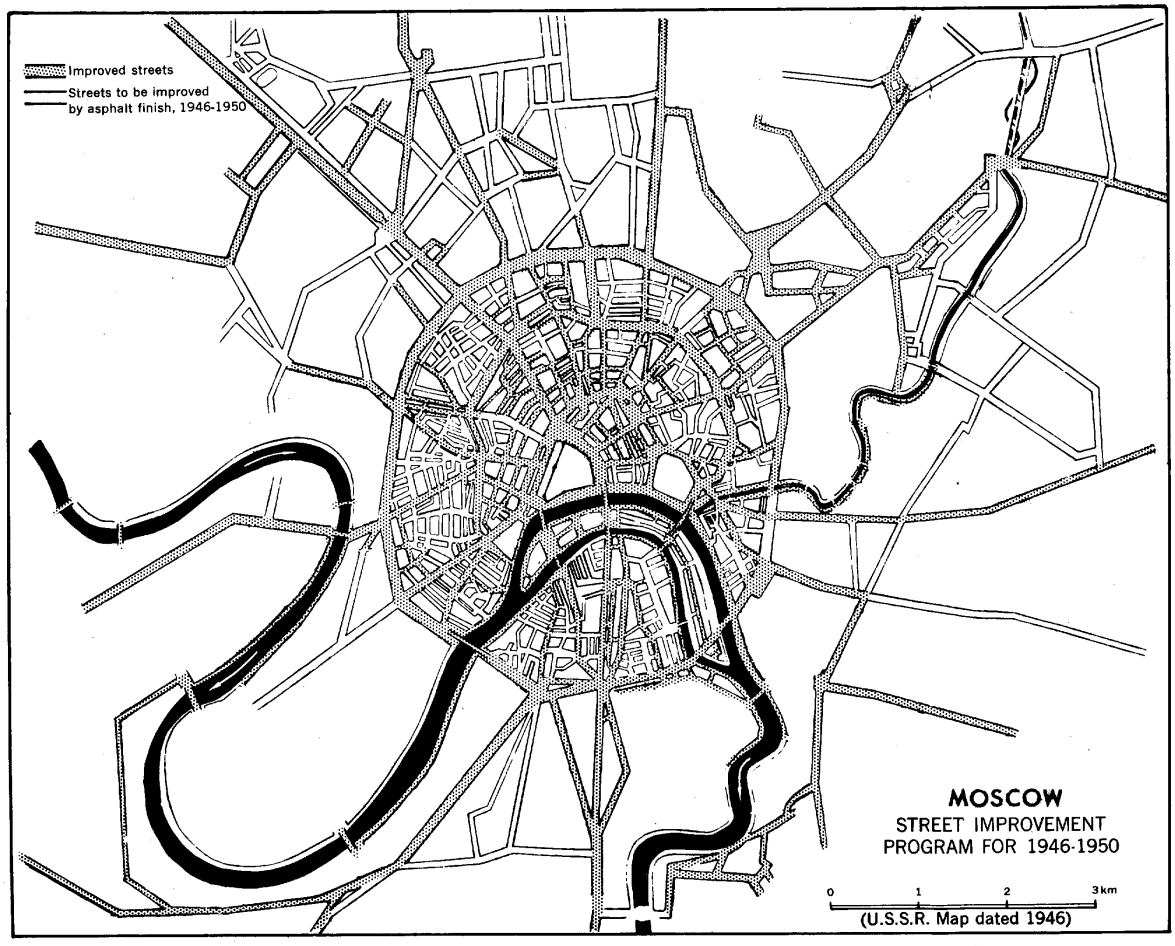


FIGURE VIII-71. *Moscow.*
Street improvement program for 1946-1950.

munications present no serious problems. Major streets are wide and in most instances are four or more traffic lanes in capacity. Considerable ingenuity was exercised in pivoting and moving major structures out of the way, where necessary. The new river bridges, with their approach ramps, extend from points one block back from the river banks and pass over the river-bank streets. Overpasses and street bridges are shown in TABLE VIII-8.

A five-year program for street improvements is under way (FIGURE VIII-71). The new plan proposes a series of concentric circumferential boulevards, to be as much as 110 to 120 meters (361 to 394 feet) wide, with radial streets emanating from the city's central area. These are planned to be wide enough to handle future heavy auto traffic, and parking areas are to be provided. Asphalt and concrete surfacing will continue to replace the cobblestones. Main streets are to be widened from an average of 10 meters (33 feet) to an average of 30 meters (98 feet) and 60 meters (197 feet) for new arteries. Of the 1,230 kilometers (764 miles) of streets in 1940, 5,000,000 square meters (52,820,000 square feet) were laid with asphalt. According to aerial photo interpretation, many minor residential streets in the suburbs appear still to have dirt or poorly conditioned surfacing.

What might be considered a bottleneck condition existed (1942) in the Kuybyshevskiy, Baumanskiy, and Krasnogvardeyskiy districts. Reports indicate that a new major street is being planned between the Kurskiy railroad passenger station (228), across a new Yauza river bridge (281) (under construction in 1942) to the Kurskaya railroad freight station (302).

There are numerous large squares located at the main intersections (FIGURE VIII-72). Most famous is Krasnaya Ploshehad' (Red Square) adjacent to the Kremlin. Moscow has many large parks and recreational areas, including Gor'kiy Park on the Moskva river, Stalin Recreational Park in the east, and the large wooded area in the northeast.

b. Public transit systems.—Before the war Moscow had initiated a modernization program of its intracity transit. In 1939 the following public transit facilities (excluding the Metro subway) existed (FIGURES VIII-73 and VIII-74):

TYPE	LENGTH OF ROUTES		AVAILABLE EQUIPMENT
	Kilometers	*Miles*	
Streetcars	239.5	148.8	2,405
Busses	858.0	533.0	1,197
Trolley busses	95.0	59.0	486

For the year 1939 it was reported that the municipal transit facilities (excluding the 3,297 taxis) carried 2,731,400,000 passengers.

Present plans call for the replacement of some of the streetcar routes in the central area by trolley busses (PLAN 29).

Many extensions are contemplated for Moscow's subway system which is partially completed and in operation (TABLE VIII-9 and FIGURE VIII-75). The architecture of the various stations is elaborate (FIGURES VIII-76 and VIII-79). Most of the construction has required the use of a shield, and tubular construction similar to the London Underground and the Manhattan Tubes between New York and New Jersey. One route crosses the Moskva river by a bridge (256) (TABLE VIII-8). Servicing shops are located in the northwest (42).

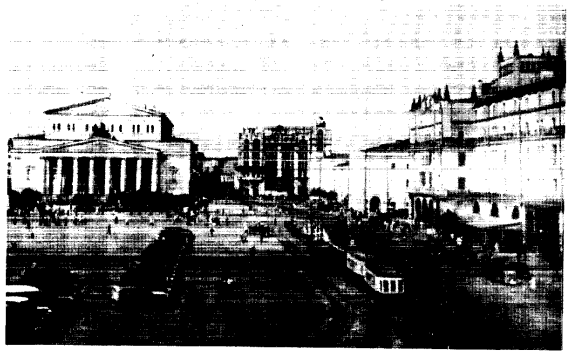


FIGURE VIII-72. *Moscow.*
Left, Bol'shoy Theater; center, the largest department store (Co-op Society); right center, the Maly dramatic theater.

FIGURE VIII-73. *Moscow.*
Streetcar with two trailer cars. Great increase in passengers has caused adoption of trailer cars. Street surface, cobblestone. About 1934.

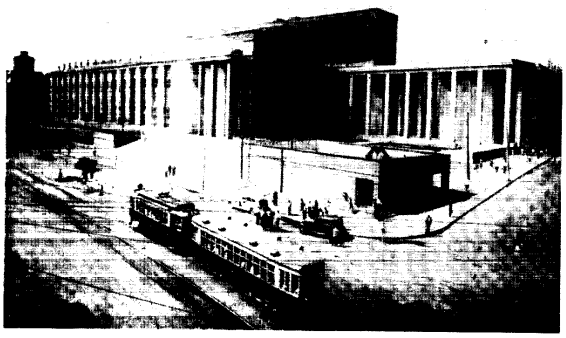


FIGURE VIII-74. *Moscow.*
Streetcar with trailer. Lenin library in background.

The network of radiating railroads and the Belt Line Railroad give additional local commuter service to supplement the local transit facilities. Multiple-unit trains are used on the electrified lines (FIGURE VIII-77).

Notwithstanding the apparent completeness of the transit facilities, reports indicate that operating efficiency is mediocre and breakdowns are frequent, a situation prevalent throughout the USSR, according to eyewitness reports.

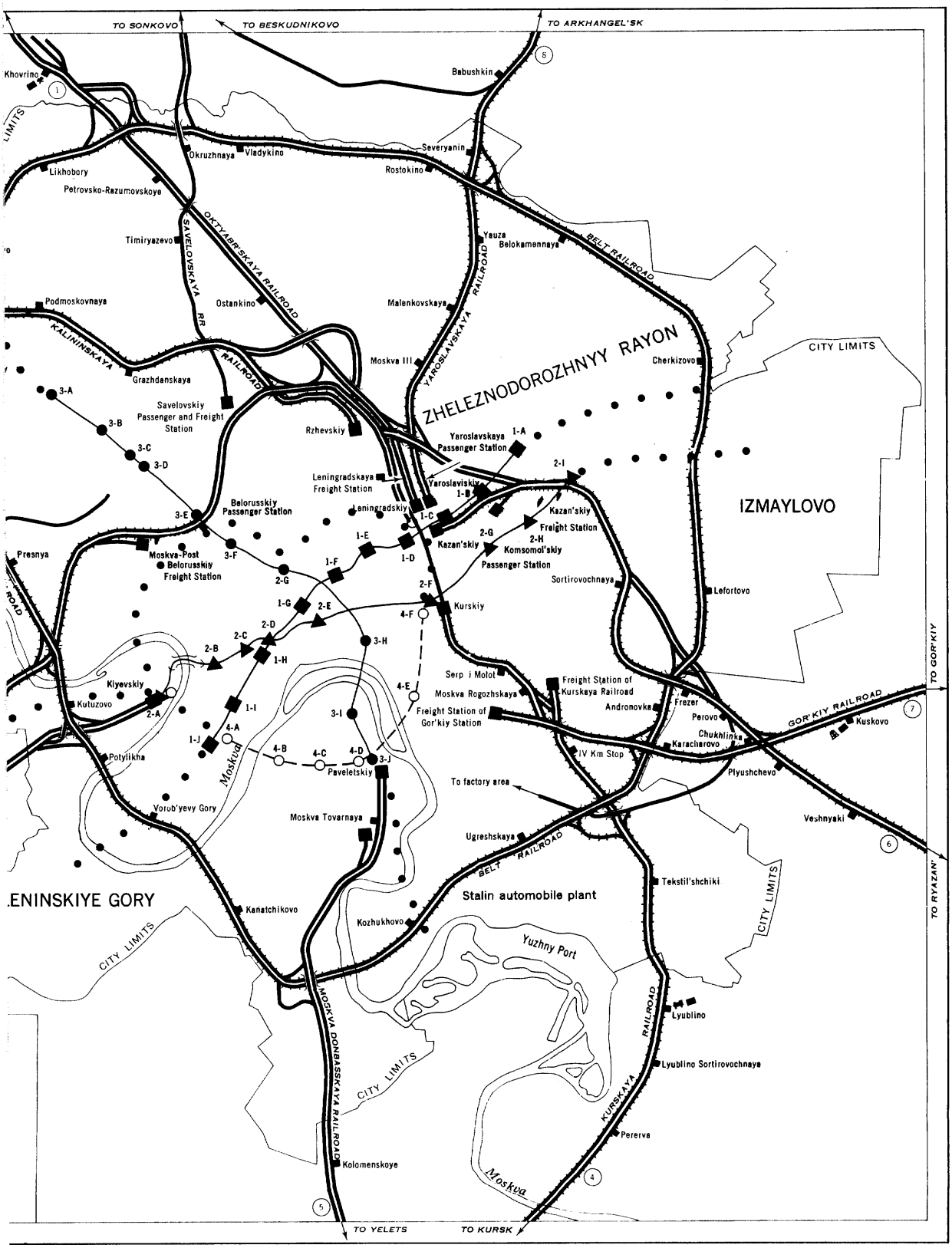
TABLE VIII - 9

THE MOSCOW SUBWAY (METRO)
(FIGURE VIII - 75)

Physical features	Line 1		Line 2		Line 3		Line 4 (circle route)	
	Kirovo-Frunzenskaya (Stations NE to SW)	Approx. distance	Arbatetsko-Pokrovskaya (Stations W to ENE) *30 to 35 m. average depth*	Approx. distance	Gor'kovskaya-Zamoskvoretskaya (Stations NW to S) *30 to 35 m. average depth*	Approx. distance	Sadovaya (stations counterclockwise) *Over 40 m. average depth*	Approx. distance
		Km.		*Km.*		*Km.*		*Km.*
Stations	A. Sokol'niki		A. Kiyevskaya (Bridge over Moskva river)		A. Sokol		A. (Park Kul'tury Gor'kogo) (Interchange with 1J) Tunnel under Moskva river	1.1
		1.5		1.1		1.3		
	B. Krasnosel'skaya		B. Smolenskaya		B. Aeroport		B. (Kaluzhskaya)	
		0.8		1.2		1.7		0.8
	C. Komsomol'skaya		C. Arbatetskaya (Escalator)		C. Dinamo (direct access to stadium grounds)		C. (Serpukhovskaya)	
		1.0		0.4		0.3		0.8
	D. Krasnyye Vorota		D. Kominterna		D. Akademiya Vozdushnogo Flota		D. (Paveletskiy) (Interchange with 3J)	
		0.8		0.8		1.7		1.7
	E. Kirovskaya		E. Plochshad' Revolyutsii (Interchange with 1G and 3G)		E. Belorusskiy Vokzal		E. (Taganskaya) (deepest station)	
		1.2		2.4		1.3		1.6
	F. Dzerzhinskaya 40 m. depth 60 m. long escalator		F. Kurskaya (Interchange with 4F)		F. Mayakovskaya		F. (Kurskaya) (Interchange with 2F)	
		0.9		2.0		1.6		
	G. Okhotny Ryad (Interchange with 2E and 3G)		G. Spartakovskaya		G. Plochshad' Sverdlova (Interchange with 2E and 1G)		(There will be 12 deep stations)	
		1.0		0.2		1.2		
	H. Biblioteka Lenina (Escalators)		H. Bakuninskaya (Tunnel under Yauza river)		H. Plochshad' Nogina			
		0.9		1.3		1.3		
	I. Dvorets Sovetov		I. Elektrozavodskaya		I. Novo-Kuznetskaya 20 m. depth (below river depth) (Tunnel under Moskva river and canal)			
		1.4				1.2		
	J. Park Kul'tury Gor'kogo (Interchange with 4A)				J. Paveletskiy Vokzal (Interchange with 4D)			
	Total length of line	9.5		9.4		11.6		6.0
Proposed extension	Proposed extensions: (1941) W to Leninskiye Gory (reported under construction in 1940) (under Moskva river) E to Cherkizovo	4.2	Proposed extensions: E to Izmaylovo W along super highway to Minsk	4.4	Proposed extensions: (1941) S to "Stalin" Automobile Plant (reported under construction in 1940) (under Moskva river) NW to Khimki	3.6	Proposed extensions to complete circle: (1941) Kurskaya to Kazanskaya	2.0
		4.4				5.6	Kazanskaya to Park Kul'tury Gor'kogo	10.9
Trains	8 cars of 19 m. (62 ft.) each		8 cars of 19 m. each		8 cars of 19 m. each		.....	
Average speed (Start to stop)	(22 m.p.h.)		(25 to 26 m.p.h.)		(25 to 26 m.p.h)		.....	
Service	6 minutes normal headway 2½ minutes rush-hour headway		6 minutes normal headway 4 minutes rush-hour headway		6 minutes normal headway 2½ minutes rush-hour headway			

CONVERSION FACTOR: 1 meter=3.28 feet.

FIGURE VIII - 75
MOSCOW INTERNAL TRANSPORTATION
JANIS 40
CONFIDENTIAL



LEGEND

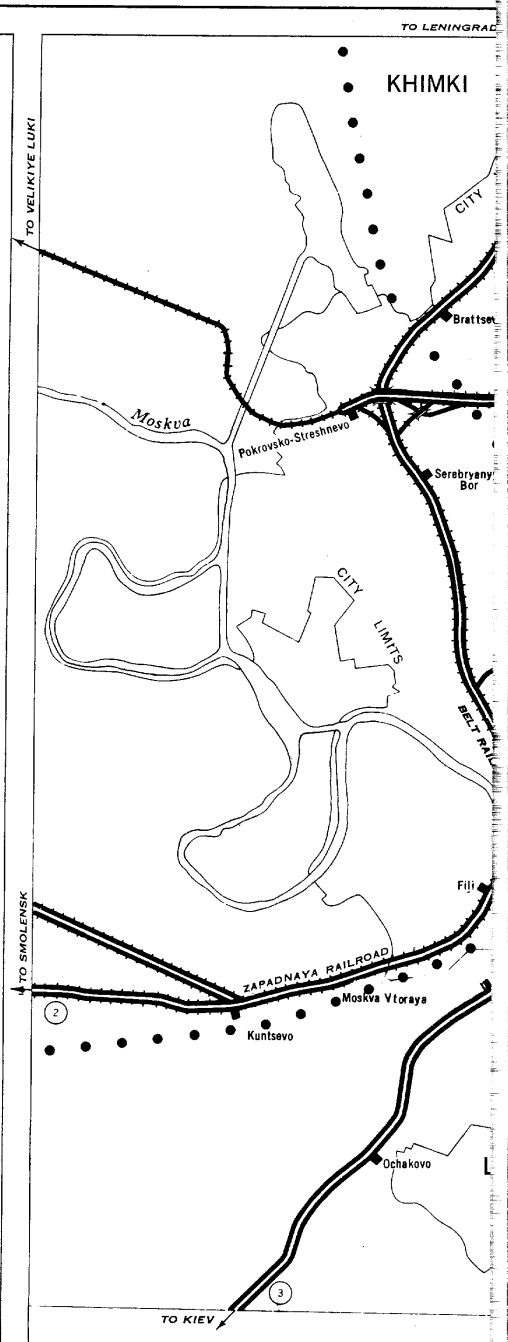
Railroads; broad gage (5'0"):

- Single track, steam
- Double track, steam
- Single track, electric
- Double track, electric

Subways:

- Line 1; built / projected
- Line 2; built / projected
- Line 3; built / projected
- Line 4; built / projected

STATION NAME	NUMBER
Line 1	
Sokol'niki	1-A
Krasnosel'skaya	1-B
Komsomol'skaya	1-C
Kirovskaya	1-D
Dzerzhinskaya	1-E
Okhotny Ryad	1-F
Biblioteka Lenina	1-G
Dvorets Sovetov	1-H
Park Kul'tury Gor'kogo	1-I, 1-J
Line 2	
Kiyevskaya	2-A
Smolenskaya	2-B
Arbatetskaya	2-C
Kominterna	2-D
Plochshad' Revolyutsii	2-E
Kurskaya	2-F
Spartakovskaya	2-G
Bakuninskaya	2-H
Elektrozavodskaya	2-I
Line 3	
Sokol	3-A
Aeroport	3-B
Dinamo	3-C
Akademiya Vozdushnogo Flota	3-D
Belorusskiy Vokzal	3-E
Mayakovskaya	3-F
Plochshad' Sverdlova	3-G
Plochshad' Nogina	3-H
Novokuznetskaya	3-I
Paveletskiy Vokzal	3-J
Line 4	
Park Kul'tury Gor'kogo	4-A
Kaluzhskaya	4-B
Serpukhovskaya	4-C
Paveletskiy	4-D
Taganskaya	4-E
Kurskaya	4-F



MOSCOW

INTERNAL TRANSPORTATION

1 0 1 2 3 Km

1 0 1 2 Miles

CONFIDENTIAL

TABLE VIII - 9 (Continued)

Physical features	Line 1	Approx. distance	Line 2	Approx. distance	Line 3	Approx. distance	Line 4 (circle route)	Approx. distance
	Kirovo-Frunzenskaya (Stations NE to SW)		Arbatetsko-Pokrovskaya (Stations W to ENE) *30 to 35 m. average depth*		Gor'kovskaya-Zamoskvoretskaya (Stations NW to S) *30 to 35 m. average depth*		Sadovaya (stations counterclockwise) *Over 40 m. average depth*	
		Km.		*Km.*		*Km.*		*Km.*
Tunnels	Cast-iron sectional rings		Cast-iron sectional rings		Cast-iron sectional rings		Cast-iron sectional rings. Passes under existing tunnels in all cases. First section completed; track laying expected to be commenced early in 1948 (Also installation of electrical equipment)	
Track	Supported on concrete without ballast. Long welded rails		(Same)		(Same)		(Same)	

CONVERSION FACTOR: 1 meter=3.281 feet.

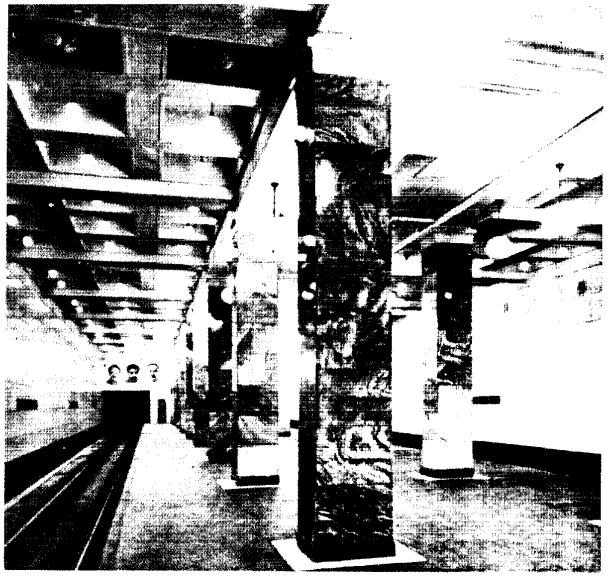


FIGURE VIII-76. *Moscow.*
Metro (subway) station. Before 1934.

FIGURE VIII-77. *Moscow.*
Multiple-unit electric suburban train. Before 1934.

(d) Industry and commerce.—The expansion of Moscow as an industrial and commercial center is indicated by the many large industrial plants located on the outskirts (PLAN 29). Postwar output is estimated to be 200% of that in 1918 for the entire country. Heavy industry is now surpassing prewar light industry (TABLE VIII-10). This industrial expansion has taken place in the southern semicircle of suburbs, with the major plants (TABLE VIII-11) located in the southeast. One of these, the *Stalin* automobile plant (390), (FIGURE VIII-78) produced 93,000 cars and trucks in 1944. Production of an improved new model truck was to have started by late 1947. Excellent railroad access to these plants is provided by the many spurs and connections, both to the main lines and to the Okruzhnaya (Belt) railroad. In addition to those identified on the map and those listed in TABLE VIII-11, there are numerous plants for the manufacture of tools and machinery, electrical equipment, locomotives, and automotive accessories.

TABLE VIII - 10

TREND TO HEAVY INDUSTRY IN MOSCOW
(In percent of workers)

Group	Prior to 1914		1931
Heavy industry	24.4		43.1
Metallurgy	9.0		20.0
Electrical	7.5		10.0
Textiles	25.1		14.9*
Food	34.0		12.0
	100.0		100.0
Total Workers	740,000 (100.0%)	increased to	1,500,000 (203.0%)

* However, output was up 175.0 percent.

The commercial center of the USSR is located in the central portion of Moscow. Many new structures have been erected since 1917, some of which are quite imposing both in bulk and in height (FIGURE VIII-79). Reinforced

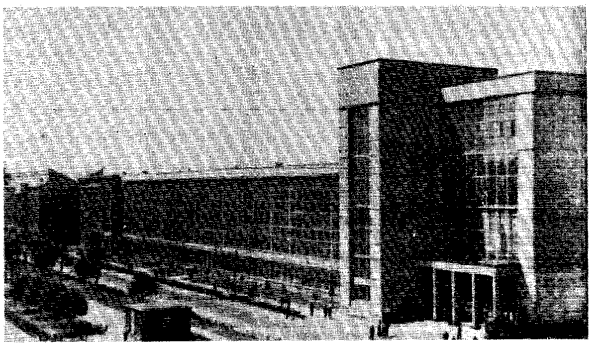


FIGURE VIII-78. *Moscow.*
Stalin automobile plant, body shop, looking westward. Modern style factory-type construction in foreground compared with older type left rear.

concrete has been used to a considerable extent; however, observers report that the quality of construction has been poor, and that the finished surfacings show signs of deterioration which detract from their otherwise monumental appearance (FIGURE VIII-80).

Freight handled in Moscow in 1939 totaled 27,200,000 metric tons (29,980,000 short tons) of which 4,300,000

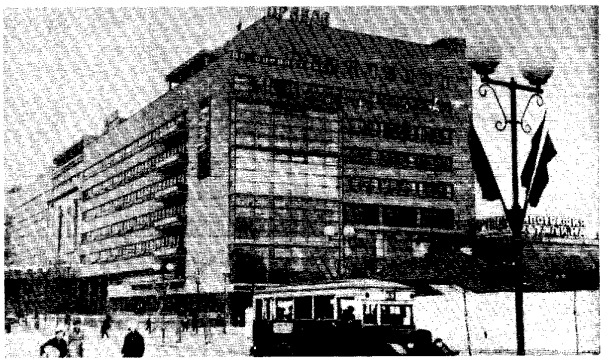


FIGURE VIII-80. *Moscow.*
Office and plant of the newspaper *Pravda*. Small bus in foreground. Prewar.

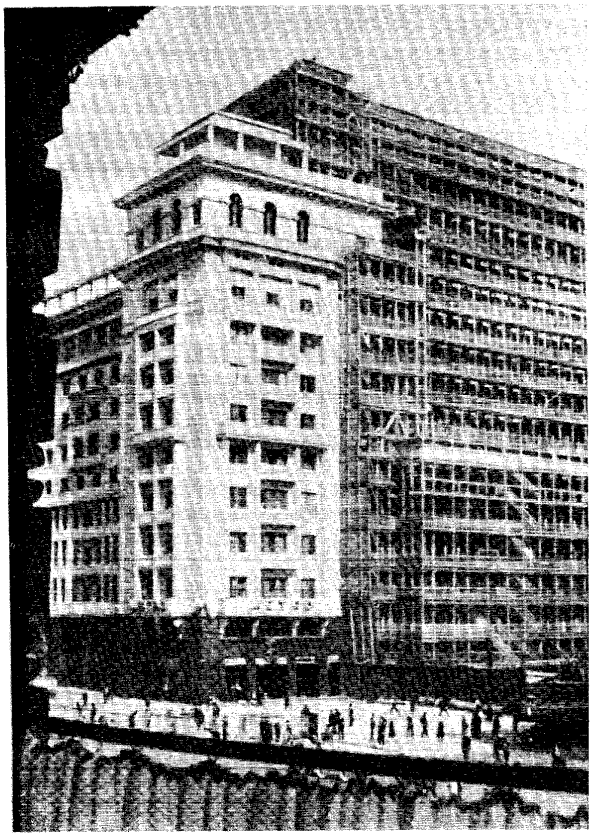


FIGURE VIII-79. *Moscow.*
New hotel in course of construction, 1935; opened 1937. Note slow and expensive fixed scaffolding. Metro (subway) entrance on corner.

metric tons were exports and 22,900,000 metric tons were imports.

During World War II years, the city was a major military base, and its storage facilities, adjacent to railroads, were greatly expanded.

TABLE VIII - 11

SELECTED IMPORTANT INDUSTRIAL PLANTS IN MOSCOW

Plant	Number of main buildings	Estimated total building area	Railroad connections	Product	PLAN 29 Reference no.
		Sq. meters			
Stalin tractor plant	50 (plus minor buildings)	459,600	Okruzhnaya R.R. (Belt Line)	Tractors and tanks	390
Sharikopodshipnik ball-bearing plant	37 (plus minor buildings)	83,150	Okruzhnaya R.R.	Ball bearings. (One of two such plants in city and in whole of USSR during war)	359
Kongressor mining machinery plant	24 (plus minor buildings)	59,800	Kurskaya R.R.	Heavy mining machinery	289
Serp i Molot smelter	6 (plus minor buildings)	100,700	Kurskaya R.R.	Steel and steel products	283
Izmaylovo rubber plant	14 (total)	14,900	Okruzhnaya R.R.	Natural rubber	0.5 km. SE of 205
Izmaylovo tractor plant	19 (total) 1 under construction (July 1941)	64,650	Okruzhnaya R.R.	Tractors and tanks (?)	0.5 km. E of 205

CONVERSION FACTOR: 1 square meter=10.76 square feet.

TABLE VIII - 11 (Continued)

Plant	Number of main buildings	Estimated total building area	Railroad connections	Product	PLAN 29 Reference no.
		Sq. meters			
KIM tank (automobile) plant	32 (plus 8 minor buildings)	308,550	Okruzhnaya R.R.	Tanks (during war)	343
Gorbuna aircraft factory No. 22	15 (plus 1 under construction and 13 minor buildings)	173,500	Zapadnaya R.R.	Aircraft (assembly plant with test airfield)	245 (246)
Moscow aircraft fuselage plant No. 39	11 (plus minor buildings)	36,050	Connecting R.R.	Airplane bodies	89
Moscow aircraft factory No. 1	12 (plus minor buildings)	68,950	Connecting R.R.	Aircraft assembly (with direct access to Civil Airport)	90 (88)
Elekrzozavod ATE aircraft accessories factory	30 (total)	122,500	None (1941)	Airplane electrical equipment and parts	103
Auxiliary aircraft factory	12 (plus minor buildings)	52,370	None (1941)	Airplane accessory parts and partial assembly	147
Molotov aircraft plant No. 81	16 (plus minor buildings)	57,000	Possible connection with Kalininskaya R.R.	Airplane partial assembly plant	18
Stankolit steel foundry	8 (plus minor buildings)	43,150	Connecting R.R.	Steel products	67

CONVERSION FACTOR: 1 square meter=10.76 square feet.

(e) Billeting and hospitals.—Since it is a military base, the city has many barrack areas (PLAN 29). Numerous hotels are located in the central section.

Prewar Moscow was well supplied with hospital facilities, but whether quality equalled quantity is questionable. Venereal diseases and tuberculosis were very prevalent. In 1941 there were numerous dispensaries, factory "health points," maternity hospitals, and general hospitals. There were 14,000 doctors and 1,214 dentists. The central Institute of Epidemiology and Microbiology produced large amounts of vaccines (Chapter XI).

(f) Utilities

1. WATER SUPPLY.—Moscow has one of the better water supply systems, although it does not equal standards in the United States either as to quality or quantity. Besides local artesian wells, water is drawn from the Moskva river at Rublevo, 18 kilometers (11.2 miles) west of the Kremlin; from artesian wells at Mytishchi, 18 kilometers (11.2 miles) north of the city; and from the new Akulovo reservoir at Shchitnikovo by means of a canal 28 kilometers (17.4 miles) in length, at the rate of 16 cubic meters (565 cubic feet) per second.

In 1938 the following average daily consumption was reported:

SOURCE	CONSUMPTION	
	Cubic meters	*Cubic feet*
Moskva river	640,000	22,600,000
Artesian wells	130,000	4,590,000
Other	70,000	2,470,000
Total	840,000	29,660,000

2. SEWAGE AND GARBAGE DISPOSAL.—Although existing facilities were inadequate in 1941, additions to the disposal system were under construction. Two sand-bed filter plants were in operation at that time, a small one near Kozhukhovo and a newer one in Lyublino which had a surface area of 70 hectares (173 acres). The city's sewerage network had 916 kilometers (569 miles) of sewers serving an area of 203 square kilometers (78 square miles). It was connected to 12,435 properties and served in 1939 about 3,000,000, or 78%, of the population.

Garbage and trash collection was of primitive nature before the war. In 1934 containers for street trash were in use.

3. POWER.—Moscow receives electric power from points as far distant as 250 kilometers (155 miles). Plants supplying power include the Shatura, a large plant 118 kilometers (73 miles) east of Moscow on the Kazan'skaya Railroad line; the Koshira, a lignite plant with 220,000 kilowatts capacity, two high-tension lines supplying 110,000-volt current to Moscow; and the Stalinogorsk plant which has two lines to Moscow, each supplying 220-kilovolt current. Most of the supply is used industrially. Power stations and auxiliary installations within the city limits are identified on PLAN 29 and include those providing power for the Metro, streetcars, and trolley busses (19, 70, 208, 209, 236, 247, 267, 270, 274, 319, 347, 354, 365, 366, and 395). Expansion of the service is indicated by the following figures:

	1914	1931	1946
	Kw.	*Kw.*	*Kw.*
City plants	78,000	158,000	163,500
By transmission lines	none	142,000	1,340,000
Total	78,000	300,000	1,503,500

Present daily capacity (1947) in the city is estimated to be over 1,500,000 kilowatts.

Construction of a central steam-heating system was started in the 1930's, and by 1934, 20 kilometers (12 miles) of a steam-heating network had been completed (FIGURE VIII-81). In December 1937 the program for development of central thermoelectric stations for heating industrial plants and residences had reached five plants (236, 267, 274, 319, 366) serving some 11 million cubic meters (14.5 million cubic yards) of residential and public buildings. A sixth, the *Atalin* plant (208) with a 25,000-kilowatt capacity, was being assembled.

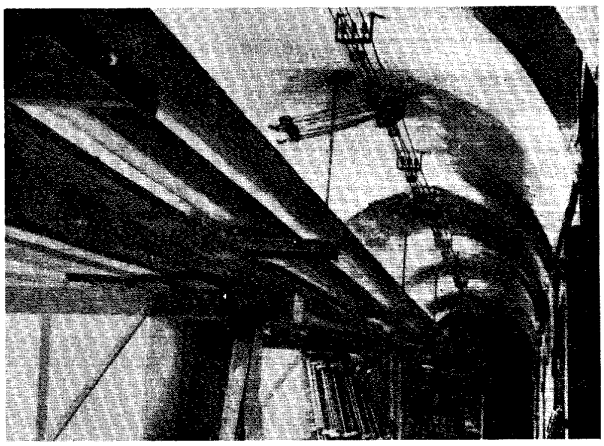


FIGURE VIII-81. *Moscow.*
Steam heating pipes in the Arcade or *Staro-gostiny Dvor.* The exhaust steam from the turbines heats the building. Bol'shoy Theater, VTsSPS (Trade Union) Building and others are heated in this manner. The steam-heating network is more than 20 km. in length. Before 1934.

4. GAS.—The city has three plants producing gas, one from petroleum, the others from coal. The Saratov – Moscow pipe line is reported to have reached the city. The line crosses the Oka river at Kolomna about 400 meters (1,310 feet) upstream from the new railroad bridge. From there it is laid parallel to the highway 400 to 900 meters (1,310 to 2,950 feet) to the west. A large gas-pumping station is located 20 kilometers (124 miles) south of Kolomna. Moscow's distribution system is mostly in the blueprint stage. The 50-centimeter (20-inch) pipe of the Saratov – Moscow line has a daily capacity of 1,700,000 cubic meters (60,034,480 cubic feet); 425,000 cubic meters (15,008,620 cubic feet) daily were to have been delivered by June 1947.

It is reported that a contract with Russian authorities has been signed by the Dresser Industries of Cleveland, Ohio, to construct a $6,000,000 storage plant in Moscow which will liquify 4 million cubic feet of natural gas daily. The gas is to be taken from the Moscow – Saratov pipe line and will be stored in liquid form for peak loads and standby service.

(g) Communications.—The city is the center of the country's telecommunications. At the end of 1936, although 20 exchanges served 162,400 subscribers, the facilities were inadequate. In 1944, 14 exchanges for 30,000 numbers were under construction, of which 7 were completed early in the year (Chapter VII). In 1945, one telephone trunk line was completed to Bucharest and Sofia, and another to the Donbass, 1,070 miles in length, with repeaters at Tula, Khar'kov, and Stalino; lines were under construction to Helsinki, Stockholm, and Oslo, and still another along the pipe line to Saratov.

In 1941, Moscow had a broadcasting station, *Oktyabr'skiy,* located 500 meters (1,640 feet) west of the city; a transmitter installation (Red Army) with approximately 10 masts 20 meters (65 feet) high, located between the Moscow – Mozhaysk and Moscow – Kaluga roads near the Leninskiye Gory; and two radio receiving installations, the *Butovskiy,* near Butovo station on the Kursk road, and the *Lyubertsy,* near Lyubertsy on the Kazan' road. Altogether Moscow has 7 broadcasting stations and 70 other radio stations. Of the latter 10 are equipped for receiving direct from specified foreign countries. Most of the stations are in public service.

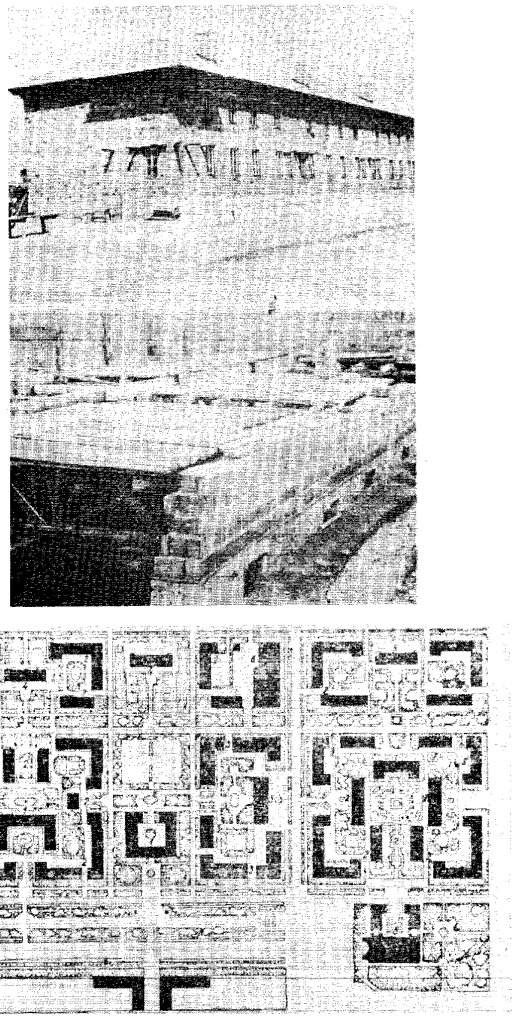


FIGURE VIII-82. *Moscow.*
New residential superblock planning in the suburb of Izmaylovo. Top, building; bottom, plan.

(h) War damage and reconstruction.—Although bombed, Moscow received relatively small damage compared with Leningrad. In repairing war damage, primary consideration has been given to the repair and painting of public buildings. Damaged buildings will be either torn down or, if of historic value, moved back. A number will receive new facades.

Buildings in the center of Moscow are planned to be five or six stories high; apartments, four to five stories. Those on the outskirts are to be limited to two stories. However, on the left bank of the Moskva river, in Frunenskiy and along several major streets, a number of tall apartment houses have been constructed in recent years which are prominent landmarks. There will be considerable readjustment of the population, with movement from the center of the city toward the outlying sections. Major plans for expansion involve the northwest and southwest areas, with large-scale cottage developments in the latter. Many apartment houses under construction at the beginning of the war are now being completed. Those on highways to Leningrad and Mozhaysk are receiving priority in construction. The superblock (Topic 80, I) is being used in new developments in the suburbs

FIGURE VIII-83. *Moscow.*
Workers settlement in the Dubrovka section. A type "D" residential development. Before 1934.

(FIGURE VIII-82). This can be compared with the older, more congested type D development illustrated in FIGURE VIII-83.

(2) Leningrad (St. Petersburg, Petersburg, or Petrograd) (59°57'N, 30°20'E). Leningradskaya Oblast', RSFSR. Population: 3,191,300 in 1939; and 2,800,000 in 1946; 3,500,000 planned. (PLAN 30; FIGURE VIII-29, *37*; and TABLES VIII-11 and VIII-12)

(a) Importance.—Prior to the revolution of 1917, Leningrad was the capital of Russia. Now, it is only the administrative capital of the Leningradskaya Oblast', and, as a municipality, is under the direct administrative control of the central government in Moscow *107*. Leningrad remains, however, the headquarters of the Soviet Baltic Sea Fleet and is a major military base.

The city is strategically located at the mouth of the Neva river where it widens into the Gulf of Finland (FIGURE VIII-84). The city is divided into many islands, both by

FIGURE VIII-84. *Leningrad.*
Oblique aerial photograph looking eastward. 14 January 1943, 1010 hours.

TABLE VIII - 12

SELECTED BRIDGES IN LENINGRAD

Bridge	River	Total length	Spans		Capacity	Construction	Remarks	PLAN 30 Ref. no.
			Fixed	Movable				
		Meters						
Railroad								
Belt Line	Neva river (520 m. wide)	1,000	1 of 25 m. 2 of 80 m.	42 m.	1 track	Steel Plate girder Through-arch Double bascule	Long approach embankments at both ends	189
			2 of 80 m. Viaduct 42, total 450 m.			Through-arch Plate girder steel piers		
Minor bridges in city	There are many minor railroad bridges across canals, streets, and other railroad tracks. These are fixed, generally steel plate-girder construction, and average 25 to 40 m. long.							
Street								
Stroganovskiy Bridge	Bol'shaya Nevka	270			4 lanes	Unknown	2 streetcar tracks	31
Kamennoostrovskiy Bridge	Malaya Nevka	200			4 lanes	Unknown	2 streetcar tracks	33
Grenaderskiy Bridge	Bol'shaya Nevka	270	18 spans	Central span opens	4 lanes	Piers, wooden piles	2 streetcar tracks	50
Krestovskiy Bridge	Malaya Nevka	238			4 lanes	Unknown	2 streetcar tracks	57
Bol'shaya Petrovskiy Bridge	Malaya Nevka	505			2 lanes (?)	Unknown	2 streetcar tracks	58
Svoboda Bridge	Bol'shaya Nevka	240	16 spans	Central span opens	4 lanes	Piers wooden piles	2 streetcar tracks	77
Liteyny Bridge	Neva river	416	56.5 m. 72.0 m. 82.5 m. 72.0 m. 56.5 m.	48 m.	4 lanes	Steel 5 steel arches Double bascule	2 streetcar tracks Masonry piers	100
Kirov Bridge	Neva river	630	3 of 15 m. 2 of 60 m. 2 of 85 m. 100 m.	80 m.	6 lanes	Steel and masonry Masonry arches Steel deck arch Steel deck arch Steel deck arch Double bascule	2 streetcar tracks Masonry piers	103
Stroiteley Bridge	Malaya Neva river	340	25 of 14.5 m.	16 m. Central span opens	4 lanes	26 wooden bents Wood construction (?)	2 streetcar tracks	106
Respublika Bridge	Neva river	270	2 of 35 m. 2 of 45 m.	50 m.	6 lanes	Steel Deck arch Deck arch Double bascule	2 streetcar tracks Masonry piers	106
Tuchkov Bridge	Malaya Neva river	160	20 spans	Central span opens	4 lanes	Wooden bents	2 streetcar tracks	109
Lt. Shmidt Bridge	Neva river	333	21 m. 3 of 32.5 m. 3 of 32.5 m.	40 m.	4 lanes	Steel deck arch Steel double bascule	2 streetcar tracks Built 1850-1860	122
Okhtinskiy Bridge	Neva river	310	150 m. 150 m.	43 m.	4 lanes	Steel Through-arch Double bascule Steel arch	2 streetcar tracks Masonry piers	134

CONVERSION FACTOR: 1 meter=3.28 feet.

TABLE VIII - 12 (Continued)

Bridge	River	Total length	Spans		Capacity	Construction	Remarks	Plan 30 Ref. no.
			Fixed	Movable				
		Meters						
Volodarskiy Bridge	Neva river (236 m. wide)	690 with approaches	2 of 24 m. 2 of 93 m.	43.5 m.	4 lanes	Reinforced concrete Concrete arch Concrete through-arch Double bascule	2 streetcar tracks	269
Minor Bridges								
	Across Moyka canal	30 (av.)	30 (av.)		2 or more lanes	Single spans; also a number of foot bridges		
	Across Griboyedova canal	19 (av.)	19 (av.)		2 or more lanes	Single spans; also a number of foot bridges		
	Across Fontanka canal	36 (av.)	36 (av.)		2 or more lanes	Triple spans; also a number of foot bridges		
	Across Obvodny canal	30 (av.)	30 (av.)		2 or more lanes	Single spans; also a number of foot bridges		
	Across Yekateringofka river	33	2 of 33		4 lanes	Single spans		

There are also minor bridges across the Chernaya and Okhta rivers, and overpasses at grade separations across the railroads.

CONVERSION FACTOR: 1 meter=3.28 feet.

channels of the river and, south of the left bank, by several canals; it is often referred to as the "Venice of the North." Leningrad was Tsarist Russia's first seaport and, in spite of the development of Murmansk *3*, is still the main sea outlet to the Atlantic for the USSR.

Prior to World War I, Leningrad was the most important manufacturing center of the Empire. Notwithstanding the Soviet expansions elsewhere, especially in the Moscow area and in the Urals, Leningrad is still a major manufacturing center with a ring of industrial plants circling the densely built-up central portions. Much of this is heavy industry and includes a number of shipyards and naval shipbuilding plants.

Eleven railroad routes enter the city area and converge on five terminals. A large port is still under development to the southwest. Main highways radiate north into the Karelian Isthmus, south to Moscow, and southwest into the Baltic SSR's.

From the winter of 1941 through 1942, the prewar population of the city was reduced, through evacuation, death, and disease, to below 2,000,000 people. However, by 1946, the population had been restored to some 2,800,000, and it is contemplated that the population will increase to 3,500,000. For new construction, the planned maximum population will be 49,400 persons per square kilometer, with a maximum average for the entire city of 59,300 (200 and 240 persons per acre, respectively). Because the area of Leningrad is limited this density is considerably greater than that of Moscow.

(b) Physical characteristics.—The city lies on the delta of the Neva river and spreads 10 kilometers (6 miles) north of the Fortress of St. Peter and St. Paul (104) and 11 kilometers (7 miles) south-southeast; the city is about half as wide as it is long. The Neva river enters the city in a northerly direction and makes an abrupt right-angle bend to the west before it fans out into the delta. The entire area is low, varying from sea level to 5 meters (16 feet) in the southern and eastern sections, and to 10 meters (33 feet) in the northern section. Low-lying portions are liable to flooding in the autumn. In the harbor area to the southwest, considerable made-land exists. The only high land lies to the south-southwest around Nizhnyeye Kovrovo, 18 kilometers (11 miles) from the Fortress of St. Peter and St. Paul (104). This land, on which stood the now-destroyed Leningrad Observatory, was used by the Germans as their artillery observation point. The built-up area of Leningrad is small, approximately 59 square kilometers (23 square miles), as compared with Moscow. Prewar Leningrad was limited in its open areas. Small sections in the badly damaged areas are being converted into parks, especially along the river fronts (FIGURE VIII-94).

(c) Transportation

1. EXTERNAL

a. Rail.—Leningrad, as the second most important city in the entire USSR, is the center of a network of lines of the Oktyabr'skaya Railroad radiating in all directions. Tracks leaving the five passenger terminals (82, 149, 176, 206, 227), of which four are located in the southern or main city area, separate into 11 routes, including the main line to Moscow *107*, and the important route to Murmansk *3*. Within the city, intercommunication across the Neva river is provided by a single-track railroad bridge (189) with a contiguous elevated structure (TABLE VIII-12), which forms part of the semicircular belt line serving all routes and connects with the harbor and the major manufacturing plants. Facilities for handling

freight are located at strategic points, with special emphasis on rail-ship transshipment. Several large storage areas are also served by this belt line (Chapter VII, 71).

b. Road.—Five main highways, including the important route southeast to Moscow *107*, radiate from the city. Within the city through routes are plentiful and main streets are generally well-planned to avoid bottlenecks. However, the waterways require many bridges (Chapter VII, 72).

c. Water.—Besides being a major seaport serving the USSR through the Baltic Sea and Atlantic Ocean trade routes, Leningrad is also a major port on the inland waterways of European USSR. In 1945 the Northwestern Steamship Line had 16 passenger lines, and the volume of freight carried was increasing rapidly. Direct water communications at that time existed between Leningrad and Lake Ladoga (Ladozhskoye Ozero) and the Volga. It was expected that when the Svir' river facilities had been restored, considerable additional freight would be carried (Chapter VII, 73).

d. Air.—The city is served by three airports in its immediate vicinity, two of which are equipped to receive seaplanes. Three other airfields are located in the surrounding area (Chapter XII).

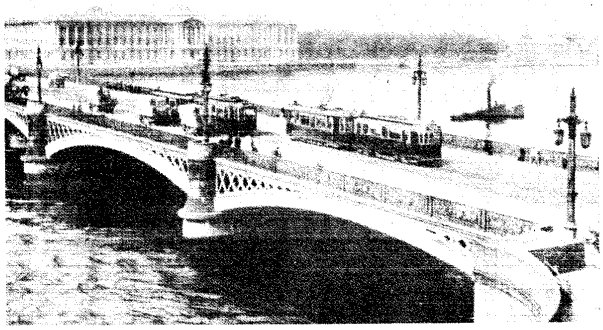


FIGURE VIII-85. *Leningrad.*
View northeastward across the Neva showing Lt. Shmidt Bridge. (22); Academy of Fine Arts, background.

