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East Germany

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NATIONAL INTELLIGENCE SURVEY

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Military Geography

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