2. INTERNAL

a. Streets.—Leningrad is fairly regularly laid out and is monumental in character. A uniform skyline has been adhered to with spires and domes as landmarks. The southern portion consists of a basic radial-circumferential pattern of main streets with the Admiralty Building (123)

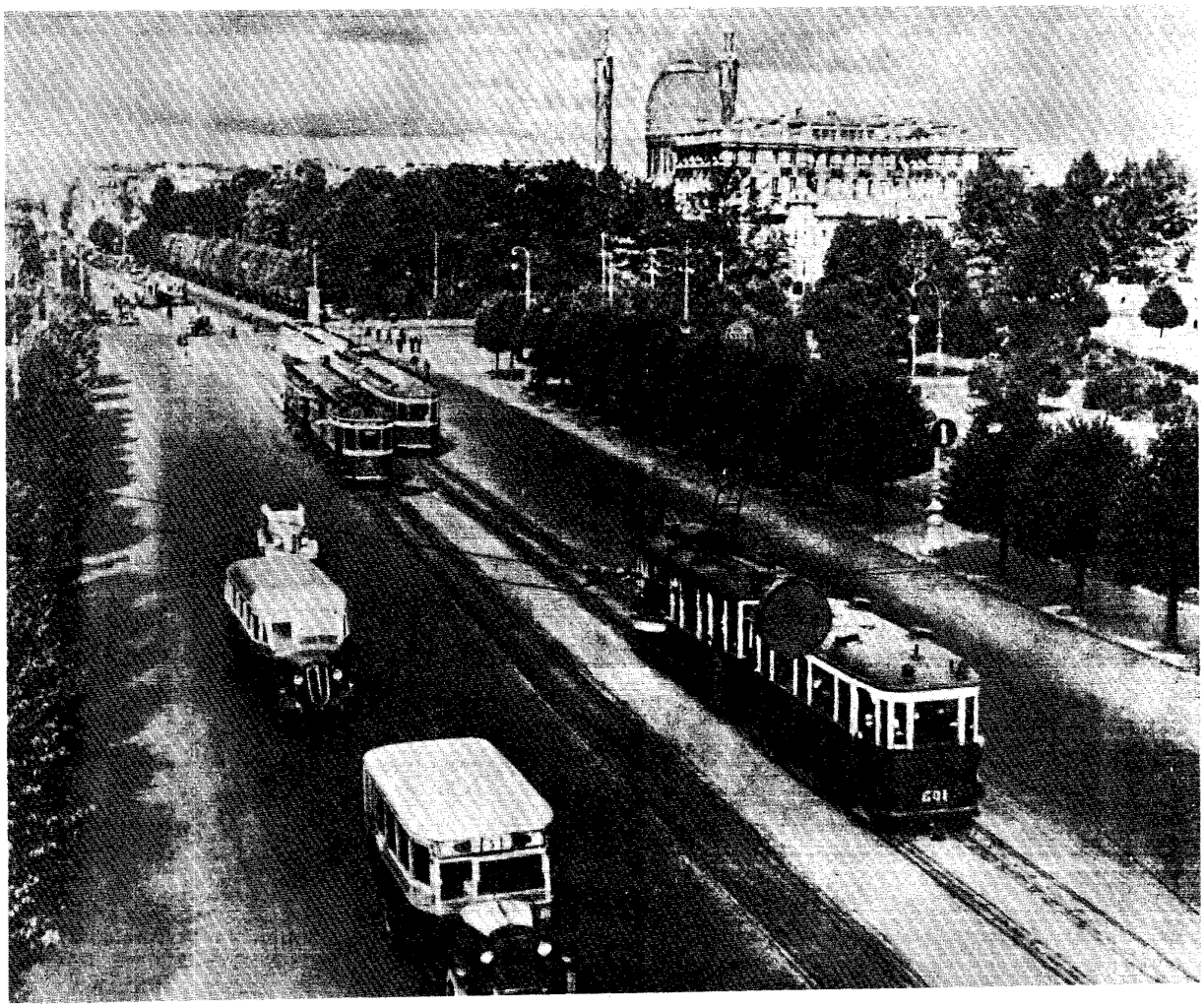


FIGURE VIII-86. *Leningrad.*
Kamenostrovskiy Prospect, looking south-southeastward, showing mosque with minarets, streetcars, and busses. Before 1940.

as the focal point. The northern portion, due to the many waterways and irregularly shaped islands, is not so regularly planned. The Vasil'yevskiy section follows generally a regular gridiron.

Within the limits of the city, there are more than 400 bridges. The most important ones, over the Neva and Bol'shaya Neva rivers, permit large ships to pass (TABLE VIII-12 and FIGURE VIII-85).

The streets in the urban areas appear to be well-paved. The main streets are wide (FIGURE VIII-86), and capable of handling six traffic lanes in addition to the pair of streetcar tracks usually located in the center portions.

In 1939, 1,800,000 square meters (2,152,800 square yards) of streets and squares had been asphalted. The right bank of the Neva, as well as the banks of the Obvodnyy Kanal, were improved with granite and concrete facings.

b. Transit.—The streetcar system was being replaced by trolley busses in 1934, but the extent of the change-over is not known. At that time there were some 2,400 streetcars (FIGURES VIII-85 to VIII-89), including freight streetcars, and busses. The railroads serve Leningrad with a commuter service, and many stations are located in the immediate environs and suburbs (PLAN 30).

In 1947 preliminary construction had been started upon the first section of a new subway system. This will require the use of the tunnel-and-shield method of construction owing to the marsh nature of the area. The tunnel, at a depth of approximately 60 meters (197 feet), passes below the *Kirov* plant, the Narva Gates, the Warsaw Station, Litgniy Prospekt, and Finlyandskiy railroad station toward Ozerki, where it comes to the surface. The position and direction of the tunnel suggests a possible connection with underground defenses and workshops of Kolomyagi airdrome. Exact alinements of the proposed routes are not known.

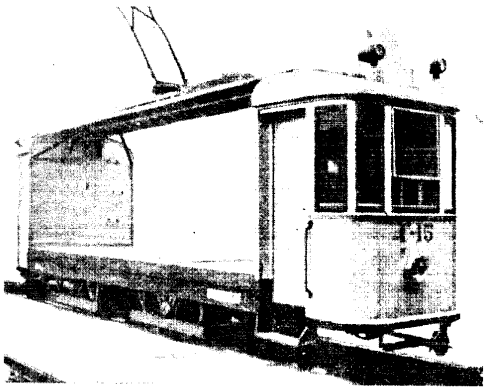


FIGURE VIII-87. *Leningrad.*
A roofed, freight trolley car.

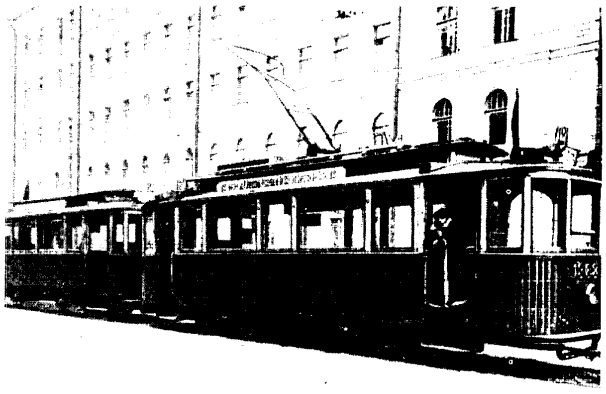


FIGURE VIII-88. *Leningrad.*
Streetcars satisfactorily constructed with wooden facings by the Leningrad Municipal Railroad to conserve metal.

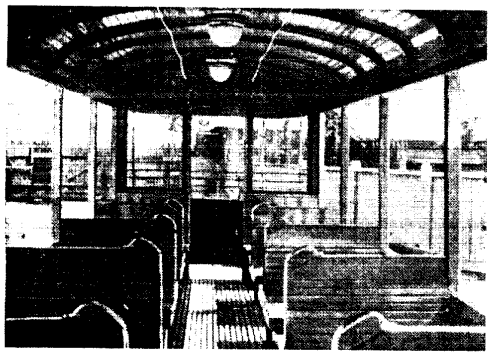


FIGURE VIII-89. *Leningrad.*
Summer trailer-type streetcar (interior view). Before 1934.

(d) Industry and commerce.—In spite of the siege and consequential dislocations to manufacturing, the city of Leningrad was able to keep its munitions plants and those converted to the production of war matériel in some degree of operation. The Kirov heavy machinery plant (261) never stopped production, notwithstanding the fact that the Germans were less than two miles from its gates. Although considerable damage was received by all industry, 1,000,000 square meters (10,764,000 square feet) of industrial space had been restored by the end of 1944, soon after the siege was raised. Reports indicate that the restoration and reconstruction has been continued. The major plants are listed in TABLE VIII-13.

The *Stalin* metal works, on the right bank of the Neva, ¾ mile above Liteyny Bridge, planned six turbines for the Dnepr hydroelectric power station. Four turbines, including one each of 25,000, 50,000, 75,000, and 100,000 horsepower, had been produced by July 1947; the last two were due in 1948. A system of interchangeable units for various turbine sizes has been developed. These turbines are claimed to be more efficient than American-made sets in use at the Dnepr plant before the war.

The *Kirov* metal works and machine shop, northwest of the city, had been reconstructed in 1945, and made seven powerful electric cranes for the *Zaporozhstal* plant. Additional plants include the *Sevkabel* which produced 20,000 meters of high-voltage cable for *Zaporozhstal;* the *Ekonomaizer Zavod* which manufactures turbo pumps for *Zaporozhstal* and other plants; *Elektroapparat* which manufactures electrical and rubber-technical goods. By 1945, the capacity of the *Electrosila,* for electrical equipment and machinery works, had been restored to prewar level.

High-grade shoes are being made in a new shop in the *Proletarskaya Pobeda* factory. Shoes of a poorer quality are produced in the relatively modern *Skorokhod* factory, the largest in production in the USSR. The daily prewar production was 80,000 pairs; 40,000 pairs were produced in one day in 1947. In June 1947, the annual production had reached 5,800,000 pairs, with 16,000,000 pairs planned by 1950.

By November 1946, the *Zhelyabov* textile factory was completely reconstructed and had 1,500 weaving looms in operation. Among other plants, the *Progress* plant which was evacuated has since been returned and by June 1946 was producing nearly 1,000 microscopes monthly, includ-

TABLE VIII - 13

SELECTED IMPORTANT INDUSTRIAL PLANTS IN LENINGRAD

Plant	Number and condition of main buildings	Total estimated area of buildings	R.R. connections (all Oktyabr'skaya R.R.)	Product	PLAN 30 Reference no.
		Sq. meters			
Ordnance depot No. 5	11 and many small (2 badly damaged, 1 destroyed, summer 1942)	73,800	Connection with adjacent Finlyandskiy freight station (84)	Munitions and ordnance material	84
Aircraft fuselage plant No. 7	30 plus 1 large and 36 small under construction; several small; 79 in all	56,950	Alongside track to Sestvoretsk; also direct connection with North Military Airport (14)	Airplane fuselage parts and assembly	26
Krasny Vyborshets ("Voroshilov") copper and aluminum plant	13 including 1 acid tank (20 m. dia.); small buildings	71,650	None. Wharf on Neva river	Smelter, foundry, rolling mill, and small finished parts	171
Krasny Treugol'nik rubber and asbestos factory	13 and many small, approx. 25% damage (1942)	146,700	Connection with belt line	Natural rubber	226
Pyrokholin high-explosive plant	Over 100 scattered; magazine	74,000	Connection with line to Ladozhskoye Ozero	High explosives (including TNT)	41
Okhtenskiy Khimkombinat high-explosive plant and R.R. station	Over 100 scattered	58,800	Connection with belt line	High explosives	20
Krasny Khimik Chemical plant No. 15	Over 40 with evidences of some damage (summer 1942)	40,255	Connection with Baltiyskiy R.R. station yards	Heavy chemicals and poison gases	255
Marti Shipyard	12 plus some small; 2 shipways, 2 docks	54,900	None	Small and large ships	172
Kirov heavy machinery plant	17 large, many small. (This plant was under continual artillery fire during siege, but never stopped production)	352,670	Connection with belt line to harbor	Heavy machinery and equipment. (One of biggest plants in USSR)	261
OGPU optical plant	1 large (42,700 sq. m.), about 20 small; some damage	51,850	Connection with adjacent Finlyandskiy freight station	Optical instruments	40
Bol'shevik armaments plant	17 large, with smaller units	108,800	Connection with main line to Moscow	Large munitions plant	279
Ordzhonikidze Baltiyskiy shipbuilding yard	Over 30 large with small buildings, 5 shipways, 1 drydock	142,900	None	Small and medium ships (drydock can handle large ships)	170

CONVERSION FACTOR: 1 square meter=10.76 square feet.

ing biological and metallographic microscopes; an output of 2,500 microscopes per month was planned by the end of 1947. In 1945, however, large shipbuilding plants at the mouth of the Neva river were idle and no reconstruction was in evidence. The manufacture of arms and ammunition is carried on in the *Lepse* and *Kr. Vyborzhets* plants. Steel plants include the *Bolshevik* machine shop, and the *Lenmetallurgstroy* and *Mopr* plants. Machine shops include the *Kalinin* Works No. 4; the *Sverdlov* for tools; *Il'yich* grinding-machine shop; Leningrad shops for lathes and automatic machines; *Stankopribor;* and the *Engles* machine building plant. The *Molotov* plant manufactures armatures. Finally there is a *Yegorova* railroad car shop, and a *Okt'yabr'-revolyutsiya* locomotive works.

The importance of the city as a rail-ship transshipment point necessitates a number of storage areas: bulk (19, 259, and harbor area); cold storage (198, 204, 219, 221, 228, 231, and 251); oil and fuel (5, 93, 236, and 273); military (83, 114, 159, 207, 209, 234, and 239); and munitions (8, 9, and 15).

(e) Billeting and hospitals.—Leningrad's importance as a military base required the erection of many military establishments (7, 24, 38, 60, 62, 80, 94, 96, 98, 99, 104, 120, 123 to 128, 130, 136, 152, 158, 159, 161, 173, 175, 195, 202, 208, and 250). Estimated ground area for available storage and billeting space is as follows:

	SQUARE METERS	SQUARE FEET
Bulk storage	1,690	18,190
Food storage	2,970	31,980
Solid fuel	130	1,390
Liquid fuel	2,550	27,460
Explosives	4,065	43,775
Barracks	11,460	123,355
Educational and similar buildings	6,060	65,240
Garages	1,000	10,765
Open areas (Hippodrome and Kirov plant stadium)	1,160	12,505

Prewar Leningrad had 60 hospitals with an estimated 21,000 beds. Some of these structures (1, 2) are quite large.

(f) Utilities

1. WATER SUPPLY.—Before the war, there were three waterworks and a new pipe line from Lake Ladoga under construction. At that time there were 32 fire stations with 130 pieces of fire apparatus (FIGURE VIII-90).

FIGURE VIII-90. *Leningrad.*
A new fire watchtower. Before 1934.

2. SEWAGE AND GARBAGE DISPOSAL.—Leningrad is noted for its cleanliness and its use of sanitary facilities. As early as 1934 a municipal system of garbage collection was in operation (FIGURE VIII-91). However, sewage drains into the Neva river and the city's several canals (FIGURE VIII-92).

3. POWER.—A steam power plant at Dubrovka of 200,000 kilowatt capacity, approximately 32 kilometers (20 miles) east-southeast of Leningrad, supplies electric current to the city. Six additional hydroelectric power plants with total capacity of 488,000 kilowatts supply the Leningrad transmission system. Beside current brought in by high-voltage transmission lines, there are 14 steam power plants and at least two transformer stations within the city's area (25, 43, 146, 168, 174, 183, 199, 225, 260, 278, 284).

4. GAS.—In 1945 a four-year program for expansion and restoration of the Leningrad gas-fuel supply system was under way. Utilization was to be made of the extensive shale-oil deposits south and west of the city in Estonia and Leningradskaya Oblast'. Twenty-four shale-oil pits were to be restored and placed in service; three plants in the above area for the extraction of gas were to be constructed; 530 kilometers (330 miles) of new pipe lines built, and 150 to 170 kilometers (95 to 105 miles) of pipe lines in the existing network restored. In addition, new gas tanks and gas-distributing stations were to be built, and vast quantities of equipment for the use of this fuel manufactured. An expansion program was planned to provide gas facilities for 60,000 apartments (dwelling units) in 1946, 150,000 in 1947, and a minimum of 275,000 in 1948.

FIGURE VIII-91. *Leningrad.*
Waste-disposal container for courtyards centered in groups of residential buildings. Before 1934.

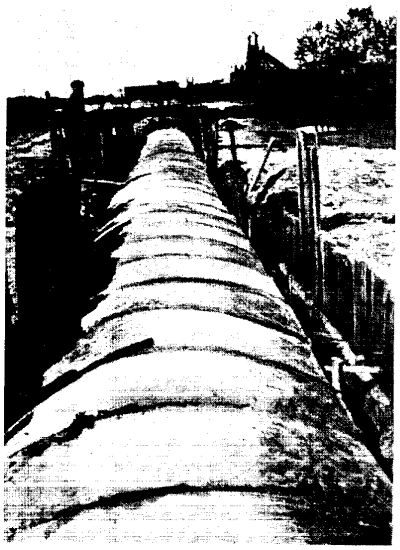


FIGURE VIII-92. *Leningrad.*
Laying of the new sewer at the *Krasnyy Oktyabr* Stadium. Before 1934.

Plans are proposed for central heating plants with coal and peat-gas as fuel. For the latter, a peat-gas factory is to be built 5 kilometers (40 miles) from the city.

(g) Communications.—Leningrad is one of the main centers of the telephone-telegraph network. In addition to long distance connections, there were several automatic

exchanges for local service. The war disrupted communications, but by the middle of 1944 telegraph and telephone connections to Moscow, Novgorod-Pushkin, Pavlosk-Gatchina, and Viipuri had been restored. There are also submarine cable connections with Helsinki, Finland, and Liepāja, Latvia. Two broadcasting stations are reported, also 8 experimental stations, and 27 other radio stations.

(h) War damage and reconstruction.—A report following the raising of the siege stated that every building had received at least one hit. Beside bomb hits, there were 150,000 artillery hits of all calibers. The shelling came from both the German lines at short range from south of the city and the Finnish lines to the northeast of Sestroretsk (25). Living quarters for 700,000 persons, or 25% of the total, were destroyed.

Restoration of the city began almost at once. By 1944, 908,000 square meters (9,774,000 square feet) of residential dwellings had been restored. A 10-year reconstruction plan is presently in progress, with much of the labor being supplied by German prisoners of war. The new building of the City Soviet in the southern portion of Leningrad, which was approximately 80% complete before the war, will not be finished until all destroyed buildings in the city proper have been removed. Center portions of blocks in the congested central area of the city (FIGURE VIII-9) are being cleared away to give more light and air, and to reduce the dense population in these sections. However, the present classical aspect of the central area will not disappear even though modern buildings are being constructed (FIGURE VIII-93). Prewar large apartments of 10 to 11 rooms, reminiscent of Tsarist days, are being replaced with small 3- and 4-room apartments. These are being built in superblocks with open park areas in the

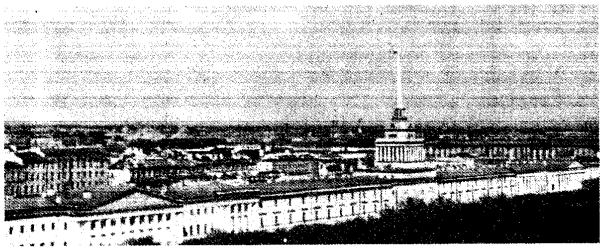


FIGURE VIII-93. *Leningrad.*
General view looking eastward, showing the Admiralty Building.

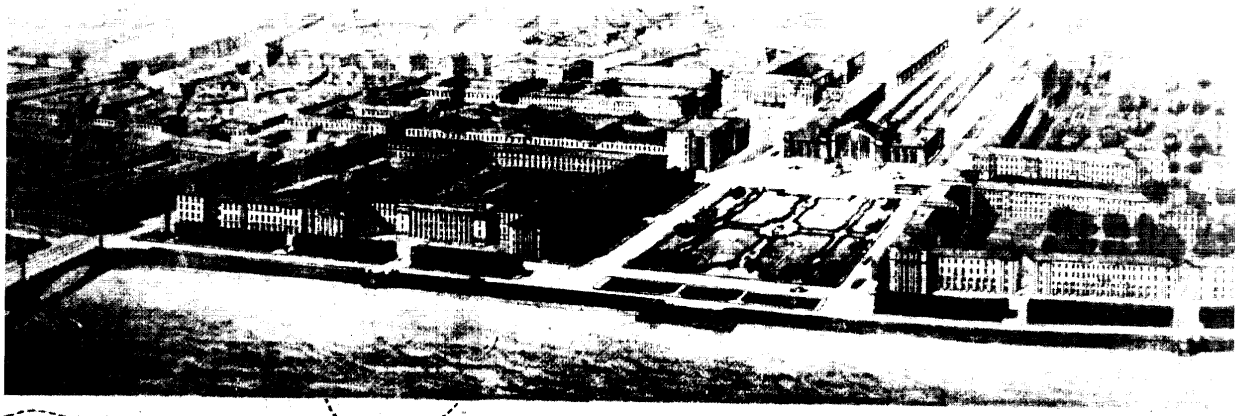
center. New structures are to be five or six stories high (FIGURE VIII-94).

(3) Gor'kiy (Gorkii, Gorky, formerly Nizhniy Novgorod) (56°20'N, 44°00'E). Gor'kovskaya Oblast', RSFSR. Population: 644,100 in 1939; estimated at 650,000 in 1941 and 900,000 in 1946. (FIGURES VIII-98 and VIII-119, *56*)

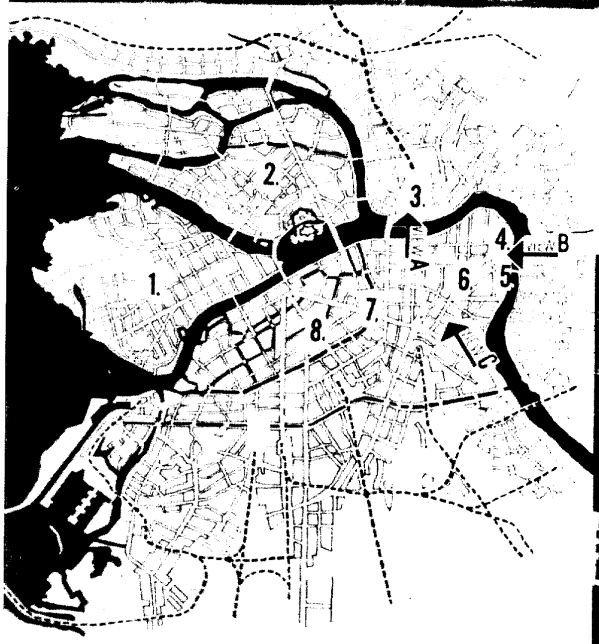
(a) Importance.—Gor'kiy is the capital of its oblast, but itself is under direct jurisdiction of the RSFSR. The area has generally good transportation facilities, with access by rail, road, water, and air. It has a considerable amount of heavy industry and is a center of the USSR's automotive industry.

(b) Physical characteristics.—The city is situated at the confluence of the Oka and Volga rivers. It occupies approximately 26 square kilometers (10 square miles) at an average elevation of 60 meters (197 feet). The largest and most beautiful section is located in the Dyatkovy Mountains, which rise 120 meters (394 feet) above the level of the Volga (FIGURE VIII-95). The business and in-

FIGURE VIII-95. *Gor'kiy*
View northwestward across the Oka over the old business section.
Note high bank at left and low bank at right. Bridge has been replaced by new ferro-concrete structure. Before 1937.



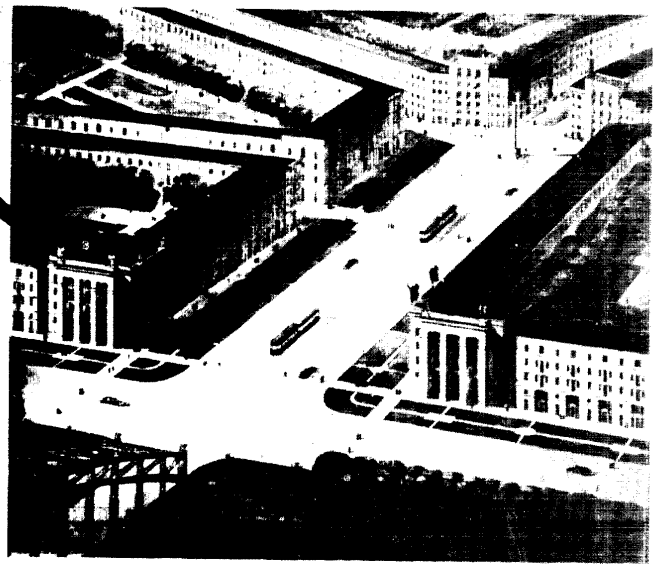
VIEW A



KEY TO MAP

1. Ostrov Vasil'yevskiy
2. Ostrov Petrovskiy
3. Finlyandskiy Station
4. Smol'ninskiy Rayon
5. Okhtinskiy Bridge
6. Suvorov Prospect
7. Nevskiy Prospect
8. Dzerzhinskogo Street

VIEW B



SECTIONS will be opened up by a number of ambitious projects. View A shows the future green area between Finlyandskiy Station and the Neva River. The embankment will be widened and a boulevard built along the water's edge. Several nearby streets, now sealed off, will be breached for freer circulation. The station will be given a new facade. View B shows the new Okhtinskiy Prospect which cuts through from the Okhtinskiy Bridge (lower left) to the heart of the business section and served to shorten and straighten mid-town transportation. Demolition for the Prospect has been completed and construction work will soon begin. View C shows the new plaza and square at an important intersection along the Suvorov Prospect designed in the shop of architect Igor Ivanovich Fomin. Here the uniform building height is particularly noticable. This regulation is intended to emphasize the monuments and famous spired buildings such as the Admiralty and St. Isaac's Cathedral.

VIEW C

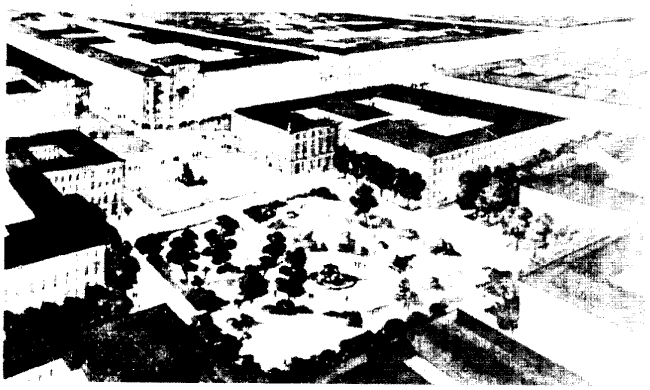


FIGURE VIII-94. *Leningrad.*
Plans for opening up strategic arteries during reconstruction of seriously damaged areas.

FIGURE VIII-96. *Gor'kiy.*
Looking northward over highway bridge across the Oka. About 1937.

dustrial section is at a lower level, on the shores of the Oka and Volga. The Kanavino section, located on the left bank of the Oka, is adjacent to the factory area and the site of the Nizhniy Novgorod fair grounds (4), which were formerly an international meeting place in an annual fair.

The city as a whole is notable for its churches, cathedrals, monasteries, and mosques. It also has an astronomical and meteorological observatory.

(c) Transportation.—Broad-gage railroads extend from the city in four directions. The line to Kirov makes use of two bridges in the immediate vicinity, one over the Volga (5) and one over a lake, a short distance northward.

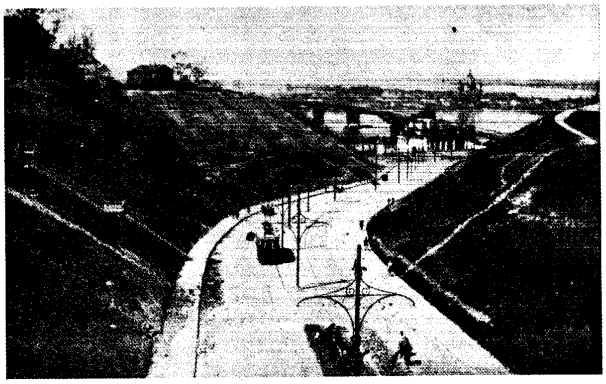


FIGURE VIII-97. *Gor'kiy.*
New main street in the foreground. Reinforced concrete bridge across the Oka in background. About 1937.

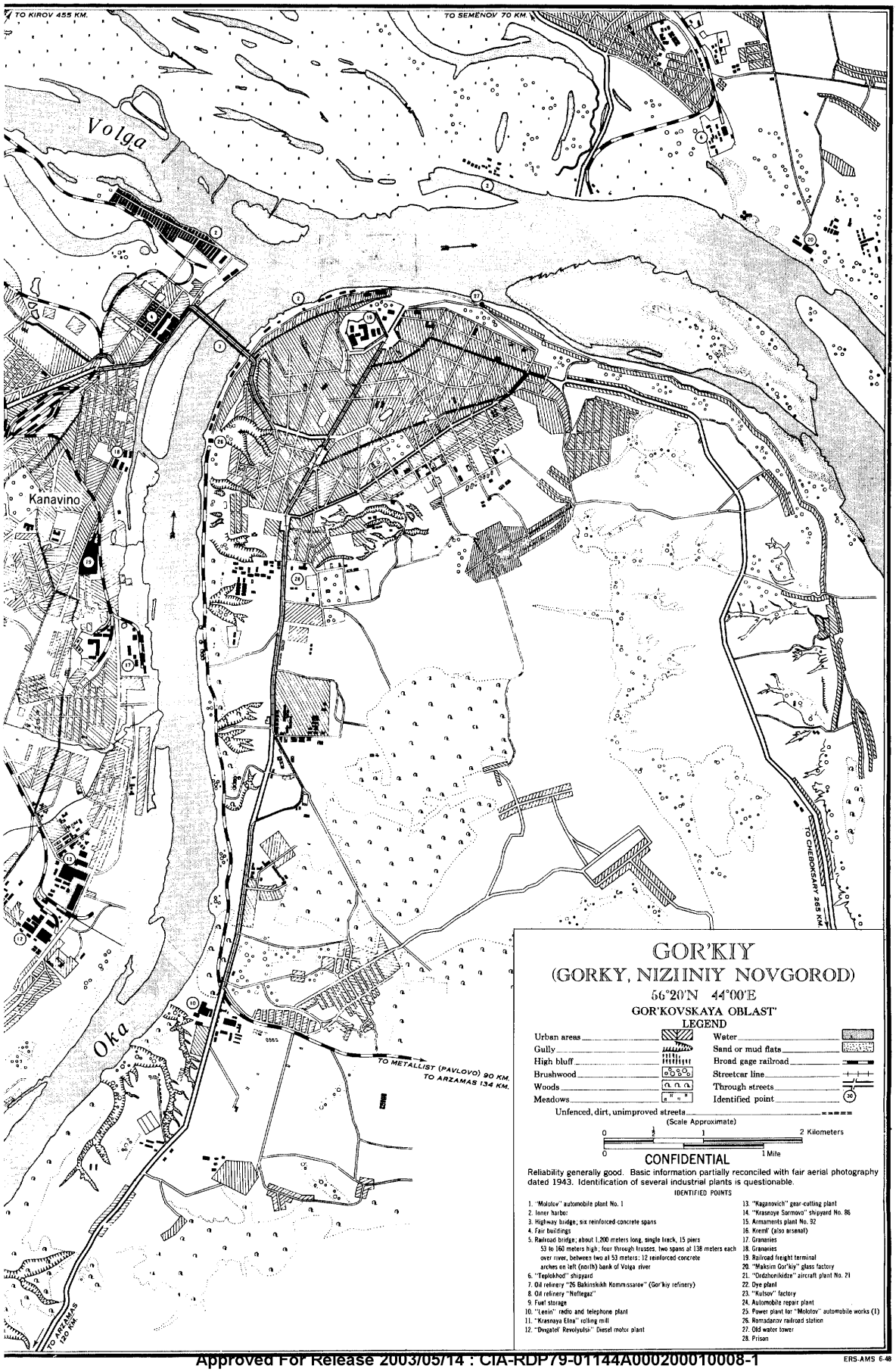
One superhighway leads westward to Moscow; lesser roads lead in four other directions. A modern reinforced-concrete highway bridge (3) over the Oka river joins the older section to the new industrial section between the rivers (FIGURE VIII-96). A modern highway connects the bridge with the upper city (FIGURE VIII-97). The city is served by seven airfields, five of which have permanent facilities.

(d) Industry and commerce.—Gor'kiy is noted as a center of the automotive industry. The *Molotov* plant (1), which produces motor cars, tractors, and parts, has been working to meet civilian requirements since 1944. Under the current Five-Year Plan, motor-car production by 1950 is to reach 300,000 units annually, or 60% of Soviet automobile production.

Steel mills include the *Krasnaya Etna* rolling mill (11) and the *Kaganovich* high-test-steel mill in Sormovo. The *Krasnoye Sormovo* plant No. 92 in Sormovo produces railroad cars and locomotives. There are two shipyards, the *Krasnoye Sormovo* (14) and the *Teplokhod* (6). The latter is equipped with a foundry. Various other shipyards produce river steamers and tankers, or serve as repair shops. Metal-working shops include the *Dvigatel' Revolyutsii* works in Kanavino which produces machine tools, and the *Kaganovich* gear-cutting shop (13).

One plant produces chemical warfare agents. The new *Katrola Kau* plant was experimenting in production of nylon in 1947. A methanol and alcohol plant was to start production by the close of the year. It was reported that workers at the latter plant were from the Leuna works in Germany; equipment probably was also removed from Germany.

FIGURE VIII - 98
GOR'KIY CITY PLAN
JANIS 40
CONFIDENTIAL



GOR'KIY
(GORKY, NIZHNIY NOVGOROD)

56°20'N 44°00'E

GOR'KOVSKAYA OBLAST'

LEGEND

Urban areas		Water	
Gully		Sand or mud flats	
High bluff		Broad gage railroad	
Brushwood		Streetcar line	
Woods		Through streets	
Meadows		Identified point	26
Unfenced, dirt, unimproved streets			

(Scale Approximate)

0 ½ 1 2 Kilometers

0 1 Mile

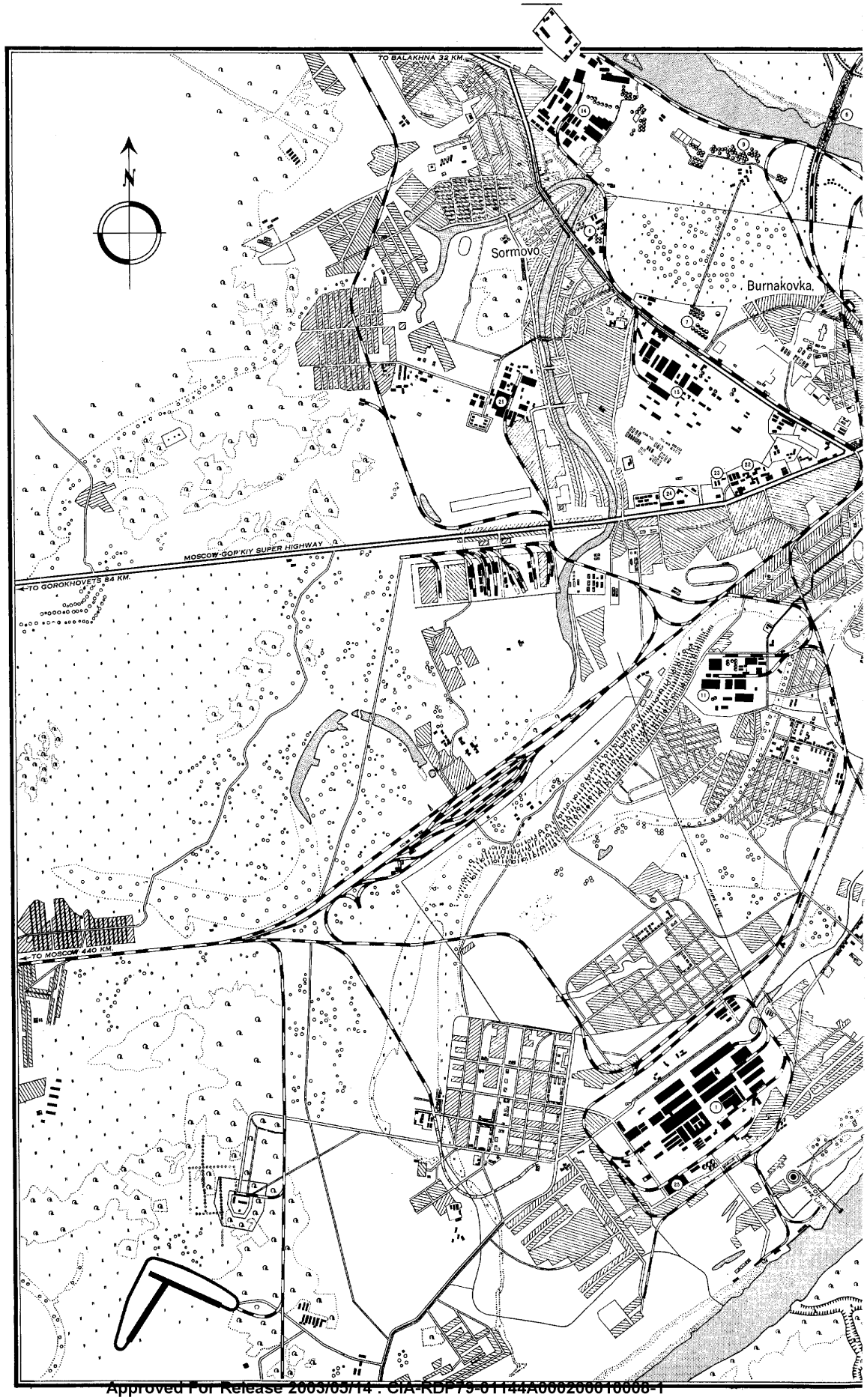
CONFIDENTIAL

Reliability generally good. Basic information partially reconciled with fair aerial photography dated 1943. Identification of several industrial plants is questionable.

IDENTIFIED POINTS

1. "Molotov" automobile plant No. 1
2. Inner harbor
3. Highway bridge; six reinforced-concrete spans
4. Fair buildings
5. Railroad bridge; about 1,200 meters long, single track, 15 piers 53 to 160 meters high; four through trusses, two spans at 138 meters each over river, between two at 53 meters; 12 reinforced-concrete arches on left (north) bank of Volga river
6. "Teplokhod" shipyard
7. Oil refinery "26 Bakinskikh Kommissarov" (Gor'kiy refinery)
8. Oil refinery "Neftegaz"
9. Fuel storage
10. "Lenin" radio and telephone plant
11. "Krasnaya Etna" rolling mill
12. "Dvigatel' Revolyutsii" Diesel motor plant
13. "Kaganovich" gear-cutting plant
14. "Krasnoye Sormovo" shipyard No. 86
15. Armaments plant No. 92
16. Kreml' (also arsenal)
17. Granaries
18. Granaries
19. Railroad freight terminal
20. "Maksim Gor'kiy" glass factory
21. "Ordzhonikidze" aircraft plant No. 21
22. Dye plant
23. "Kulsov" factory
24. Automobile repair plant
25. Power plant for "Molotov" automobile works (1)
26. Romadanov railroad station
27. Old water tower
28. Prison

ERS-AMS 6-48



The fish cannery had a weekly output of 15 to 20 thousand cans in 1945 and 1946.

Other industries include three airplane factories, the *Embaneft* oil refinery, newspaper printing plants, and the *Lenin* radio and telephone equipment plant (10). Other products include telephones, farm machines, paper, chemical products (fats, oils, soaps, etc.) pharmaceuticals, textiles, shoes and leather goods, glass, porcelain, bricks, furniture, lumber, canned goods, spirits, and beer.

Storage space includes four cold storage plants, two granaries (17, 18), fuel tanks (9), and a kremlin, or citadel (16), used as an arsenal.

(e) Billeting and hospitals.—Potential billeting facilities are offered by various hotels, the university, a military school, barracks, a theater, museums, a library, and the structures occupied by 17 scientific and technical educational institutes. No information on hospitals is available.

(f) Utilities.—Information regarding the water supply and sewerage systems is not available.

There are three power plants. One, a heat and power plant with capacity of 24,000 kilowatts, has been in operation since 1937. One plant (25) provides heat and power for a factory. The third supplies heat and power to the gun factory in the suburb of Sormovo. All are part of the Gor'kiy transmission system.

The city also has a natural-gas plant.

(g) Communications.—Gor'kiy is in the main telephone-telegraph network and is served by four lines: north-northeast to Krasnyye Baki, north to Kozino, and south and west to unknown points. The city's broadcasting station, RW-42, operates on a frequency of 565 kilocycles, with a wave length of 531.0 meters, and has an output of 10 kilowatts. Five radio stations including an intrastate radio-telegraph station located in Kanavino, are in operation. The city is also served by post offices.

(4) Kazan' (Kasan) (55°47'N, 49°08'E). Tatar ASSR. Population: 401,700 in 1939; estimated 650,000 in 1946. (FIGURES VIII-99 and VIII-119, *127*)

(a) Importance.—Kazan', the capital of Tatar ASSR, is a commercial and industrial center of some importance. It is served by all the major forms of transportation, including railroads, roads, waterways, and airfields.

(b) Physical characteristics.—Kazan' is situated on low hills on the left bank of the Volga at a large bend in the river and near the mouth of the Kazanka river. the kremlin, or citadel (44) is within the central area. The city also comprises the following sections: the "Academic Settlement," to the east; the Tatarskaya Sloboda (old and new Tatar sections), to the south; the Kzyl-Armeyskaya Sloboda (Red Army Section), located to the west and connected with the city proper by a 2-kilometer (1-mile) causeway; and the Porokhovaya Sloboda (Powder Section), to the northwest. The city occupies an area of 90 square kilometers (35 square miles) at an elevation of 85 meters (279 feet) above sea level.

(c) Transportation.—Rail lines provide connections east-northeast and west. There are six railroad stations (10, 16, 43, 45, 46), including a freight station. The city is on the Moscow – Sverdlovsk highway and is also served by roads east-northeast and west-northwest. Ship landings include *Blizhneye Ust'ye* (15) and *Dal'neye Ust'ye* (19). At the latter landing are a storage area and a rail transshipment point. Air facilities include one airfield (35), and four landing fields (3). A street railway system provides intraurban service. Car barns are located at (7).

(d) Industry and commerce.—Kazan' has a variety of industrial plants (4, 5, 6, 11, 12, 14, 17, 18, 20, 21, 22, 33, 36, 40. 41, and 42). It is a shoe-manufacturing center (39). Locations of other shoe factories and of the automobile repair and the spare-parts plant (completed in 1943) have not been determined.

The film factory (11) has a storehouse of approximately 880 square meters (9,469 square feet) of floor space. The *Lenin* powder plant (12) has a large magazine area. There appears to be a storehouse area (9) northwest of the city, and there is a storage area at the *Dal'neye Ust'ye* ship landing (19).

(e) Billeting and hospitals.—The city is served by two hospitals (24, 32) and two clinics (26, 31). Potential billeting quarters include identified structures (1, 23, 25, 27, 30, and 34), and other public buildings, scientific institutes, libraries, and museums, which have not been identified. The kremlin (44) contains churches, cathedrals, and government buildings. The city has a total of about 60 churches, monasteries, synagogues, and mosques.

(f) Utilities.—The city is provided with a waterworks (13), a municipal power plant (38), and a gas works (37). A coal heat and power plant (8) serves plant No. 22 (5) and another serves the city and streetcar lines. Two other industrial power plants are reported, making a total capacity of 118,000 kilowatts serving city industries. No information is available on a sewerage system. Kazan' is the terminus of oil pipe lines from Astrakhan'.

(g) Communications.—In addition to postal and telegraph service, the city has a radio broadcasting station, RW 17, with a frequency of 686 kilocycles, wave length of 437.3 meters, and an output of 10 kilowatts. Four other radio stations are in service.

(5) Kuybyshev (Kuibyshev, formerly Samara) (53°12'N, 50°09'E). Kuybyshevskaya Oblast', RSFSR. Population: 390,300 in 1939; estimated at 600,000 in 1946. (FIGURES VIII-100 and VIII-119, *130*)

(a) Importance.—Although it is the oblast capital, Kuybyshev itself is under the direct jurisdiction of the RSFSR, administered from Moscow. Its prewar industrial plants produced a variety of products. In 1941, while Moscow was endangered, the city served temporarily as capital of the USSR.

(b) Physical characteristics.—The city is located on a number of hills between the Samara and Volga rivers, at an altitude of from 40 to 50 meters (131 to 164 feet) above the Volga. At this point, the Volga is about 2 kilometers (1.2 miles) wide and has irregularly steep banks. The urban area covers about 113 square kilometers (44 square miles).

(c) Transportation.—Railroad lines extend east, west, and southwest. The major road extends north-northeast; minor roads lead in various other directions. Landing places are provided for Volga shipping. There is one airfield within the immediate vicinity, and three at some distance. The more distant fields are east of the city and include a military field which had 300 to 500 military planes, and about 500 pilots in 1946.

The streets of the town are paved.

(d) Industry and commerce.—Gypsum and sulfur are mined in the vicinity.

The prewar industries included, in addition to the machinery plants (16), aircraft plants (6, 10), a newspaper printing plant, munitions plants, locomotive and railroad car shops employing 3,000 workers in 1936, a weaving

plant with 1,385 workers in 1936, a tractor works, a cable factory, a shipyard, and an oil refinery. Other industries were engaged in production of weapons, explosives, shoes and other leather goods, building materials, paper, photographic equipment, textiles, foodstuffs, sunflower oil, and spirits. One plant which was producing aircraft as late as 1946 may have been subsequently converted to other products. A refinery had a postwar daily output of 3,000 barrels of low-grade gasoline which in July 1947 was said to be 65- to 70-octane; plans called for increasing the octane rating to 100.

The principal items of trade are wood, petroleum, cotton, grain, fats, and cattle.

In addition to identified storage points (2, 3, 5, 24, 25, 38, 39, 40, 43), the city has an artillery arsenal.

(e) Billeting and hospitals.—Billeting possibilities include barracks and theaters (19, 20, 30, 34, 35, 47), museums, libraries, hotels, the Soviet House, the Red Army House, and structures occupied by 21 scientific institutes and 12 technical schools. Housing was poor during the war years, but had been slightly improved by 1946. Political prisoner camps held approximately 30,000 persons in 1946.

The city has one military hospital in addition to the two which have been identified (31 and 37).

(f) Utilities.—Aside from the location of the water pumping station (8), no information is available as to water supply or sewerage systems.

A large power plant on the Volga (32), built in 1935, has a capacity of 60,000 kilowatts. It is supplemented by a thermal plant (7). In 1943 a 100,000-kilowatt thermo plant serving aircraft plants was reported.

(g) Communications.—Kuybyshev is on the main telephone-telegraph network, with lines east to Kinel' and west to Chapayevsk. An amplifier station is located in the city. One office provides combined postal and telegraph service. There is one radio broadcasting and one experimental station (13, 21). There is also an intrastate radiotelegraph station. In addition there are 6 other radio stations for official service only.

(6) Saratov (51°32'N, 46°00'E). Saratovskaya Oblast', RSFSR. Population: 375,900 in 1939. (FIGURES VIII-101 and VIII-119, *192*)

Engel's (formerly Pokrovsk) (51°30'N, 48°05'E). Saratovskaya Oblast', RSFSR. Population: 73,300 in 1939. (FIGURES VIII-101 and VIII-119, *193*)

(a) Importance.—Saratov and Engel's, actually separate municipalities, are so closely situated as to constitute one metropolitan area. Both cities have a variety of light and heavy industry, the larger installations being in Saratov. Although Saratov is the capital of its oblast, it is under direct jurisdiction of the RSFSR.

Engel's, formerly capital of the German Volga ASSR, is now administered under Saratovskaya Oblast'. Although the prewar German colony has been transferred to Asia, German influence is still evident in the design and construction of residential areas.

(b) Physical characteristics.—Saratov and Engel's are located opposite each other on the right and left banks, respectively, of the Volga, which is 4.5 kilometers (3 miles) wide at this point. The right bank slopes considerably; elevations within Saratov range from the river level of 5 meters (16 feet) in the southeast to 190 meters (623 feet) in the northwest. Engel's has elevations from river level to 15 meters (49 feet) in the north, east, and south.

(c) Transportation.—Intersecting railroad lines provide the area with four exit routes, one by way of Engel's. The latter line utilizes a railroad bridge over the Volga at a point 13 kilometers (8 miles) south of Saratov. Of the six highways extending from the area, four are from Engel's. Both cities have river-port facilities. The port at Saratov handles important shipments of grain and petroleum. Three airfields serve Saratov and one airfield is located in Engel's. The streets of both towns follow a fairly regular gridiron pattern.

(d) Industry and commerce.—Saratov has numerous heavy industries. Heavy transportation equipment is handled at various shipbuilding and repair yards, railroad repair shops, and a locomotive and gear factory. There are also two aircraft fuselage plants (32) and an aircraft factory. The latter factory, located 40 kilometers (25 miles) northeast of Saratov, was being converted to production of 5-ton trucks in 1945. There is at least one ball-bearing plant (No. 3 plant). One plant produces 10 to 15 thousand harvesting combines annually; another produces unidentified items of farm machinery.

The war potential includes two munitions works (31) and a chemical warfare agent plant. Other facilities produce chemicals for peacetime use. There is a petroleum refinery and a bone-meal (fertilizer) plant.

Consumers' goods produced in Saratov include construction materials, clothing materials, and food products. Various plants produce lumber (36), bricks (five yards), cement, and other construction materials. A cotton mill and the leather industry provide materials for clothing. Food products include processed meats and other foods, fish, flour (34), and alcoholic beverages.

There are a number of printing plants, including those which print Saratov's two newspapers.

Engel's has a diesel motor plant and some metalworking and chemical plants. However, light industries are predominant. They produce construction materials, among which are three sawmills (2, 3, 4); four brickyards (21, 22); a porous-brick factory; food products (bacon factory, three flour mills); and include printing by a prewar German publishing house, and by newspaper and periodical publishers. Two bone fertilizer plants (5, 18) are located here.

Quartz sand deposits are found in the vicinity.

A *sovkhoz* (state farm) is located in Engel's and a cold storage plant in Saratov. The entire area exports grain and lumber. In addition, Saratov trades in fish, petroleum, and salt.

(e) Billeting and hospitals.—Potential billeting facilities in Saratov include structures occupied by a university, military schools and barracks, various other schools, and agricultural installations consisting of an agricultural and veterinarian institute, an agricultural experimental station, and a biological station on the Volga. There are also a number of hotels.

Engel's has a stadium (16) and a variety of schools, including an aviation school, and agricultural and pedagogic institutes (8, 9).

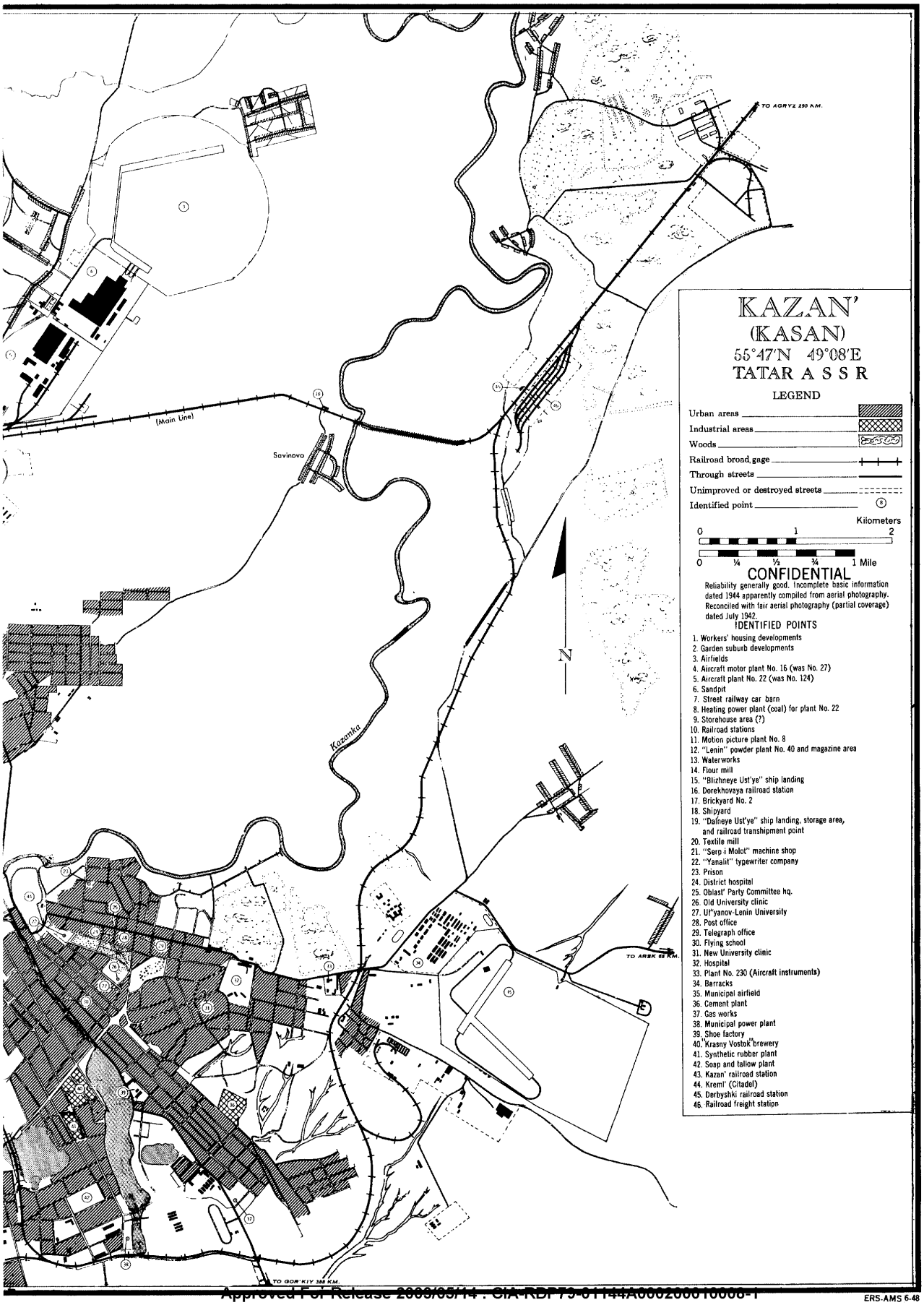
The only hospitals known to exist in the area are the five (33) located in Saratov.

(f) Utilities.—Engel's has a water-supply system, with pumping station (13). No information is available on water supply in Saratov, or sewerage systems in either city.

Saratov has a central power plant (35) with long-distance transmission lines, and two small heat and power plants. Engel's receives power from Saratov central plant. There is a converter station (17) in Engel's.

Gas is piped from Saratov to Moscow. Although the line had a capacity of 1,700,000 cubic meters (60 million

FIGURE VIII - 99
KAZAN' CITY PLAN
JANIS 40
CONFIDENTIAL



KAZAN'
(KASAN)
55°47'N 49°08'E
TATAR A S S R

LEGEND

Urban areas
Industrial areas
Woods
Railroad broad gage
Through streets
Unimproved or destroyed streets
Identified point ⑧

Kilometers
0 1 2
0 ¼ ½ ¾ 1 Mile

CONFIDENTIAL

Reliability generally good. Incomplete basic information dated 1944 apparently compiled from aerial photography. Reconciled with fair aerial photography (partial coverage) dated July 1942.

IDENTIFIED POINTS

1. Workers' housing developments
2. Garden suburb developments
3. Airfields
4. Aircraft motor plant No. 16 (was No. 27)
5. Aircraft plant No. 22 (was No. 124)
6. Sandpit
7. Street railway car barn
8. Heating power plant (coal) for plant No. 22
9. Storehouse area (?)
10. Railroad stations
11. Motion picture plant No. 8
12. "Lenin" powder plant No. 40 and magazine area
13. Waterworks
14. Flour mill
15. "Blizhneye Ust'ye" ship landing
16. Dorekhovaya railroad station
17. Brickyard No. 2
18. Shipyard
19. "Dalneye Ust'ye" ship landing, storage area, and railroad transhipment point
20. Textile mill
21. "Serp i Molot" machine shop
22. "Yanalit" typewriter company
23. Prison
24. District hospital
25. Oblast' Party Committee hq.
26. Old University clinic
27. Ul'yanov-Lenin University
28. Post office
29. Telegraph office
30. Flying school
31. New University clinic
32. Hospital
33. Plant No. 230 (Aircraft instruments)
34. Barracks
35. Municipal airfield
36. Cement plant
37. Gas works
38. Municipal power plant
39. Shoe factory
40. "Krasny Vostok" brewery
41. Synthetic rubber plant
42. Soap and tallow plant
43. Kazan' railroad station
44. Kreml' (Citadel)
45. Derbyshki railroad station
46. Railroad freight station

ERS-AMS 6-48

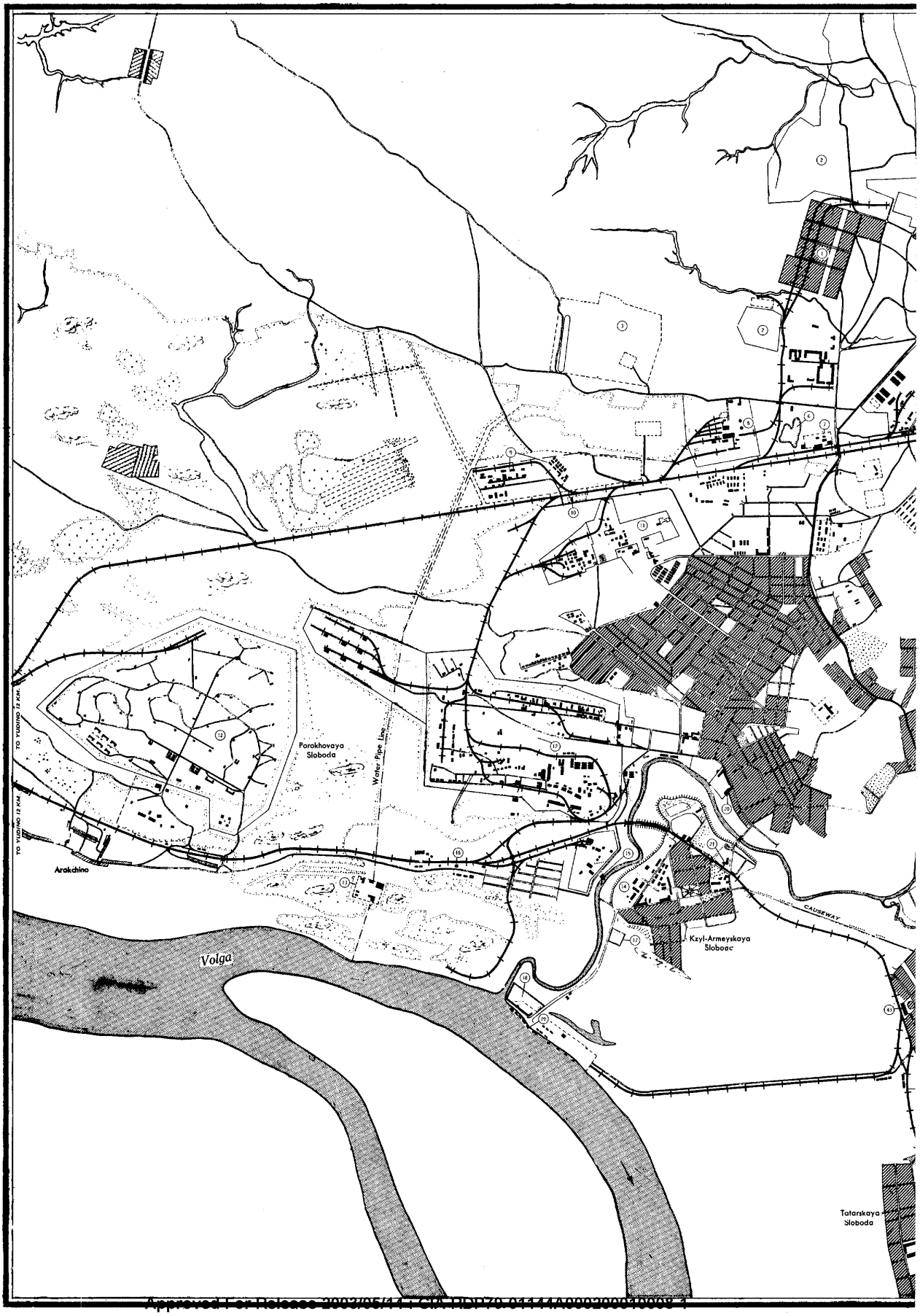


FIGURE VIII - 100
KUYBYSHEV CITY PLAN
JANIS 40
CONFIDENTIAL

KUYBYSHEV
(KUIBYSHEV, SAMARA)
53°12'N 50°09'E
KUYBYSHEVSKAYA OBLAST'

0 1 2 Km
0 1/2 1 Mile

CONFIDENTIAL

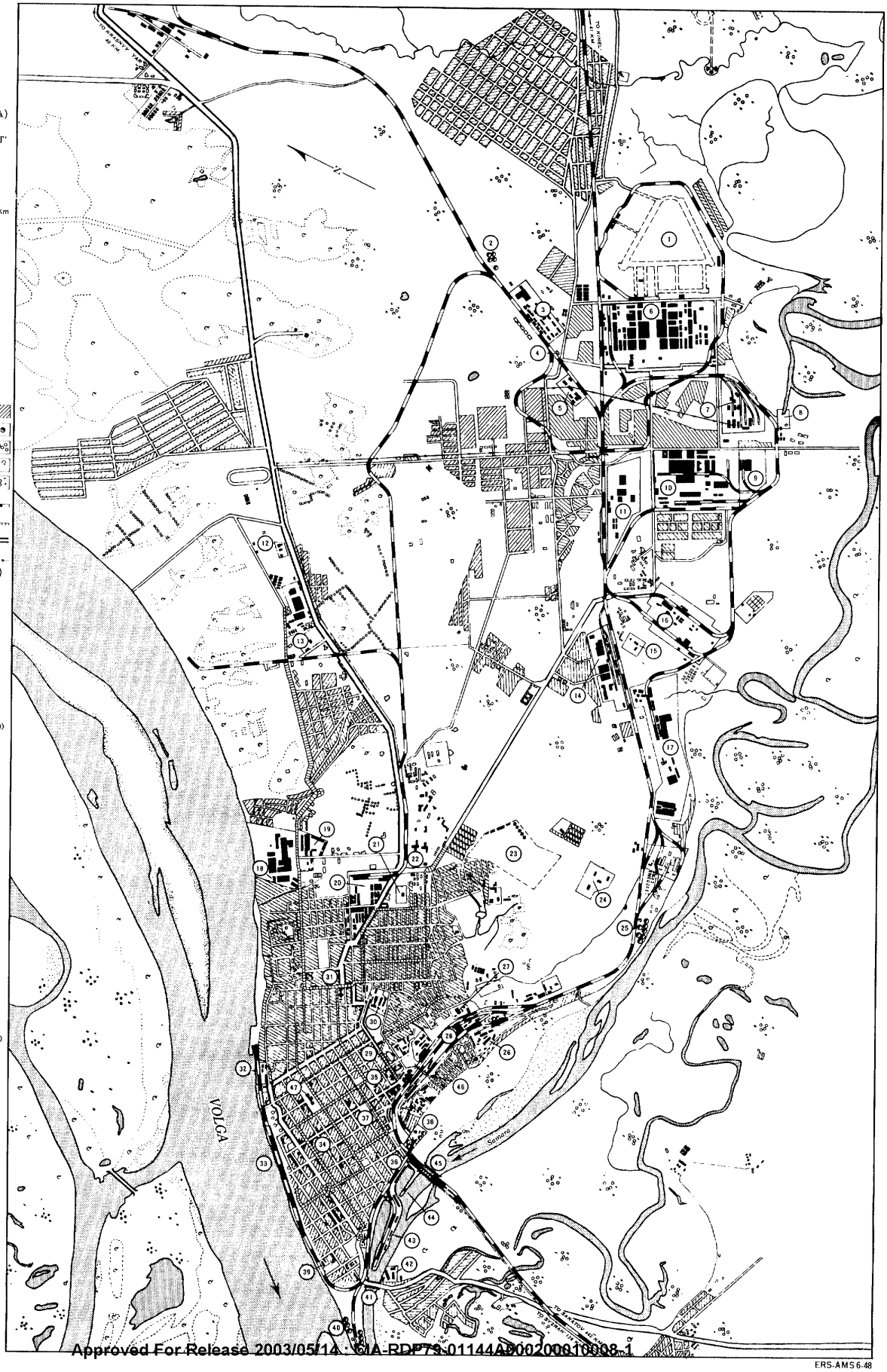
Reliability generally good. Basic information reconciled with aerial photography dated August 1943.

LEGEND

- Urban areas
- Petroleum storage
- Young trees
- Woods
- Meadow with brushwood
- Broad gage railroad
- Streetcar line
- Through streets
- Power line
- Identified point (1)

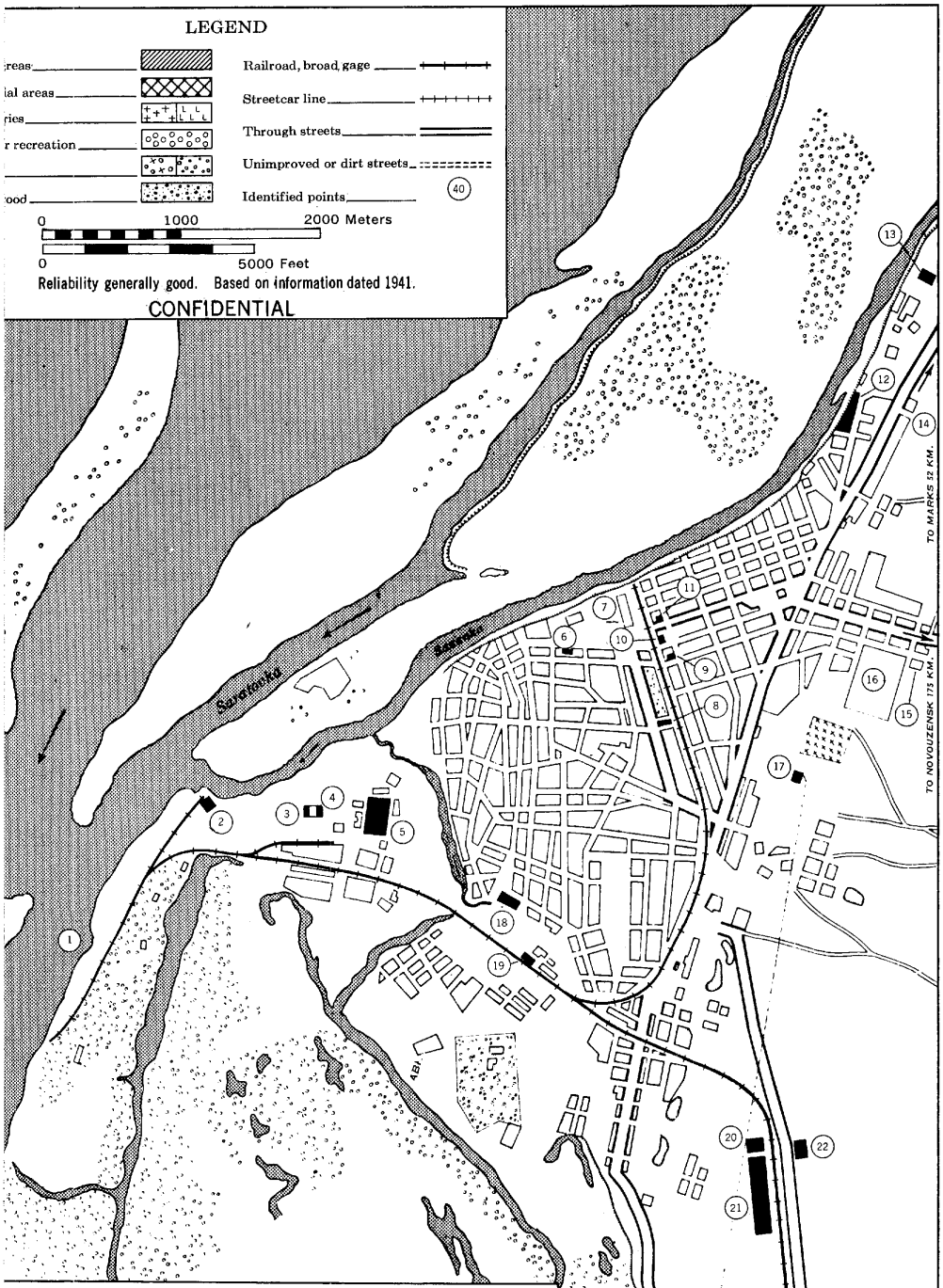
IDENTIFIED POINTS

1. Airfield
2. Fuel storage (oil and gasoline)
3. Material depot
4. Locomotive depot
5. Material depot
6. Fuselage plants Nos. 1 and 18 (with airfield (1))
7. Power plant (fuel burning)
8. Water-pumping station
9. Rubber plant (under construction)
10. Aircraft motor plant No. 24
11. Foundry
12. Transformer station
13. Radio station
14. Plant No. 525
15. Transformer station
16. Machinery plants
17. Brickyard
18. Watch factory
19. Barracks
20. Barracks
21. Broadcasting station
22. Fire department
23. Airfield
24. Explosives depot
25. Fuel storage (oil and gasoline)
26. Railroad buildings and storage
27. Supply depot
28. Railroad depot
29. "Locomotive" stadium
30. Barracks
31. Municipal hospital
32. Power plant
33. Harbor
34. Municipal theater
35. Barracks
36. Secret police community house
37. Hospital
38. Fuel storage (oil and gasoline)
39. Grain elevator
40. Fuel storage (oil and gasoline)
41. Wooden bridge (100 meters long, 7 meters wide)
42. Flour mill
43. Storage for shipyard
44. "Karl Marks" ship repair facilities
45. Railroad bridge
46. Concrete bridge over railroad
47. Opera house



ERS-AMS 6-48

FIGURE VIII - 101
SARATOV AND ENGEL'S CITY PLANS
JANIS 40
CONFIDENTIAL



IDENTIFIED POINTS

ENGEL'S

1. Steamer landing
2. Sawmill
3. Sawmill
4. Sawmill
5. New bone fertilizer plant
6. Council of Peoples' Commissars and Central Executive Committee
7. Communard Square
8. Advanced schools
9. Pedagogic Institute
10. Oblast' Party Committee
11. Agricultural Institute
12. Meat processing institute
13. Waterworks
14. Agricultural Institute (under construction)
15. Radio station
16. Stadium
17. Converter station
18. Old bone fertilizer plant
19. Railroad station
20. Tile plant
21. Brickyard
22. Brickyard

ENGEL'S
(POKROVSK)
51°30'N 46°05'E
SARATOVSKAYA OBLAST'

Reliability fair. Based on information dated 1941.

ERS-AMS 6-48

cubic feet) daily, only 425,000 cubic meters (15 million cubic feet) were being transmitted in 1947.

An oil pipe line from Astrakhan' to Kazan' *127* passes through Saratov.

(g) Communications.—The area is served by post offices and a radio-telegraph station, and is connected with the main telephone-telegraph network by lines south, south-southwest to Kamyshin, and west to Atkarsk. Broadcasting station RW-3 in Saratov operates on a frequency of 340 kilocycles, with a wave length of 882.0 meters, and has an output of 20 kilowatts. A second broadcasting station (15) is located in Engel's.

(7) Yaroslavl' (57°37'N, 39°53'E). Yaroslavskaya Oblast', RSFSR. Population: 298,100 in 1939; estimated 300,000 in 1946. (FIGURES VIII-102 and VIII-119, *70*)

(a) Importance.—Yaroslavl', the capital of Yaroslavskaya Oblast', is a rail and road junction and an industrial center with several heavy industries.

(b) Physical characteristics.—The city is located around the confluence of the Volga and Kotorosl' rivers. The oldest section, the *Strelka,* lies on the steep right bank of the Volga and in the acute angle formed by the two rivers upstream from their confluence. The *Krasny Perekop* section appears to be on the right bank of the Volga south of the Kotorosl' river.

The *Strelka* is built in an irregular radial pattern. The newer sections have rather broad streets. There are a number of cathedrals and churches.

(c) Transportation.—Four single-track railroads radiate from the city. The lines are served by four passenger stations (10, 36, 39, 43), a classification yard (40), and an industrial station (58). Bridges over the Volga (46) and Kotorosl' (25) are both of steel construction.

Highways extend in six directions. A new steel highway bridge (56) crosses the Volga.

The city's port facilities are utilized by river steamers. It has a street railway system, and an airfield (4) with three others in the vicinity.

(d) Industry and commerce.—Yaroslavl's prewar automotive industry was of considerable importance. Finished vehicles were produced at Automobile Works No. 3, with 15,000 workers in 1937, and the *Zinov'yev* assembly plant, with 600 prewar workers. A plant which had produced light trucks was destroyed during the war, but was being rebuilt in July 1947. Replacement machinery had been received as early as 1945. The plant is to produce 5- to 7-ton trucks on an assembly line several kilometers in length.

The prewar automotive industry made use of dyes and lacquers from the two *Lakokraska* factories (16, 48). Tires for automobiles and airplanes were produced at the *Yarak* rubber and asbestos combine (45). Synthetic rubber was produced at another plant (44).

Among the heavier industries were a shipyard producing motorboats and cutters (6), locomotive and car repair shops (5, 47), an electric motor factory, a printing machine plant, a machinery factory (14), and a refinery and cracking plant (55) with a 300,000-ton capacity in 1938.

Of value to the war effort were a gas-mask factory, which employed 32,000 persons in 1935, and a perfume factory, which was converted to manufacture of explosives. An artillery arsenal is located in the city.

Industries of lesser military interest included the *Krasny Perekop* textile combine (cotton mill) (22) having 11,000 workers, a newspaper printing plant, the *Lenin* tobacco factory (700 workers), distilleries, flour mills, and processing plants for various foodstuffs.

The principal items of trade are industrial products and grain.

(e) Billeting and hospitals.—Billeting facilities, other than those identified on FIGURE VIII-102, include museums, theaters, schools, a technical institute, three hotels, and bathing resorts associated with the *Krasny Perekop* factory. There is at least one hospital (41).

(f) Utilities.—Yaroslavl' is served by a municipal waterworks (33), a sewerage system, a city power plant (29), and a peat-burning district power plant of 87,000-kilowatt capacity (7). A central power plant (peat-burning, with 49,000-kilowatt capacity) belongs to the rubber combine (45). The former has long-distance transmission lines.

(g) Communications.—The city has post, telephone, and telegraph offices (20, 31). The nearest radio station is in vicinity of Ivanovo.

(8) Arkhangel'sk (Archangel) (64°33'N, 40°32'E). Arkhangel'skaya Oblast', RSFSR. Population: 281,000 in 1939; estimated at 280,000 in 1941. (FIGURES VIII-103 and VIII-119, *9*)

(a) Importance.—Arkhangel'sk is the capital of Arkhangel'skaya Oblast' and the main port on Beloye More (White Sea). The port also ranks high among Arctic ports as a whole, but its importance has declined with the development of facilities at Murmansk. It is an important transshipment point for products of the northern USSR.

(b) Physical characteristics.—The city is located on the right bank of the Severnaya Dvina river, about 45 kilometers (28 miles) above the point where it empties into the White Sea. The industrial section of Solombala is separated from the city proper by the Kuznechikha river, a branch of the Severnaya Dvina. The street pattern of the city proper is a type of crescent-shaped gridiron, conforming with the curve of the shore line.

The main part of the city is built at the top of the steep Mys Pur Navolok (bluff), 7 meters (23 feet) above sea level. The city area is about 31 square kilometers (12 square miles).

(c) Transportation.—A rail line extends southward to Vologda *47,* where it connects with lines to Leningrad *37* and Moscow *107.* The line is also linked to the Trans-Siberian line at both Kotlas (16) and Kirov *52.* Some difficulty is experienced with traffic between the railroad station (14) on the left bank of the Dvina and the city proper. The channel normally is not kept open in winter by ice breakers, and traffic crosses via the ice. A local rail line extends northward, crossing the Kuznechikha river by means of trestles (5 and 6).

Roads, which connect the city with Kholmogory to the southeast, are of primitive type.

The harbor is frozen the greater part of each year, with navigation limited to only five months in summer and early autumn. Thick fogs are common from May to August. Steamship service extends to Vardø and ports on the White Sea.

The main port consists of three piers. There are two piers of 160-meter (525-foot) length, one of which is equipped with a 25-ton hand crane and a 75-meter (246-foot) passenger wharf. A third pier is 227 meters (745 feet) in length. There is also a series of mooring wharves.

A number of port facilities are located outside the city. Birzhevaya Vetka, to the west, has more than 30 store sheds and 7 wharves. Ostrov Zaostrov'ye, to the southwest, has a wharf and warehouses. Arkhangel'sk-Pristan' (Ostrov Glukhovskoy) has 600-meter (1,968-foot) moor-

ings. Ostrov Borisovskiy has moorings for 45 ships. Ostrov Moseyev, a coaling station, has 2,200-meter (7,218-foot) piers and 21 loaders, including 8 continuous belts and 2 cranes.

An airfield is located at the southern end of an island in the Severnaya Dvina river, 24 kilometers (15 miles) southeast of the city. Although at an elevation of 8 meters (26 feet), it is handicapped by poor weather conditions; in 1941, it was sod-covered and was without artificial runways. Dimensions are 2.5 kilometers (8,200 feet) north-south and 1.6 kilometers (5,250 feet) east – west. It has a shop for minor repairs. Communication facilities include both a radio station and telephone connections to Arkhangel'sk and to the intercity network. Two military airfields (17 and 18) are located nearer the city. In all Arkhangel'sk is served by 8 airfields, 2 of them providing seaplane landings.

The streets and adjoining roads are generally in poor condition. The main paved streets are parallel to the river bank, with cross streets at right angles. There are few asphalt-surfaced streets, and others are paved with cobblestones, wood blocks, or boards. The latter construction consists of boards measuring about 5 by 15 centimeters (2 by 6 inches), laid over logs spaced at about 3 meters (10 feet). Sidewalks, of similar construction, are also in poor condition, resulting in numerous accidents during the dark winter months.

The city has a street railway system.

(d) Industry and commerce.—Among the principal industries of Arkhangel'sk are shipbuilding, chemicals, and paper.

The municipal shipyard has a stone drydock, a 5,000-ton steel floating dock, four large and several small tugs, five floating cranes (one of 150 tons), and a number of traveling cranes.

There is a navy yard. A yard administered by Sovtorgflot, the agency charged with merchant ship construction, builds ships up to 4,000 tons. It is equipped with a stone drydock, cranes, and tugs.

It is reported that the *Krasnaya Kuznitsa* shipyard has all necessary facilities for building port tugs and barges, for performing major repairs on warships (including destroyers and submarines), and for repairing merchant vessels. This yard is said to work in close cooperation with Shipyard Number 402 in Molotovsk. The *Layskiy* drydock in Nikol'skiy Rukav (inlet), a part of this yard, could accommodate ships of up to 5,000 tons in June 1946.

Chemical plants include one military plant, and one producing chemical warfare agents.

Mechanical sawmills employ over a thousand workmen. Increased consumption of pulpwood is evidenced by increased output of two plants: a) the *Solombal'skiy* sulfate-cellulose plant, which exceeded its quota for December 1944 by 140 tons of cellulose and 60 tons of paper; and b) the *Voroshilov* paper combine, which increased its 1944 production by 35% over that of 1943. A sulfate-cellulose combine is under construction at Mechka.

The *Krasny Treugol'hik* rubber factory, the fish-processing industry, and various metalworking and machine shops are of importance. Other industries produce or process textiles (12), leather, furs, tar, turpentine, soap, bricks (three yards), rope, cement, foodstuffs, and luxury goods.

Storage facilities are located at points (10), (15), and (16).

Imports include coal, foods, and manufactured goods. Exports are principally raw materials (flaxseed, grains, timber, fibers), tar, and dairy products.

(e) Billeting and hospitals.—Among various hotels (2) is an Intourist hotel with centralized but inadequate heating. Other billeting possibilities include barracks (4), a theater, a circus building, and various public buildings. A labor camp, located in the vicinity, provides labor for lumbering and for railroad and port construction. Permanent hospital facilities (3) were supplemented during the war by use of brick school buildings.

(f) Utilities.—Water is obtained from the Severnaya Dvina river. There is no purification system in a modern sense. Contamination occasionally includes a dysentery virus which not only passes through filters but, reportedly, is not effectively destroyed even by boiling.

There is no piped sewerage system. Although some modern houses are provided with cesspools, the majority make use of pits. Even the better facilities are generally poor.

The city has a steam power plant (13) with installed capacity of 12,000 kilowatts.

(g) Communications.—The city is served by a combination postal and telegraph office, by a radio broadcasting station, and by 8 other radio stations. The naval base has its own radio station.

(h) War damage and reconstruction.—A large percentage of residential construction is of wood, a material which is available locally and in plentiful supply. A typical residence is a one-story log structure, with a light board interior and storm windows. Of the 3,311 residences existing in 1926, only 117 were of stone.

Despite the existence of an efficient fire-fighting organization at that time, it was estimated in 1942 that 10% of all structures had been damaged by bombing.

(9) Tula (54°12'N, 37°37'E). Tul'skaya Oblast', RSFSR. Population: 272,400 in 1939; estimated at 272,000 in 1941. (FIGURES VIII-104 and VIII-119, *110*)

(a) Importance.—Tula, the capital of Tul'skaya Oblast', is a road and rail junction and a center of heavy industry.

(b) Physical characteristics.—The city is located on both banks of the unnavigable Upa river near the mouth of the Tulitsa river, in the Chernozem (black earth) region of central USSR. The main section, which lies on the left or south bank of the Upa, is built in a semiradial pattern. The principal streets lead from the squares around the Kreml' (30) and extend to the outskirts, where a gridiron pattern is combined with the radial. The *Zarech'ye* and *Chulkovskiy Rayon* sections, on the right or north bank of the Upa, follow a gridiron pattern.

The city covers an area of 32 square kilometers or 12 square miles. Its elevation varies from 150 meters (492 feet) in the western part to 190 meters (623 feet) in the south, with intermediate levels of 180 meters (591 feet) in the north and east.

(c) Transportation.—Tula is served by a through railroad with two branch lines. Facilities include three stations (1, 2, 23), the first of which has a classification yard. Highways provide eight exit routes, radiating in all directions. There is a commercial airfield and a military airbase (4).

The main streets are paved with asphalt. The only known public transit system is a street railway.

(d) Industry and commerce.—Iron and coal are mined in the vicinity and the city has become a center of the metallurgical industry. The *Novotula* foundry had an output of 500,000 tons in 1936. The *Korogor'skiy* foundry produced 282,200 tons the same year. The *Kalinin* metal-

FIGURE VIII - 102
YAROSLAVL' CITY PLAN
JANIS 40
CONFIDENTIAL

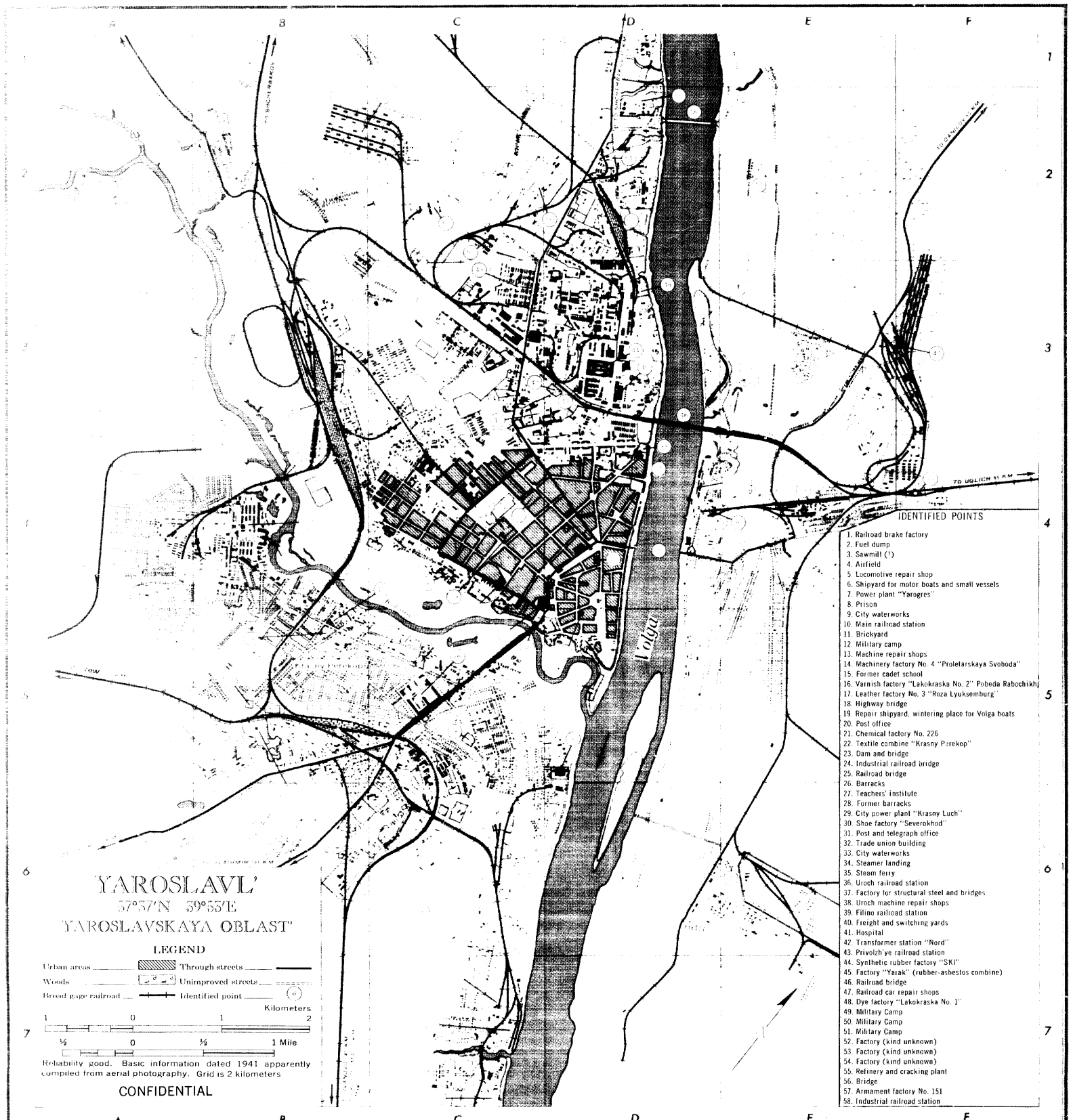
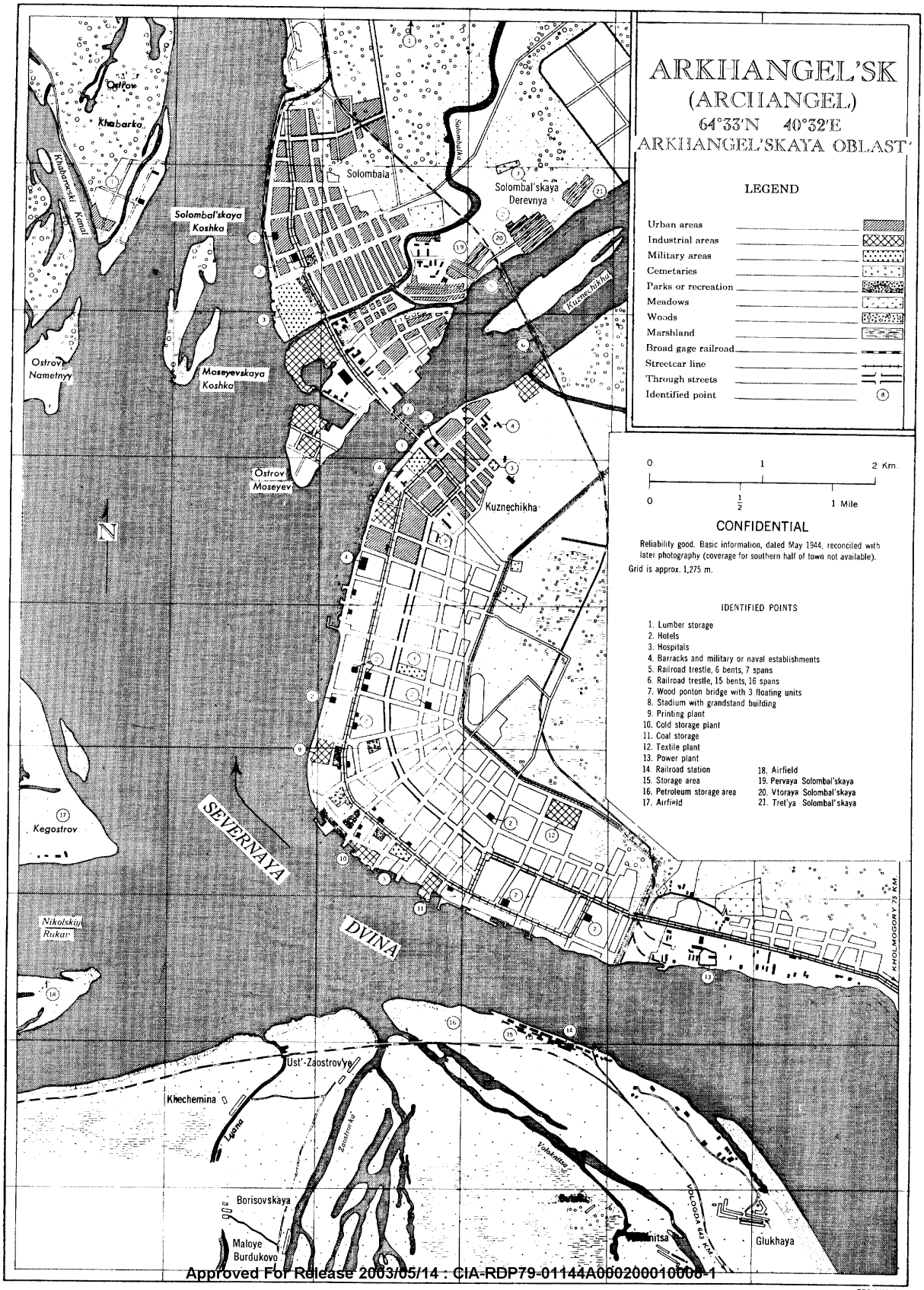
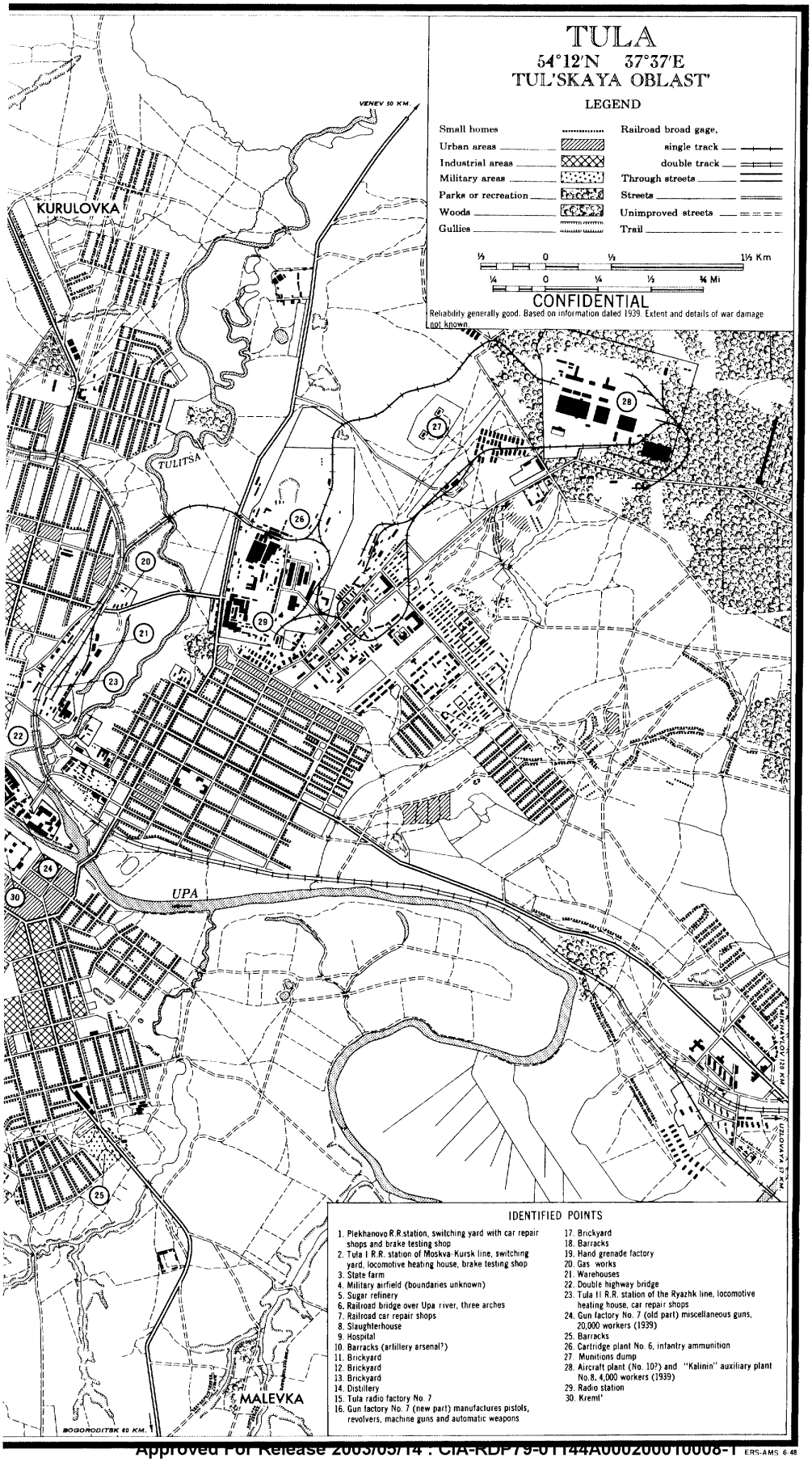


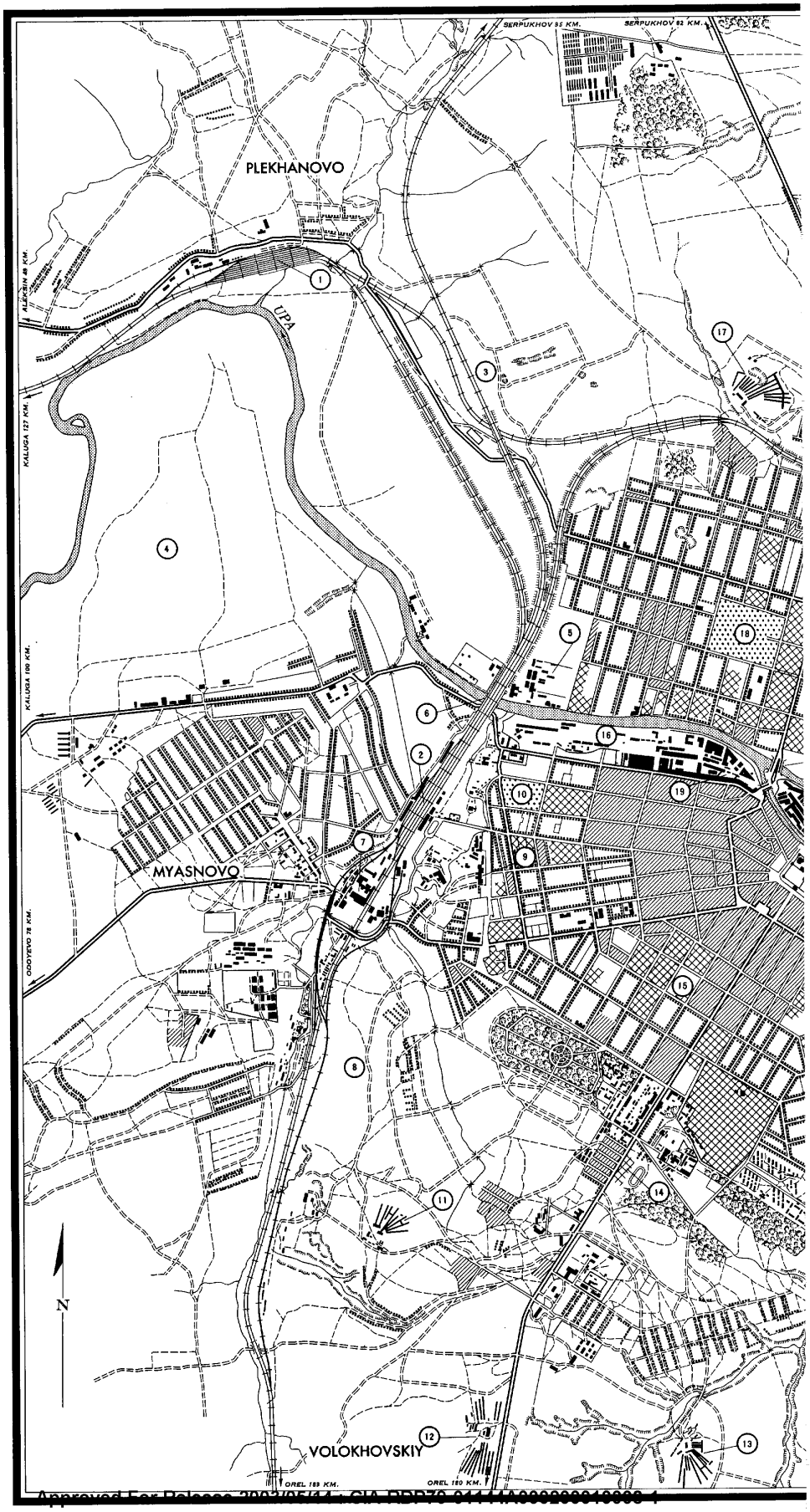
FIGURE VIII - 103
ARKHANGEL'SK CITY PLAN
JANIS 40
CONFIDENTIAL



ERS-AMS 6-48

TULA CITY PLAN
JANIS 40
CONFIDENTIAL





lurgical plant employed 10,000 workers in 1937 and the *Ordzhonikidze* plant employed 3,000.

Facilities of direct use for production of war goods include two small arms plants, No. 7 (16, 24) and No. 2, the latter with 300 workers. Hand grenades have been produced at the *Kirov* machine tool plant No. 60, which employed 4,000 workers in 1934 and produced grinding and milling machines and lathes. Explosive-type munitions are also produced at No. 6 cartridge plant (26) and at a powder and explosives plant. No. 10 airplane motor plant, which employed 15,000 workers in 1940, also produces optical and other precision apparatus.

Among the other metal-fabrication industries are a locomotive factory producing units with gas generators and diesel motors, also narrow-gage locomotives; railroad car shops, a farm machinery plant, and a samovar factory, which resumed operation, in 1945, with an estimated capacity of 10,000 per annum.

There is one newspaper printing plant.

The *Prilepsk* state stud farm is located nearby.

The principal items of trade are hemp, grain, silk goods, leather, furs, and sugar.

(e) Billeting and hospitals.—Billeting facilities include a museum, a theater, a hotel, the bishop's palace occupied by Secret Service, a military aviation school, summer camp for armored troops, and barracks (10, 18, 25). Medical installations include a hospital (9) and an eye clinic.

(f) Utilities.—The city is provided with a water-supply system, a sewerage system, a thermal power plant with capacity of 60,000 kilowatts, and a gas works (20).

(g) Communications.—Facilities include post, telephone and telegraph offices, and two radio stations (29). One other radio station serves the commercial airfield.

(10) Astrakhan' (46°22'N, 48°05'E). Astrakhanskaya Oblast', RSFSR. Population: 253,000 in 1939. (FIGURES VIII-105 and VIII-119, *259*)

(a) Importance.—Astrakhan' is the capital of Astrakhanskaya Oblast' and a port on both the Caspian Sea and the Volga river. It is the largest fish-trading center of the USSR and a center for trade with Iran and the Far East.

(b) Physical characteristics.—The city is located on Dolgiy Ostrov, an island in the Volga, 90 kilometers or 56 miles above its estuary at the Caspian Sea. The Kutum river, which divides the city in two sections, is connected to the Volga by a canal. An important feature is the Kremlin at the center of the city.

Disadvantages of the location include a climate which is not considered healthful, and a low elevation which results in annual flooding of a large part of the city. The city is 22 meters (72 feet) below sea level. The landlocked Caspian Sea, already well below sea level, is continuing to recede. The area of Astrakhan' is approximately 25 square kilometers (9.7 square miles).

(c) Transportation.—The only existing direct rail connection extends north-northwest. The postwar timetable indicates that a branch line from the Rostov – Baku route has been completed from Kizlyar to the Volga. North of Astrakhan' there is a ferry connection.

All road connections are reportedly in very poor condition. The principal road runs northwest; others extend to points in the Caucasus.

Because of the shallowness of the Volga at its delta, ocean vessels must anchor in the "Astrakhan' Roadstead," about 180 kilometers (112 miles) from Astrakhan' and 90 to 97 kilometers (56 to 60 miles) from land. The harbor is frozen from the latter part of November to the beginning of March. During the summer, regular steamer service is provided up the Volga to Gor'kiy and Shcherbakov (formerly Rybinsk).

Port facilities include 48 wharves along the Volga with aggregate berthing space of 3,650 meters (11,974 feet), and an average depth alongside of 5.5 meters (18 feet). Numerous cranes and telphers are available (JANIS 41, Chapter VI, Topic 64, C).

The city has 4 airfields. One was undergoing extensive improvement in October 1946, and one has a seaplane landing.

No information is available on streets or internal forms of transportation.

(d) Industry and commerce.—Shipyards comprise much of the town's industrial facilities. Two shipyards known by name are the *Third International* and *Krasnaya Kuznitsa* yards. Others include a small naval yard, a large shipbuilding yard, and a shipyard and docks built in 1938.

The fish combines (6) compose another major industry. One factory, built in 1935, has a capacity output of 80 million cans annually, plus a daily output of 55 tons of frozen fillets. There is also a meat-canning industry.

Sawmills (7) and wood products, including barrels, are of some importance. Chemical production includes chemical warfare agents. There are railroad car repair shops and some metalworking facilities. Some of the other industries produce soap, confections, textiles (cotton and silk), glass products (bottles), leather products (shoes), flour and baked goods, distilled liquors, beer, and nonalcoholic beverages.

The principal items of trade are fish and fish products (including caviar), salt, petroleum products, cotton, grapes, and melons.

Although some good warehouses, including two large cold-storage plants, were available in 1941, equipment was mostly outdated. There were also oil-storage facilities (1).

(e) Billeting and hospitals.—Possible billeting facilities may be found at various hotels, museums, galleries, scientific institutions, public buildings, and the theater. There are at least three hospitals (2).

(f) Utilities.—The city has a waterworks (11), the details of which are not known. Information on the sewerage system is lacking. One steam power plant with 100,000-kilowatt capacity serves the city; two power plants, in addition to supplying electric power, serve the surrounding area with heat; a fourth power plant serves the shipyard. Astrakhan' is the point of origin of an oil pipe line to Saratov and Kazan'.

(g) Communications.—The city is on the main telephone-telegraph network. It is served by two lines, one northward to Delta and Verkhniy Baskunchak, the other westward to the European Caucasus.

Radio broadcasting station RW-35 has a frequency of 598 kilocycles, a wave length of 501.7 meters, and an output of 10 kilowatts. There are 6 radio stations with ground-to-ship service.

(11) Penza (53°12'N, 45°01'E). Penzenskaya Oblast', RSFSR. Population: 157,100 in 1939. (FIGURES VIII-106 and VIII-119, *136*)

(a) Importance.—Penza is an oblast capital and a junction point of roads and railroads.

(b) Physical characteristics.—The city occupies about 40 square kilometers or 15 square miles on the left bank of the Sura river. The northern industrial section is connected to the southern part by the main street, the

Internatsional'naya Ulitsa. The street pattern is gridiron.

(c) Transportation.—Intersecting rail lines provide service in four directions. There are four railroad stations (1, 2, 3, 4). A classification yard is located near Penza III station (3). Two roads similarly provide four exit routes. Two airfields are reported in the vicinity.

(d) Industry and commerce.—Penza has several metal-fabrication plants: the *Frunze* works, producing machine tools; No. 7 cartridge works, which produced 5 million rifle cartridges annually during World War II; No. 7 airplane plant, producing propellers and skids; the *Frunze* bicycle factory (5); and several railroad repair shops. There are two paper factories, the *Tomsk* and the *Mayak Revolyutsii* (the latter employing 1,300 workers). Other facilities include a tannery, a newspaper printing plant, a watch and clock factory (6), and factories for producing or processing cottonseed oil, furniture, matches, soap, and spirits.

Two local ordnance offices (Nos. 410 and 411) serve as supply dumps for Penza and Syzran'.

The city is centrally located in an agricultural area which produces grain and other foodstuffs.

(e) Billeting and hospitals.—Potential billeting facilities are two hotels, two museums, a stadium (8), an art gallery, a botanical garden, a city park with nursery, and a number of schools. One hospital (7) has been identified.

(f) Utilities.—A power plant is known to exist, but data are lacking on water supply and sewerage.

(g) Communications.—Penza is served by postal, telephone, and telegraph connections, and by broadcasting station RW-56 operating on a frequency of 640 kilocycles with an output of 1.2 kilowatts. An additional radio station is operated by the airfield.

(12) Kirov (formerly Vyatka) (58°36'N, 49°41'E). Kirovskaya Oblast', RSFSR. Population: 143,200 in 1939. (FIGURES VIII-107 and VIII-119, *52*)

(a) Importance.—Kirov is the capital of Kirovskaya Oblast'. It is served by rail and road connections and has a number of industrial plants.

(b) Geographical characteristics.—The city proper is located on the high left bank of the Vyatka river, with industrial suburbs on both banks. Elevations vary from 180 meters (591 feet) in the northern, eastern, and western sections to 200 meters (656 feet) in the southern section. The urban area covers about 20 square kilometers or 8 square miles. The Vyatka industrial section is located in the northern part of the city on the left bank of the river.

The cathedral (31) is a landmark.

(c) Transportation.—Railroads extend to the northwest and west-southwest. From a point southwest of the town a line also runs east-southeast. Related structures include two stations (13 and 36) and a classification yard. Roads extend south, west-southwest, and east-southeast. Connection with the latter road is effected by means of a ferry (24) over the Vyatka. An airfield and aircraft depot are located in the vicinity.

Streets follow a gridiron pattern.

(d) Industry and commerce.—Industrial activities of Kirov include the smelting of silver and copper (*Peskovskiy* plant); the manufacture of machinery (11); and the production or processing of leather goods (1, 3, 4, 9), textiles (5), matches (2), lumber (29), furniture, soap, bricks (12, 14), furs, canned meat (7), flour, and spirits. There are also ship-repair yards, railroad-car repair shops, and a printing plant.

(e) Billeting and hospitals.—Structures of possible use for billeting include, in addition to identified buildings (16, 17, 26, 28 and 32), a museum, a library, and various hotels. Open space may be provided at the race track (10) and the stadium (23). There is at least one hospital (15).

(f) Utilities.—The city has a water supply system (30) and, possibly, a sewerage system. A municipal power plant (18) with 17,500-kilowatts capacity is in operation; also a 60,000 kilowatt steam plant.

(g) Communications.—Kirov has a post office (20) and a radio station, and is on the main telephone-telegraph network. Five radio stations, all but one for official use only, are in operation.

(13) Shcherbakov (formerly Rybinsk, or Ribinsk) (58°03'N, 38°51'E). Yaroslavskaya Oblast', RSFSR. Population: 139,000 in 1939. (FIGURES VIII-108 and VIII-119, *46*)

(a) Importance.—Shcherbakov was formerly important primarily for its fishing industry. It has become an important river port since construction of the White Sea – Baltic waterway and is currently the administrative center of its raion.

(b) Physical characteristics.—The major part of the city lies on the right bank of the Volga and on both banks of the Cheremkha, a meandering tributary river. The suburbs of Petrovskoye and Vasil'yevskoye, on the left bank of the Volga, are separated by a second tributary, the Sheksna.

The urban area totals 18.5 square kilometers or 7 square miles, comprising Shcherbakov proper (10 square kilometers, or 4 square miles), the suburbs of Petrovskoye (6.5 square kilometers, or 2.5 square miles) and Vasil'yevskoye (2 square kilometers, or 0.8 square miles).

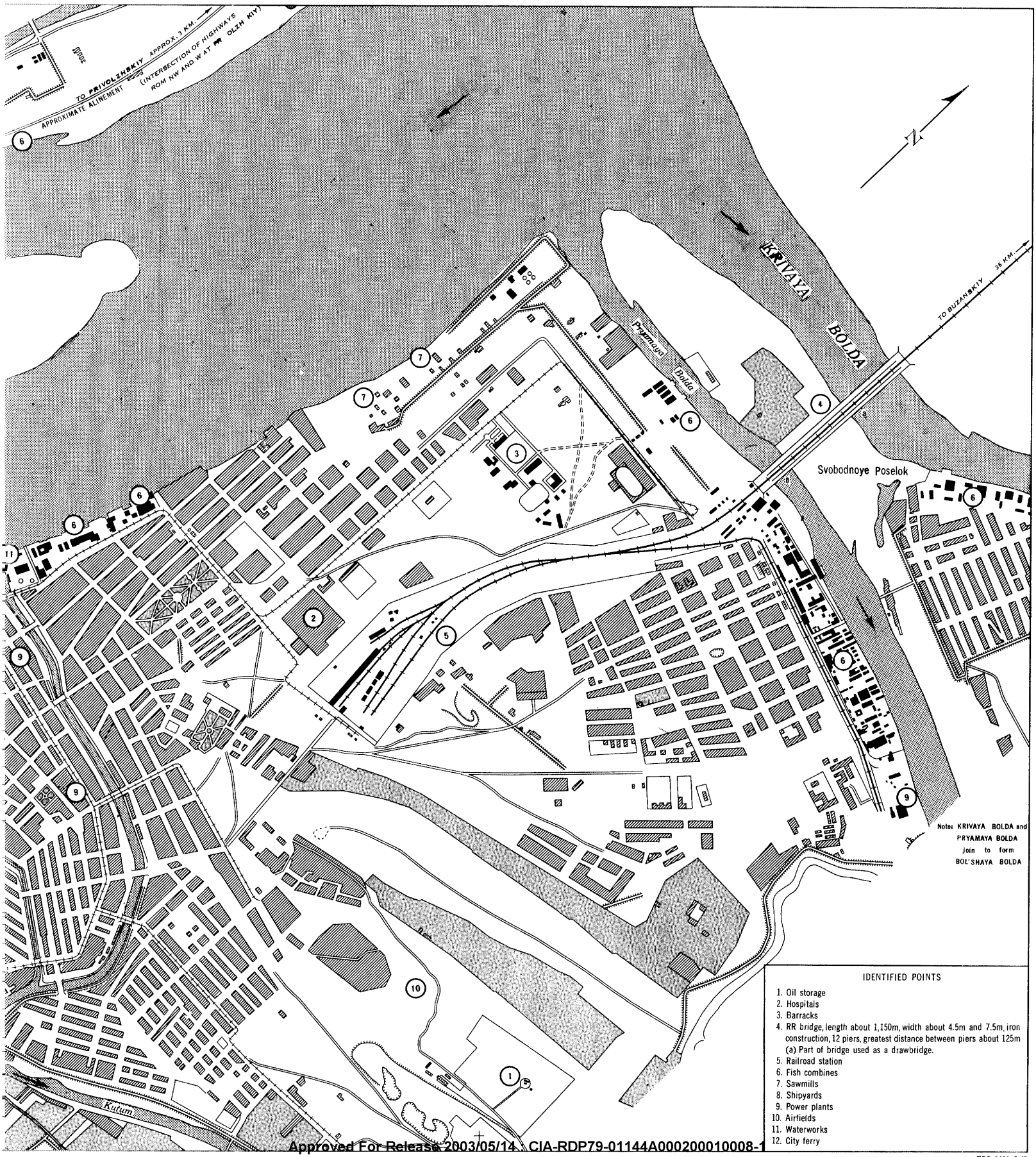
Some sections of the city are laid out in a gridiron pattern with unevenly spaced blocks. In the central part, blocks are densely built up, with structures facing all four streets. In the suburbs, small one-story rectangular houses front on two opposite streets.

(c) Transportation.—The Yaroslavskaya Railroad provides service southeast, and north-northwest. It makes use of a bridge over the Cheremkha river. Roads extend in three directions. Although the Sheksna has been bridged, it is a considerable obstacle to highway construction (FIGURE VIII-14). One airfield (17) is located to the southwest, one is located in the city itself and two others lie north of the city.

Shcherbakov is a grain port, and a terminal and wintering port for large Volga steamers. It is connected, through the Volga and a canal system, with the Baltic Sea and Arctic Ocean. Harbor facilities include locks in the Cheremkha river (5), and wharves (6). A dam (15) on the Volga serves navigation and a power plant, and is used as a highway bridge. It is 12 meters (40 feet) high and equipped with double locks 300 meters (985 feet) in length and 28 meters (90 feet) in width.

(d) Industry and commerce.—During the war, Shcherbakov had a number of plants adaptable to production of munitions. The *Yezhov* machinery plant, which had employed 3,000 workers in 1937, produced ammunition, mines, and torpedoes. The *Dormash* machinery plant (10), designed for construction equipment, employed several thousand persons in manufacture of guns and related items. The *Poligraf* plant (8), with approximately 67,800 square meters (81,100 square yards) of floor space, was producing small automatic weapons in 1941. Another ammunition plant (9), unidentified by name, had storage magazines and several underground structures.

FIGURE VIII - 105
ASTRAKHAN' CITY PLAN
JANIS 40
CONFIDENTIAL

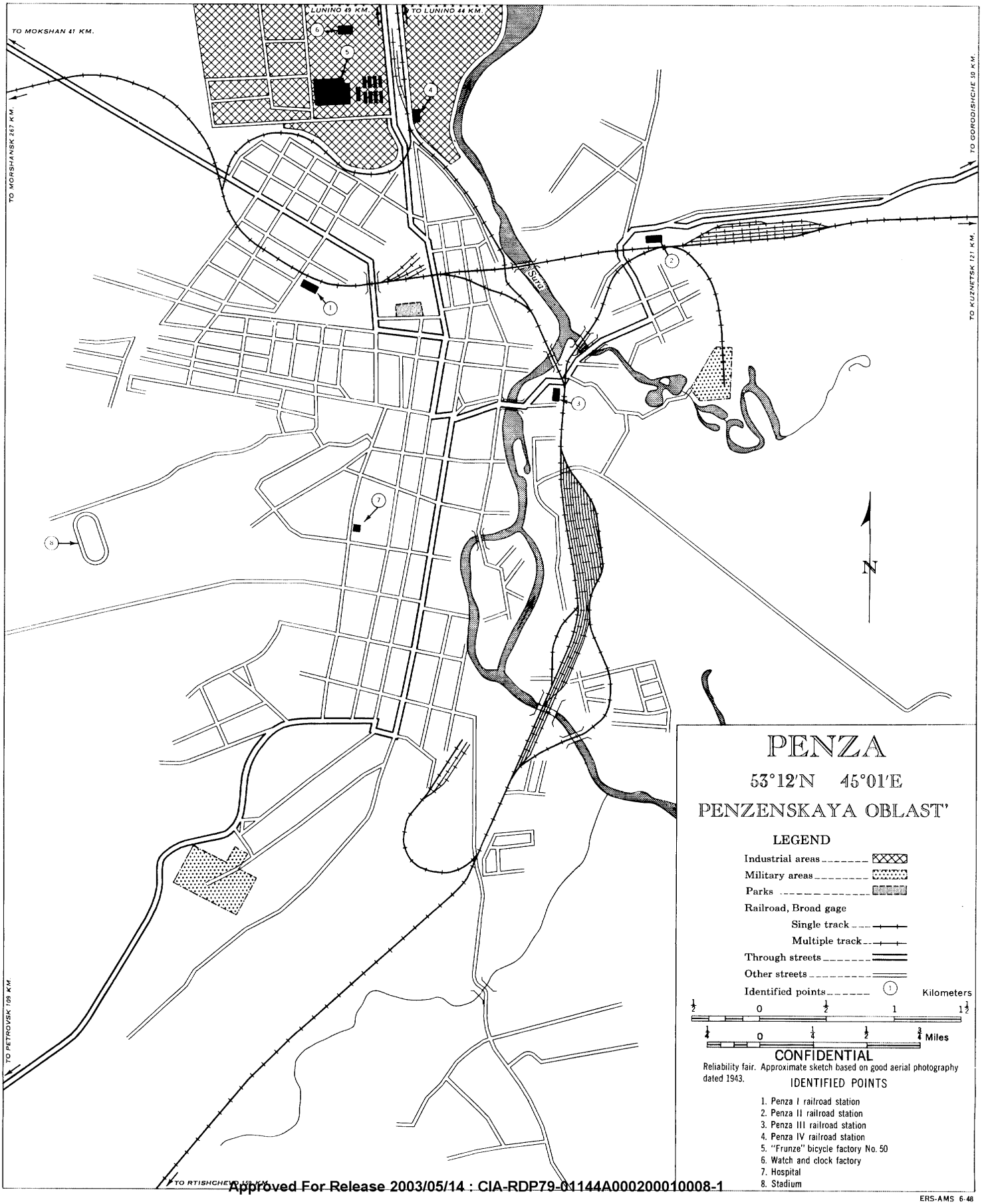


IDENTIFIED POINTS

1. Oil storage
2. Hospitals
3. Barracks
4. RR bridge, length about 1,150m, width about 4.5m and 7.5m, iron construction, 12 piers, greatest distance between piers about 125m (a) Part of bridge used as a drawbridge.
5. Railroad station
6. Fish combines
7. Sawmills
8. Shipyards
9. Power plants
10. Airfields
11. Waterworks
12. City ferry

ERS-AMS 6-48

FIGURE VIII - 106
PENZA CITY PLAN
JANIS 40
CONFIDENTIAL



ERS-AMS 6-48

FIGURE VIII - 107
KIROV CITY PLAN
JANIS 40
CONFIDENTIAL

IDENTIFIED POINTS

1. Leather goods factory No. 2
2. "Krasnaya Zvezda" match factory
3. Sheepskin leather factory
4. Leather goods factory No. 3
5. Textile factory
6. Artificial leather factory
7. Meat packing combine
8. Armored equipment plant No. 38
9. Leather goods factory
10. Race track
11. Machinery plant imeni 1 Maya
12. Brickyard No. 1
13. Kirov II railroad station
14. Brickyard No. 2
15. Hospital
16. Agriculture school
17. Municipal theater
18. Municipal power plant
19. Oblast Executive Committee
20. Post office
21. State Bank (Gosbank)
22. City Communist Party Branch
23. Stadium
24. Ferry
25. Port
26. "Dem'yan Bedny" Club
27. Khalturin Square
28. Party school
29. Sawmill
30. Waterworks
31. Revolution Square (Ploshchad' Revolyutsii) & Cathedral
32. Pedagogic Institute
33. Ploshchad' Zheleznodorozhnikov (Square)
34. Munitions plant No. 60
35. Slaughterhouse
36. Kirov I railroad station

LEGEND

Urban areas
Small homes
Industrial areas
Cemetery
Parks or recreation
Woods
Water
Gulley or bluff
Broad gage railroad
Single track
Double track
Through streets
Identified points (18)

Reliability generally good. Based on intelligence information dated 1944. Through road going N only local.

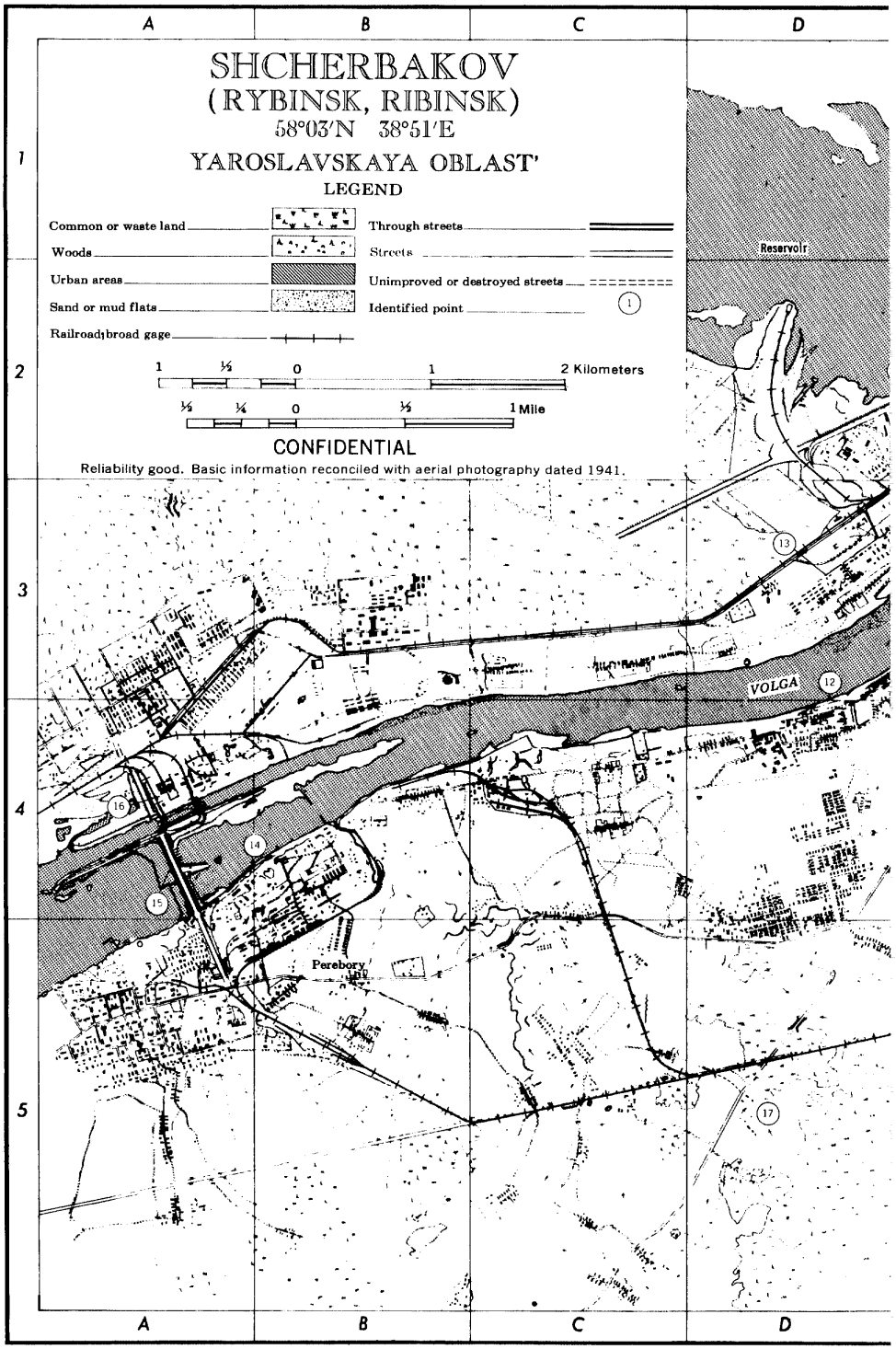
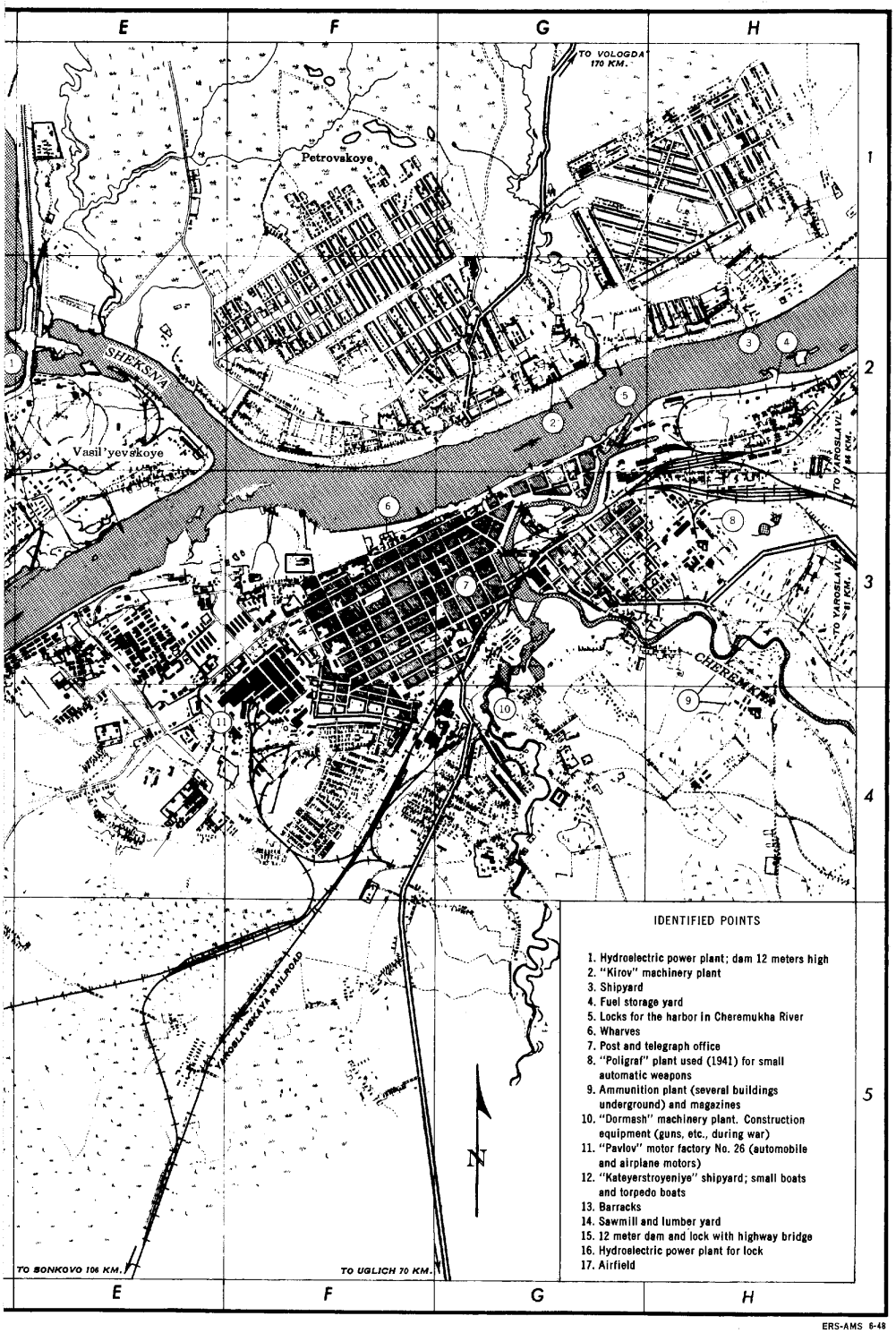


FIGURE VIII - 108
SHCHERBAKOV (RYBINSK) CITY PLAN
JANIS 40
CONFIDENTIAL



ERS-AMS 6-48

A number of plants were available for production of mobile equipment. A huge underground factory manufactured aircraft and locomotives. Prior to the summer of 1946 it drew its workers from a very large labor camp. The *Pavlov* motor factory No. 26 (11) produced about 80 automobile and airplane motors daily. Together with its integrated aluminum producing plant and foundry, it covered an area of approximately 127,000 square meters (152,000 square yards) and employed about 15,000 people. This plant has reportedly been moved to Pelman Station, Siberia. The *Kateyerstroyeniye* shipyard (12) produced small boats, including torpedo boats. The type of vessel produced at another identified shipyard (3) is unknown.

Other heavy industries included the *Kirov* machinery plant (2), a printing machine factory, and at least one chemical plant. The city also had a sawmill and lumber yard (14), a brewery, flour mills, and plants producing shoes and other leather goods, paper, and matches. Forced labor is currently employed in peat cutting. Grain and caviar are principal items of trade.

Storage facilities (4, 9) included fuel storage yard (4), ammunition magazines (9), lumber yards (14), and a grain elevator at the harbor.

(e) Billeting and hospitals.—Among the prewar billeting possibilities were barracks (13), a museum, and a hotel. No data on hospitals are available.

(f) Utilities.—The hydroelectric power plant at the Sheksana river dam (1), three kilometers northwest of Shcherbakov has a capacity of 165,000 kilowatts and a planned capacity of 330,000 kilowatts. In 1941 a second power plant (15) was located at the Volga river dam at Perebory, 6.6 kilometers (4 miles) west of the city. A third plant (16), located nearby, serves to operate the locks of the ship canal at the Volga dam. A fourth power plant serves the airplane motor factory (11). Information on other utilities is lacking.

(g) Communications.—The city was formerly served by a post and telegraph office (7) and a telephone office. One small radio station operates a shore-to-ship service.

(14) Tambov (52°45'N, 41°23'E). Tambovskaya Oblast', RSFSR. Population: 121,300 in 1939. (FIGURE VIII-119, *138*)

(a) Importance.—Tambov is an oblast capital, a junction point of roads and railroads, and an industrial center.

(b) Physical characteristics.—The city is located on the Tsna river. Its main street, the Internatsional'naya Ulitsa, connects the railroad station to the central part of the urban area. Possible landmarks include a cathedral, churches, and monasteries.

(c) Transportation.—Tambov lies on the Moscow – Ryazan' – Saratov railroad line and is the junction point of a branch to Balashov. Primitive roads extend to four destinations: Voronezh (181), Gryazi (140), Penza *136*, and Borisoglebsk (185). Air facilities include a commercial field and a military air base.

(d) Industry and Commerce.—Several plants produced explosives and other chemical products useful as war material. The *Krasny Bol'shevik* plant, which had 3,500 workers in 1936, produced powder, explosives, and chemical warfare agents. Poison gas was manufactured at the *Ches* plant. An incendiary bomb plant employed 2,000 workers. The *Gigant* factory produced synthetic rubber.

A number of plants produced equipment designed for or adaptable to war use. An airplane fuselage plant employed between 6,000 and 7,000 workers in 1936. One factory employing 3,500 workers produced 17-ton tanks. Other facilities for handling heavy equipment included a machinery plant and repair shops for artillery, tractors, and airplanes (No. 56 plant).

Industries of primarily peacetime interest included a printing plant and various plants for producing or processing soap, sugar, leather, and wood products.

The city had a grain elevator and an artillery arsenal, No. 43.

(e) Billeting and hospitals.—Potential billeting facilities include a museum, a theater, a hotel, and civil aviation and cavalry schools. Four hospitals are reported.

(f) Utilities.—Two power plants with total capacity of 72,000 kilowatts serve the industrial plants. In 1945 the administration of the Saratov – Moscow gas line was contemplating construction of a powerful compressor station near Tambov. It was expected that around 200 kilometers (125 miles) of pipe line would be laid in Tambovskaya Oblast'.

(g) Communications.—Tambov is served by telephone and telegraph connections. One radio station maintains ground-to-air service.

(15) Kostroma (57°46'N, 40°57'E). Kostromskaya Oblast', RSFSR. Population: 121,200 in 1939. (FIGURES VIII-109 and VIII-119, *63*)

(a) Importance.—The city is the administrative center of its raion. It is of importance in the production of linen.

(b) Physical characteristics.—The urban area covers 32 square kilometers or 12 square miles. It is located on the steep left bank of the Volga at the mouth of the Kostroma river. A series of terraces rises from the river banks (75 meters, or 246 feet, in elevation) to the maximum elevation of 140 meters (459 feet) in the north, with an intermediate level of 135 meters (443 feet) in the east.

The principal streets radiate from Revolutionary Square in the center of the city. Metallist, an industrial suburb, is located on the right bank of the Volga. It is the original site of the city and is inhabited by Tatars. The western section is a factory area.

Two cathedrals and two monasteries are local landmarks.

(c) Transportation.—A rail line crosses the Volga on a double-track steel bridge (5) and extends southwest to Nerekhta. It is served by a station on the outskirts of the city proper (25) and by an installation across the Volga (2), comprising station, classification yard, and locomotive repair shops.

Five roads leave the city, of which two lead to Yaroslavl' *70*. A ferry (4) is utilized for crossing the Volga, but the Kostroma is spanned by a bridge (17).

The city is a river port. Three landing fields have been reported in the vicinity.

(d) Industry and commerce.—Kostroma is an important center of the linen industry and is reported to have flax-spinning and linen-weaving mills and a linen combine. Two textile combines (18, 26) and a textile factory (28) have been identified. Some of these are undoubtedly identical with the linen establishments previously mentioned.

The only identified heavy industries are the *Krasina* metallurgical plant (27), the *Rabochiy Metallist* machinery plant (3), and a silicate plant (1). The other industries include a newspaper printing plant, sawmills, flour mills (12), a fish cannery, a shoe factory (20), a needle factory (29), and factories producing soap and processing tobacco.

FIGURE VIII-110. *Murmanski.* General view

Deposits of peat are available locally.

Storage facilities include an artillery arsenal and a grain elevator (9).

(e) Billeting and hospitals.—Kostroma has at least two hospitals, one of which (24) has been identified. Structures of possible use for billeting include a museum, a bank, a hotel (21), and a workers' home (16).

(f) Utilities.—No information is available on water supply or sewerage systems. A peat-burning central heat and power plant (19) has a capacity of 11,800 kilowatts.

(g) Communications.—Postal, telephone, and telegraph services (23) are provided.

(16) Murmansk (68°58'N, 33°05'E). Murmanskaya Oblast', RSFSR. Population: 117,000 in 1939; estimated at 95,000 in 1946. (FIGURES VIII-110 to VIII-113, and VIII-119, *3*)

(a) Importance.—Murmansk, founded during World War I, rapidly became an important commercial and naval port. It is now European USSR's most important ice-free northern port and the capital of Murmanskaya Oblast' (created in 1938).

(b) Physical characteristics.—The urban area consists of 175 square kilometers (67.6 square miles) located approximately at sea level. The city is situated on the eastern shore of Kol'skiy Zaliv (Kola Inlet) at a distance of 40 kilometers (25 miles) from the mouth of the Kola river. The inlet is about 1.6 kilometers (1 mile) wide at Murmansk. The shores consist of rocky, barren hills of 92 to 112 meters (302 to 367 feet) in height. The city is not only closely surrounded by hills, but has numerous steep grades within its limits (FIGURE VIII-110). A weather observatory is located on a hill north of the railroad station.

Rosta, a more recent settlement, is also on the eastern shore of the inlet and located about 2 kilometers (1.2 miles) north of Murmansk.

(c) Transportation

1. EXTERNAL

a. Rail.—Surface transportation lines are mostly north – south. The city is the terminus of the Kirov Railroad from the south. A branch line extends the short distance to Vayenga on the north.

b. Roads.—A road runs westward to Pechenga (Petsamo). Three short roads lead to Vayenga, 23 kilometers northeast; Kil'dinstroy, 20 kilometers southeast, and Murmashi airfield, 21 kilometers southwest.

c. Water.—Murmansk is the only sheltered ice-free port of the northern USSR and is accessible to the largest ships. The Kol'skiy Zaliv (Kola Inlet) is easily navigable from its mouth, and water depths at the wharves are at least 8 meters (26 feet). The common occurrence of fogs during the winter months has not impeded development of the port. Aside from its importance commercially, it is a base for ice-breakers and headquarters for development of the northern sea route.

The Murmansk port area, as defined in this study, extends from Zelenyy Mys (cape), north of Rosta, to Zarnichny Mys, at the southern limits of Murmansk proper. The northern portion (Rosta) has piers totaling 600 meters (1,968 feet) in length, while those in the south (Murmansk proper) total 1,000 meters (3,281 feet).

Reported unloading facilities within the port area include seven 7-ton cranes, railroad cranes of 15 and 45 tons (one each), three 6-ton tractor cranes, a 130-ton floating crane, and a number of electric 2-ton stevedore trucks.

Aside from the general commerce basin (13), various facilities are provided for specific products, such as lumber (9, 46), oil (57), and coal (60). Facilities at Zelenyy Mys, north of the main port, are used for unloading explosives and loading apatite phosphate.

Most prewar docks were built of wood, although one (which accommodated three ships) was faced with concrete blocks. The majority were supplied with fresh water and electricity, and had fire-fighting installations.

World War II damage by explosives and incendiary bombing was severe. Four wharves were then in use in 1943, providing berthage for a total of ten liberty ships.

In 1946, the port had four floating and two dry docks, of which the latter was located in Rosta. An additional 27,000-ton (metric) floating dock was being towed from Gdynia.

Naval facilities not shown on FIGURE VIII-113 include a small auxiliary base at Vayenga. This base has a 76-meter (249-foot) dock with 5-meter (16-foot) water depth. Structures include eight large brick buildings including housing barracks, hospitals, and shops; underground storage for ammunition, fuel, and supplies; and bomb shelters. Another base is located on Pinagorskiy Mys.

In June 1943 the Murman-Ryba Trawler Base, just outside the southern limits of Murmansk, had a slip accommodating vessels up to 700 tons. A number of small shops provided supplies for a fleet of 200 fishing trawlers.

d. Air.—The two Murmashi airfields, 21 kilometers (13 miles) southwest, were used as wartime bases for fighter planes.

The Vayenga field is located 23 kilometers (14 miles) to the north. In 1943 it had a dirt and gravel surface with

of city looking southwestward. About 1944.

no regular runways. There were few buildings at the field; most repair shops and barracks were located at 1 kilometer distance. The field was surrounded by revetments and provided with underground storage. It has handled as many as 170 planes, with the best operating conditions existing in the winter.

The Gryazny field, 13 kilometers (8 miles) northwest, was the main seaplane base of the Soviet Northern Fleet. It was equipped with hangars, small workshops, storehouses, and barracks. The two Polyarnoye fields nearer the mouth of the Tuloma furnish additional seaplane facilities. The Arktino field (5) is located between Murmansk and Rosta. Excluding those already mentioned there are eight other airfields in the vicinity of Murmansk.

2. INTERNAL.—Many of the city streets have steep grades and follow an irregular gridiron pattern. Few are paved and, except for 140 meters (459 feet) of asphalt, all paving is of cobblestone. Paving was in extremely bad condition in 1943. By 1945 repaving was in process and underground electric and telephone cables were being laid (FIGURE VIII-111). The city has no internal public transportation system.

FIGURE VIII-111. *Murmansk.*
"Volunteer" workers repaving streets. One of the best quality constructions used. Type "D" residential buildings.

(d) Industry and commerce

1. MINING.—Apatite phosphate is mined and exported for use as fertilizer. Nepheline is also found in large quantities. It is planned to increase utilization of the extensive iron-ore deposits, increasing annual output to 1,700,000 tons.

2. INDUSTRY.—Ship-repair facilities represent an important part of Murmansk's industry. The *Sevmorput* shipyard (51 and 52) at Rosta (5 kilometers, 3 miles, north of Murmansk) has two graving docks, one measuring 107 meters (351 feet) by 26 meters (85 feet); the other, 198 meters (649 feet) by 26 meters (85 feet). Both can carry ships with a 9-meter (30-foot) draft. The yard facilities include electricity, running salt and fresh water, steam, and low-pressure air. Two other shipyards have been identified (25 and 40). A 6,000-ton floating dock is located at one of the yards of Rosta or Murmansk proper. An installation under construction in the Zhaldeyeva Mys area in June 1943 is apparently a naval dockyard. It will probably be the main naval shipbuilding and repair yard for the Kol'skiy Zaliv (Kola Inlet). An EPRON (government salvage agency) installation is located on the western shore of the inlet, north of Yelovyy Mys. It is probably equipped to handle all but major ship repairs.

There is a seaplane repair shop in the area. Aluminum and wolfram (tungsten) refining were reported in operation in the vicinity in July 1947. The aluminum plant is believed to be south or southwest of the urban area. Woodworking industries produce boxes, barrels, and furniture. There is a flour mill and bakery. Textile industries produce woven and knitted cotton fabrics and finished clothing.

Large quantities of fish are caught for local use and export between March and August. The principal kinds are cod, herring, and salmon. A fishery biological station in the vicinity is provided with a museum and aquarium.

Small quantities of potatoes, rye, barley, and oats are raised, but the growing season is very short and most agricultural products must be imported. The most important export items are timber and apatite phosphate; others include salt, fish, cod liver oil, and grain.

Most of the warehouses in the dock area were destroyed by bombing and ensuing fires. Extensive caves were excavated for use as air raid shelters and for storage. They were located around the city area and northward along the rock coast toward Rosta. One cave was equipped with heat, light, and ventilation systems and could accommodate at least 2,000 persons.

The entire area of the Kol'skiy Zaliv (Kola Inlet) had liquid fuel storage facilities totaling 20,000 tons in 1943. Underground storage for an additional 20,000 tons was reportedly under construction.

(e) Billeting and hospitals.—Thirty modern apartment buildings of several stories had been built before 1939 (FIGURE VIII-112). Some other buildings were eight stories in height. Prewar structures included a hotel, a naval technical school and barracks. Data on existing

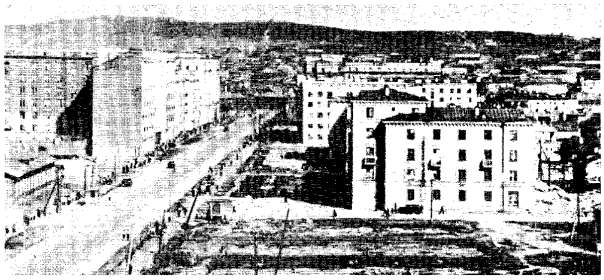


FIGURE VIII-112. *Murmansk.*
View northward. Modern four- to seven-story masonry apartment buildings.

billeting facilities are lacking. It is known that the city suffered heavy war damage.

Prewar civilian hospitals, plus the naval hospitals in Vayenga and vicinity, were adequate for peacetime needs. During the war, they were supplemented by five military hospitals and convalescent centers.

(f) Utilities.—The city's water supply, drawn from local lakes, must be boiled or chlorinated if used for drinking. The water-distribution system extends throughout the city and water front area. The sewerage system does not extend beyond the central part of the city.

Electric power supplied to domestic consumers is 220-volt, 50-cycle, 3-phase, alternating current. The major source of supply is the Nizhnotulomskaya (lower Tuloma) hydroelectric plant, located 30 kilometers (19 miles) south-southwest on the Tuloma river near Murmashi. The station occupies an area of 6,700 square meters (72,000 square feet) and has a capacity of 50,000 kilowatts. A high-tension line enters Murmansk from the south and leads to a transformer station (37). Current is also produced by 4 local steam power plants with a total capacity of 36,000 kilowatts, one of which is identified (29). A steam plant at Kirovsk with 36,000-kilowatt capacity and a hydroelectric plant known as Niva III (67°10'N, 32°28'E) with a planned capacity of 120,000 kilowatts also supply current to the Murmansk transmission system.

(g) Communications.—Murmansk is connected to the main telephone-telegraph network by means of a line south to Murmashi and Kandalaksha. Underground cables were being laid in 1945. An unconfirmed report states that cable connections extend to Polyarny and Arkhangel'sk. The city, in addition to its connections with all settlements and signal stations on the Kol'skiy Zaliv (Kola Inlet), has direct military wires to points on Beloye More (White Sea) and to Moscow. The Kirov Railroad is equipped with its own telegraph system.

The city has six radio stations. Station RW-79, a 10-kilowatt station on a hill in the northern part of the city, operates on a frequency of 610 kilocycles and a wave length of 491.8 meters.

(h) War damage and reconstruction.—Most civilians were evacuated during the war. German bombing had destroyed about a third of the city by 1943 and seriously damaged another third. Extensive reconstruction and expansion were under way by 1945.

(17) Vologda (Wologda) (59°14'N, 39°50'E). Vologodskaya Oblast', RSFSR. Population: 95,200 in 1939. (FIGURES VIII-114 and VIII-119, *47*)

(a) Importance.—Vologda is the capital of its oblast and is an economic center of northern USSR.

(b) Physical characteristics.—The urban area covers 16 square kilometers (6 square miles), distributed on both banks of the Vologda river, a tributary of the Sukhona. The old city is centered around the citadel (25) and Cathedral Square (24), on the right bank. It is surrounded by the remains of a wall. Immediately beyond are more modern sections with straight, broad streets. The street pattern is generally gridiron, with some radial elements. Southwest of the center of the town is a workers' garden settlement (Oktyabrskiy Rabochiy Poselok-sad).

Three cathedrals and a bishop's castle are landmarks.

(c) Transportation.—The city is a junction point of two railroads, which provide service in four directions. There are five road exits. River vessels from the Severnaya Dvina and Volga rivers make regular stops at the steamer landing (10). Three military airfields are located in the vicinity.

(d) Industry and commerce.—Vologda has several industries producing or adaptable to production of war materiel, including armaments plants, a chemical combine, and a powder and explosives plant The specific facilities provided by the *Vologda* military repair shop are not known. Other industries produce machinery (8) and railroad equipment. In addition there are plants for producing lumber (at least one sawmill), wood products (17), leather goods (6), peat, canned food, alcoholic beverages (3, 4, 26), and printing (newspaper plant). The city is a transfer point in the shipment of butter, flax, grains, and wood products.

(e) Billeting and hospitals.—Among the structures of possible use for billeting are a museum, various hotels, a dairy institute, and the botanical gardens. No information on hospitals is available.

(f) Utilities.—There are two power plants (20, 22). A waterworks is operated in conjunction with the older plant (22).

(g) Communications.—The city has a postal and telegraph office (16); also one radio station.

(18) Noginsk (formerly Bogorodsk) (55°40'N, 38°26'E). Moskovskaya Oblast', RSFSR. Population: 81,000 in 1939. (FIGURE VIII-119, *115*)

(a) Importance.—Noginsk is an industrial town near Moscow and is connected to that city by road and rail.

(b) Physical characteristics.—The town is located on both banks of the Klyaz'ma river at a point 68 kilometers or 42 miles east-northeast of Moscow. Its area is about 12 square kilometers (4.6 square miles). Elevation varies from 112 to 153 meters (367 to 502 feet).

(c) Transportation.—A branch line from Fryazevo connects Noginsk with the Moscow – Gor'kiy Railroad. There are three exit roads. City streets are asphalt-surfaced. Internal transportation is provided by street railway. Two airfields are located in the vicinity.

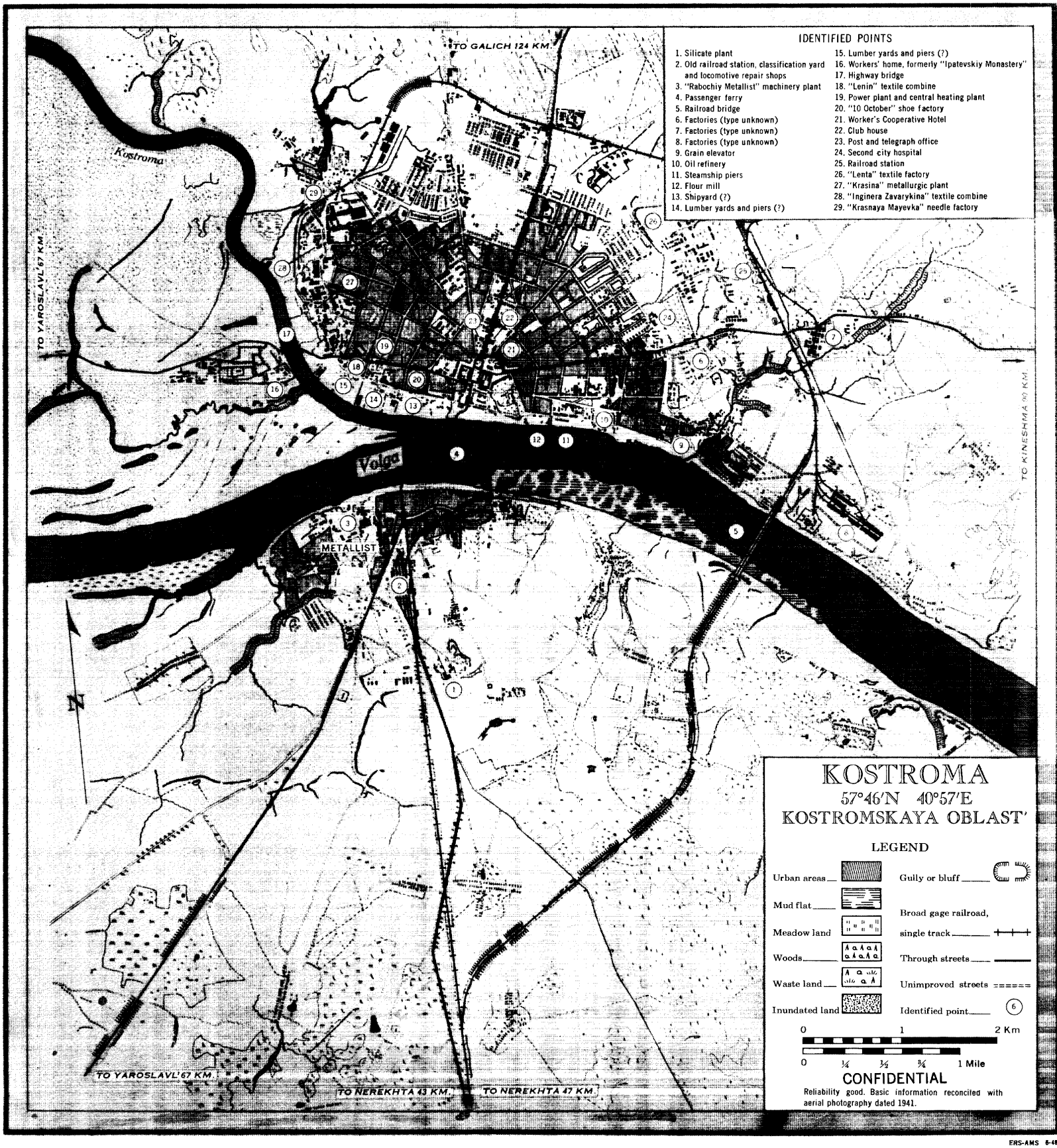
(d) Industry and commerce.—The important *Elektrostal* electrometallurgical plant produces tool steel, airplane parts, ball bearings, and other items. It employed 12,000 workers in 1936.

Although a reported 20,000 workers are employed in peat-cutting, they are distributed among 13 plants.

Manufacture of yarns and textiles is of considerable importance. One cotton-yarn mill has 116,000 spindles. At least three mills produce, individually, cotton, silk, and wool textiles. One wool mill also produces felt. One cotton mill, located on the Moscow – Gor'kiy highway 55 kilometers (34 miles) from Moscow, has integrated production of cotton yarn and dyes.

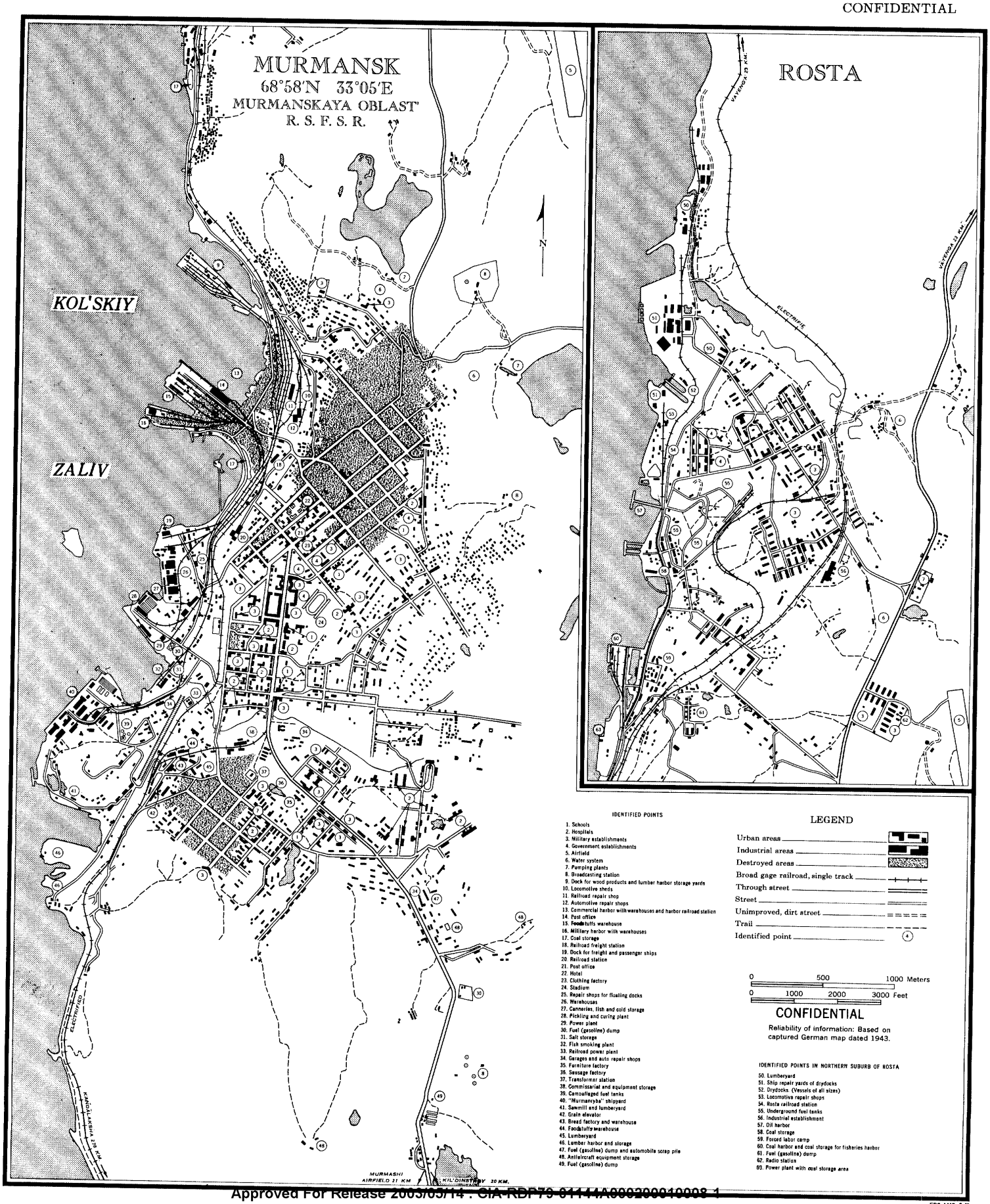
In May 1947, a phonograph record factory was secretly utilizing part of its facilities for production of zinc blasting caps for ammunition. An ammunition magazine was available.

FIGURE VIII - 109
KOSTROMA CITY PLAN
JANIS 40
CONFIDENTIAL



ERS-AMS 6-48

FIGURE VIII - 113
MURMANSK CITY PLAN
JANIS 40
CONFIDENTIAL



IDENTIFIED POINTS

1. Schools
2. Hospitals
3. Military establishments
4. Government establishments
5. Airfield
6. Water system
7. Pumping plants
8. Broadcasting station
9. Dock for wood products and lumber harbor storage yards
10. Locomotive sheds
11. Railroad repair shop
12. Automotive repair shops
13. Commercial harbor with warehouses and harbor railroad station
14. Post office
15. Foodstuffs warehouse
16. Military harbor with warehouses
17. Coal storage
18. Railroad freight station
19. Dock for freight and passenger ships
20. Railroad station
21. Post office
22. Hotel
23. Clothing factory
24. Stadium
25. Repair shops for floating docks
26. Warehouses
27. Canneries, fish and cold storage
28. Pickling and curing plant
29. Power plant
30. Fuel (gasoline) dump
31. Salt storage
32. Fish smoking plant
33. Railroad power plant
34. Garages and auto repair shops
35. Furniture factory
36. Sausage factory
37. Transformer station
38. Commissarial and equipment storage
39. Camouflaged fuel tanks
40. "Murmanyba" shipyard
41. Sawmill and lumberyard
42. Grain elevator
43. Bread factory and warehouse
44. Foodstuffs warehouse
45. Lumberyard
46. Lumber harbor and storage
47. Fuel (gasoline) dump and automobile scrap pile
48. Antiaircraft equipment storage
49. Fuel (gasoline) dump

LEGEND

Urban areas
Industrial areas
Destroyed areas
Broad gage railroad, single track
Through street
Street
Unimproved, dirt street
Trail
Identified point (4)

0 500 1000 Meters
0 1000 2000 3000 Feet

CONFIDENTIAL

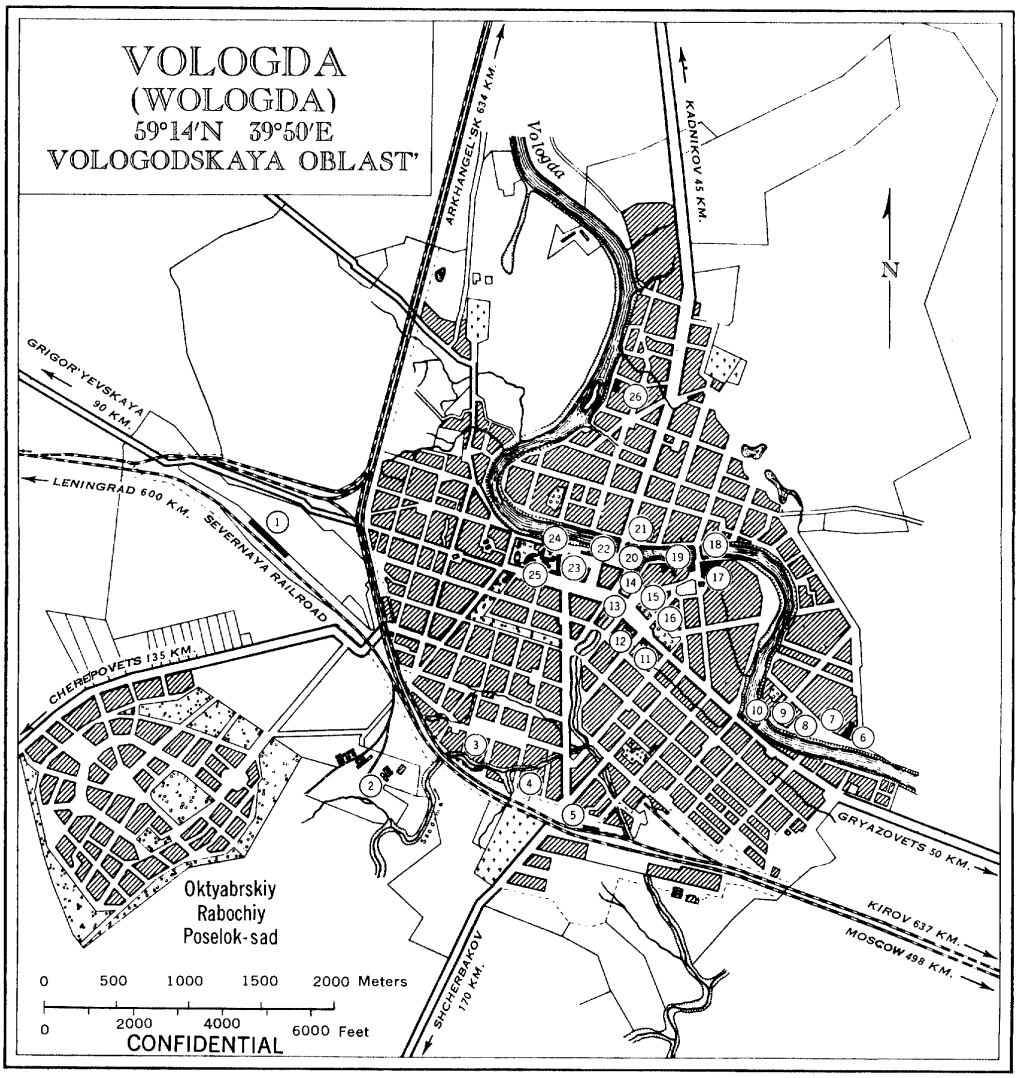
Reliability of information: Based on captured German map dated 1943.

IDENTIFIED POINTS IN NORTHERN SUBURB OF ROSTA

50. Lumberyard
51. Ship repair yards of drydocks
52. Drydocks. (Vessels of all sizes)
53. Locomotive repair shops
54. Rosta railroad station
55. Underground fuel tanks
56. Industrial establishment
57. Oil harbor
58. Coal storage
59. Forced labor camp
60. Coal harbor and coal storage for fisheries harbor
61. Fuel (gasoline) dump
62. Radio station
63. Power plant with coal storage area

ERS-AMS 6-48

FIGURE VIII - 114
VOLOGDA CITY PLAN
JANIS 40
CONFIDENTIAL



IDENTIFIED POINTS

1. Railroad workshops
2. Brickyard
3. Distillery
4. Brewery
5. Railroad station
6. Leather goods factory
7. Flour mill
8. "Severny Kommunar" machinery plant
9. Sawmill
10. Steamer landing
11. Trade Union Building
12. Oblast Party
13. Oblast Peasant Building
14. Rayon Executive Committee
15. Bank
16. Post office
17. Woodworking plant
18. Bridge
19. Oblast' Executive Committee
20. New power plant
21. Bridge
22. Old power plant & water works
23. State Bank
24. Cathedral Square (Sobornaya Ploshchad') & Sophia Cathedral
25. The Kreml' (Citadel) & museum
26. Brewery

LEGEND

Urban areas
Parks or recreation
Cemetery
Broad gage railroad
Through streets
Identified point (8)

ERS-AMS 6-48

Reliability fair. Basic information, dated August 1941, not verified.

Among the producers of chemicals is the Chemical Defense Plant No. 12, producing asbestos materials and gas masks.

Other industries include a shoe factory and various woodworking plants.

Agriculture is generally limited to vegetable gardens. A *Sovkhoz*, or state farm, is located in the vicinity.

(e) Billeting and hospitals.—Billeting space might be provided in schools, public buildings, a library, or structures occupied by the pedagogical technical institute. No data are available on hospitals.

(f) Utilities.—The city reportedly has a sewerage system and a power plant, but no information has been available relative to water supply.

(g) Communications.—Facilities consist of telephone and telegraph connections and a radio station.

(19) Kolomna (55°05'N, 38°47'E). Moskovskaya Oblast', RSFSR. Population: 75,100 in 1939. (FIGURE VIII-119, *113*)

(a) Importance.—Kolomna is a strategic river port, with rail and road connections. It has a variety of industries and is a center of rayon production.

(b) Physical characteristics.—The city is located at the confluence of the Oka and Moscow rivers, about 100 kilometers (62 miles) southeast of Moscow. It occupies an area of about 7 square kilometers (2.7 square miles). Its elevation varies from 120 meters (394 feet) on the

FIGURE VIII-115. *Kolomna.*
Aerial view of center of town showing the large *Kuybyshev* locomotive and machinery plant. 11 November 1942, 0914 hours.

outskirts to 150 meters (492 feet) in the central part. The built-up area as a whole is triangular, and is divided into parallelograms by its streets.

(c) Transportation.—Railroad lines extend northwest, southeast, and south-southwest. A prewar bridge on the Moscow – Ryazan' line crossing the Moskva river was 260 meters (853 feet) in length, 16 meters (52 feet) in width, and had three approximately 90-meter (295-foot) spans. This structure was destroyed. A new bridge over the Oka was under construction in 1943.

A highway running generally northwest-southeast bisects the town in a line north – south and crosses the Oka river at a point 220 meters (720 feet) upstream from the urban area. Minor roads lead southwest and northeast.

There are two harbors, one each on the Moskva and Oka rivers. An airfield is located in the vicinity.

(d) Industry and commerce.—Kolomna and its neighboring settlements have a variety of industry, both heavy and light. The *Kuybyshev* locomotive and machine shops are located in Golutvin. The *Voroshilov* gun factory, on the left bank of the Oka, employed 15,000 workers in 1936; its structures covered an area of 28,600 square meters (308,000 square feet) in October 1941. A locomotive factory on the right bank of the Moscow covers an area of 161,000 square meters (1.7 million square feet). Another factory produces freight cars. Other industries produce cotton textiles, clothing, shoes, lumber, and foodstuffs (canned meats, flour) (FIGURE VIII-115).

(e) Billeting and hospitals.—No information on potential billeting facilities or hospitals is available.

(f) Utilities.—The city is known to be served by a water-supply system, but no information is available as to any sewerage system. Prewar there was a nearby prewar coal-burning power plant with a capacity of 1,000 to 3,000 kilowatts.

(20) Lipetsk (52°36'N, 39°35'E). Voronezhskaya Oblast', RSFSR. Population: 66,600 in 1939. (FIGURES VIII-116 and VIII-119, *141*)

(a) Importance.—Lipetsk has important iron and steel factories. It is also a health resort and administrative center of its raion.

(b) Physical characteristics.—The city is located in the central Chernozem (black earth) region on the high right bank of the Voronezh river. The Lipovka river, which joins the Voronezh at this point, flows through a deep gully which divides the city area into two terraces 50 and 60 meters (164 and 197 feet), respectively, above the river level.

The urban area totals about 16 square kilometers (6.2 square miles). Elevation above sea level varies from 100 meters (328 feet) in the eastern and southern sections to 160 meters (230 feet) in the north and west.

Carbonic ferrous salt springs and health installations with ferrous mud baths are located at the center of the city.

(c) Transportation.—The one railroad, a wide-gage line running west-southeast, makes use of a freight loading station and a passenger station (4), the latter located about 3 kilometers (2 miles) from the center of town. Road connections are generally north – south (two roads south-southwest, one each northwest and north-northeast). The railroad bridge over the Voronezh (2) has a lower level for automotive traffic. Highway bridges over the Voronezh and Lipovka rivers (7 and 6, respectively) are traffic bottlenecks. Air facilities include four airfields and one seaplane base.

(d) Industry and commerce.—Iron and steel industries include smelters, a foundry, and a rolling mill (3, 9). Among the smelters are the *Chuzun* plant, one in Novyy-Lipetsk, and a new ferro-alloy plant in Lipetsk proper. The latter is equipped with a powerful electric furnace. Two metal works are known by name, the *Svobodny Sokol* works in Novyy-Lipetsk and the *Krasny Sokol* works which employed 10,000 persons in 1937. Producers of parts or end products include the Lipetsk machine shop, a tractor factory, an airplane factory, the Lipetsk machinery plant which produces lathes, boring machines, and related products, and armaments plant No. 61 (10).

(e) Billeting and hospitals.—Billeting possibilities consist of barracks (1) and a military aviation school. Although three hospitals are reported, their locations are not known.

(f) Utilities.—A central thermal electric power plant has a capacity of 49,000 kilowatts and is connected to Voronezh by a 110-kilovolt line.

(g) Communications.—Lipetsk has telephone and telegraph connections and is served by a radio-telegraph station.

(21) Molotovsk (formerly Sudostroy) (64°45'N, 39°55'E). Arkhangel'skaya Oblast', RSFSR. Population estimated at 15,000 to 20,000 in 1944, approximately 10,000 in 1945. (FIGURES VIII-117 and VIII-119, *10*)

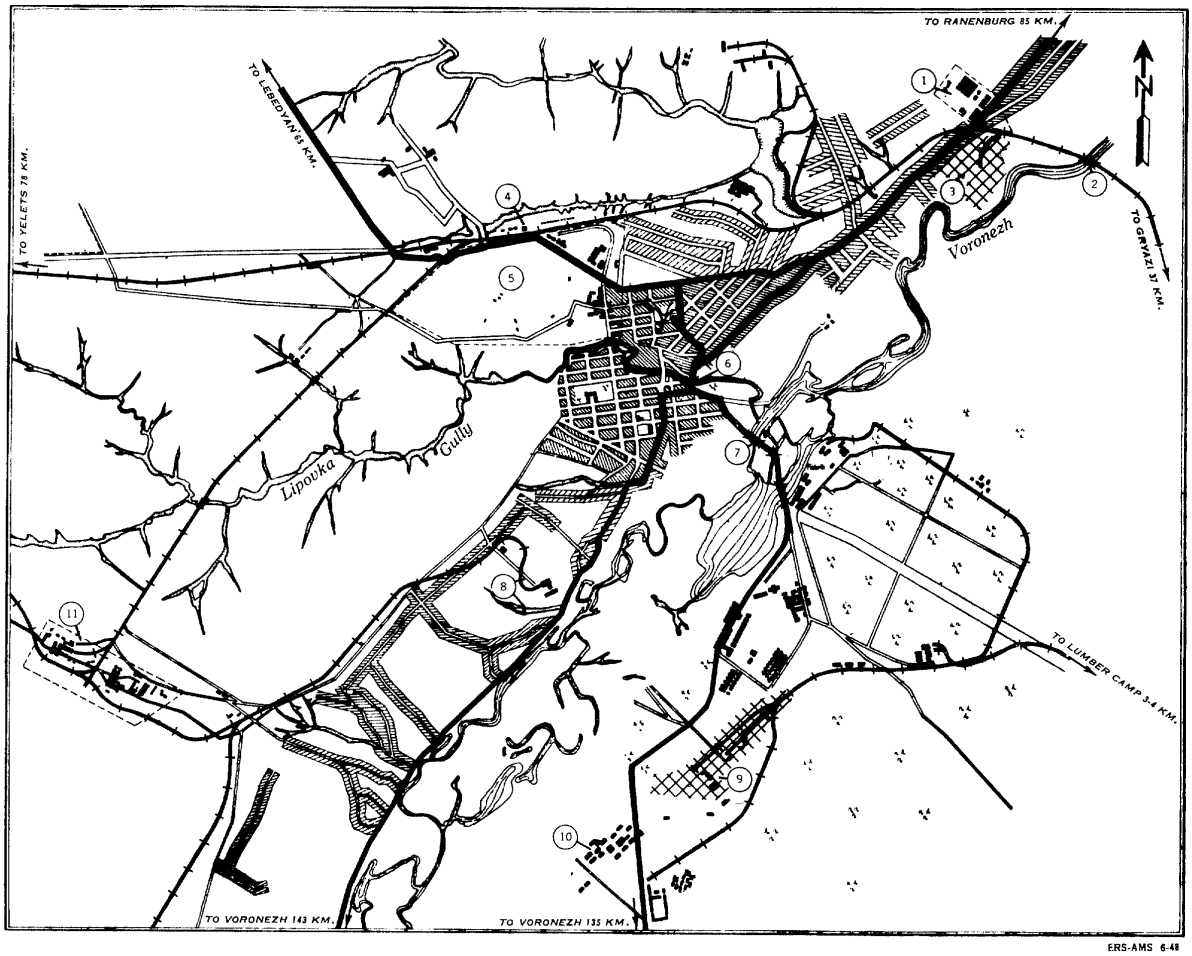
(a) Importance.—Molotovsk is a port city with the advantage of usually being ice-free. Since it is situated on the Arkhangel'sk – Moscow rail line, it is in a position to handle water-rail transshipment.

(b) Physical characteristics.—The city is located on the southwest coast of Dvinskaya Bukhta (gulf), about 30 kilometers or 19 miles southwest of the Severnaya (northern) Dvina estuary. The main urban area lies 5 kilometers (3 miles) west of the port. The city occupies 16 square kilometers (6.2 square miles) at approximately sea level.

(c) Transportation.—Molotovsk is the terminus of a railroad line originating in Moscow and passing through Arkhangel'sk. Steam locomotives and wide-gage tracks are used. Rail equipment, including mobile cranes, have access to the port area over additional trackage installed in 1944. In January 1944, storage tracks could accommodate about 350 cars.

The harbor consists of an indentation in the coast line, with no breakwater. Tidal fluctuation amounts to 30 centimeters (1 foot). Limiting depth is 8.5 meters (27.9 feet). The port can handle up to five liberty ships capable of docking under their own power. The wharf, which extends the length of the harbor, is of wood construction and has the following dimensions: 762 meters (2,500 feet) long, 305 meters (1,000 feet) wide, and 3 meters (10 feet)

FIGURE VIII - 116
LIPETSK CITY PLAN
JANIS 40
CONFIDENTIAL



ERS-AMS 6-48

LIPETSK

52°36′N 39°35′E
VORONEZHSKAYA OBLAST'

LEGEND

- Urban areas
- Industrial areas
- Woods
- Gully
- Broad gage railroad
- Through streets
- Identified point (8)

0 1 2 Kilometers
0 ½ 1 Mile

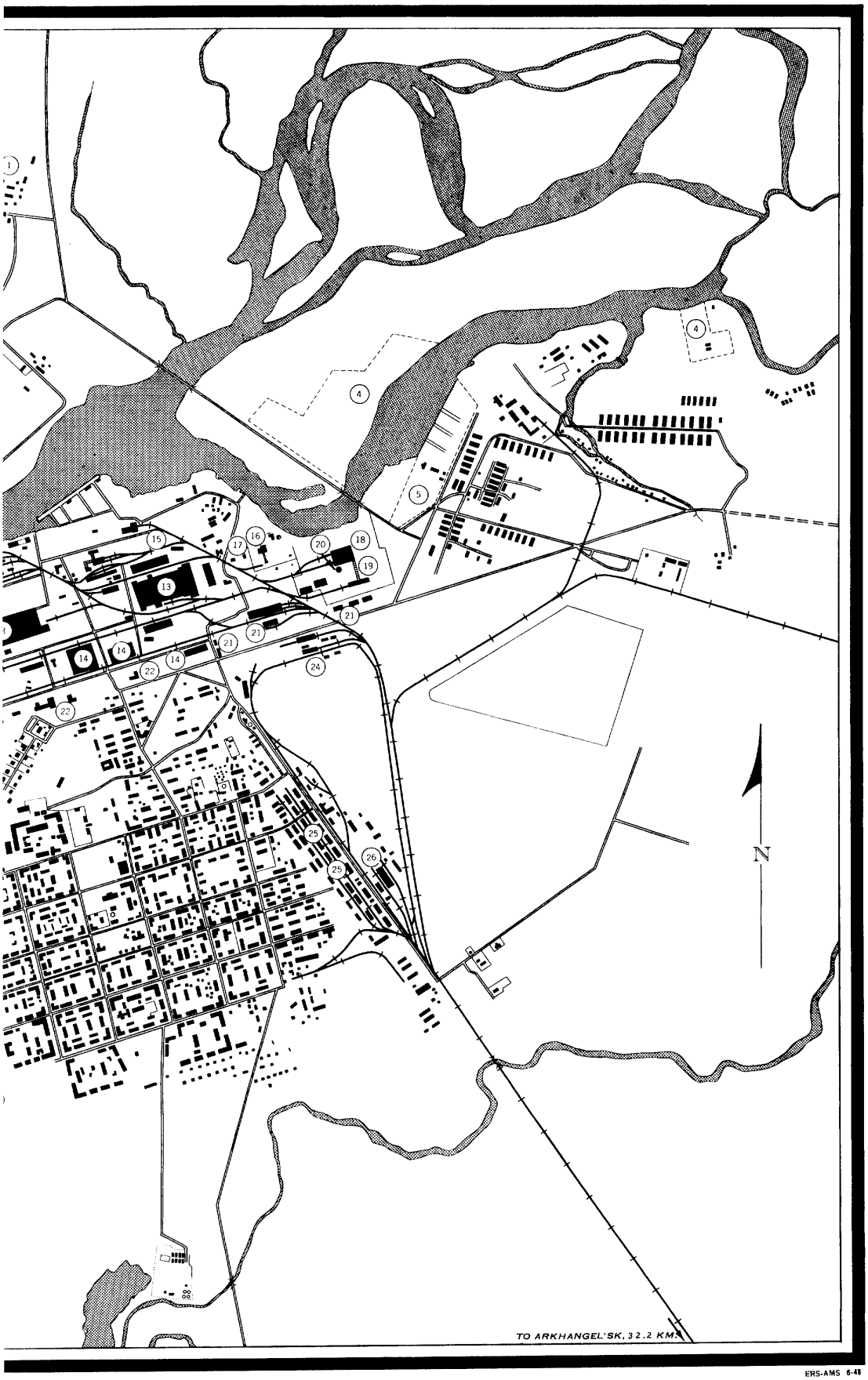
CONFIDENTIAL

Reliability generally good. Basic information reconciled with aerial photography dated 1941.

IDENTIFIED POINTS

1. Barracks
2. Railroad bridge; length about 140 meters, single track, three spans steel construction, two piers height about 55 meters
3. Steel smelter and foundry (with water tower)
4. Railroad station
5. Airfield
6. Street bridge across Lipovka river gully
7. Street bridge across Voronezh river
8. Dam and small reservoir
9. Large smelter
10. Armaments plant No. 61
11. Large storage area

MOLOTOVSK CITY PLAN
JANIS 40
CONFIDENTIAL



ERS-AMS 6-48

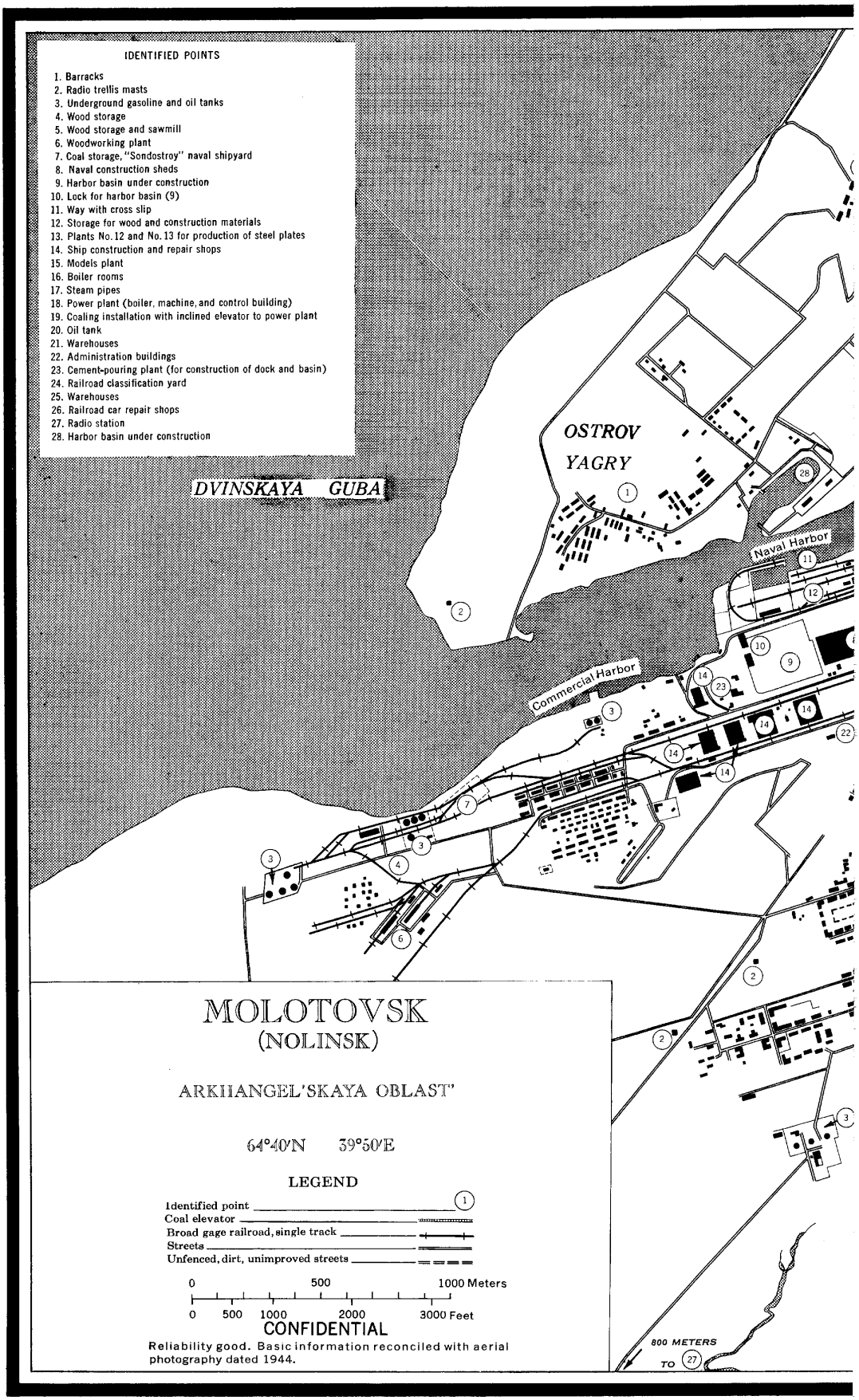
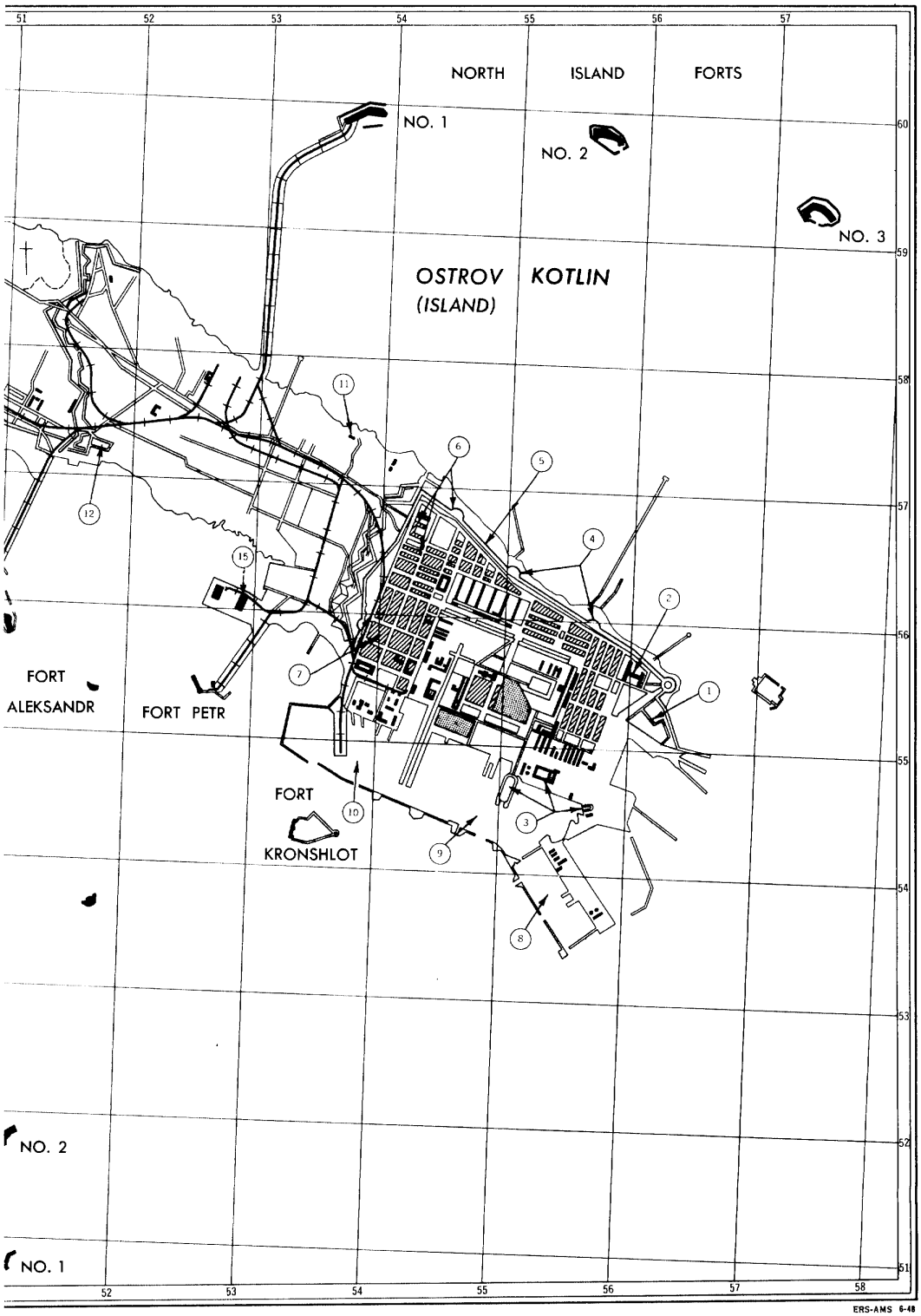
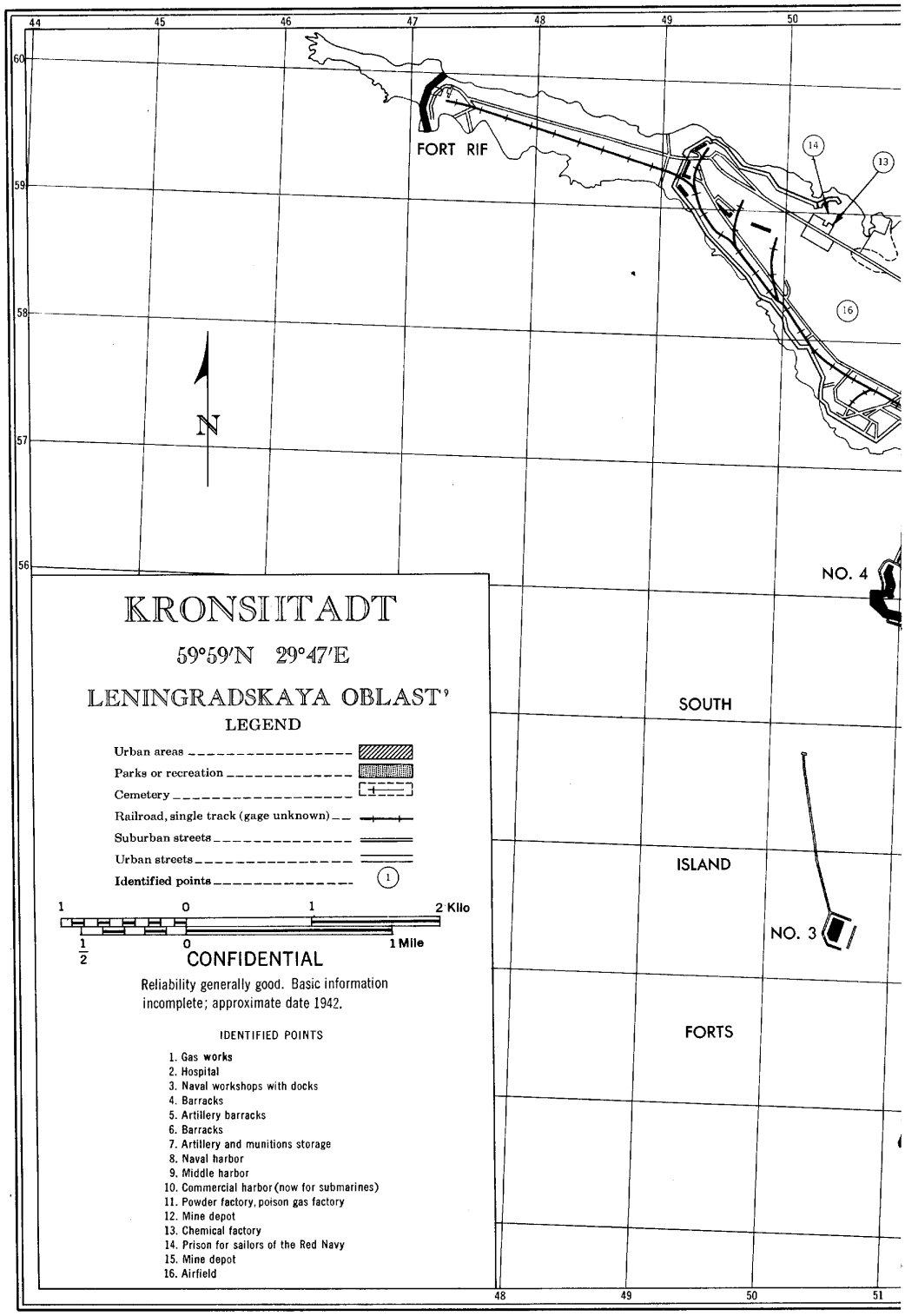


FIGURE VIII - 118
KRONSHTADT CITY PLAN
JANIS 40
CONFIDENTIAL





KRONSHTADT

59°59′N 29°47′E

LENINGRADSKAYA OBLAST'

LEGEND

Urban areas

Parks or recreation

Cemetery

Railroad, single track (gage unknown)

Suburban streets

Urban streets

Identified points (1)

1 0 1 2 Kilo

1/2 0 1 Mile

CONFIDENTIAL

Reliability generally good. Basic information incomplete; approximate date 1942.

IDENTIFIED POINTS

1. Gas works
2. Hospital
3. Naval workshops with docks
4. Barracks
5. Artillery barracks
6. Barracks
7. Artillery and munitions storage
8. Naval harbor
9. Middle harbor
10. Commercial harbor (now for submarines)
11. Powder factory, poison gas factory
12. Mine depot
13. Chemical factory
14. Prison for sailors of the Red Navy
15. Mine depot
16. Airfield

high. Its facilities include six 5-ton and two 15-ton electric cranes, four 3-ton floating cranes, and two tugboats. There are no buildings on the wharf and only a few warehouses on shore. Although weights of over 3 tons per square meter (2.5 tons per square yard) are normally not permitted, the wharf has been known to support up to 120 tons per square meter (100 tons per square yard).

There is an oil dock, and also a number of oil-storage tanks, some underground. In February 1945, the army was in charge of discharging tankers, guarding tanks, and dispatching tank cars.

The only road out of the city area is a one-lane corduroy road leading to the port. In March 1943, the best city streets consisted of corduroy, made of small logs, and not exceeding one-lane in width. In general, they follow a gridiron pattern.

A small airfield is located about 2 kilometers (1.2 miles) from the port and 1 kilometer (0.6 mile) northward off the road to the city area. During the war, this field was used for assembly of airplanes delivered to Molotovsk by water. There were also facilities for seaplane landings.

The city has no system of local transport.

(d) Industry and commerce.—A shipbuilding and repair yard covered an area of 179,000 square meters (1,926,000 square feet) in 1941. There were a number of metal industries. A large hangar-type building 31 meters (102 feet) high, 90 meters (295 feet) wide, and 300 meters (984 feet) long, on the western outskirts appeared unfinished and unused early in 1944. Its purpose is not known.

In 1944, a number of warehouses had been built or were under construction in the restricted docking area. Four reservoir tanks in the port area are used for storing toluene, gasoline, fuel oil, and alcohol. Tank cars load from discharge pipes within the restricted area. Other facilities are used for wood and coal storage.

With the exception of the local fish catch, all food is brought in from outside sources.

(e) Billeting and hospitals.—Molotovsk, developed since 1941, had no wartime civilian population. A few government buildings are three-story and built of stone. The remaining structures consist of wooden housing for workers. Most wartime labor was supplied from three concentration camps. In addition, a railroad labor camp was located in the vicinity.

A military hospital, located near the center of town, is reported to have inadequate facilities. No data are available on the civilian hospital. An existing first aid dressing station has very crude facilities.

(f) Utilities.—Water is brought by tugboat from the Severnaya Dvina; its treatment is unknown. The town has no street drains or storm sewers. However, apartments and residences near the center of town, which houses between 40% and 45% of the population, have a water-borne sewerage system.

A large thermo-electric power plant with a 50,000-kilowatt capacity (February 1945) is located one block north of the dockyard. It supplies the city and shipyard with electric power and provides heat for some adjoining buildings. There is also a central heating plant. In March 1942, a voltage transformer plant supplied three high-tension lines extending south and southwest.

(g) Communications.—The town is served by a radio station. Telegraph connections are probably used in conjunction with the railroad.

(22) Kronshtadt (Kronstadt) (59°59'N, 29°47'E). Leningradskaya Oblast', RSFSR. Population: 60,000 in 1939. (FIGURES VIII-118 and VIII-119, *32*)

(a) Importance.—The city was formerly an important commercial port. Since completion of the channel to Leningrad, however, it has become exclusively a naval base, barred to civilian commerce.

(b) Physical characteristics.—Kronshtadt is located 49 kilometers (30 miles) west of Leningrad, on the eastern end of Ostrov Kotlin (island). The low-lying island is surrounded by shallow water. It divides the entrance to Nevskaya Guba into north and south channels. The fresh water Gulf of Finland is located to the east.

The urban area, approximately 14 square kilometers (5 square miles), has a fairly uniform elevation of 0.2 meters (0.7 feet). The central part of the city is surrounded by a wall with three gates, with suburbs beyond. It is also divided into arbitrary zones designated for naval operations and administrative functions.

(c) Transportation.—A local railway serves the island and a number of outlying forts. However, there are no road or rail connections with the mainland.

The port is an important base of the Soviet Baltic fleet. Three harbors are located on the southeastern coast of the island; two are used by destroyers and large vessels (8, 9), and one is for submarines (10). Docks are provided for ships of all sizes. There are two floating docks, one drydock, and other repair facilities (3).

An airfield (16) and seaplane landing are located on the northwestern end of the island.

(d) Industry and commerce.—In addition to the shipyards, Kronshtadt has several plants producing war goods, including two chemical plants (poison gas), a powder factory, and a mine factory. A sawmill, a slaughterhouse, and a bakery are also located in the city.

Storage facilities for war materiel are numerous and include artillery storage (7), a powder magazine, mine depots (12, 15), and various munitions dumps, some camouflaged. A former church has been converted into a grain elevator. Lumber yards and oil tanks are also available.

(e) Billeting and hospitals.—Potential billeting includes barracks (4, 5, 6), schools (artillery, naval, *Kirov* submarine), prisons for naval (14) and military personnel, a Red Army House, a customs house, a secret police building, and various administration buildings (admiralty, coastal defense headquarters, military port). There is at least one hospital (2).

(f) Utilities.—The city is served by a water supply system with pumping station, a power plant, and a gas works (1).

(g) Communications.—Telecommunications include a telegraph station and one coastal radio station. There is also submarine cable connection with Lisiy Nos (cape).

TABLE VIII - 14

SELECTED SMALL TOWNS IN EUROPEAN USSR

(This table lists only the known data. Many towns may have other facilities not listed herein.)
Undated population figures are from prewar German sources.

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Aleksandrov (67) * (Alexandrov) 56°24'N, 38°43'E Pop. 15,000 (1932)	On banks of Seraya river. Vladimirskaya Oblast', RSFSR. Elevation: 179 m.	Rail: Junction of Moscow-Yaroslavl', Aleksandrov-Ivanovo, and Aleksandrov - Orekhovo - Zuyevo lines. Air: Airfield. Internal: Wide main street.	Munitions dump. Machine shop (production of guns, machine guns, and shells). Motor plant, car-repair shops, radio receiver plant No. 3. Hides, furs, leather, clothing, shoes; textiles; book publishing; woodworking industry; distillery; state farm in vicinity.	Monastery. Palace. Museum. Aviation school (military).	Power plant (1,000-3,000 kw.; source of power—coal).	Part of Moscow industrial area.
Alatyr' (124) 54°51'N, 46°35'E Pop. 25,000 (1932)	At confluence of Alatyr' and Sura rivers. Chuvash ASSR, RSFSR.	Rail: Connections with Moscow-Kazan' and Ryazan'-Ul'yanovsk lines. Water: River harbor. Internal: Bridge. Air: 2 airfields.	Trade in grain, cattle, and lumber; tractor station; metalworking, locomotive and car shops; locomotive-repair shops; clothing and knitting mills; saw mills; consumers' goods.		Power plant (500-1,000 kw.). Radio station RFXS.	Area populated chiefly by Turki-speaking groups.
Arzamas (122) 55°22'N, 43°50'E Pop. 22,690 (1932)	On right bank of Tesha river. Gor'kovskaya Oblast', RSFSR.	Rail: Junction of Moscow-Kazan' and Gor'kiy- Saransk lines. Air: 3 airfields.	Tractor station; car-repair shops; hides, furs, and leather; fulling of wool and felt; fruit-canning; distillery and brewery; starch works. Second to Gor'kiy in oblast as trade center for agricultural products.		Power plant (500-1,000 kw.). Cold storage plant. Radio station RFXK.	
Atkarsk (190) 51°52'N, 45°00'E Pop. 15,000 (1931)	On Yetkara river near its confluence with the Medveditsa. Elevation: 150 m. Saratovskaya Oblast', RSFSR.	Rail: Junction of Saratov-Tambov line. Road: 2 hwy. bridges. Air: Airfield.	Tractor station; machine shops; metalworking; dairy products and margarine; flour and oilseed mills. State farm in vicinity.	Sanatorium and grounds.	Power plant (500-1,000 kw.; source of power—petroleum).	Gridiron street pattern. Forest area at eastern edge of town.
Azov (255) 47°05'N, 39°22'E Pop. 20,000 (1932)	In Don estuary area 23 km. SW of Rostov - na - Donu. Rostovskaya Oblast', RSFSR.	Rail: Connection with Rostov-na-Donu. Air: 2 airfields. Water: Steamer connection with Rostov-na-Donu and Kagal'nik; usefulness of harbor reduced by silting.	Export of grain by way of Taganrog. Tractor station; printing plant; shipyards, chemicals, textiles; hides and furs; stocking and shoe factories; woodworking; fish cannery; distillery; flour mill and cereal plant.		Cold storage plant. Radio telegraph station. Telephonic and telegraphic connections. Power plant (100-500 kw.). 2 radio stations, 1 ground-to-air.	Decline of town due to competition of Rostov-na-Donu and to silting up of harbor. Port of local importance only.
Balakhna (59) 56°35'N, 43°32'E Pop. 15,300 (1932)	On the right bank of the Volga 32 km. NW of Gor'kiy. Gor'kovskaya Oblast', RSFSR.	Rail: Connection with Gor'kiy.	Largest paper factory in the USSR. (120,000 tons annually). Cellulose factory; soap, building slabs, tannic acid; consumers' goods; tractor station; state farm in vicinity.		2 power plants (35,000 kw. (1943), 204,000 kw.).	Street pattern generally gridiron.

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Balashov (189) 51°33'N, 43°10' E Pop. 40,000	On left bank of Khoper river W of Saratov. Saratovskaya Oblast', RSFSR.	Rail: Line to Tambov. Air: 4 airfields.	Tractor station. Aircraft factory (No. 23); aircraft repair plant No. 88. Metalworking; conveyor machinery industry; clothing and knitting mills; flour mills, dairy products, and fruit canning; distillery; trade in grain.	Three aviation schools. Technical schools.	Power plant (1,000-3,000 kw.; oil-burning). 2 radio stations, 1 at airfield.	
Baranovichi (156) (Baranowicze) 53°08'N, 25°59'E Pop. 26,440 (1937)	Baranovichskaya Oblast', White Russian SSR.	Rail: Important junction of railroads from Brest or Volkovysk to Minsk, and Vil'nyus to Rovno. Main and freight stations with extensive trackage. Road: Hwy. connections with Novogrudok and Slonim. Air: Airfield enlarged by the Russians.	Weaving; tanning; plaster and cement plant; brickyards; fat refining; soap and candle works; wine, liqueurs, cheese; cereal mills; slaughterhouse. Gasoline and oil dump (military) (5,000 barrels capacity); 2 military depots; munitions dump; air forces depot.	Several hospitals. 13 schools. Large group of barracks (infantry and artillery). New Russian barracks. Artillery and infantry quarters.	Power plant belonging to R.R. (420 kw.). Water and pumping plant, 2 water towers. Main post, telegraph, and telephone office. Fire department. Broadcasting transmitter (50 kw., antennae 150 m. high).	2,853 dwellings (1931).
Belaya Tserkov' (215) 49°48'N, 30°07'E Pop. 46,000 (1932)	SSW of Kiev. On Ross' river. Kiyevskaya Oblast', Ukrainian SSR.	Rail: On Fastov - Dnepropetrovsk line. Road: Good hwy. connections. Air: 3 airfields.	Machine shop.		2 lines on telephone-telegraph network ESE and NNW. Radio station RKKP.	
Belgorod (178) 50°35'N, 36°36'E Pop. 36,000 32,500 (1932)	On the right (chalk) bank of the northern Donets. Elevation: 190 m. Kurskaya Oblast', RSFSR.	Rail: Junction on Moskva - Tula-Khar'kov and Bobrik-Kupyansk lines; 2 bridges. Road: Hwy. junction; 2 bridges. Air: 2 airfields.	Chalk quarries and plant. Arms factory No. 31 (automatic revolvers, machine guns; 12,360 workers). 2 brickyards; 2 oil-processing plants; flour mill.	Hospital.	Power plant. Telephone and telegraph connections.	Gridiron street pattern. Built-up area about 3 sq. km.
Belgorod - Dnestrovskiy (237) (Cetatea Albă) (Akkerman) 46°11'N, 30°23'E Pop. 34,490 (1930)	On the right shore of the Dnestr estuary. Izmail'skaya Oblast', Ukrainian SSR.	Rail: On the Belgorod-Dnestrovskiy - Kishinev line. Road: Hwy. connections with Budaki, Bolgrad, and Bendery. Air: Airfield. Water: Harbor unsuitable for larger oceangoing vessels; 5 landing stages (4 of stone, 1 of wood (for passengers)).	Export of grain to Odessa; import of coal from Mariupol'. Trade in wine, fish, tallow, and wool. Shipyards; salt works; production of tallow and candles.	Barracks.	Power plant. Post office. Telegraph and telephone amplifying station. Commercial air-ground radio station. Police radio station.	Mixed population of Ukrainians, Russians, Greeks, Armenians, and Jews.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:
1 meter=3.28 feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Belomorsk (12) * (Soroka) (Sorokhan) 64°32'N, 34°45'E Pop. 15,000 (1938)	At mouth of Vyg river Kanal Imeni Stalina (Stalin White Sea - Baltic Canal), Canal in Onezhskaya Guba (Gulf of Onega) on Beloye More (White Sea). Karelo-Finnish SSR.	Rail: Connection with the Murmansk R.R. bridge. Road: Hwy. bridges. Air: Airfield. Water: Terminus of Stalin White Sea - Baltic Canal. Deep harbor sheltered by moles, for large ocean-going vessels.	2 sawmills; shipbuilding; production of building materials. Fish cannery planned in 1945, to produce 1 million cans annually. Oil tanks; R.R. repair shops.	Barracks. Military hospitals. Barracks.	Power plant. 4 radio stations, 2 coastal. Water towers.	Locks and dam across Stalin White Sea - Baltic Canal. Munitions and fuel dumps. Labor camps in vicinity; mining, lumber industry, quarries, and work on Baltic - White Sea Canal.
Belozersk (44) 60°02'N, 37°48'E Pop. 7,500 (1932)	On S shore of Beloye Ozero, and on Belozerskiy Kanal. Vologodskaya Oblast', RSFSR.	Air: Airfield. Water: Belozerskiy Kanal.	Coal and sulfur mines nearby. Machine shop, sulfur refining, distilleries, foodstuffs industry. Tractor station.		Power plant (1): 100 to 500 kw. Radio station RDAW.	
Bel'tsy (232) (Bălţi) (Byelcy) 47°46'N, 27°56'E Pop. 30,750 (1930)	On the right bank of Reut, a tributary of the Dnestr. Moldavian SSR.	Rail: Junction on the Mogilev-Podol'skiy - Iaşi line; also line to Slobodka. Road: On Soroki-Iaşi and Khotin-Kishinev roads. Air: 3 airfields.	Aircraft repair shop. Sugar refinery; oil-pressing plant. Trade in sheepskins, cattle, wine, and fruits.	Two hotels.	Power plant. Telephone and telegraph office. 3 lines on telephone-telegraph network E, SW, and NW.	Corps Headquarters.
Bendery (235) (Tighina) (Bender) 46°50'N, 29°28'E Pop. 39,000 (1930)	On the right bank of the Dnestr river. Moldavian SSR.	Rail: On Odessa-Kishinev and Bendery-Kaushany lines. Road: Hwys. to Kishinev and Kaushany; combined hwy. and R.R. bridge over the Dnestr. Air: Airfield.	Trade in agricultural products; grain, wine, fruit, maize, melons, and tobacco. Windmills.	Officers' quarters in old fortress.	Post, telegraph, and telephone office.	Old fortifications with towers, wall, and ditches; church inside walls.
Bezhetsk (75) 57°47'N, 36°41'E Pop. 15,000 (1932)	North of Kalinin. Kalininskaya Oblast', RSFSR.	Rail: On the Shcherbakov-Bologoye line. Road: Hwy. junction. Air: Airfield.	Metalworking. Garage accessories. Distillery.		Telephone and telegraph connections. Thermal power plant. Factory-heating plant.	
Bezhitsa (147) (Ordzhonikidzegrad) (Bolva-AAF. 167 chart) · 53°19'N, 34°19'E Pop. 82,330 (1939)	10 km. N of Bryansk. Bryanskaya Oblast', RSFSR.	Rail: Spur line to Bryansk; freight station. Road: Hwy. bridge over Desna river. Air: Airfield.	Armaments plant No. 13. Locomotive and car shops (including power plant). Conveyor machinery; machine shops. Chemical industry (based on coke). Textiles; alimentary pastes. Munitions dump.		Telephone and telegraph connections. Radio station at airfield.	

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Bobruysk (152) (Bobruisk) 53°10′N, 29°12′E Pop. 84,110 (1939)	On the navigable Berezina. Bobruyskaya Oblast', White Russian SSR.	Rail: On the Minsk-Gomel' R.R. Road: Highway junction (2 steel bridges cross the Berezina). Air: 2 airfields.	Newspaper; peat cutting; machine construction. Clothing; veneer; furniture; sawmills. Canning; spirits and brandy; tobacco factory; cereal mills.	Hotels. University. Central library. Military camp.	Post office. Power plant (15,000 kw.). Radio station RRS.	
Bologoye (77) 57°53′N, 34°05′E Pop. 15,000 (1932)	On a lake, 330 km. NW of Moscow. Kalininskaya Oblast', RSFSR.	Rail: Junction of Moskva-Leningrad, Bologoye-Shcherbakov, Bologoye-Pskov, and Bologoye-Nevel'-Molodechno lines. Air: Airfield.	Car-repair shop. Ordnance office. Grain elevators 9 km. WNW of center of town.		Small power plant. Telephone and telegraph connections. Radio station RFAU.	Supply dump 9 km. WNW of center of town.
Borisoglebsk (185) 51°22′N, 42°05′E Pop. 52,060 (1939)	At confluence of Vorona and Khoper rivers. Voronezhskaya Oblast', RSFSR.	Rail: On Orël-Gryazi-Stalingrad line. Air: 6 airfields. Water: River harbor.	Printing plant; R.R. shops; metalworking. Clothing and knitting mills; brickyard; cannery; flour mill; trade in agricultural products.	Aviation school. Other schools.	Power plant. Telephone and telegraph connections.	
Borisov (99) 54°17′N, 28°30′E Pop. 33,400 (1932)	On the Berezina, 80 km. NE of Minsk. City proper is on the left bank, Novo-Borisov on the right bank. Minskaya Oblast', White Russian SSR.	Rail: Minsk-Orsha line. Steel R.R. bridges over the Berezina R.R. station. Road: On Minsk-Moscow hwy. Timber hwy. bridge over the Berezina. Air: 1 airfield. 4 other fields in the vicinity. Water: Starting point for passenger and tug-drawn traffic on the Berezina.	Farm products; peat cutting; metalworking; shoes and leather goods; glass and porcelain; veneered woods; furniture. Matches, *Krasnaya Berezina* plant. Chemical wood derivatives; sawmills; paper mill; brickyard; match industry in Novo-Borisov; alimentary pastes; military magazine.	Hotels. Aviation school. Barracks.	Post office and radio station. Power plant (3,000 kw.). Radio station REBH.	Raion center.
Borovichi (42) 52°25′N, 33°57′E Pop. 28,420 (1932)	On the Msta river (filled with rapids). Novgorodskaya Oblast', RSFSR.	Rail: Terminus of a branch of Leningrad - Moscow line. Air: Airfield.	Headquarters of the Borovichi-Okulovka Industrial District. Fire bricks; hemp and jute industry; clothing and knitting mills; woodworking; machine and tractor repair shop; lignite mining in vicinity.	Hospital. Technical and trade schools.	Power plant, steam-driven (7,000 kw.). New fire house (1941).	
Bryansk (146) 53°15′N 34°21′E Pop. 87,500 (1939)	On the high, right bank of the Desna. Bryanskaya Oblast' RSFSR.	Rail: Junction of Moscow-Gomel', Bryansk-Orël, Bryansk-Smolensk, Bryansk-Khar'kov, and Bryansk-Dyat'kovo lines; main station on left bank of Desna; switching yard. Road: Hwy. junction; 3 bridges over Desna. Air: Plane connections; main air base. Internal: Main street parallels bank of Desna.	Peat-cutting; Artillery arsenal (production of gun-mounts). *Uritskiy* carshops; conveyor machinery; coal mines; coke plant; super phosphates; glass; textiles; shoes; *Vorovskiy* cement factory; woodworking; distillery; flour mills; state bank.	2 hotels. 2 monasteries. School of architecture.	Large power plant (22,000 kw.; peat-burning). By Dec. 1944, power capacity of 5,000 kw. had been restored. Post, telegraph, and telephone office. Radio telegraph station. 3 radio stations.	Munitions dump No. 44. Cathedral. Museum.

* Index number on FIGURE VIII-119.

CONVERSION FACTOR:
1 kilometer=0.62 miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Chapayevsk (131) * (Ivashchenkovo) 52°58'N, 49°42'E Pop. 58,000 (1939)	On the Chapayevka river near its confluence with the Volga. About 35 km. SW of Kuybyshev. Kuybyshevskaya Oblast', RSFSR.	Rail: On the Penza-Kuybyshev line. Air: Airfield.	Tractor station. Plant for production of explosives, power, and chemical warfare agents.		2 power plants (13,500 kw.).	
Cheboksary (55) 56°10'N, 47°15'E Pop. 12,000 (1932)	In a pocket on the right bank of the Volga at the confluence of the Cheboksarka, Kaybulka, and Volga rivers. Capital of the Chuvash ASSR, RSFSR.	Water: Steamer-landing. Air: Airfield.	Printing plant; woodworking; sawmills; shoes and leather; brickyard; distillery; consumers' goods; production of sunflower oil.		Small power plant (100-500 kw.). Broadcasting station. Post office. Telegraph office.	
Cherpovets (45) 59°07'N, 37°57'E Pop. 24,900 (1932)	On Sheksna river. Vologodskaya Oblast', RSFSR.	Rail: Leningrad-Kirov line. Water: River port. Steamer traffic. Air: Airfield.	Newspaper; machine and repair shops; light industries; sawmills; canneries; distilleries.	Hotels. Teachers' college.	Post and telegraph office. Power plant (30,000 kw., 1947). 2 radio stations.	Libraries. Museums.
Cherkassy (214) 49°25'N, 32°03'E Pop. 51,690 (1939)	On right bank of Dnepr river. Kiyevskaya Oblast', Ukrainian SSR.	Rail: On Bakhmach-Odessa line. Road: Hwy. connections. Water: River harbor; transshipment of wood.	Printing plant (newspaper). Tractor station; machine shops; metalworking; woodworking; clothing; sawmills; brickyards; cannery; sugar refinery; tobacco processing.	Hotels. Theater.	Post office. Telegraph office. 2 lines on telephone-telegraph network, N and S.	Museums.
Chernigov (172) 51°31'N, 31°20'E Pop. 35,000 (1932) 67,400 (1939)	On the elevated right bank of the Desna river in the valley of a stream (Strizhen') which divides the town into two parts; Mt. Boldina in vicinity. Elevation: 130 m. Chernigovskaya Oblast', Ukrainian SSR.	Rail: R.R. junction. Air: 2 airfields. Water: River harbor of slight importance.	Printing plants (newspapers). Peat-cutting; metalworking; textiles; synthetic rubber; *Chernigovskiy Khim-Kombinat* (chemical plant). Brickyards; sawmills; canneries; distillery; flour mills.	Hotels. Barracks. Monastery.	Post and telegraph office. 4 lines on telephone-telegraph network, N, SSE, SW, and W. Broadcasting station and intrastate radio-telegraph.	Cathedral. Museum. Irregular gridiron street pattern. Built-up area about 5 sq. km.
Chistipol' (128) 55°22'N, 50°35'E Pop. 15,800 (1932)	On left bank of Kama river, ESE of Kazan'. Tatar ASSR, RSFSR.	Rail: R.R. bridge over Kama river. Road: Two dirt roads (2-lane); one to Mamadysh; one to SW. Air: Airfield (fair weather). Water: Freighters under 500 tons can use Kama river.	Tractor station; 3 large parachute and gas-mask factories; shipyards (for repairs); textiles; woodworking; flour mills; asphalt deposits in vicinity.	Normal school. Agricultural school. Technical school.	Power plant (1,000-3,000 kw.; oil-burning). Radio station RGAE.	New towns not shown on maps in vicinity. Biological station of University of Kazan'.

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Chuguyev (207) 49°51'N, 36°42'E Pop. 20,000 *	On northern Donets river SE of Khar'kov. Khar'kovskaya Oblast', Ukrainian SSR.	Rail: On Khar'kov-Kupyansk line. Air: 2 airfields.	Tractor station; construction of machinery; metalworking; consumers' goods.		Power plant in vicinity (48,000 kw.).	
Daugavpils (96) (Dvinsk) (Dünaburg) 55°53'N, 26°32'E Pop. 45,160 (1935)	On right bank of Daugava river. Daugava river (the Zapadnaya Dvina) 200 m. wide here. High levee protects city from flood. Latvia.	Rail: Junction of following lines: Leningrad-Brest, Riga-Vitebsk, Liepāja-Siauliai 2 freight stations. 2 passenger stations. Road: Junction of first-class hwys: Riga-Vil'nyus, Siauliai-Vitebsk. Air: 4 airfields. Water: Ocean navigation. Internal: Gridiron pattern of streets. Railroad and highway bridge over the Daugava.	Railroad shops; foundry; forges; machine shops; cement; wool and silk mills; leather goods; oil pressing; cereal mills; breweries; grease rendering; soap factories.	Hospitals. 2 hotels. 2 barrack camps.	Waterworks. Post, telegraph, and telephone office. Tank storage.	Old Dünaburg fortress.
Dneprodzerzhinsk (211) (Kamenskoye) 48°31'N, 34°38'E Pop. 147,800 (1939)	On right bank of Dnepr river WNW of Dnepropetrovsk. Dnepropetrovskaya Oblast', Ukrainian SSR.	Rail: Lines to Dnepropetrovsk, Krivoy Rog, Kremenchug, and Cherkassy.	Grain elevator; plant for chemical warfare agents. Large steel-rolling mill (power from gas and dynamos (2 power plants of about 2,500 hp.)). Smelting. Ammonium nitrate plant, restored (March 1947). Large metallurgical works (near Tritusnoye Station). *Pravda* car shops (with steel foundry; 2 electric ovens with annual cap. 20,000 t. (1936)). Textiles, brickyard, sawmills, conveyor machinery.		Hydroelectric plant (198,000 kw.). Air-mail service. Probably on telephone-telegraph network.	
Drogobych (229) (Drohobycz) approx 49°10'N, 23°20'E Pop. 33,730 (1937) 32,000 (1940)	At rim of eastern Beskidy Vskhodnyye Mts., on Tysmenitsa river (tributary of Dnestr). Drogobychskaya Oblast', Ukrainian SSR.	Rail: Junction of lines to Sambor, Stryy, Borislav, and Truskavets. Road: Hwy. junction. Air: Airfield with 4 subterranean gasoline tanks (subterranean gasoline depot under construction in 1941).	Oil refineries; 6 fuel depots for motor vehicles; large grain elevators; production of crude oil and natural gas; crude-oil pipe installations (approx. 200,000 m.); oil tanks (98,250 tons). In 1936 crude-oil production was 26,081 tons, lubricating oil 9,868 tons, paraffin 5,533 tons, asphalt 4,814 tons. Steel; copper; chemicals; salt mine; sawmills.	2 hospitals. 14 schools. Former prison used for billeting troops.	Power plant (4,700 kw., 550 and 5,400 v.). Gas plant. Water system. Post and telephone office. 3 lines on telephone-telegraph network, SSE, SW, and WNW.	2,735 houses (1931). Corps Hq. Munitions and arms depot in former Forestry Building. Subterranean arms depot.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:
1 meter=3.28 feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Dzerzhinsk (61) * (Rastyapino- AAF. 154 chart.) 56°14'N, 43°30'E Pop. 103,400 (1939)	On left bank of Oka river. Gor'kovskaya Oblast', RSFSR.	Rail: On Moscow-Gor'kiy line.	Chemical and munitions plants including the *Kalinin*. Oil refinery; armaments; steel mills; auto, tractor, and conveyor machinery repair shops. Various chemical plants (fats, soap, glycerine, phosphorus, chlorine, prussic acid, gypsum, and lime; poison gas). Distillery; rope, macaroni, meats, bread. 3 state farms in vicinity.		Power plant (50,000 kw.; coal-burning). Air-mail service.	Rapidly growing industrial city.
Enso (23) approx. 61°00'N 28°50'E Pop. 11,000 (1940)	On the Vuoksi (Vuoksa). Leningradskaya Oblast', RSFSR.	Rail: On the Antrea-Khitola R.R.	Cellulose and vegetable fiber plants; paper mill; sawmill; box factory.		Hydroelectric plant at Roukhiala (Raukhiya) (50,000 kw. (1946)).	
Feodosiya (248) (Kefe) (Kaffa) 45°02'N, 35°23'E Pop. 27,400 (1932)	On the S coast of the Krym (Crimea) and the NE slopes of the Tete-Oba. Harbor lies in bay formed by S coast of Kerch'. Peninsula and E coast of the Krym. W section of bay sheltered by Mys Il'i (cape). Krymskaya Oblast', RSFSR.	Rail: Connected with Sevastopol'-Khar'khov line. Air: Airfield. Water: Chief commercial harbor of the Krym (ice-free throughout year); 12 docks; movable steam crane.	Export of grain; 2 mechanical grain elevators (6,500 tons); 24 grain warehouses (2.3 hectares, 48,000 tons). Export of coal in winter (bituminous and anthracite). Fisheries (including caviar). Production of sodium sulfate. Foundry, metalworking; brickyard; furs, carpets, textiles; soap; tobacco processing (new cigarette factory).	Barracks. Aviation school. Theater.	Power plant (500 kw.). Radio telegraph station. Coastal radio station. 2 lines on telephone-telegraph network, N and W. Intrastate radio-telegraph station. 3 radio stations.	Museums. Art gallery. Meteorological institute. Churches and mosques. Mixed population (Russians, Germans, Tatars, Greeks, Armenians, Jews).
Gatchina (36) (Krasnogvardeysk) 59°34'N, 30°08'E Pop. 42,000 (1936)	On both sides of White Lake (Beloye Ozero), formed by the Izhora river; 45 km. SSW of Leningrad. Leningradskaya Oblast', RSFSR.	Rail: On Leningrad-Pskov and Leningrad-Narva lines; suburban line electrified through Uritsk to Leningrad. Air: Airfield.	Metallurgical industry; Peat-cutting; tractor station; wood industry; paper-machine factory.	Aviation school.	Small power plant. Gas works. Sewerage system. Radio station.	Oriental art museum in former castle; large park.
Gomel' (148) 52°33'N, 31°58'E Pop. 144,200 (1939)	On the right high bank of the Sozh river. Gomel'skaya Oblast', White Russian SSR.	Rail: Rail junction; 3 stations (passenger, switching, and freight). R.R. bridge. Road: Highway bridge. Air: 2 airfields. Water: River port.	Car- and locomotive-repair shop; aircraft plant No. 140; agricultural machinery and implements; ball-bearing plant; aluminum plant; chemical plant. Newspaper; glass and porcelain industry; knit goods; shoes and leather goods; sawmills; match factories; veneer factories; chemical forest products; trade in farm and industrial products; grain elevator; gasoline storage;	Hotels. Aviation school. Barracks.	Power plant. Post office. Radio-telegraph station. Broadcasting station RW-40.	

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Gomel (Continued)			grease and bone rendering; sugar distilleries; cereal mills; tractor station.			
Gorlovka (202) 48°18′N, 38°03′E Pop. 108,700 (1939)	In a river valley of the Donets plain; NNE of Stalino. Elevation: 220 m. Stalinskaya Oblast', Ukrainian SSR.	Rail: On Khar'kov - Rostov-na-Donu line; freight station. Air: Airfield.	Munitions and explosives; chemical warfare agents; coal mines; *Kirov* machine shop; auto factory; car-repair shops; mining machinery; chemicals; textiles; spirits. Nitrogen plant (deep-cooling process; coke gas as raw material).		Power plant (12,000 kw.). Air mail service. 4 lines on telephone-telegraph network, N, NE, E, and S. 3 radio stations.	Street pattern irregular combination of radial and gridiron plans. Built-up area about 15 sq. km. Large park in NW quarter of town.
Gorodenka (225) (Horodenka) approx. 48°40′N, 25°35′E Pop. 13,500 (1937)	In the foothills of the East Beskids south of the Dnestr river and on one of its tributaries. Stanislavskaya Oblast', Ukrainian SSR.	Rail: On Stefănehşti-Kolomyya line. Road: Junction of hwys. to Snyatyn, Chernovtsy, Chortkov, Kolomyya, and Tlumach. Air: Airfield (300 by 600 m.); 7 km. SW of the town.	Quarries; brickyard; linen weaving; distillery; sugar and vinegar factory; slaughterhouse; cultivation of corn and tobacco in area.	Hospital. 6 schools.	Power plant (1,026 kw., 380/220 v.). Post and telephone office.	2,106 houses (1931). Medicinal springs in vicinity.
Gorodets (60) 56°45′N, 43°22′E Pop. 12,170 (1932)	On the left, steep bank of the Volga river; NW of Gor'kiy. Gor'kovskaya Oblast', RSFSR.	Rail: Nearest station at Gorka, 20 km. distant (on a spur-line from Gor'kiy). Air: 2 airfields.	Tractor station; small shipyard.		Power plant (100-500 kw.).	
Grodno (161) (Gardinas) 53°40′N, 23°50′E Pop. 50,120 (1937)	City proper on the right bank of the Neman (Niemen, Nemen, Nemunas, Memel) river. Suburb of Zanemanskiy on the left bank. The Neman here forms a deeply cut valley. Gorodnichanka creek cuts a deep ravine on the right of the Neman, dividing Grodno into the northwestern quarter of Kolozha and the northern quarter of Zavershchizna (Zawierszczyzna). Grodnenskaya Oblast', White Russian SSR.	Rail: Junction of these lines: Warszawa-Vil'nyus Suwaki-Mosty Main station. Main munitions dump with loading platforms. Road: Highway junction. Combined R.R. and hwy. bridge over the Neman. Air: Military airport under construction (1941), with underground gasoline and bomb storage. Internal: City proper is of irregular layout.	Trade in building lumber and farm products. Machine factory; bicycles and motorcycles; farm - implement foundry; glass; tanning; cloth; chalk quarries; printing plants, book bindery; ceramic factories; brickyards; 6 sawmills; steam-powered and other cereal mills; roofing paper; matches. Tobacco products (once the largest plant in Poland). Oil pressing; distillery, 3 breweries, liqueurs. Slaughterhouse; gasoline and oil dump (400,000 liters); QM staff; supply depot; military magazine.	5 hospitals. Old and new military hospitals. 34 schools. 3 hotels. 2 groups of barracks. Russian troop garrison.	Power plant, 3,075 kw., 250 and 6,600 v. Waterworks with pumping and filtration plant, 2 water towers. Main post, telegraph, and telephone office.	4,045 dwellings in 1931.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:
1 meter=3.28 feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Gryazi (140) * 52°30'N, 39°57'E Pop. 12,000 (1931)	On right bank of Matyra river, 116 km. NNE of Voronezh. Voronezhskaya Oblast', RSFSR.	Rail: Junction of Moscow-Voronezh - Rostov - na Donu, Gryazi-Stalingrad, and Yelets-Gryazi lines. Air: Airfield.	Tractor station. Machine shops. Metallurgical industry. Wood industry. Stone for construction. Consumers' goods.		Power plant (100-500 kw.). Telephone and telegraph connections.	
Gryazovets (48) 58°53'N, 40°10'E Pop. 5,790 (1932)	SSE of Vologda. Vologodskaya Oblast', RSFSR.	Rail: Vologda-Moskva line.	Tractor station. Flax working.			Mineral springs.
Ivanovo (62) (Ivanovo-Voznesensk) 57°01'N, 41°00'E Pop. 285,100 (1939)	On both banks of the non-navigable Uvod' (tributary of the Klyaz'ma); NE of Moscow. Ivanovskaya Oblast', RSFSR.	Rail: Junction of the Aleksandrov - Kineshma and Novki - Nerekhta lines: freight station and switching yard. Road: Hwy. junction. Air: Airfield.	Car repair shops. Construction of peat-mining machinery. Chemicals (phosgene and chlorine). *Karolens* Plant (gears). Important textile center; one mill produced 500,000 m. of cloth per month in 1944. Distillery; petroleum; woodworking; canning.	Medical institute. Hotel. Theater. Advanced schools.	2 power plants (38,000 kw.). Post, telegraph, and telephone office. Radio broadcasting station RW-31 (10 kw.).	Cathedral. Museum. Polytechnic institute. Normal, trade, and art schools. Industrial academy.
Izhevsk (53) 56°52'N, 53°14'E Pop. 175,700 (1939)	On left bank of Izh river (navigable only by rafts) 42 km. above confluence with Kama. Udmurt ASSR. (capital), RSFSR.	Rail: On Kazan' - Votkinsk line; freight station. Air: 2 airfields (one military).	Printing plant; tractor station; munitions plant; production of small arms and machine guns. Steel foundry; agricultural machinery. Machine plant (production of high performance revolving lathes). Motorcycles; brickyards; brewery.	Advanced schools.	2 power plants (88,000 kw.). Post office. Radio broadcasting station RW-78.	Cathedral. Museum. Technical, normal, and workers' schools.
Izmail (236) (Ismail) 45°20'N, 28°50'E Pop. 25,000 (1930) 26,000 (1940)	On left bank of Danube in delta area. Izmail'skaya Oblast', Ukrainian SSR.	Rail: Connections with Bendery. Water: River harbor.	Fisheries. Textiles (industry now being restored).			
Jelgava (87) (Yelgava) (Mitava) (Mitau) 56°39'N, 23°45'E Pop. 36,100 (1935)	On the Driksa river (Drixe), a branch of the Lielupe (the Curlandish Aa). Latvia.	Rail: Junction lines: 1. Rīga-Kaunas-Berlin 2. Rīga-Mažeikiai-Liepāja 3. Jelgava-Krustpils 4. Jelgava-Tukums-Ventspils 5. Rīga-Saldus-Liepāja Road: 2 highways: Sovetsk (Tilsit)-Rīga and Talsi-Bauska; and local roads. Air: Airfield, 600 m. x 900 m. enlarged (Mar. 1941); hangars.	Textile industries; rope; dyeing; tanning; leather goods; vulcanizing; chemical laboratories; machine shops; forges; cement and concrete; gypsum; clay products; brick kilns; sawmills; sugar mill; warehouses; grain elevator; lumber yards; tank storage; cereal mills; brewing; distilling; dairy products; cheese; tobacco.	Hospital. 3 hotels with garages. Boardinghouses.	Power plant (1,625 kw.); 4 steam turbines, 2 boilers. Post, telegraph, and telephone office.	Trade center of a rich farming region.

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Jelgava (Continued)		Internal: Broad, straight streets. Highway bridge over the Driksa.				
Kadnikov (50) 59°32'N, 40°20'E Pop. 2,030 (1932)	NE of Vologda. Vologodskaya Oblast', RSFSR.	Rail: Nearest R.R. sta. is at Sukhona, on the Vologda-Arkhangel'sk line, 21 km. away. Air: 1 airfield. Road: To Vologda.	Paper industry; chemically-treated wood products; condensed milk. Tractor station.		Power plant (17,500 kw.).	
Kaliningrad (263) (Königsberg) 54°45'N, 20°30'E Pop. 315,700 (1933) 368,400 (1939)	On both banks of the Pregel' (Perigel) river 8 km. from its mouth (in the Frisches Haff). Kaliningradskaya Oblast', RSFSR.	Rail: Connections with Virbalis Baltiysk (Pillau), Polessk (Labiau), and Krants; 2 bridges over Pregel' river. Road: 7 hwy. bridges over Pregel' river. Air: Airfield; modern airfield with underground hangars at Maraunenkoof. Water: Pillau Canal makes port accessible to large oceangoing vessels.	Printing plants; shipbuilding; locomotive shops; machine factories; chemical industry; consumers' goods; amber. Plants restored in Kaliningradskaya Oblast' as of April 1947; 4 cellulose-paper plants; machinery plant; oxygen plant; 2 paper mills; R.R. car shop; shipyards (among largest in USSR).	Hospital. Palace. University buildings. Barracks.	Post office. Power plant (49,250 kw.).	Cathedral. Observatory. Medical institute. Two marsh areas on outskirts of town. City used primarily at present as repair and supply base for Baltiysk naval base (submarines, torpedo boats, etc.); repair pens for submarines near Fishgauzen (Primorsk, formerly Fishgauzen).
Kaluga (105) 54°30'N, 36°15'E Pop. 90,000 (1939)	On left, high bank of Oka river (200 m. wide at this point) at confluence with Yachenka. Kaluzhskaya Oblast', RSFSR.	Rail: Junction of Smolensk-Tula and Moscow-Bryansk lines. Road: Hwy. junction. Air: Airfield. Water: Steamers on Oka river; landings.	Town in Moscow lignite basin. Aircraft assembly and repair plant (under construction 1941). Armaments factory; coal mining. Machine plant; conveyor machinery; electro-mechanical equipment; scales and weights. Steam turbine factory. Textiles; leather; matches; sawmills; canning; distillery.	3 hotels. Monastery. Theater. Advanced schools. Aviation school.	Power plant (12,000 kw., coal-burning). Hydroelectric plant under construction in 1941 (25,000-50,000 kw.). Post, telephone, and telegraph office. Radio telegraph station.	Museums (in former palaces).
Kalyazin (73) 57°15'N, 37°51'E Pop. 7,300 (1932)	On the high, right bank of the Volga river. Kalininskaya Oblast', RSFSR.	Rail: On the Moskva-Kalyazin-Uglich and Kalyazin-Krasnyy Kholm lines; bridge over Volga; water tanks; ramp for 50 cars. Road: Good hwy. connections with Moscow. Water: River harbor; steamers on the Volga (212 km. to Kalinin). Air: Airfield.	Tractor station. Wool and felt fulling. Clothing and knitting mills.	Monastery.	Power plant (100-500 kw.). Telephone and telegraph connections.	Cathedral with high bell tower. Museum.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:
1 meter=3.28 feet
1 kilometer=0.62 miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Kamenets - Podol'-skiy (221) * 48°43'N, 26°35'E Pop. 50,000 (1939)	On bank of Smotrich river, near its confluence with the Dnestr. Kamenets-Podol'-skaya Oblast', Ukrainian SSR.	Rail: On Shepetovka-Lipkany line. Road: Junction of hwys. to Chernovtsy, Ternopol', and Ivane Puste. Air: 2 military airfields. Internal: Bridges connect old city on rocky island with newer sections.	Printing plant (newspaper); machine building; chemicals; lithographic stones; clothing; canning; distilleries. Phosphorite production in vicinity (high content of phosphoric acid).	Hotels. Theater. Advanced schools.	Power plant (oil-burning). Post and telegraph office. 2 lines on telephone-telegraph network, N and S.	Town dominated by castle built on a height with walls and towers; good view of city. Old city situated on rocky island. Artillery depot. Technical school. Museum. Institute for popular culture. Agricultural institute. Corps Hq. Division Hq.
Kamensk (200) (Kamensk-Shakhtinskiy) 48°20'N, 40°16'E Pop. 50,900 (1939)	On the right bank of the Donets river. Elevation: 20 m. Rostovskaya Oblast', RSFSR.	Rail: On Voronezh-Rostov line. Water: Starting point for river shipping. Air: Airfield.	Coal mines. Large plant for repair of locomotives and cars. Sawmills. Nitrogen plant under construction (1941).	Technical school. Normal school.	2 power plants (50,000 kw.).	Gridiron street pattern. Built-up area about 6 sq. km. R.R. runs along SW and W edges of town.
Kamyshin (191) 50°08'N, 45°20'E Pop. 18,480 (1926)	At confluence of Kamyshinka and Volga rivers. Stalingradskaya Oblast', RSFSR.	Rail: On Tambov-Kamyshin line; station 2 km. from river harbor. Air: 2 airfields.	Agricultural Experimental Institute; tractor station; aluminum plant; oil-storage area; chemical plant; grain elevator; sawmills; fruit-canning; macaroni factory; flour mills; distillery.		Power plant (500-1,000 kw.) (partly destroyed). 1,600,000 kw. (planned). Radio station RGMX.	
Kandalaksha (7) (Kantalahti) 67°09'N, 32°30'E	At mouth of the Niva into Kandalakshskaya Guba on the White Sea; built on tongue of land. Murmanskaya Oblast', RSFSR.	Rail: On the Murmansk R.R. Railroad construction westward via Kuolayarvi to Finland almost finished (1941). Air: Airfield. Water: Harbor conditions unfavorable, but rebuilding and expansion under way (1941). Several wooden piers, 1 steel pier.	Large electrochemical plant, producing phosphates from apatite and aluminum oxide from apatite waste and nephelin. Aluminum plant, annual production 20,000 tons (about 5 km. from center of town). Production of titanium white (a pigment). Car-repair shop; foundry and machine-repair shops; sawmill; fish canneries.	Barracks.	Power from 3 plants on the Niva above the city: Niva Plant I: 30 km. north, 60,000 kw. Niva Plant II: 18 km. north, 30,000 kw. (being expanded (1941) to 75,000 kw.). Niva Plant III: (under construction, 1941): 3 km. north, 150,000 kw. 3 radio stations.	Naval base under construction (1941). Labor camp in vicinity; aluminum, nickel, and zinc mining.
Kashira (111) 54°51'N, 38°33'E Pop. 23,000 (1935)	On the right bank of Oka river, 110 km. SSE of Moscow. Moskovskaya Oblast', RSFSR.	Rail: On Moscow-Saratov line; R.R. bridge (steel) over Oka river. Road: Hwy. junction. Air: Airfield.	Tractor station; locomotive shop (heavy electric locomotives); construction of turbines and generators. Wood; shoes; clothing; consumers' goods; three state farms in vicinity.		Large power plant at Kaganovich (4 km. distant) (220,000 kw.; coal-burning). Telephone and telegraph connections. Radio station RFAK.	
Kaunas (91) (Kovno) (Kowno) (Kauen) 54°54'N, 23°55'E	On a point of land at the confluence the Neris (Viliya) with the Ne-	Rail: Junction of Gusev-Siauliai and Kaunas-Siauliai lines; steel bridge over Nemunas R; tunnel	Armaments. Metalwares (heating apparatus, pipes, agricultural machinery, screws, nails, chains).	Military hospital. 2 other hospitals. 7 large schools. Hotels.	Old power plant. Main power plant (approx. 10,000 kw.). 2 gas plants.	Old city built on point of land formed by 2 rivers; suburbs across rivers.

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Kaunas (Continued) Pop. 154,000 (1939)	munas (Niemen, Memel). City surrounded by heights (60 m.). Outside the city proper are the suburbs of Sančių, Panemunė, Aleksoto, Viliampolės. Lithuania.	in SE of town. Road: Junction of Daugavpils-Suwatki, Klaipėda-Vil'nyus and Kaunas-Alytus roads; 2 bridges over Nemunas (1 steel-wood, 1 steel-concrete); bridge over Neris river. Air: Airfield. Internal: Old city is crowded. Floating bridge across Nemunas.	Steel-rolling mill. Sheet metal, automobiles, electrical and optical goods. Chemicals: rubber, dyes, drugs, soap, fertilizer. Textiles: cotton, silk, wool. Wood and paper industry.	Barracks.	Waterworks. Telephone central. Post and telegraph office. Automatic telephone system. 2 radio stations.	2 radio towers 76 m. high. Various public buildings dating from period of Lithuanian independence.
Keksgol'm (22) (Kexholm) (Kyakisalmi) (Käkisalmi) 61°02'N, 30°10'E Pop. 5,100 (pre-1939) Information in 1941 indicated population was evacuated.	On bank of the northern distributary of the Vuoksi not far from its mouth at Ladozhskoye Ozero (Lake Ladoga). Leningradskaya Oblast', RSFSR.	Rail: Connection with Leningrad and Vyborg.	Formerly large cellulose plant. Sawmills.			Heavily damaged during the Finnish-Russian war.
Kem' (11) (Kjem) (Kemb) (Kemi) 65°00'N, 34°38'E Pop. 6,600 (1928)	At mouth of Kem' river at Onezhskaya Guba (Bay of Onega) of Beloye More (White Sea). Karelio-Finnish SSR.	Rail: On the Leningrad-Murmansk line. Spur to outer harbor at Rabocheostrovsk (11 km. away). Air: Airfield. Water: Harbor has deep water.	Metalworking; car-repair shops; large sawmill. Chemical plant under construction (1941). Brickyard; bakery; trade in lumber, fish oil, hides.	Barracks. Theater.	Small power plant. Radio station RDOC. 1 ground-to-ship radio station.	Rabocheostrovsk (formerly Kem' Pristan'): Workers settlement and outer harbor for Kem', on the west shore of the White Sea. Piers totaling 250 m. in length, several large sheds, coal depot.
Kerch' (249) 45°21'N, 36°28'E Pop. 104,500 (1939)	On the W side of the Kerch Strait; at the foot of Gora Mitridat. Krymskaya Oblast', RSFSR.	Rail: R.R. connections with Feodosiya; freight station. Air: 4 airfields and 4 auxiliary seaplane bases. Water: Protected harbor; bay freezes over 40 days per year; icebreakers keep strait open all year; basin protected by broad moles; oil harbor S of town; Kerch' channel 7 m. deep. Canal through center of town.	Shipyards (for naval vessels). Iron and steel (smelting and rolling mills). Brickyard; car-repair shops; dry-dock facilities; chemical industry (coke, soap); woodworking; canning (fish, etc.); tobacco processing; flour mills; salt and iron mines and manganese deposits in vicinity.	Barracks.	Power plant (10,000 kw.). Water system. 10 radio stations (7 coastal). Cable to Kosa Chushka (spit). Telephone-telegraph network line to W; 2 cables (under water to European Caucasus). Intrastate radio-telegraph station.	Secret police building. Munitions depot. Gasoline and oil dump. Scientific institutes (chiefly for pisciculture). Museum. Irregular gridiron street pattern with some radial elements.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:

1 meter=3.28 feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Kherson (241) * (Cherson) 46°39'N, 32°37'E Pop. 97,200 (1939)	In the estuary of the Dnepr river at Dneprovskiy Liman. Khersonskaya Oblast', Ukrainian SSR.	Rail: R.R. terminus; switchyards. Air: 2 airfields. Water: Harbor frozen over from mid-Dec. till March (84 days); 2 floating docks under construction (1941); channel to sea 68.5 km. long, 100 m. wide, and suitable for ships of 6.9 m. draught. Internal: Paved streets lead to docks.	Munitions plant; armored vehicle plant. Ship-repair facilities; shipyards (now being restored). Parachute factory; agricultural machinery; motor-repair shops; chemical industry; glass industry; textiles and leather; canning; brewing; distilling; flour mills; soap; and glue.	Military hospital. Barracks. Hotels. Schools.	Large power plant. Pumping station for water system. Post and telegraph office. Coastal radio station. 4 lines on telephone-telegraph network, NNE, SE, SW, and NW. Coastal, intrastate radiotelegraph and commercial airport radio stations.	City consists of a military suburb (behind which the former fortress with church, arsenal, and barracks), the city proper, and the suburb of Zabalka. Cathedral and 12 churches. Municipal library. Institute for popular culture. Historical-archeological museum.
Kinel' (129) 53°12'N, 50°41'E Pop. 6,900 (1932)	On left bank of Bol'shoy Kinel' river near its confluence with the Samara; 41 km. E of Kuybyshev. Kuybyshevskaya Oblast', RSFSR.	Rail: On Kuybyshev-Ufa and Kuybyshev-Chkalov lines.	Sulfur deposits; tractor station; flour mills; car-repair shops; brickyards; gypsum mining; 2 state farms in vicinity.		Power plant (100-500 kw.; oil-burning).	
Kirovograd (213) (Zinov'yevsk) (Kirovo) (Yelizavetgrad) 48°31'N, 32°17'E Pop. 100,300 (1939)	On both banks of Ingul river. Elevation: 105 m. at river. Maximum heights on each side of river: 160 m. 140 m. Kirovogradskaya Oblast', Ukrainian SSR.	Rail: On Kremenchug-Novo-Ukrainka line; bridge over Ingul river. Road: Roads leading SW, SE, NW, E, and S. Air: 10 airfields.	Aircraft factory; coal-mining; agricultural machinery; chemicals; textiles; edible oils; macaroni; flour mills; distillery.	Hotels. Aviation and paratroopers' schools. Cavalry school. Theater.	Post office. Radio telegraph station. 2 lines on telephone-telegraph network, NE and W.	Museum. Regularly laid - out town with fine boulevards. Town area 6 sq. km.; gridiron pattern. Agricultural experiment station. Type F residential area to N. Fortified area on right bank of river. Race track (or stadium) on SW edge.
Kirovsk (5) (Hiipinä) (Khibinogorsk) 67°37'N, 33°40'E Pop. 30,000 (1940)	200 km. from Murmansk. Surrounded by mountains. Center of a mining region. Murmanskaya Oblast', RSFSR.	Rail: Funicular connection with the Murmansk R.R. (20 km. distant); also R.R. connection. Internal: Funicular 20 km. long transports apatite ore to the Murmansk R.R. (at town of Apatity). Air: Airfield.	Mining (apatite and nephelin). Plants at Apatity for producing phosphates and crude aluminum; 2 million tons of apatite produced in 1937. Sawmill; several brickyards; printing.	Hospital. Mining school.	Power plant (36,000 kw.). 3 radio stations.	New city, rapidly developing.

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Kishinev (233) (Chisinau) 47°01'N, 28°50'E Pop. 130,000 (1946)	On right bank of Byk river; river valley swampy. Moldavian SSR. (capital).	Rail: On Bendery-Iaşi line. Road: Junction of hwys. to Bendery, Huşi (Rumanit), Bolgrad, Iaşi (Rumania), and Bel'tsy. Air: Airfield. Internal: Lower town has narrow, winding streets; upper town has broad, straight streets on grid-iron plan.	Cotton textiles; tanneries; edible oils; distilleries; flour mills; printing plants; slaughterhouse; fuel dump; petroleum and gasoline tanks.	6 hospitals. 5 hotels. 6 large schools. Paratroopers' school. 4 barracks installations. 3 theaters, one restored. 7 motion picture theaters restored.	Power plant. Streetcar system. Commercial air-ground radio station. Police radio station. Radio telegraph station. Water system. 2 lines (and amplifier station) on telephone-telegraph network N, SSE, SW, and W.	Cathedral, bishop's palace, administration building. Widely scattered suburbs. 2 public libraries. State university (opened 1946). Town divided into upper and lower sections; former is modern with broad, straight streets on grid pattern; latter is ghetto with narrow, winding streets and houses crowded together.
Kobrin (163) (Kobryń) 52°13'N, 24°21'E Pop. 12,000 (1937)	At confluence of the Mukhavets and the Kobrinka, ENE of Brest. Brestskaya Oblast', White Russian SSR.	Rail: Station on the Brest-Gomel' line. Road: Junction of the following roads: 1. Brest-Slutsk 2. Kobrin-Pinsk 3. Kobrin-Wlodawa Air: 3 airfields.	Trade in grain and cattle; meat shipments. Brickyards; steam-powered sawmill; cereal mills (2 motor-driven, 1 wind-driven); slaughterhouse; tank depot.	Hospital. 5 schools. Former Polish garrison town.	Small power plant. Water main. Post and telephone office.	
Kol'chugino (66) (Kellerovo-AAF. 154 chart) 56°18'N, 39°23'E Pop. 25,000 (1935)	Vladimirskaya Oblast', RSFSR.	Rail: On Ivanovo-Moskva line. Air: Airfield.	Tractor station. Large aluminum-rolling mill.		Power plant (10,000-25,000 kw.; coal-burning).	Street pattern generally gridiron.
Kolomyya (224) (Kolomypa) 48°31'N, 25°02'E Pop. 40,000 (1937)	On the N slopes of the East Beskids Vskhodnyye and in a broad valley of the upper Prut river. Stanislavskaya Oblast', Ukrainian SSR.	Rail: Junction of L'vov-Chernovtsy, Kolomyya-Stefaneshti, Kolomyya-Valea-Vişeului, and Kolomyya-Sloboda Rungurskaya Kopal'nya lines. Air: Airfield.	Metallurgical industry; machine shops; oil refinery; chemicals; textiles; tanneries; cement factory. Pottery and tiles (one factory with its own power plant). 4 brickyards; 2 sawmills; flour mills. Soap, candles, beer.	Hospital. Hotels. 28 schools. 3 barracks.	Power plant (460 kw.). Water system. Sewerage system. Gas works. Ice plant. Post, telephone, and telegraph office.	5,065 dwellings in 1931. Corps and division Hq. Target ranges.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:
1 meter=3.28 feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Kolpino (38) * 59°45'N, 30°35'E Pop. 37,000 (1935)	24 km. SE of Leningrad. Flat terrain. Izhora stream (tributary of Neva) meanders through town and passes through *Izhora* plant. Elevation 13.7 m. Leningradskaya Oblast', RSFSR.	Rail: On Leningrad-Moscow main line. Flying bridge 2 km. N of station. Road: 2.2 km. W and 1.8 km. SSE to Leningrad-Moscow highway. Both 1½-lane traffic capacity. Air: Airfield.	*Izhora* plant partially restored; steel-rolling mill. Large munitions plant (still a shambles in 1945) bldgs. covered 185,900 sq. m. Large area for coal storage.		Radio broadcasting station. Power plant (24,000 kw.).	Older portions have typical small detached houses. S of *Izhora* plant, development of modern workers' apartments. Extent of war damage not known. Irregular gridiron in 3 major sections around semicircular civic center area.
Konosha (19) 60°57'N, 40°16'E Pop. 2,820 (1932)	SSE of Kargopol'. Arkhangel'skaya Oblast', RSFSR.	Rail: Vologda-Arkhangel'sk line.	Sawmill.		Power plant (100-500 kw.).	Workers' settlement.
Konotop (174) 51°18'N, 33°10'E Pop. 36,200 (1932)	On a tributary of the Seym river; marsh area in vicinity. Elevation: 140 m. Sumskaya Oblast', Ukrainian SSR.	Rail: On Kiev-Kursk line. Air: 2 airfields.	Peat-cutting; metallurgical industry; locomotive repair shops; light industries (consumers' goods); flour mills.	Air-force barracks.	Radio telegraph station. 3 lines on telephone-telegraph network, N, E, and W.	Ordnance office. Street pattern very irregular gridiron. Built-up area about 9 sq. km.
Kotel'nich (51) 58°21'N, 48°23'E Pop. 15,100 (1936)	On steep, right bank of the Vyatka river; WSW of Kirov. Kirovskaya Oblast', RSFSR.	Rail: R.R. junction; lines to Kirov, Vologda, and Gor'kiy; R.R. bridge over the Vyatka. Water: Steamer landing.	Tractor station. Clothing and knitting mills; sawmills.	Railroad school.	Power plant (72,000 kw.).	Museum. Library.
Kotlas (16) 61°12'N, 46°50'E Pop. 5,470 (1932)	At confluence of Vychegda with the Severnaya Dvina, at terminus of R.R. from Kirov. Arkhangel'skaya Oblast', RSFSR.	Rail: Terminus of line from Kirov. Water: Transfer point, land to river traffic. Air: Airfield.	Metalworking; carrier construction; flax working; cotton-cellulose combine; sawmills.		Power plant (100-500 kw.). Power plant (68,000 kw.) reported as planned. 4 radio stations (2 for airfields).	Labor camp in vicinity; lumbering and R.R. construction.
Kovel' (165) (Kowel) 51°13'N, 24°42'E Pop. 20,820 (1937)	On both banks of the Turiya river, a tributary of the Pripyat' river. Volynskaya Oblast', Ukrainian SSR.	Rail: Junction of lines to Brest, Rovno, Kholm, Vladimir-Volynskiy, Sarny, and Kamen' Kashirskiy. 2 R.R. bridges over the Turiya river.	Tanneries; knitting mill; stocking factory; 3 brickyards; sawmill; candle factory; syrup factory; beer, liqueurs, tobacco; flour mills (3 motor-driven; also windmills).	Several hospitals. 22 schools.	2 power plants (332 kw. and 158 kw.). Water tower. Post, telephone, and telegraph office. 6 lines on telephone-telegraph network, NNE, E, SE, SSW, W, and NNW.	2,925 dwellings in 1931. Division Hq.
Krasnyy Liman (204) (Liman) 48°58'N, 37°50'E Pop. unknown (below 50,000, 1939)	About 7 m. N of the Donets river; NE of Slavyansk; small lake to NW of town. Elevation: 100 m. Stalinskaya	Rail: On lines to Khar'kov and Slavyansk; R.R. station.	Machine shops; metallurgical industry; mining of non-metallic minerals; food processing.		Power plant. 4 lines on telephone-telegraph network, ESE, SSE, SE, and NW.	3,281 dwellings in 1939. Generally gridiron street pattern. Built-up area about 2 sq. km.

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Krasnyy Liman (Continued)	Oblast', Ukrainian SSR.					
Kremenchug (212) 49°05'N, 33°30'E Pop. 89,550 (1939)	On left bank of Dnepr river. Poltavskaya Oblast', Ukrainian SSR.	Rail: Lines to Poltava, Kirovograd, and Romodan; freight station. Road: Hwy. junction. Air: Airfield. Water: River harbor; steamer traffic to Kiev and Dnepropetrovsk. Internal: Bridges (2) over the Dnepr (one R.R. and one hwy.).	Machine shops; metallurgical industry; conveyor machinery; freight car shops; road building machinery; shoes and leather; textiles and felt; chemicals; sawmills; food, tobacco, spirits; woodworking.	Barracks.	Hydroelectric plant (600,000 kw.) and locks planned (prewar). 3 lines on telephone-telegraph network N, NE, and SSW. Radio station RKAP.	Artillery arsenal. Center of lumber trade.
Krivoy Rog (242) 47°55'N, 33°21'E Pop. 197,600 (1939)	At confluence of the Saksagan' and Ingulets rivers; in a hollow. Dnepropetrovskaya Oblast', Ukrainian SSR.	Rail: Lines to Dnepropetrovsk and Zaporozh'ye. Air: 2 airfields.	Iron and steel plant (being expanded); farm machinery. 40% of total iron ore production of USSR from area (prewar); metal content of ore 70%. Aircraft factory; textiles; woodworking; distilleries.		2 large power plants; overland transmission. Post and telegraph office. 3 lines on telephone-telegraph network NNE, S, and NW.	
Kulebaki (120) 55°25'N, 42°32'E Pop. 21,090 (1933)	SE of Murom. Gor'kovskaya Oblast', RSFSR.	Rail: R.R. connections with Murom. Road: Hwy. connections with Murom.	*Kirov* steel mill; includes rolling mill and 2 Siemens-Martin furnaces; production of bar iron, sheet iron, spring steel, and wheel rims. Large bakery; state farm in vicinity.		Power plant (12,000 kw., 1937).	
Kuolayarvi (6) (Kuolajärvi) (Salla) 67°0'N, 29°10'E Pop. unknown	About 140 km. W of Kandalaksha. Karelo-Finnish SSR.	Rail: Line from Kandalaksha through Kuolayarvi (Salla) to Finnish frontier almost completed in 1941; in May, 1947, the construction of large number of sidings and spurs was reported. Air: Former Finnish airfield extended to accommodate heavy bombers.				3 divisions known to be in area in May, 1947.
Kupyansk (206) 49°42'N, 37°38'E Pop. 14,000 (1932)	On right bank of Oskol river, a tributary of the Donets; ESE of Khar'kov. Elevation: 145 m. Khar'kovskaya Oblast', Ukrainian SSR.	Rail: Lines to Khar'kov, Belgorod, Valuyki, and Svatovo; switching yard; R.R. bridge. Road: Hwy. bridge. Air: 3 airfields.	Armaments plant; machine shops; metallurgical industry; wood industry; large sugar refinery; tractor station; state farm in vicinity.		Small power plant.	Irregular street pattern.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:
1 meter=3.28 feet
1 square meter=10.76 square feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Kuznetsk (134) * 53°07'N, 46°37'E Pop. 34,000 (1932)	On left bank of Truyeva river. Penzenskaya Oblast', RSFSR.	Rail: On Penza-Syzran' line. Road: Hwy. junction. Air: Airfield.	Production of agricultural equipment; leather and furs; hemp and jute processing; textiles; woodworking.		Large fuel-driven power plant with long-distance power lines. Telephone amplifying station. Telegraph connections.	
Lida (160) 53°53'N, 25°19'E Pop. 24,870 (1937)	On the Lideya (Lidzieja) river. Grodnenskaya Oblast', White Russian SSR.	Rail: Important junction on the Molodechno-Cheremkha and Baranovichi-Vil'nyus lines. Station has freight sheds, platforms, 2 military platforms, fuel storage, 2 steel overpasses. Road: Junction of the Novogrudok - Vil'nyus and Lida-Grodno roads. 2 reinforced-concrete bridges Air: Airfield.	Farm machinery factory with its own power plant and foundry. Locomotive sheds and shop. Railroad shops. Rubber-goods factory with its own power plant (150 kw.). Spinning mill; cement plant; glazed tiles; 2 steam-driven sawmills; oil pressing; soap; 2 breweries with their own power plants; slaughterhouse; fuel dump; munitions depot; camouflaged military camp with rail spur.	Several hospitals. Railroad infirmary. 18 schools. Air-force barracks.	R.R. power plant 180 kw. Power plant 286 kw. Main post, telegraph, and telephone office.	2,175 dwellings (1931).
Livny (144) 52°25'N, 37°37'E Pop. 18,820 (1932)	On left bank of Sosna river; ESE of Orël. Orlovskaya Oblast', RSFSR.	Rail: On Verkhov'ye-Marmyzhi line. Road: Hwy. junction. Air: 4 airfields.	Iron foundry. Refinery for natural rubber.		Telephone and telegraph connections.	
Luga (39) 58°43'N, 29°50'E Pop. 26,200 (1935)	On left bank of Luga river. Leningradskaya Oblast', RSFSR.	Rail: On Leningrad-Pskov line with a secondary line to Novgorod. Road: 2 hwys; connections with Leningrad and Pskov. Air: Airfield.	Graphite industry; tractor station; sawmills; tanneries.		Small steam-driven power plant. Radio station RDBK.	
Lutsk (167) (Luck) 50°45'N, 25°19'E Pop. 37,280 (1937) 35,000 (Dec. 1940)	On right bank of middle Styr' river, where the Volynian plain sinks toward the broad marshland of the Pripyat' river. Elevation: 178 m. above sea level. Volynskaya Oblast', Ukrainian SSR.	Rail: 2 stations on Kivertsy-L'vov line. Road: Junction of hwys. to Ustilug (on Bug river), Rovno, Brest, Dubno, and Kivertsy. Air: 2 airfields with hangars.	Gasoline depots. Agricultural machinery plant. Textiles; tanneries; brickyard; sawmill (with its own power plant); flour mills (including 4 motor mills); brewery.	4 hospitals. Military schools. 23 schools. Prison. Several barracks installations (with stables); facilities for motorized troops, tanks, and field artillery.	Power plant (584 kw.). Water system with small power plant. Main post, telephone, and telegraph office. 3 lines on telephone-telegraph network, ESE, SW, and NW. Broadcasting station 422. Army mobile radio station.	3,827 dwelling in 1931. 2 sections of the secret police. District court. Agricultural bank. State bank (branch). Ruined castle. Army and division Hq.
Lyskovo (56) (Makar'yev) 56°03'N, 45°02'E Pop. 6,900 (1932)	ESE of Gor'kiy near the confluence of the Sundovik and the Volga rivers. Gor'kovsyaya Oblast', RSFSR.	Rail: Nearest station 60 km. away at Sergach on Arzamas-Kazan' line.	Tractor station; shipbuilding; machine shops; metallurgical industry; consumers' goods; brewery.		Power plant (100-500 kw.).	

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Makeyevka (253) Makeevka) (Dmitrovsk-Stalinskiy) 48°02′N, 37°59′E Pop. 240,100 (1939)	About 15 km. NE of Stalino. Elevation: 220 m. Stalinskaya Oblast', Ukrainian SSR.	Rail: Part of a complex R.R. network. Air: Airfield. Internal: Streets in poor condition.	Armaments plant; munitions factory (artillery ammunition). *Kirov* smelting plant; pig iron, ingots, plates, sheet metal, bar iron, rails, etc. (restored). Chemical plant (based on coke). Textiles; sawmills; distilleries; flour mills; bread factory.	Aviation school.	Power plant (47,500 kw.). Radio station RHB.	Street pattern generally gridiron. Built-up area 16 sq. km.
Mariampolė (93) (Mariampol') 54°33′N, 23°20′E Pop. 16,000 (1939)	On right bank of the Sešupe river; SW of Kaunas. Lithuania.	Rail: Kaunas-Alytus line. Road: Branching point of Kaunas-Suwalki and Mariampolė-Vilkaviškis roads. Air: Military airfield, underground hangars.	Brass mfr.; automobile repair shops; textile mills; leather factories; furniture and cabinetmaking; 8 sawmills; brewing; sugar mills (restored); oil pressing; 11 cereal mills.	Hospital. Artillery and infantry barracks: 15 dormitories. 21 secondary bldgs. 3 stables. 3 garages.	Power plant, coupled with new hydraulic plant at Puskelniai. Post and telegraph office.	
Mariupol' (251) 47°05′N, 37°30′E Pop. 222,400 (1939)	On N coast of Sea of Azov (Azovskoye More) and on right bank of the Kal'mius estuary; part of the town extends along coastal plain; part on higher ground. Stalinskaya Oblast', Ukrainian SSR.	Rail: Connections with Makeyevka and Zaporozh'ye; switching yard and freight station. Air: 5 airfields. Water: Very important harbor with elaborate port installations; steamers to Yeysk, Kerch', and Feodosiya.	Export of coal, iron, and grain. Seamless-tube mill. Large iron and steel plants; aircraft-motor factory; small arms; chemical warfare agents; radio factory; machine shops; ship repairing (floating dock); textiles; leather; soap.	2 hospitals. Hotels. Barracks.	Power plant (49,000 kw.); 2 factory power plants. Post and telegraph office. Radio telegraph station. 5 coastal radio stations. Air-mail service. Water system. 3 lines of telephone-telegraph network, N, E, and SW.	2 cathedrals.
Marks (194) Marksshtadt) (Marxstadt) (Yekaterinenshtadt) (Katharinenstadt) (Baronsk) 51°42′N, 46°46′E Pop. 12,460 (1926)	On left bank of Volga river. Saratovskaya Oblast', RSFSR.	Rail: Nearest station at Saratov.	Tractor station; machine shops; metallurgical industry; production of agricultural machinery; textiles; sawmills; flour mills; tobacco processing.	Several higher schools.	Power plant (100-500 kw.).	Museum. Gridiron street pattern. Built-up area about 2½ sq. km. Church square in center of town.
Melekess (126) 54°18′N, 49°35′E Pop. 19,300 (1932)	On right bank of Bol'shoy Cheremshan river; NNW of Kuybyshev. Ul'yanovskaya Oblast', RSFSR.	Rail: On Ul'yanovsk-Ufa line.	Tractor station; peat cutting; iron foundry (tractor parts); flax processing; sawmill; woodworking; flour mills; tannery; meat packing; brewery.		Power plant (500-1,000 kw.; oil-burning).	
Metallist (121) (Pavlovo) 55°58′N, 43°05′E Pop. 20,600 (1932)	On right bank of the Oka river; SW of Gor'kiy. Gor'kovskaya Oblast', RSFSR.	Rail: Nearest station at Metallist (3 km. away), a terminus of a spur line from Gor'kiy.	Tractor station; metalworking; production of instruments for automobiles and tractors; consumers' goods; center of an old domestic metal industry.		Power plant (100-500 kw.).	

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:
1 meter=3.28 feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Mezen' (8)* 65°50'N, 44°15'E Pop. 3,220 (1932)	On right bank of Mezen' river, emptying into Mezenskaya Guba (Mezen' Bay) on Beloye More (White Sea). Arkhangel'skaya Oblast', RSFSR.	Rail: None. Nearest R.R. station is Arkhangel'sk, 421 km. away. Water: Steamer traffic.	Lumber trade; stock raising; shipbuilding; sawmills; fish packing; dairy products.		Power plant (500 - 1,000 kw.).	
Michurinsk (139) (Kozlov) 52°53'N, 40°30'E Pop. 70,200 (1939)	On right bank of the Lesnoy Voronezh river; 73 km. WNW of Tambov. Tambovskaya Oblast', RSFSR.	Rail: Junction of Moskva-Voronezh - Rostov - na-Donu and Michurinsk-Tambov-Saratov lines. Road: Hwy. junction. Air: 2 airfields.	Grain elevator; peat cutting; locomotive-repair shops; metallurgical plant (tractor parts and vulcanizing apparatus); chemicals; brickyard; canning; distillery; flour mills; state farm in vicinity; tractor station.	3 hospitals.	Power plant. Telephone and telegraph connections. Radio station RFRQ.	Horticultural experimental institute.
Mikhaylovka (188) 50°03'N, 43°13'E Pop. 12,000 (1932)	Near the right bank of the Medveditsa river; SE of Borisoglebsk. Stalingradskaya Oblast', RSFSR.	Rail: Sebryakovo station on Stalingrad - Gryazi-Moskva line. Air: 5 airfields.	Tractor station; flour mills; meat packing; canning; state farm in vicinity.		Power plant (100-500 kw.).	
Millerovo (199) 48°55'N, 40°22'E Pop. 15,430 (1932)	On left bank of the Glubokaya river. Elevation: 100 m. Rostovskaya Oblast', RSFSR.	Rail: On Voronezh-Rostov-na-Donu and Voroshilovgrad-Millerovo lines; 2 R.R. bridges. Air: 8 airfields.	Machine shops; armaments and munitions (including shells and mines); car-repair shops; edible oils; flour mills; state farm for breeding of merino sheep near R.R. station.		Power plant (1,000-3,000 kw.). Radio station RFG.	Street pattern irregular gridiron. Built-up area about 4 sq. km.
Mogilëv (151) 53°55'N, 30°18'E Pop. 99,400 (1939)	On right bank of the Dnepr river. Mogilëvskaya Oblast', White Russian SSR.	Rail: Orsha-Zhlobin line. Switchyard. R.R. bridge. Road: Junction of local roads and railroad. Highway bridge over the Dnepr, timber, 200 m. long. Air: 3 airfields.	Aircraft assembly and repair shop (under construction, 1941); peat production; automobile - parts factory; car-repair shop; pipe foundry; several kinds of machine building and metalworking; raw leather and hides; shoes and leather goods; knit goods, brushes, synthetic fibers; artificial silk; chemical industries; furniture; flour products; canned fruit; foodstuffs; munitions dump.	Hotels. Artillery barracks. Theater.	Post and telegraph office. Power plant (15,000 kw.). Radio station REBL.	Several old churches. Cathedral. Museum.
Mogilëv-Podol'skiy (218) (and Ataki) 48°28'N, 27°45'E Pop. 22,270 (1926)	On left bank of the Dnestr. Vinnitskaya Oblast', Ukrainian SSR.	Rail: On Kiev-Chernovtsy line; bridge over Dnestr destroyed and restored (single-tracked); auxiliary bridge next to it. Road: Hwy. bridge over Dnestr river.	Vineyards and sericulture in vicinity. Iron foundries; machine shops; wool and felt fulling; textiles; lime kilns; sawmills; flour mills; canning; distillery and breweries.		Telephone and telegraph connections. 2 lines on telephone-telegraph network, NNE and SSW.	

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Molodechno (97) (Molodeczno) 54°19′N, 26°53′E Pop. 6,000 (1937)	West of a swampy depression at the foot of a hill. Molodechnenskaya Oblast', White Russian SSR.	Rail: On Vil'nyus-Minsk and Polotsk-Lida lines. R.R. bridge over the Usha and Villya. Air: Airfield. Road: Good roads only in vicinity of the town.	Slaughterhouse; flour mills; gasoline station.	Hospital. 6 schools. Barracks.	Power plant (15,000 kw.). Post office.	794 dwellings in 1931.
Monchegorsk (4) 67°55′N, 32°58′E Pop. 30,000 (1938)	On an inlet of Imandra Ozero (Imandra Lake). Murmanskaya Oblast', RSFSR.	Rail: Spur track connects with Murmansk line at Olen'ya.	Newly established mining city. Nickel and copper smelting; sulfur production; 3 sawmills; brickyards.			
Morozovsk (198) (Morozovskiy) 48°21′N, 41°50′E Pop. 13,680 (1932)	W of Nishne-Chirskaya. Elevation: 80 m. Rostovskaya Oblast', Ukrainian SSR.	Rail: On Likhaya-Stalingrad line. Air: 6 airfields.	Tractor station; printing plant; machine shops; metalworking (production of pistons, piston rods, and cylinders); flour mills; consumers' goods.		Power plant (500-1,000 kw.). Radio station RLDR.	Generally gridiron street pattern; streets rather irregular along meandering stream running across N part of town. Built-up area about 9 sq. km.
Mozhaysk (106) 55°30′N, 36°01′E Pop. 10,000 (3,000 in 1944)	On right bank of the upper Moskva river; 110 km. west of Moscow. Moskovskaya Oblast', RSFSR.	Rail: On Brest-Smolensk-Moskva line. Road: On Moskva-Gzhatsk Hwy.	Tractor station. Powder factory No. 4 (in 1937, 4,000 workers). Veterinary instruments factory; construction materials (mineral); consumers' goods.	Large military hospital (1944). In 1944 hospital was repaired and in service.	1944. No running water. Power plant (100-500 kw.). Telephone and telegraph connections. Radio station RFCJ.	Theater was blown up. Most brick buildings burnt-out. 70 homes in 1944. Old church.
Mozyr' (153) 52°02′N, 29°15′E Pop. 12,000 (1932)	On right bank of the Pripyat' river. Polesskaya Oblast', White Russian SSR.	Rail: Mogilëv-Zhitomir line (station 6 km. from town). Combined R.R. and hwy. bridge. Water: River port. Air: Airfield.	Lumber industries; furniture factories; brickyards; cereal mills; newspaper; tractor station. In the vicinity are large orchards, farming, stock raising, and fishing.	Hotels.	Power plant (peat-fired). Post and telegraph office.	
Munkachevo (231) (Mukachevo) (Munkács) (Munkačevo) Pop. 26,123 (1930) approx. 48°30′N, 22°40′E	On the left bank of the Latoritsa river where it descends from the East Beskid Mts. Zakarpatskaya Oblast', Ukrainian SSR.	Rail: Line to L'vov. Road: Hwys. to Uzhgorod and Beregovo.	Breweries; distilleries; flour mills; tobacco processing.			Old fort on a nearby hill.
Murom (119) 55°34′N, 42°04′E Pop. 40,000 (1937)	On high, left bank of the Oka river; SW of Gor'kiy. Vladimirskaya Oblast', RSFSR.	Rail: On Moscow-Murom-Kazan' and Murom-Kovrov lines. Water: River harbor. Air: Airfield.	Tractor station; munitions dump; iron-ore mining; locomotive and car shops; railroad shops; small shipyard; tool and machine-tool factory; textiles (cotton and linen); veneer industry; canning; large bakery; distillery.	3 monasteries.	Power plant (3,000-5,000 kw.).	Many churches.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:
1 meter=3.28 feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Narva (31) * 59°22'N, 28°10'E Pop. 23,510 (1934)	On the Narva river, both banks 13.8 km. above its mouth in the Gulf of Finland. Estonia.	Rail: Tallinn-Kingisepp line; R.R. station restored. Road: Through highway Tallinn-Leningrad. Air: Airfield. Internal: 1 R.R. and 1 hwy. bridge over the Narva.	Textile industries; 2 Kreenholn plants with their own power plants; large textile mill in vicinity restored. Cotton and linen goods; 2 sawmills; 2 machine shops (small); foundry; brick kilns; printing plants; soap; leather; woodworking. Imports: cotton, jute, coal, machinery. Exports: lumber, textiles, spirits, tile. Harbor: 1,100 m. of quays, depth 2.7 to 8.5 m. Warehouses on quays.	5 hospitals. 4 advanced schools. 1 hotel. 2 barracks. Polyclinic buildings restored.	Several power plants in the factories along the Narva rapids. Waterworks, pumping station (reconstructed). Post, telegraph, and telephone office. Power generated at the falls on the Narva.	2,415 dwellings, 2,051 of them wooden. 2 outstanding castles, one on left riverbank, one on right. Town 98% destroyed during war. 10,000 sq. m. of living space restored by early 1946. Plans for restoration of Narva. Old city to be restored (southern part, medieval; northern section, 17th century with regular streets). Juncture of main street going toward Tallinn and of street to R.R. station will be large square with municipal buildings. New street will connect with restored bridge. Large power plant and hydroelectric development planned. Locks to be installed on Narva river. Town to be surrounded by green landscaping and to have protective zones between the industrial and residential districts.
Nerekhta (64) 57°27'N, 40°35'E Pop. 10,000 (1936)	50 km. ESE of Yaroslavl'. Kostromskaya Oblast', RSFSR.	Rail: On Yaroslavl'-Kostroma line; branch line to Yermolino. Road: Hwy. junction.	Tractor station; wood industry; nail and peg production; flax spinning; consumers' goods.		Power plant (1,000-3,000 kw.). Telephone and telegraph connections.	
Nezhin (173) 51°03'N, 31°54'E Pop. 41,400 (1932)	On left bank of Oster river. NE of Kiev. Chernigovskaya Oblast', Ukrainian SSR.	Rail: Lines to Kiev, Konotop, Chernigov, and Priluki. Air: Airfield.	Artillery arsenal No. 63; printing plant (newspaper); 2 brickyards; distillery; edible oils; 2 state farms in vicinity.	Hotels.	Post and telegraph office.	

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Nikopol' (243) 47°36'N, 34°25'E Pop. 57,840 (1939)	On right bank of Dnepr river; SW of Zaporozh'ye. Dnepropetrovskaya Oblast', Ukrainian SSR.	Rail: Connections with Zaporozh'ye, Krivoy Rog, and Kherson. Air: Airfield.	Manganese deposits; production of conveyor equipment; smelting plant; tractor plant; shipyards; production of metal pipes; food industry; tractor station.		Power plant (500 kw.). Radio station RKOZ.	Labor camp in vicinity; mining and industrial work.
Novgorod (80) 58°32'N, 31°18'E Pop. 45,000	On both banks of the Volkov river, 2 or 3 km. below its emergence from Il'men' Ozero (lake); on an elevation surrounded by lowlands usually flooded in spring. Novgorodskaya Oblast', RSFSR.	Rail: Junction of lines to Leningrad, Luga, and Staraya Russa; connection with Moskva-Leningrad line. Road: Hwys. to Leningrad and Moscow. Air: 2 airfields.	Shipbuilding; shoe manufacturing; printing; tractor station; fuel-oil dump.	11 hospitals and other medical institutions (all destroyed during war). Hotels. 4 monasteries. Camps for troops. Theater.	Power plant (destroyed during war). Radio station RDDX.	City approximately 100% destroyed during war. The Kreml' Cathedral, and various churches being restored. On left bank of river, the old town (also known as Sofiyskaya); Kreml' at center of radial street pattern. On right bank, the commercial city with gridiron pattern. Cathedral and 47 churches. Museums. Industrial - technical school. Administration building.
Novoannenskiy (187) (Novo-Annenskaya) 50°32'N, 42°41'E Pop. 11,370 (1932)	SSE of Borisoglebsk. Stalingradskaya Oblast', RSFSR.	Rail: Filonovo station (Filonovskaya) on Stalingrad-Gryazi-Moskva line. Air: 2 airfields.	Machine shops. Metallurgical industry.			
Novocherkassk (257) 47°28'N, 40°05'E Pop. 81,290 (1939)	On an open plateau surrounded on 3 sides by the Aksay, a tributary of the Don, and by the Tuzlov. Elevation: 100 m. Rostovskaya Oblast', RSFSR.	Rail: On Voronezh-Rostov-na-Donu line; station in SE part of town. Air: 3 airfields. Internal: Broad, straight streets.	Munitions plant (explosives and chemical warfare agents). Machine shops. Locomotive shops (14,000 workers in 1937); 9 km. NW of R.R. station. Soot industry; sawmills; flour mill and cereal plant; meat packing.	Hotels. Military town (barracks, munitions dump, arsenal). Palace. Advanced schools.	2 power plants. Post and telegraph office.	16 churches. Museums. Central library. A center of economic and cultural life in the Don Basin.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:

1 meter=3.28 feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Novograd-Volynskiy (169) * 50°40'N, 27°35'E Pop. 18,150 (1932)	At the confluence of the Smolka and Sluch' rivers; on left bank of Sluch'; about 55 km. NW of Zhitomir. Zhitomirskaya Oblast', Ukrainian SSR.	Rail: Connections with Zhitomir, Shepetovka, and Korosten'. Road: Hwy. junction; hwy. to Rovno. Air: Airfield.	Cardboard factory; tannery; flour mill.	Barracks.	Telephone and telegraph connections. 2 radio stations.	
Novogrudok (157) (Nowogródek) 53°36'N, 25°50'E Pop. 10,500 (1937)	In wooded country. Baranovichskaya Oblast', White Russian SSR.	Rail: Station on the narrow-gage line to Novoyeln'ya (Nowojelnja). Road: Road junction.	Concrete plant; ceramics industry; tanneries; steam-powered mill; gasoline dump; bus park.	2 hospitals. 9 schools. Administrative buildings. Red Army house. Barracks.	Power plant (320 kw.). Post, telegraph, telephone. Broadcasting transmitter.	1,055 dwellings in 1931.
Novouzensk (195) 50°31'N, 48°10'E Pop. 13,940 (1926)	In a wide steppe on left bank of Bol'shoy Uzen' river; SE of Saratov. Elevation: 20 m. Saratovskaya Oblast', RSFSR.	Rail: Line to Saratov. Road: 2 bridges.	Tractor station; cattle markets; machine shops; metallurgical industry; flour mills; state farm in vicinity.	Sanitarium.	Power plant (100-500 kw.; oil-burning).	Gridiron street pattern. Winding stream flows through town and into Bol'shoy Uzen' river. Built-up area about 3½ sq. km. Church square in center of town.
Nyandoma (18) 61°40'N, 40°10'E Pop. 7,350 (1932)	East of Pudozh. Arkhangel'skaya Oblast', RSFSR.	Rail: Vologda-Arkhangel'sk line.	Mining of non-metallic minerals; metalworking; chemically treated wood products; sawmill; dairy products.		Power plant (100-500 kw.).	Workers' settlement.
Onega (13) 63°55'N, 38°05'E Pop. 3,000 (1932)	On Onega river (right bank) 5 km. above its mouth in Onega bay. 134 km. from Obozerskaya. 219 km. from Arkhangel'sk. Arkhangel'skaya Oblast', RSFSR.	Rail: Terminus of line from Obozerskaya, 134 km. away. Air: Airfield.	Sawmills. Lumber exports.		Power plant (500 - 1,000 kw.). 2 radio stations.	Naval training station.
Oraniyenbaum (33) 59°55'N, 29°46'E Pop. 22,400 (1936)	40 km. W of Leningrad on the Gulf of Finland. Leningradskaya Oblast', RSFSR.	Rail: Terminus of a suburban electric line from Leningrad. Air: Naval airport. Water: Steamer connections with Leningrad.	Tractor station. Repair facilities for small steamers. Naval arsenal.		Sewerage system. Radio station.	Palaces and churches (now museums). Ruins of an old fortress. Parks.

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Orekhovo-Zuyevo (116) 55°47'N, 38°59'E Pop. 99,300 (1939)	On both banks of the Klyaz'ma; 90 km. E of Moscow. Moskovskaya Oblast', RSFSR.	Rail: Junction of Moskva-Gor'kiy and Aleksandrov-Voskresensk lines. Air: Airfield (of slight importance).	Foundry. Production of oxygen apparatus, gas masks, and diving apparatus (Apparatus factory no. 3; 1,000 workers in 1938). Plastics; textile industries; sawmill; state farm in vicinity.	Bathing establishment (spa).	Power plant (30,000 kw.; peat-burning). Sewerage system. Telephone and telegraph connections.	
Orsha (102) 54°34'N, 30°20'E Pop. 31,310 (1932)	On right bank of the Dnepr. Vitebskaya Oblast', White Russian SSR.	Rail: Junction of Leningrad-Kiev and Minsk-Smolensk lines. Switchyard. Combined R.R. and hwy. bridge. Air: 5 airfields. Water: River port.	Aircraft repair shop; motor factory; iron foundry; car repair shops; metalworking; cement; flax; furniture; sawmills; paper mill; food packing (meat, bread).	Aviation school.	Power supply from the Osinstroy plant (largest electric plant in White Russia; peat-burning). Radio station REAB.	
Ostashkov (79) 57°09'N, 33°07'E Pop. 18,000 (1935)	On Ozero Seliger (lake). Kalininskaya Oblast', RSFSR.	Rail: On Bologoye-Velikiye Luki line. Water: Steamers on Ozero Seliger.	Fisheries. Production of scythes, leather, white boots, and fish nets (last two products in home industries).	Monastery.	Telephone and telegraph connections. Coastal radio station.	Museum.
Ostrogozhsk (180) 50°52'N, 39°07'E Pop. 22,990 (1926)	On left bank of the Tikhaya Sosna river, a trubutary of the Don; in the black earth region; 330 km. ENE of Khar'kov. Elevation: 120 m. Voronezhskaya Oblast', RSFSR.	Rail: On Khar'kov-Penza-Gor'kiy line. Road: Hwy. bridge over Tikhaya Sosna river. Air: 2 airfields.	Tractor station; iron foundry; metalworking; leather and shoes; edible oils; state farm in vicinity.		Power plant (100-500 kw.).	Art museum. Generally gridiron street pattern. Built-up area about 6 sq. km. 5,320 dwellings in 1941.
Ozery (112) 54°51'N, 38°33'E Pop. 19,060 (1932)	On left bank of the Oka river; SW of Kolomna. Moskovskaya Oblast', RSFSR.	Rail: Terminus of a spur line from Kolomna.	Tractor station. Iron foundry (production of spare parts for machines used in light industry). Textiles; state farm in vicinity.		Power plant (1,000-3,000 kw.; coal-burning). Telephone and telegraph connections.	
Paldiski (26) (Baltischport) (Baltiiskii Port) 59°19'N, 24°06'E Pop. 850 (1925)	On level land east of the bay of Rogerwiek at entrance to Gulf of Finland. Estonia.	Rail: Connections with Tallinn and Leningrad. Air: Naval flying field. Water: Harbor almost always ice-free; in severe winters kept open by ice breakers. Internal: Gridiron street pattern.	Fish industries; railroad shops.	Advanced schools. Barracks.	Telephone office. Post and telegraph office.	Harbor formed on SW by mole, on SE by dike. Entrance (from south) 21 m. wide. Depth 6.6 m.; quays 400 m.; space for 3 to 4 average ships.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:

1 meter=3.28 feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Panevėžys (95) * (Penevezhis) (Ponewesk) (Ponevezh) 55°44'N, 24°22'E Pop. 26,650 (1939)	On the Nevėžis (Nevyazha) river, centrally located in Lithuania. Lithuania.	Rail: Junction of following railroads: Daugavpils-Siauliai Panevėžys-Svenčionys Road: Junction of new highways. Air: Military airfield 800 m. x 1,000 m. with hangar, army radio station, 18 dormitory bldgs.	Flax trade; machine factories; foundries; automobile - repair shops; chemical plant; paints, turpentine, tar, lubricants; linen, jute, and other textiles; wool, cotton weaving, wadding, rope, leather, shoe mfr.; cement; sawmills; soap; 11 cereal mills; slaughterhouse, cured meats; printing plant; tobacco; farm cooperative warehouse; breweries, distilleries, sugar, marmalade, honey, yeast, preserved fruit.	Infantry barracks.	Power plant (1,616 kw.). Post and telegraph office.	
Pärnu (28) (Pyarnu) (Pernau) 58°23'N, 24°30'E Pop. 20,330 (1934)	At mouth of the Pärnu river into Pärnu Laht (bay) on the Gulf of Riga. Old Pärnu, on right bank, connected by floating bridge with the new city. Estonia.	Rail: Connections with Tallinn and Volga. Narrow-gage spur to harbor. Hwys: To Tallinn and Valmiera (Latvia). Bridge over Pärnu river. Air: Airfield 500 m. x 600 m. Water: Pärnu river navigable as far as Sindi. Harbor blocked by ice from end December to beginning April. Internal: Floating bridge across the Pärnu river.	Repair of ship motors; machine shops; linen spinning and weaving; felt; tanning; leather goods; shoes; oil pressing; brick kilns; sawmills. At Kodara: 2 brickyards; match factory; paper mill. At Audru: Distillery; dairy; brewery; chocolate factory. Large textile plant operating normally (May 1946). Exports: lumber, flax, flaxseed, potatoes; imports: coal, salt, fertilizer. Fishing; slaughterhouse and stockyards.	Hospital. 5 higher schools. 2 hotels. Infantry barracks.	Power plant (1,500 kw.). Post, telegraph, and telephone office. Radio station ESP.	3,056 dwellings, 2,761 of them wooden. Harbor: Ship channel: 250 m. wide, 5.5 to 6 m. deep, between 2 jetties from roadstead to harbor proper. Harbor proper: Lower course of the Pärnu, 1.3 km. long, 190 to 360 m. wide, 3.6 to 5.5 m. deep, quays 500 m. and 280 m. long, new quay 220 m. long planned (1941). Also winter harbor. Simultaneous transshipment for 5 steamers. Warehouses 20,070 sq. m. floor area. Narrow-gage rail spur.
Pavlovo-Posad (114) (Pavlovskiy-Posad) 55°45'N, 38°35'E Pop. 33,320 (1932)	On right bank of the Klyaz'ma river; 68 km. E of Moscow. Moskovskaya Oblast', RSFSR.	Rail: On Moscow-Gor'kiy line.	Peat-cutting; shoes and textiles; tannery; laundry and dyeing establishment; pottery manufacture; slaughterhouse.	School.	Power plant. Sewerage system. Telephone and telegraph connections.	
Pechenga (1) (Petsamo -Liinahamari)) approx. 69°30'N, 31°10'E Pop. 4,333 (1939)	On the W side of Guba Pechenga (Petsamo fjord) an inlet of the Arctic Ocean. Murmanskaya Oblast', RSFSR.	Rail: No known connections. Road: Terminus of the Arctic hwy. (which begins in Rovaniemi 531 km. to S). Water: Harbor ice-free	Fisheries; nickel deposits in vicinity; brickyard; fish-meal plant.	Hotel (20 rooms).		

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Pechenga (Continued)		throughout year and accessible to ships of all sizes; pier 200 m. long; port equipped to handle coal, oil, and general cargo.				
Pervomaysk (239) (Olviopol') 48°03'N, 30°51'E Pop. 31,680 (1926)	At confluence of Sinyukha and Yuzhnyy Bug rivers; on both banks of former and left bank of latter. Odesskaya Oblast', Ukrainian SSR.	Rail: Connections with Odessa Vinnitsa, and Kirovograd. Air: 2 airfields.	Machine shops; production of leather; 4 brickyards; flour mills; brewery.		Post office and telegraph station. Radio station RUY. Airfield radio station.	
Pestovo (43) 58°36'N, 35°48'E Pop. 7,000 (1935)	On left bank of upper Mologa river. Novgorodskaya Oblast', RSFSR.	Rail: On Leningrad-Krasny Kholm line. Air: Airfield.	Tractor station. Sawmill.		Small power plant (steam).	
Petrodvorets (34) (Petergof) 59°53'N, 29°55'E Pop. 30,000 (1936)	On the Gulf of Finland, 29 km. W of Leningrad. Leningradskaya Oblast', RSFSR.	Rail: 2 stations on the suburban electric line to Leningrad. Air: Airdrome; second airfield 6 km. S near Nizino. Water: Steamer traffic.	Tractor station.	Palaces of former imperial family; made into museums. Naval school.		Churches. Parks around palaces.
Petrovsk (135) 52°22'N, 45°19'E Pop. 17,300 (1932)	On right bank of Medveditsa river, NW of Saratov. Saratovskaya Oblast', RSFSR.	Rail: Petrovsk-Saratovskiy station on the Atkarsk-Vol'sk line. Air: 2 airfields. Moskva-Saratov Airline by way of Petrovsk.	Tractor station; production and repair of tractors; consumers' goods; flour mills; state farm in vicinity.		Power plant (100-500 kw.; oil-burning).	
Petrozavodsk (20) (Kalininsk) 61°47'N, 34°21'E Pop. 69,700 (1939)	On west shore of Onezhskoye Ozero (Lake Onega). Karelo-Finnish SSR.	Rail: On the Murmansk R.R. Secondary R.R. to Suoyârvi. Air: 4 airfields. Water: Local steamer traffic, and to Leningrad.	Fish cannery planned 1945, output 500,000 cans annually. Onega metal works: iron and steel foundry; road building machinery; farm machinery; motor saws; winches; pumps; molybdenum steel. R.R. shops, car building; narrow-gage locomotive plant being restored (1946); farm machinery repair shops; shipyard; 3 sawmills; prefabricated home plant under construction (1946); ski factory and other woodworking plants; stone working; bricks; mica; lime; sugar industry; bread; large cereal mill; refrigeration plant; fish products; sausage plant; brewery; distillery; mica plant; munitions plant.	Pedagogical, industrial, and agricultural technical school. Barracks. 3 theaters.	Power plant. Private power plant in the Onega metal works. 4th electric power station reported restored to operation (May 1945). Airfield and 2 other radio stations. Broadcasting station RW-29.	Oblast administrative center. Half of town destroyed including university and most of industry. Street pattern generally gridiron with main diagonal avenue extending along river bank to connect two principal squares. Regional museum.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:

1 meter=3.28 feet
1 square meter=10.76 square feet
1 kilometer=0.62 miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Petseri (82) * (Pechory) 57°48'N, 27°37'E Pop. 4,270 (1934)	East of Vôru. Estonia.	Rail: Branching point of Volga-Pskov and Petseri-Tartu lines. Road: Junction of local roads. Air: Airfield.	Trading town.	Hospital. Higher school. Cave monastery.	Telephone office.	629 dwellings, 587 of them wooden.
Pinsk (158) Pińsk) 52°07'N, 26°08'E Pop. 35,000 (1937) 30,000 (Dec. 1940)	On left bank of the Pina, between sand flats on the north and the Pripat marshes on the south. Pinskaya Oblast', White Russian SSR.	Rail: Station on the Brest-Gomel' line. Combined R.R. and hwy. bridge. Air: 2 airfields. Seaplane landing and winter quarters. Water: Pinsk flotilla base.	Ship construction yard (Pinsk flotilla base), shops, optical magazine, motor boat assembly yard. Depot for coal, wood, gasoline, kerosene, and petroleum (5 tanks for fuel and oil). Trade in lumber and fish; iron foundry; tanneries; 4 steam-powered sawmills; paper mill; sawmill; matches and matchbox factory (with its own power plant); chalk; soap; candles; 2 plants for caulking materials (with their own power plants); mustard; brewery; liqueurs; 3 motor-driven mills; other mills; powder dump.	4 hospitals. 22 schools. 2 R.R. administration bldgs. Prison. Trade school (troop billet). 2 high schools (former priests' seminary). Airforce barracks. Naval barracks, infantry barracks, Pinsk Flotilla base.	2 power plants (1 steam-driven, 788 kw.). Water-pumping plant, water tower. Radio station. Main post, telegraph, and telephone office.	3,608 dwellings in 1931. Gutters lined with lime as disinfectant because there is no sewerage system.
Plesetsk (14) (Plesetskaya) 62°45'N, 40°30'E Pop. 8,000 (1932)	SE of Onega. Arkhangel'skaya Oblast', RSFSR.	Rail: Plesetskaya station on Vologda-Arkhangel'sk line.	Machine shops. Sawmills. Chemical industry (wood derivatives). Limestone deposits.		Power plant (100-500 kw.).	Labor camp in vicinity; lumber industry and R.R. construction.
Podol'sk (108) 55°26'N, 37°33'E Pop. 72,000 (1935)	On Pakhra river. Moskovskaya Oblast', RSFSR.	Rail: On Moscow-Khar'kov line; bridge over Pakhra. Road: On Moscow-Serpukhov hwy. (43 km. S of Moscow); bridge over Pakhra. Air: Large airfield 3 km. N. Internal: Asphalt - paved streets.	Armaments: Airplane motors; aircraft; aircraft cameras and telescopic sights; arms and munitions plant No. 17 (machine-guns and pistols); steel-rolling mill; Podol'sk machine plant (guns and machine guns); electrolytic refinery (capacity-5,000 tons); storage-battery plant. Tin-smelting, *Ordzhonikidze* machine plant; metalworking; chemical plant; construction of locomotives; 2 cement factories; slaughterhouse.	Hospital. 3 schools. Barracks.	Powerhouse. Sewerage system. Water system. Water tower. Telephone and telegraph connections.	Hq. of military district staff. Street pattern; irregular gridiron.
Polotsk (98) (Plock) 55°29'N, 28°49'E Pop. 25,800 (1928)	Very old walled city on both banks of the Zapadnaya Dvina (western Dvina). Polotskaya Oblast', White Russian SSR.	Rail: Rail junction; lines to Velikiye tuki; Vitebsk, Daugavpils, and Vileyka. Combined R.R. and hwy. bridge. Water: River port. Air: 1 airfield.	Metalworking; knit goods; sawmills; canning; distillery; cereal mills; artillery munitions dump.		Power plant. Radio station RRU.	Cathedrals and ancient castle.

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Poltava (209) 49°36′N, 34°35′E Pop. 130,300 (1939)	On right bank of Vorskla river (winding river); marshy area. Elevation: 80 m. at river. 150 m. (average at center). Cliffs along river N and S of town. Rambling erosion gully to N. Poltavskaya Oblast', Ukrainian SSR.	Rail: Lines to Khar'kov, Kiev, and Kremenchug; bridge over Vorskla river. Road: Bridge over Vorskla river. Air: 4 airfields.	Artillery arsenal; aircraft assembly and repair plant; locomotive repair shops; metalworking; textiles; shoes and leather; meat packing; alimentary pastes; flour mills; sugar refineries; printing plant (newspaper).	Hotels. Aviation school. Monastery.	Post and telegraph office. Radio telegraph station. Power plant (10,000 kw.). Radio station RKKA.	Museum. Library. Important agricultural research station near town. Street pattern irregular combination of radial and gridiron plans; open circle in center. Built-up area about 12 sq. km. (closely built-up area 3 sq. km.).
Polyarny (2) (Alexandrowsk) (Aleksandrovsk) (Polyarnoye) 69°12′N, 33°28′E Hq. for C-in-C of Northern Fleet	On Kol'skiy Zaliv (Kola fjord) near its mouth in Beloye More (White Sea). Murmanskaya Oblast', RSFSR.	Rail: Line to Kandalaksha. Air: Opposite Polyarny, on Bol'shaya Tyuva river, is the naval air station. Water: Military harbor. Like Murmansk, ice-free and accessible to the largest ships.	Ship-repair facilities.	Hospitals. Schools. Theater.	Medium steam power plant.	Naval base with underground fuel and ammunition facilities. New housing for personnel under construction in 1945.
Proskurov (220) 49°32′N, 27°01′E Pop. 28,250 (1932)	On right bank of Yuzhny Bug river. Kamenets - Podol'skaya Oblast', Ukrainian SSR.	Rail: Lines to Odessa, Ternopol', Shepetovka, and Kamenets-Podol'skiy. Road: Hwy. to Kamenets-Podol'skiy. Air: 1 airfield.	Machine shops; textiles; furniture industry; sugar refining; flour mills.		Power plant (oil-burning). Radio station RKUF.	Division Hq.
Pskov (81) (Pleskau) 57°48′N, 28°22′E Pop. 60,100 (1939)	At confluence of Velikaya and Pskovitsa rivers; S of Pskovskoye Ozero (Lake Pskov). Pskovskaya Oblast', RSFSR.	Rail: Lines to Leningrad, Ostrov, and Staraya Russa; bridges over Velikaya and Pskovitsa rivers. Road: Hwys. to Leningrad and Ostrov; bridges over Velikaya and Pskov rivers. Air: Airfield. Water: River harbor. Internal: Streetcar system.	Leather and shoes; hemp and jute industry; textiles (linen); tractor and machine repair shops; construction of machines for peat-cutting and agriculture.	Hotels. Barracks. Convent. Theater.	Power plant (4,500 kw.; peat-burning). Military radio station. Radio station RBF.	Cathedrals. Museums. Irregular radial pattern of section on right bank of Velikaya river.
Pugachev (133) (Nikolayevsk) 52°01′N, 48°48′E Pop. 21,600 (1932)	On the Irgiz Bol'shoy river, a tributary of the Volga; NE of Saratov. Saratovskaya Oblast', RSFSR.	Rail: Terminus of a spur line, branching from Saratov-Ural'sk line. Air: Airfield.	Tractor station; quartz sand deposits; brickyards; machine shops; metallurgical industry; edible oils; flour mills; brandy distillery; state farm in vicinity.		Power plant (100-500 kw.).	

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:

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TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Pushkin (35) * (Detskoye Selo) (Tsarskoye Selo) 59°43'N, 30°25'E Pop. 51,000 (1936)	On the Slavyanka river, in hilly country 25 km. S of Leningrad. Lake in vicinity. Leningradskaya Oblast', RSFSR.	Rail: On Leningrad-Vitebsk line. Air: 2 airfields.		Hospitals. Several barracks.	Water system. Sewerage system. 4 radio stations.	Munitions dump. Former summer residence of the Tsar with broad, clean, straight streets. Good sanitation. Healthful, dry climate. Several palaces and country houses of former nobles; palaces undergoing restoration. Famous park.
Rēzekne (83) (Rezhitsa) (Rositten) 56°30'N, 27°20'E Pop. 13,140 (1935)	On the Rēzekne river (both banks). Latvia.	Rail: Junction of Rīga-Moscow and Daugavpils-Pskov lines (2 stations). Road: Junction of the Daugavpils - Pskov through highway and local roads. Air: Airfield. Internal: On right bank of Rēzekne river, broad streets, clean houses; on left bank, narrow, unpaved streets, rather dirty houses.	Trade in farm products; 4 machine shops; brewery; oil pressing; wool washing; gasoline filling station.	2 hotels. Barracks.	Post, telegraph, and telephone office.	Ruins of medieval castle.
Rogachev (150) 53°07'N, 30°04'E Pop. 11,750 (1932)	On right bank of the Dnepr, 112 km. NW of Gomel' (by rail). Gomel'skaya Oblast', White Russian SSR.	Rail: On the Mogilëv-Zhlobin line. Combined R.R. and hwy. bridge over the Prut. Road: Hwy. bridge over the Dnepr. Air: 2 airfields.	Pitch products; paper and cardboard mill; brickyard; woodworking; sawmill; consumers' goods; tractor station.		Power plant. Post and telegraph office.	
Rossosh' (183) 50°12'N, 39°35'E Pop. 20,800 (1932)	On left bank of Kalitva river at its confluence with Rossosh' river. Elevation: 80 m. Voronezhskaya Oblast', RSFSR.	Rail: On Moskva-Voronezh - Rostov - na-Donu line; R.R. bridge over Rossosh' river. Road: Hwy. junction; 2 bridges over Rossosh' river. Air: Airfield.	Iron foundry; 2 brickyards; 2 flour mills; poultry-canning.		Power plant (100-500 kw.). Telephone and telegraph connections.	Street pattern irregular gridiron. 2,661 dwellings in 1941. Built-up area about 3¾ sq. km.
Rostov (68) (Rostov Yaroslavskiy) 57°11'N, 39°25'E Pop. 24,000 (1933)	On western shore of Ozero Nero (lake). Yaroslavskaya Oblast', RSFSR.	Rail: On Moscow-Yaroslavl' line. Road: Hwy. junction. Air: Airfield.	Tractor station. Kutuzov flax-spinning mill (1,200 workers (1941)). Fish and vegetable cannery; consumers' goods.	3 monasteries.	Power plant (1,000-3,000 kw.; oil-burning). Telephone and telegraph connections.	Very old town. 11 wide streets lead from rim of town to Kreml' (radial pattern). Cathedral and 22 churches. State museum. Kreml' (ancient fortress area).

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Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Rovno (168) (Równe) (Ryvne) 50°37′N, 26°15′E Pop. 42,590 (1937)	On the Ust'ye, a tributary of the Goryn' river. Rovenskaya Oblast', Ukrainian SSR.	Rail: Junction of Brest-Zdolbunovo and L'vov-Vil'nyus lines; steel bridge over Ust'ye; 2 stations (one for freight). Road: Junction of hwys. to Lutsk, Dubno, and Kiev; 6 wooden bridges. Air: Airfield.	Agricultural machinery; locomotive shops; mill machinery plant; wheel-rim factory; textiles; edible oils; turpentine; brickyards; match factory; sawmills; soap factory; brewery and distillery; flour mills; Zdolbunovo cement plant again in operation following repairs.	3 hospitals. 20 schools. 4 barracks. Prison.	Power plant (690 kw.). R.R. power plant (115 kw.). Water system. Sewerage system. Post, telephone, and telegraph office. Radio telegraph station.	3,865 dwellings in 1931. Corps and division hq. Court and district administration. Section of the secret police. Munitions dump. Military gasoline depot. Fortification in a quarry.
Rtishchevo (137) 56°16′N, 43°47′E Pop. 20,440 (1932)	On the Ol'shanka, a small tributary of the Khoper, WNW of Saratov. Saratovskaya Oblast', RSFSR.	Rail: Junction of Moscow-Saratov and Penza-Balashov-Khar'kov lines. Internal: Streets in poor condition.	Tractor station; machine shops; metalworking; consumers' goods; slaughterhouse; meat packing.		Power plant (500-1,000 kw.; oil-burning).	
Ryazan' (118) 54°38′N, 39°45′E Pop. 95,000 (1939)	On the right bank of the Trubezh river, 2 km. above its confluence with the Oka; town divided into two parts by Lybed' river, the NW section is a plain, the SE contains numerous depressions. Ryazanskaya Oblast', RSFSR.	Rail: Junction of Moskva-Voronezh - Rostov - na - Donu and Ryazan'-Kuybyshev-Ufa-Chelyabinsk lines; narrow-gage line to Vladimir; station 2 km. from center of town. Water: River harbor (Oka). Internal: Bus service. Air: Airfield.	Peat deposits. Town is in Moscow lignite basin. Lignite mining; agricultural machinery; lamp factory; leather and textiles; woodworking; canning; distillery; state bank; tractor station.	3 hotels. Large school building. Party club building. Workers' palace. 3 monasteries.	Post and telegraph office. Coastal and airfield radio station.	Museum. Library. Kreml'. Spring floodwaters reach the edge of the city.
Ryl'sk (176) 51°35′N, 34°42′E Pop. 10,200 (1932)	On the Seym river, 151 km. W of Kursk. Elevation: 160 m. Kurskaya Oblast', RSFSR.	Rail: Narrow-gage line to Korenevo, connecting with Kiev-Kursk-Voronezh line. Road: On Krupets-Sudzha hwy; hwy. bridge over Seym river.	Tractor station; mining of nonmetallic minerals; brickyard; edible oils; flour mill.		Power plant (100-500 kw.). Telephone and telegraph connections.	Generally gridiron street pattern. Built-up area about 2½ sq. km.
Rzhev (78) 56°16′N, 34°20′E Pop. 54,100 (1939)	On both banks of the Volga river. Kalininskaya Oblast', RSFSR.	Rail: Junction of the Moscow-Rīga, Rzhev-Vyaz'ma, and Rzhev-Torzhok lines; bridge over Volga. Road: Hwy. junction. Air: 3 airfields.	Textiles (flax and hemp especially); munitions dump; artillery arsenal No. 66; agricultural machinery; car-repair shops; rope factory (1,000 workers); sawmills; canning; distillery.	Advanced schools. Aviation school.	Power plant. Telephone and telegraph connections. Radio telegraph station.	2 museums. Churches. Gridiron street pattern. 1,000 dwellings reconstructed by April, 1944.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:

1 meter=3.28 feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Saransk (123) * 54°15'N, 45°10'E Pop. 21,500 (1932)	At confluence of Saranka and Insar rivers. Mordovian ASSR. (capital), RSFSR.	Rail: On Moscow-Kazan' line. Air: 1 airfield.	Metalworking; tanneries; hemp processing (785 workers); jute processing; cannery; edible oils.		Power plant (10,000 kw., 1941). Telephone and telegraph connections. Radio-broadcasting station RW-65 (1.0 kw.).	
Semenov (57) 56°52'N, 44°28'E Pop. 7,530 (1932)	NNE of Gor'kiy. Gor'kovskaya Oblast', RSFSR.	Rail: On Gor'kiy-Kirov line. Air: 2 airfields.	Tractor station; machine shops; metalworking; wood industry.		Power plant (100-500 kw.). Radio station RFXP.	
Sengiley (132) 53°58'N, 48°45'E Pop. 10,700 (1932)	On the right bank of the Volga river, NW of Kuybyshev. Ul'yanovskaya Oblast', RSFSR.	Rail: Nearest station at Ul'yanovsk 47 km. away.	Mining of nonmetallic minerals; machine shops; metalworking; cement factory; consumers' goods.		Power plant (500-1,000 kw.). Radio station RFAI.	
Serpukhov (109) 54°56'N, 37°28'E Pop. 91,700 (1939)	On left bank of Nara river, a small tributary of the Oka, and near confluence of the two rivers; 99 km. S of Moscow. Moskovskaya Oblast', RSFSR.	Rail: On Moskva-Khar'kov line; branch-line leading WNW; bridge over Oka river. Road: Hwy. junction. Water: River port. Air: Airfield.	Metallurgical plant; sawmills; canning; tractor station; artillery arsenal; trade in grain, hemp, and wood; textile industries.	Aviation school.	Power plant in vicinity (10,000 kw., 1942). Telephone and telegraph connections.	Cathedral. Old fortress.
Sestroretsk (25) 60°06'N, 29°59'E Pop. 25,400 (1936)	At confluence of the Sestra and Chernaya rivers and on the Gulf of Finland; 37 km. NNW of Leningrad. Favorably situated beach. Leningradskaya Oblast', RSFSR.	Rail: Suburban line to Leningrad; station on line to Finland; electrification of line underway in 1941. Air: Airfield (military).	Precision instruments factory.	Numerous rest homes.		Reservoir (12 sq. km.) nearby; created by dam across Sestra river.
Shakhty (258) (Aleksandrovsk-Grushevskiy) 47°43'N, 40°14'E Pop. 155,100 (1939)	NE of Rostov-na-Donu. Rostovskaya Oblast', RSFSR.	Rail: Shakhtnaya station on Armavir - Rostov-na-Donu - Voronezh line. Air: 4 airfields.	Center of an important anthracite coal-producing area. Printing plant; munitions plant; machine shops; metallurgical industry; textiles; leather-working; furniture factories; dairy products; margarine.		Large power plant (90,000 kw.; coal-burning). Waterworks. 2 radio stations.	
Siauliai (94) (Shaulyay) (Schaulen) (Shavli) 55°56'N, 23°20'E Pop. 31,650 (1936)	NNW of Kaunas, on a rise of land surrounded by swamps. Lithuania.	Rail: Junction of following lines: Jelgava-Kaunas Siauliai-Sovetsk (Tilsit) Liepāja-Daugavpils Road: Junction of Sovetsk	Important trade and industrial center of NW Lithuania. Leather and shoe industry (85%, 60% resp. of total for Lithuania). Farm machinery; hardware; automobile repair shops; wire; nails;	Hospital. Schools (high schools, teachers' college). Infantry barracks (with rail spur, 4 living quarters, 2	2 power plants (2,020 kw.). 3 transformer houses. Post and telegraph office. Radio station at military flying field.	2 km. of track at station: 2 through tracks 11 spurs 9 sidings. St. Peter and St. Paul

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Siauliai (Continued)		(Tilsit)-Jelgava and Panevėžys-Mažeikiai hwys. Air: Military airfield (127.4 hectares), 2 hangars, assembly shed, 6 living quarters, 30,000 liter gas tank, rail spur.	shoes; felt hides; leather; linen; jute; woolen and other textiles; rope; knit goods; bone meal; lubricants; medicinals; dyes; soap; cellulose; paper; furniture; large slaughterhouse (fresh and cured meats and poultry) oil pressing; starch; sugar; chocolate; cheese; brewing; 2 other slaughterhouses; sausage casings; egg grading and packing.	stables, 7 store sheds, gasoline dump).		Church with steeple 73 m. high.
Slavyansk (205) 48°51'N, 37°37'E Pop. 75,500 (1939)	On the Torets river, N of Stalino. Elevation: 80 m. Stalinskaya Oblast', Ukrainian SSR.	Rail: Connections with Stalino and Khar'kov; freight station. Air: Airfield.	Chemical warfare agents and explosives; armaments and munitions; metalworking; car repair shops; 4 chemical plants; glass and porcelain (including insulators); soap; canning; distillery; chalk quarries in vicinity.	Barracks.	Power plant (3,000 kw.).	Irregular street pattern with considerable open space. Several small lakes in vicinity.
Slonim (159) 53°05'N, 25°19'E Pop. 16,280 (1931)	In the valley of the Shara river. Baranovichskaya Oblast', White Russian SSR.	Rail: On the Bialystok-Baranovichi line. 2 R.R. bridges. Road: Bialystok-Baranovichi highway. 5 hwy. bridges.	Machine factory; tanning; 4 sawmills; brickyards; glue; soap and candle works; slaughterhouse and stockyard with rail spur; liqueurs; cereal mills; military depot with rail spur.	2 hospitals. 19 schools. Infantry barracks. 2 buildings of the Commissariat for Internal Affairs; militia bldgs.	Power plant 410 kw. Water main, pumping plant, 2 water towers. Main post, telegraph, and telephone office.	2,033 dwellings in 1931.
Slutsk (154) 53°02'N, 27°33'E Pop. 12,991 (1932)	On the Sluch' river, 200 km. S of Minsk. Bobruyskaya Oblast', White Russian SSR.	Rail: Connections with Bobruysk and Timkovichi. Air: Airfield.	Metalworking; knit goods; furniture; canning; cereal mills; foodstuffs.		Power plant.	
Sokol (49) 59°28'N, 40°08'E Pop. 15,090 (1932)	On upper Sukhona river NNE of Vologda. Vologodskaya Oblast', RSFSR.	Rail: Vologda-Arkhangel'sk line, station 2 km. from town. Water: River port. Air: Airfield.	Newspaper; chemical industries; celluloid; cellulose; paper; canned goods.		Power plant (15,000 kw.).	
Sortavala (21) (Serdobol') 61°41'N, 30°41'E	On north shore of Ladozhskoye Ozero (Lake Ladoga). Karelo-Finnish SSR.	Rail: On the line to Vyborg. Air: 2 airfields.	Cellulose plant; 2 paper mills; sawmill; small shipyard; plywood plant; wool spinning.		Small hydroelectric plant.	

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:

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1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Sovetsk (262) * (Tilsit) 55°04'N, 21°54'E Pop. 57,244 (1933)	On left bank of Neman (Memel) river, 115 km. NE of Kaliningrad. Kaliningradskaya Oblast', RSFSR.	Rail: Connections with Klaipėda (Memel) and Kaliningrad; R.R. bridge over the Neman river destroyed and replaced by emergency bridge. Road: Hwy. bridge over the Neman river destroyed and replaced by emergency bridge. Second hwy. bridge over body of water beyond Neman river.				Street pattern very irregular gridiron.
Starokonstantinov (219) 49°45'N, 27°16'E Pop. 12,400 (1932)	On Sluch' river. Kamenets-Podol'skaya Oblast', Ukrainian SSR.	Rail: Connections with Shepetovka, Vinnitsa, and Kamenets-Podol'skiy. Road: Hwy. to Kamenets-Podol'skiy. Air: 2 airfields.	Machine shops; textiles; sugar refining.			
Stry (228) (Stryj) 49°16'N, 23°52'E Pop. 31,700 (1937)	In the wide valley of the Stryy river, a tributary of the Dnestr; 87 km. S of L'vov. Drogobychskaya Oblast', Ukrainian SSR.	Rail: Junction of lines to L'vov, Dolina, Munkachevo, Drogobych, and Ternopol'; power plant for R.R. Road: Junction of L'vov-Munkachevo and Drogobych-Stanislav hwys; bridge over Stryy river. Air: 2 airfields.	Oil wells and natural gas; metallurgical industry; machine shops; iron foundries; manufacture of drills (independent power plant); chemical plant; oil refinery; textiles (expansion of industry under way); wood industry; sawmill (steam-driven); match factory; wood-products plant (independent power plant).	2 hospitals. Hotels. 18 schools. 3 barracks.	R.R. power plant. 2 factory power plants. Gas works. Post and telephone office.	2,904 dwellings in 1931. Munitions dump.
Sumy (175) 50°56'N, 34°47'E Pop. 63,880 (1939)	On the Psel, NW of Khar'kov. Elevation: 140 m. Sumskaya Oblast', Ukrainian SSR.	Rail: On Khar'kov-Vorozha line. Road: Junction of a net of local roads. Air: Airfield.	Munitions plant (hand grenades); production of armored vehicles and spare parts; machine shops; shoes and leather; textiles; chemicals; sawmills; sugar refineries.	Hotels.	Post and telegraph office.	Combination of gridiron and irregular street patterns. Built-up area about 7½ sq. km.
Svoboda (182) (Liski) (Novopokrovka) 50°59'N, 39°30'E Pop. 16,300 (1932)	On left bank of Don river, 97 km. S of Voronezh. Elevation: 100 m. Voronezhskaya Oblast', RSFSR.	Rail: Liski station on Khar'kov-Penza - Gor'kiy and Moscow - Voronezh-Rostov-na-Donu lines; R.R. bridge over the Don.	Machine shops; metallurgical industry; slaughterhouse; consumers' goods.		Power plant (100-500 kw.). Radio station RFRD.	Combination of gridiron and irregular street pattern.
Syktyvkar (15) (Ust'-Sysol'sk) 61°40'N, 50°51'E Pop. More than 10,000 (no definite data)	At confluence of Sysola and Vychegda rivers; left bank of both rivers. Komi ASSR. (capital), RSFSR.	Rail: Connection with Kirov-Kotlas line under construction in 1944.	Rosin products; sawmill; brickyard; cellulose plant (3,000 workers in 1941).		Power plant (1,000-3,000 kw.); 4 km. from town on upper Sysola river. Broadcasting station RW-41. Airfield and 4 other radio stations.	

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Tartu (30) (Yuryev) (Dorpat) 58°23′N, 26°46′E Pop. 58,880 (1934) 72,092 (1938)	River port on the navigable Ema Jõgi (Embach), flowing here through a marshy area. City is on hilly ground. Estonia.	Rail: Station on Rīga-Tallinn line. Passenger station with sidings and switchyard. Road: Junction of Tallinn-Võru through hwy. and local roads; 2 hwy. bridges. Air: 1 airfield. Internal: 3 bridges over the Ema Jõgi.	Machine manufacture; linen weaving; felt; 6 tanneries; shoes; 7 sawmills; matches; 2 brickyards; cigarettes; 2 breweries; distillery; starch; cereal mills. Slaughterhouse and stockyards; market hall; trade in lumber and flax.	University bldgs., institutes and library, several museums. Military hospital, 11 other hospitals (with upper school clinic and other clinics). 13 upper schools. 3 hotels. Barracks.	Gas works. Telephone office. Radio station.	4,471 dwellings, 3,680 of them wooden. University city. Botanical gardens. Museum. Street pattern irregular gridiron. City has grown beyond the old walls on both sides of the small river.
Tauragė (261) (Tauraggen) 55°15′N, 22°20′E Pop. 10,500 (1939)	On the Akmena, which joins farther downstream with the Sešusis to form the Jūra, at the former East Prussian boundary NE of Sovetsk (Tilsit). Lithuania.	Rail: Sovetsk (Tilsit) - Siauliai line. Road: Sovetsk (Tilsit) - Siauliai through hwy.	Machine shop; textiles; shoes; rope; woolen and cotton goods; 4 furniture factories; 4 sawmills; hides and skins; 8 cereal mills; geese fattening; sausage casings; large slaughterhouse (preserved meats) with its own power plant.	Hospital. Dragoon barracks: 2 living quarters, garages, tank storage, 30 metric tons capacity. Infantry barracks.	2 power plants. Private power plant at slaughterhouse. Post and telegraph office.	
Ternopol' (222) (Tarnopol) 49°33′N, 25°37′E Pop. 40,000 (1937) 33,000 (Dec. 1940)	In the valley of the Seret river, which is widened into a lake at the W edge of the town (lake partially dried up); town lies in northern part of Volyno-Podol'skaya Vozvyshennost' (Podolskaya plain), which is open and sparsely forested. Ternopol'skaya Oblast', Ukrainian SSR.	Rail: Lines to Podvolochisk, Zbarazh, Grimaylov Krasne and Berezovitsa-Ostrov. Road: Hwys. to L'vov, Berezhany, Terebovlya, and Odessa; bridge over Seret. Air: 3 airfields (one with area of 750 hectares).	2 gasoline dumps; motor vehicle repair shop; agricultural machinery; cement factory; sawmills; chalk, soap, and candle factory; candy; vinegar; liqueurs; tobacco processing plant (independent power plant); brewery; flour mills.	Hospital. 3 hotels. 23 schools. Barracks (including facilities for armored forces). 2 monasteries.	Power plant (1,150 kw., 2 x 150 v.; probably d.c.). Water system. Main post, telegraph, and telephone office. Broadcasting transmitter.	3,592 dwellings in 1931. Churches. 2 detachments of the secret police. Militia building. 2 underground munitions depots and 4 other munitions depots.
Tikhvin (40) 59°38′N, 33°30′E Pop. 12,000 *	On the Tikhvinka (a small river). Leningradskaya Oblast', RSFSR.	Rail: On Leningrad - Vologda line. Air: 2 airfields.	Aluminum-oxide plant (50,000 metric tons); sawmill; woodworking; tractor station.		Small power plant (12,000 kw.). Radio station RDFZ.	

* Index number on FIGURE VIII-119.

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TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Tiraspol' (234) * 46°50'N, 29°45'E Pop. 25,750 (1932)	On left bank of Dnestr river. Former capital of the Moldavian SSR.	Rail: Connections with Bendery and Odessa. Air: 2 airfields. Water: River harbor.	Machine shops; sawmills; furniture industry; brickyards; distillery; wine pressing; canning.	Barracks.	Power plant (in vicinity). Telephone and telegraph connections. Broadcasting station RW-57.	
Tukums (88) (Tuckum) 56°58'N, 23°09'E Pop. 8,140 (1935)	On the Slocene river which here forms an elongated lake. City on an elevation, surrounded by other elevations. Latvia.	Rail: Junction of the Riga-Ventspils and Jelgava-Tukums lines. 2 stations. Road: Junction of local roads. Air: Airfield.	Market for the agricultural region. 2 forges; 3 machine shops; 4 wool-working businesses; 2 rope factories; 2 saddlery shops; 4 other leather-working businesses; cement products; 3 sawmills; dairy; 2 cereal mills; tank depot.	2 hotels. Boardinghouses.	Post and telegraph office. Radio station YLC.	
Tutayev (71) (Romanovo-Borisoglebsk) 57°53'N, 39°32'E Pop. 13,000 (1933)	On both high banks of the Volga river; 53 km. NW of Yaroslavl' (by rail). Yaroslavskaya Oblast', RSFSR.	Rail: Terminus of a spur line from the Bologoye-Shcherbakov - Yaroslavl' line; station on the right bank of the Volga. Road: On Shcherbakov-Yaroslavl' Hwy. Water: Steamer landing.	*Tulma* flax-spinning mill (2,100 workers).	Monastery.	Telephone and telegraph connections.	2 cathedrals.
Uglich (69) 57°32'N, 38°20'E Pop. 7,150 (1932)	On both banks of Volga, WSW of Yaroslavl'. Yaroslavskaya Oblast', RSFSR.	Rail: Terminus on a spur line from Kalyazin. Road: Hwy. junction. Water: River shipping. Air: Airfield.	Paper factory; sawmill; wool and felt fulling; consumers' goods.	Monastery. Castle.	Hydroelectric power plant (110,000 kw.); lock on the Volga. Telephone and telegraph connections.	Kreml' area includes tower; area is focal point for 3 streets from edge of town; semiradial pattern. Labor camp in vicinity.
Ul'yanovsk (125) (Simbirsk) 54°23'N, 48°25'E Pop. 102,100 (1939)	Between the Sviyaga and Volga rivers; on a height 140 m. above the Volga. Ul'yanovskaya Oblast', RSFSR.	Rail: On Moskva-Kazan'-Ufa line; bridge over the Volga; important freight transfer point from steamer to R.R. (and vice versa). Water: Steamer traffic.	Printing plant; deposits of oil shale in vicinity; munitions plant (cartridges); metalworking; sawmill; textiles; brickyard; brewery; distillery; flour mills and starch factory. Part of evacuated automobile plant (from Moscow) established during war. Diesel trucks to be mfr.	Hospital. Hotels. Monasteries. Schools. Theater.	Power plant. Post and telegraph office. Radio station RGPE.	Museums. Library. Cathedral and churches.
Uman' (216) 48°44'N, 30°12'E Pop. 50,000 (1932)	On both banks of Umanka river; 230 km. S of Kiev in a hilly region. Kiyevskaya Oblast', Ukrainian SSR.	Rail: Terminus of spur line connecting with Cherkassy-Vapnyarka line. Air: Airfield.	Parachute factory; iron foundry and machine shop; textiles; chemical industry; leather; sugar refining; sawmill; flour mills; brickyards; distilleries.	Sanitarium. Barracks.	Radio station RKKQ.	Division Hq.
Uryupinsk (186) (Uryupino) 50°48'N, 42°01'E Pop. 17,920 (1932)	On the left bank of the Khoper river. Stalingradskaya Oblast', RSFSR.	Rail: Terminus of a branch of the Moscow-Stalingrad line. Air: 2 airfields.	Tractor station; agricultural machinery; meat packing; canning; edible oils; consumers' goods.		Power plant (100-500 kw.). 2 radio stations.	

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Uzhgorod (230) (Ungvár) (Užhorod) 48°38′N, 22°18′E Pop. 26,669 (1930)	On the Ug river. Zakarpatskaya Oblast', Ukrainian SSR.	Rail: Connections with L'vov. Road: Hwy to Munkachevo. Air: Airfield.	Chemical industry. Furniture industry. Flour mills.	Advanced schools. Castle (14th century).		Business school.
Valga (84) and Valka (85) (Walk) (Valk) 57°47′N, 26°02′E Pop. 14,110: Valga 10,840 (1934) Valka 3,270 (1935)	Twin cities on either side of the Estonion-Latvian border. Valga: Estonia. Valka: Latvia. Estonia and Latvia.	Rail: Valga: Junction of Rīga-Tapa and Rīga-Pskov lines. Valka: Junction of Aluksne-Rujiena and Rīga-Tallinn lines. Road: Both: Junctions of local roads. Air: Valga only: Summer airfield (500 m. x 600 m.), not suitable for heavy aircraft.	Valga: Tank depot, railroad shops, brickyard, furniture factory, brewery. Valka: 2 sawmills.	Valga: Hospital. 5 upper schools. 2 hotels. Valka: 3 hotels.	Valga: Post, telegraph, and telephone office. Valka: No data.	Valga: A garrison town; irregular gridiron pattern, 1,423 dwellings, 1,250 of them wooden.
Valuyki (179) 50°13′N, 38°07′E Pop. 11,000 (1932)	On right bank of Oskol river, ENE of Khar'kov. Kurskaya Oblast', RSFSR.	Rail: Junction of Moskva-Yelets-Valuyki, Khar'kov - Kupyansk - Penza-Gor'kiy, and Valuyki-Luganskaya lines; R.R. bridge. Road: 2 hwy. bridges. Air: 2 airfields.	Tractor station; grain elevator; R. R. shops; edible oils; flour mills; consumers' goods.		Power plant. Telephone and telegraph connections.	Gridiron street pattern.
Velikiye Luki (100) 56°22′N, 30°32′E Pop. 26,480 (1932)	On both banks of Lovat' river, which flows through a large swamp N of the town. Velikolukskaya Oblast', RSFSR.	Rail: Junction of Moskva-Rīga and Bologoye-Nevel'-Polotsk - Molodechno lines; 3 bridges over Lovat' river. Road: Hwy. junction; 3 bridges over Lovat' river; 1 bridge over R.R. yards. Air: 2 airfields.	Metalworking; car- and locomotive-repair shops; textiles; pitch factory; brickyard; 2 sawmills; canning; distillery; oil-storage facilities.		Waterworks with tower and pumphouse. Telephone and telegraph connections. Radio telegraph station. Airfield radio station.	Area of 2.5 sq km. observed as 85% destroyed in Jan. 1944.
Velikiy Ustyug (17) (Severodvinsk) 60°45′N, 46°20′E Pop. 23,380 (1932)	On Sukhona river near confluence with the Yug, forming the Severnaya Dvina. Vologodskaya Oblast', RSFSR.	Water: Steamer port.	Metalworking; silver working; light industries; cotton manufactures; smokers' supplies; ceramics; lumber working; farm implements mfr; brewing; home industries; trapping.	Monasteries.	Radio station RDWL.	Cathedrals and churches.

* Index number on FIGURE VIII-119.

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TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Ventspils (89) * (Windau) (Venta) (Vindava) (Ventpils) 57°23'N, 21°34'E Pop. 16,000 (1938)	On left (S) bank of the Venta river, at its mouth into the Baltic. Extensive marshes with scattered settlements surround the city. Beach with summer homes. Latvia.	Rail: Station on the Rīga-Ventspils line. Air: 4 airfields. Water: 3rd largest port in Latvia. See remarks. Internal: Timber bridge across the Venta. Torpedoboat harbor.	Railroad shops; foundries; machine shops; wool and leather working factories (2 each); 3 rope factories; glass plant; brickyard; soap; starch; 12 sawmills; brewing; distilling; 2 cereal mills; fishing. Imports: coal, piece goods, 13,932 tons (1928). Exports: lumber, grain, flax, hemp, butter, 4,734 tons (1928).	Hospital. 3 hotels. Airmen's barracks under construction (Aug. 1940).	Power plant. Post, telegraph, and telephone office. Radio station.	Natural alternate harbor for Rīga which may be blocked by ice. Ventspils harbor is ice-free, but drift ice causes trouble in February, and a belt of drift ice is built up with west winds. Outer harbor: N and S moles extending out to sea; depth between them 5.3 m. to 6 m.; serves as harbor of refuge. Commercial harbor: Extends 13 km. upstream; water area 283 hectares, 150 hectares being available to ships. Customs quay on N bank: 400 m., with 5 storehouses and 2 bins (4,250 sq. m.), 43-ton crane. Elevator quay (1 km.) with storehouses and sheds (49,500 sq. m.), 28,000-ton grain elevator, refrigerator (for 2,870 tons of butter). Freight and passenger service on the Venta as far as Kuldiga.
Viljandi (29) (Vilyandi) (Fellin) (Vilyani) 58°22'N, 25°35'E Pop. 11,790 (1934)	On Viljandi Järv (Lake Fellin), which drains through the Tänassilma into Võrts-Järv (Võrts Lake). Estonia.	Rail: Station on the Moisaküla-Tallinn line. Road: Junction of local roads with the Tallinn-Valmiera through hwy. Air: Airfield, 550 m. x 650 m.	Small machine factory; linen weaving; felt; matches; bricks; dairy, and 3 other dairies in the surrounding region; large horse market; large textile plant operating normally (1946).	Hospital. 5 higher schools. 2 hotels. Exposition grounds.	Power plant. Telephone office.	1,342 dwellings, 1,040 of them wooden. Irregular combination of radial and grid-iron patterns.
Vinnitsa (217) 49°13'N, 28°26'E Pop. 92,900 (1939)	On both banks of the southern Bug river (Yuzhnyy Bug). Vinnitskaya Oblast' Ukrainian SSR.	Rail: Lines to L'vov, Chernovtsy, Kiev, and Odessa. Road: Junction of local roads. Air: 2 airfields.	Printing plant (newspaper); fuel and munitions dumps; gun factory; iron foundry; metalworking; chemical plant (sulfuric acid; tower and chamber process; 15,600 metric tons); superphos-	Barracks.	Power plant. Post and telegraph office. Broadcasting station RW-75. 5 radio stations, of which 3 are ground-to-air.	Ordnance office. Museums. Ukrainian Soil-Chemistry Trust.

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Vinnitsa (Continued)			phate plant, being restored in 1946; textiles and leather; sawmills; woodworking; meat packing; distilling.			
Vitebsk (101) 55°10′N, 30°12′E Pop. 167,400 (1939)	At the confluence of the Zapadnaya Dvina and the Vit'ba. Vitebskaya Oblast', White Russian SSR.	Rail: Important junction. Shunting yard. Combined R.R. and hwy. bridge. Air: Airfield. Water: River port.	Trade center; arms factory; peat production; metalworking; *Kirov* tool factory; agricultural machinery; car repair shops; optical industry (best in the USSR); newspaper; shoes and leather goods; cotton, flax, and other textiles; stockings; cement; knit goods; chemicals; sawmills; furniture; woodworking and veneer; canning; oil pressing; distilleries; munitions dump.	Schools. Monastery. Theater. Technical school. Aviation school. Trade union hall.	Post and telegraph office. Weather station. Radio station RRT.	Oblast capital. Cathedral, old church, museum, pedagogical institute.
Vladimir (65) (Volodimir) 56°08′N, 40°25′E Pop. 66,800 (1939)	On high left bank of the Klyaz'ma river. Vladimirskaya Oblast', RSFSR.	Rail: On Moscow-Gor'kiy line; branch line to Ryazan'. Road: On Moscow-Gor-kiy hwy. Air: Airfield.	Printing plant (newspaper). Arms factory; chemical plant (explosives and chemical warfare agents); automobile accessories plant; car repair shops; electrotechnical products; textiles; distillery; alimentary pastes; new tractor factory est. during war (June 1945).	2 hotels.	Power plant (7,500 kw.; peat-burning). Post, telegraph, and telephone office.	Kreml'. Cathedrals and churches. Museums.
Vladimirovka (196) 48°23′N, 46°08′E Pop. 7,250 (1932)	On left bank of Volga river; ESE of Stalingrad. Astrakhanskaya Oblast', RSFSR.	Rail: Akhtuba station (3 km. away) on branch of Saratov-Astrakhan' line; R.R. bridge. Water: River port. Air: 2 airfields.	Salt production.			Gridiron street pattern. Built-up area 2½ sq. km. Church square in middle of town.
Vladimir-Volynskiy (166) (Włodzimierz) 50°51′N, 24°19′E Pop. 28,410 (1937)	On right bank of the Luga (a tributary of the Bug). Volynskaya Oblast', Ukrainian SSR.	Rail: Junction of lines to Kovel', Ustilug, L'vov, and Voynitsa; locomotive sheds. Road: Hwys. to Lutsk and Ustilug. Air: Airfield.	Gasoline and oil dumps; coal depot; brickyards; steam-powered sawmill; edible oils; tanneries; cap (hat) factory; flour mills; candy factory.	District hospital. 19 schools. Several barracks (including two for armored troops). Prison.	Power plant (294 kw.). Water-pumping plant. Water system. Post and telephone office. 2 radio stations in former infantry barracks.	3,165 dwellings in 1931. 2 secret police buildings. Bunker with antitank ditch. Munitions depots.
Volkhov (41) (Zvanka) 59°55′N, 32°20′E Pop. 11,000 (1932)	On Volkhov river, 110 km. E of Leningrad. Leningradskaya Oblast', RSFSR.	Rail: On Leningrad-Murmansk and Leningrad-Vologda lines; branch line to Chudovo. Air: Airfield (military and civilian).	Aluminum plant (10,000 metric tons annual capacity); tractor station (near Lungachi); paper factory.		Large hydroelectric power plant (66,000 kw. in 1933). Radio station.	

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:

1 meter=3.28 feet
1 square meter=10.76 square feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Volkovysk (162) * (Wolkowysk) approx. 53°20'N, 24°30'E Pop. 17,000 (1937)	On the Kolosovshchyzna, not far from its mouth in the Ross'. The city extends 7 km. along the Kolosovshchyzna. Grodnenskaya Oblast', White Russian SSR.	Rail: Junction of the Warszawa-Lida and Bialystok-Baranovichi lines. 4 stations. Road: Bialystokslonim, road. Seven hwy. bridges, some road bridges. Water: Port, enlarged by the Russians.	Iron foundry; farm implement factory; tanneries; pottery; sawmills; cork; many brickyards; starch; liquor; groats; and meat-packing plant; 2 slaughterhouses; railroad coal and fuel depot; tank depot.	3 hospitals. 11 schools. 3 hotels. Troop billet in a former school. Barrack group (cossacks and infantry). Prison. Motorized troop billet at the Petraszowce estate.	2 power plants 400 kw. and 160 kw. Podros power plant 1,306 kw., 220 and 3,000 v. Main post, telegraph, and telephone office.	2,022 dwellings in 1931.
Voronezh (181) 51°39'N, 39°14'E Pop. 326,800 (1939)	On the high left bank of the Voronezh river, 9 km. above its confluence with the Don. Elevation: 130 m. Voronezhskaya Oblast', RSFSR.	Rail: On Moscow - Voronezh - Rostov-na - Donu and Voronezh - Kursk-Kiev lines; bridges over Don; 2 stations. Road: Important hwy. junction; 2 bridges over Voronezh river. Water: Steamer landing on Don. Internal: Main street originates at main R.R. station and runs N and S through middle of town. Streetcars and buses. Air: 4 airfields.	Aircraft plants; *Komintern* machine plant; *Stalin* diesel motor plant; foundry; machine shops; *Kaganovich* car shops; automobile factory (parts); grinding machines; welding plant; oil refinery; synthetic rubber (SK-2); completely restored. Chemicals, electric apparatus, textiles, shoes (shoe industry undergoing expansion); distilleries.	Repaired as of Jan. 1945: 16 hospitals. 10 polyclinics. 30 schools. 9 colleges. 9 technical schools. 3 maternity homes. 5 hotels. Monasteries.	Power plant (60,000 kw.; coal-burning; overland transmission). 2 power plants reconstructed since war. Post and telegraph office. Telephone central (3,000 connections). Radio broadcasting station RW-25 (10-49.9 kw.). Radio telegraph station. Airfield radio station. Water system.	The old city and fortress lie east of the main street; irregular street pattern. The new city lies west of main street and contains government buildings, commercial and industrial buildings; general grid pattern. City 80%-90% destroyed during war. 7,647 dwellings repaired as of Jan. 1945. Large forested areas N of city.
Vyaz'ma (104) (Wjasma) 55°12'N, 34°17'E Pop. 23,960 (1932)	On left bank of Vyaz'ma river 125 km. ENE of Smolensk. Smolenskaya Oblast', RSFSR.	Rail: On Smolensk-Moskva and Vyaz'ma - Kaluga lines. Air: 3 airfields.	Tractor station; metalworking; hides and furs; cellulose plant; edible oils.		Power plant. Telephone and telegraph connections. Radio station RENI.	Cathedral.
Vyshniy Volochek (76) (Vishniy Volochek) 57°35'N, 34°34'E Pop. 64,000 (1939)	On the Vyshnevolotskiy Kanal, which connects the Tvertsa (a tributary of the Volga) with the Msta (a tributary of the Volkhov). Kalininskaya Oblast', RSFSR.	Rail: On Moscow-Leningrad line. Road: Hwy. junction. Water: Lock installations. Internal: Boulevards along the canal. Air: Airfield.	Peat-cutting; iron foundry (textile machinery); metalworking; textile mill (7,500 workers); chemicals; sawmill; canning.		Telephone and telegraph connections. Coastal radio station.	

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Yalta (247) 44°35'N, 34°15'E Pop. 21,500 (1932)	On SE coast of the Crimean Peninsula; surrounded by mountains on 3 sides; small ice-free harbor. Krymskaya Oblast', RSFSR.	Rail: Connections with Sevastopol' and Moscow. Road: Hwy. junction. Air: Airfield. Water: Steamers to Sevastopol' and Odessa; harbor protected by a long and massive mole with a lighthouse.	Shipyard; metalworking; 2 oil refineries; wine presses; tobacco processing food industry; liqueurs; tractor station.	Numerous sanatoriums. "Young Pioneer" camp in Artek. Livadiya Palace (former imperial residence). Theater. Hotels. Warehouses with area of 8,500 sq. m. Sanatorium No. 16 started operations (1945).	Power plant (500 kw.). Post office. 2 coastal radio stations.	City is well-known bathing resort. City consists of 3 sections; the old city on the slopes of the Yamalakh-Syr; the new city between two streams, the Guva and the Uchan-Su, on the Megavi slopes, and the center of town on the Nab (a stream). 4 museums, library.
Yefremov (142) 53°09'N, 38°07'E Pop. 21,000 (1933)	On the Krasivaya Mecha river, 169 km. SE of Tula. Tul'skaya Oblast', RSFSR.	Rail: On the Moscow-Yelets line. Road: On the Tula-Yelets-Voronezh hwy. Air: Airfield.	Large synthetic rubber plant (Divinyl process) ("SK3"); 3 tractor stations; consumers' goods; 5 state farms in vicinity.		Power plant (12,000 kw.; coal-burning). Telephone and telegraph connections.	Gridiron street pattern.
Yelets (143) 52°38'N, 38°30'E Pop. 50,000 (1939)	On the left bank of the Sosna river, 195 km. E of Orël; in black soil area. Orlovskaya Oblast', RSFSR.	Rail: On Moscow-Yelets-Valuyki, Orël - Lipetsk, and Orël - Lev Tolstoy lines. Road: Hwy. junction. Air: 3 airfields.	Iron foundry; leather processing; 3 brickyards; lime kiln; woodworking plant; distillery; flour mills; printing plant.	Hospital.	Power plant. Water system. Telephone and telegraph system. Radio station at commercial airfield.	Museum.
Yevpatoriya (244) (Eupatoria) 45°15'N, 33°23'E Pop. 30,000 (1932)	On W coast of the Krym (Crimea) and on the calm Kalamitskiy Zaliv (bay); cultivated steppe extends to the coast between two salt lakes, Ozero Maynakskoye and Ozero Sasyk; pleasant beach. Krymskaya Oblast', RSFSR.	Rail: Sarabuz-Yevpatoriya branch line connects with Khar'kov - Sevastopol' line. Air: Airfield. Water: Steamers to Odessa and Sevastopol'; lighthouse; port facilities with dock installations and open roadstead (4 sq. km.).	Export of grain. Salt mining in vicinity; metalworking; furniture industry; textiles; chemical industry; production of iodine; distilling; flour mills; bread factory; fisheries; canning; tractor station.	Many sanitariums including one military sanitarium. Aviation school (naval). Hotels. Monastery. Theater. 5 warehouses. 4 sheds. Oil storage.	Power plant (300 kw.). Post office. Radio telegraph station. Coastal radio station.	City divided into old and new town (latter includes villas and spa). Large mosque. Museums. Coastal fortifications Moderately damp, mild climate.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:

1 meter=3.28 feet
1 square meter=10.76 square feet
1 kilometer=0.62 miles
1 square kilometer=0.39 square miles

TABLE VIII - 14 (Continued)

Name coordinates population	Geographical characteristics	Means of access and internal transportation	Resources and trade	Health, hospitals, and billeting	Utilities and telecommunications	Remarks
Yevstratovskiy (184) * 50°10'N, 39°40'E Pop. 4,300 (1932)	At confluence of Valitva and Kalitva rivers; 213 km. S of Voronezh. Voronezhskaya Oblast', RSFSR.	Rail: On Moskva - Voronezh - Rostov-na-Donu line. Air: Airplane.				
Yoshkar-Ola (54) (Tsarevokokshaisk) (Krasnokokshaisk) 56°39'N, 47°53'E Pop. 8,200 (1932) 9,400 (1939)	On right bank of the Malaya Kokshaga, a tributary of the Volga; on a height; NW of Kazan'.	Rail: Terminus of a spur line from the Moskva-Kazan' line.	Tractor station; printing plant; 2 sawmills; brickyards; flour mills; consumers' goods; sunflower oil; meat packing.	3 technical schools.	Power plant (500-1,000 kw.). Broadcasting station RW-61 (0.1-9.9 kw.).	Technical institute for wood.
Zagorsk (72) (Sergiyev) Sergiyevo) (Sagorod) 56°20'N, 38°08'E Pop. 27,820 (1932)	71 km. NE of Moscow. Moskovskaya Oblast', RSFSR.	Rail: On Moskva-Yaroslavl' line. Air: Airfield.	Tractor station; motor factory; optical plant; 2 brickyards; dairy; flour mill; state farm in vicinity; gun factory; munitions plant and dump 17 km. from center of town.	Monastery (used as museum). Home for disabled persons. Children's home. Electrotechnical military academy.	Power plant (1,000-3,000 kw.; oil-burning). Pumping station.	2 cathedrals.
Zhitomir (170) 50°19'N, 28°40'E Pop. 95,100 (1939)	On left bank of Teterev river. Zhitomirskaya Oblast', Ukrainian SSR.	Rail: Connections with Leningrad and Berdichev. Air: 2 airfields.	Metalworking; textiles; chemical industry; leather; tobacco processing; distillery; alimentary pastes.	Barracks (including those adjacent to airfields and others for armored and motorized troops, artillery, and infantry). Aviation school.	Post and telegraph office. Radio telegraph station. 2 radio stations.	Parachute tower. Munitions dump.
Zhlobin (149) 52°54'N, 30°02'E Pop. 10,100 (1932)	On the Dnepr, 80 km. NW of Gomel'. Gomel'skaya Oblast', White Russian SSR.	Rail: Connections with Gomel', Bobruysk, Mogilëv and Mozyr'; R.R. bridge. Road: Hwy bridge. Air: Airfield.	Railroad repair shops; metalworking; canning; agricultural industries; oil dump.	Barracks.	Radio station REAA.	Raion center.

* Index number on FIGURE VIII-119.

CONVERSION FACTORS:

1 kilometer=0.62 miles

INDEX OF TOWNS

MAJOR CITIES AND TOWNS ARE INDICATED BY ITALICIZED NUMBERS IN THE TEXT, AND BY UNDERSCORED NUMBERS ON FIGURE VIII-119; MINOR TOWNS BY PARENTHESES

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Drohobycz	Drogobych	(229)
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Kexholm, Käkisalmi	Keksgol'm	(22)
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Oranienbaum		(33)
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Orël		*145*
Orsha		(102)
Ostashkov		(79)
Ostrogozhsk		(180)
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* See Leningradskaya Oblast' large scale insert (FIGURE VIII-119).

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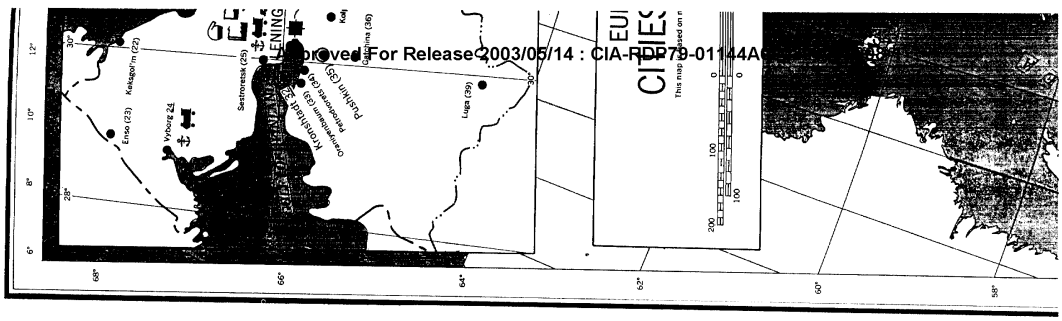

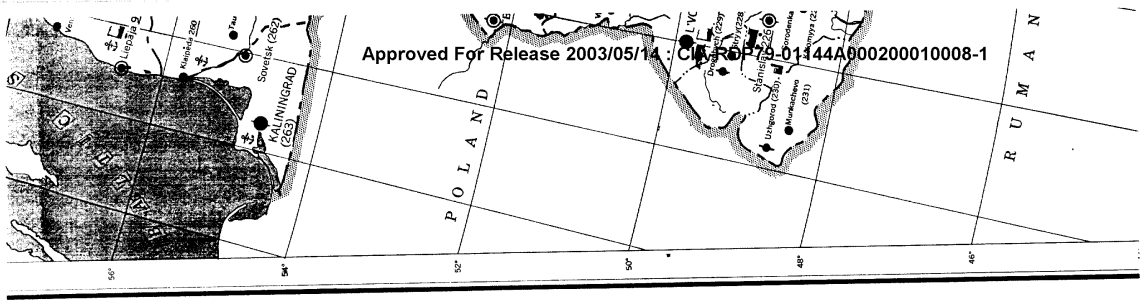

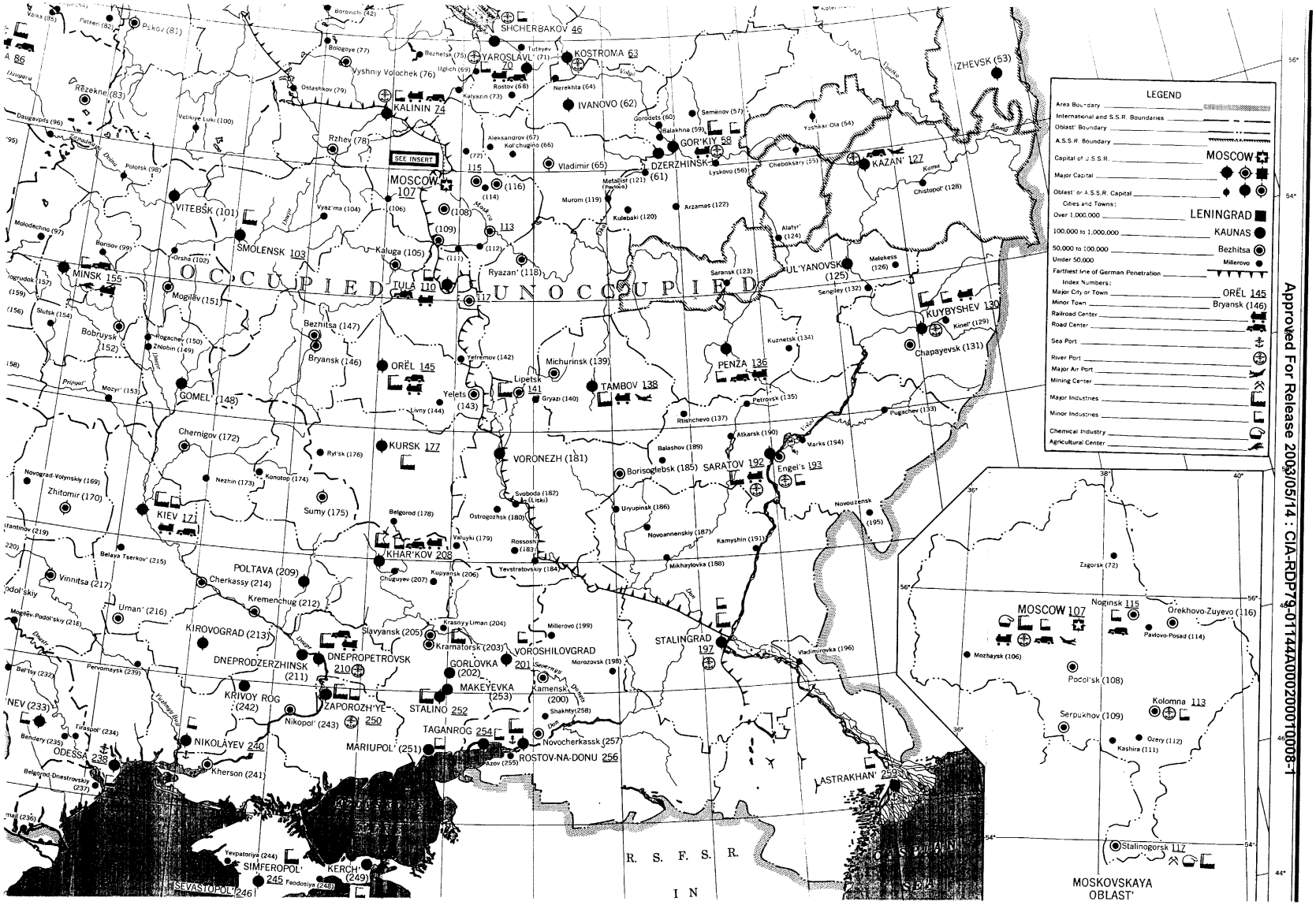

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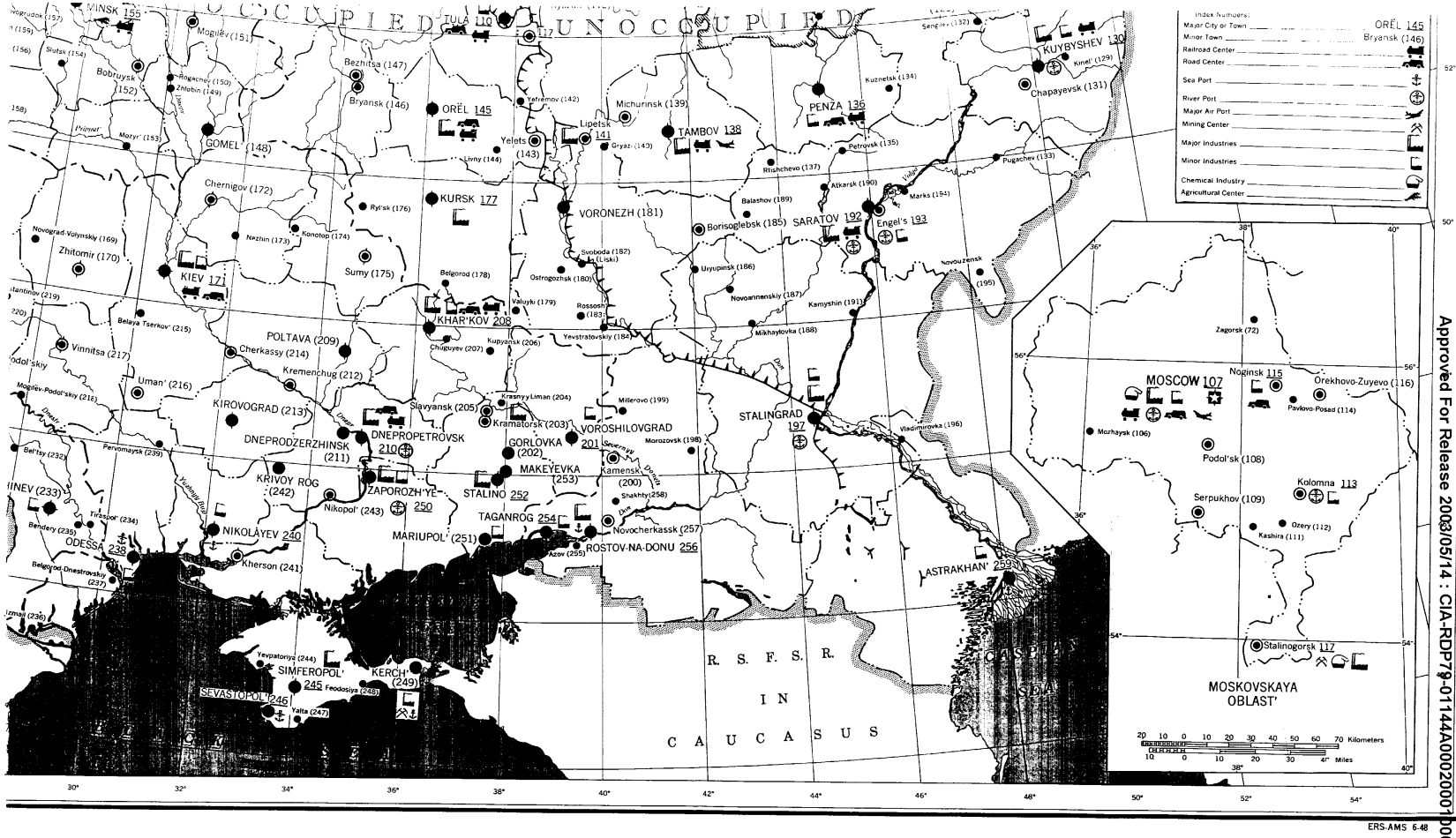

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83. PRINCIPAL SOURCES

A. Evaluation

In the introduction (Topic 80, A, (1)) to this chapter, an evaluation of source information is given as an indication of the difficulties in obtaining accurate and reliable information in the preparation of this chapter.

(1) Captured German documents (Sources 4, 26)

Basic reliance was necessarily on captured German documents, maps, plans, and photographs. However, information gathered by the German secret service prior to the German invasion of the USSR has been found to be questionable in many instances, making the reliability of the remainder doubtful. Time limitation prevented thorough investigation and verification of this material in preparing this chapter. Field compilations and aerial photo-coverage by the Germans during the invasion have been found to be more reliable. However, in many instances, they were not in final completed form.

(2) Prewar and postwar USSR sources (Sources 2, 5, 9, 10, 21, 24)

Both prewar and postwar material originating in the USSR too often is colored by propaganda. Especially is this true of most statistical material where progress or comparative statistics use index numbers which are inadequately defined. Thus a factory's rate of production is given as percent of quota completion in a Five-Year Plan, with no indication of the volume of the planned quota; or it is stated that 200 units had been produced over the planned quota in a given period of time, without stating the quota figure.

USSR postwar plans for redesigning and reconstructing urban areas have been available mostly as generalizations and include few statistical details. While considerable postwar replanning of urban areas has been undertaken on paper by Russian authorities, architects, and engineers, available sources in the majority of instances give little information for estimating the actual realization of these plans.

(3) Non-USSR sources (Sources 1, 3, 6, 7, 8, 11, 12, 13, 18, 23)

Reports from American and other non-Russian sources, while giving valuable factual information, are limited in scope. Technical data on urban sanitation, water supply, utilities, and so on, are incomplete or lacking in important details. Observation is hampered by Russian authorities.

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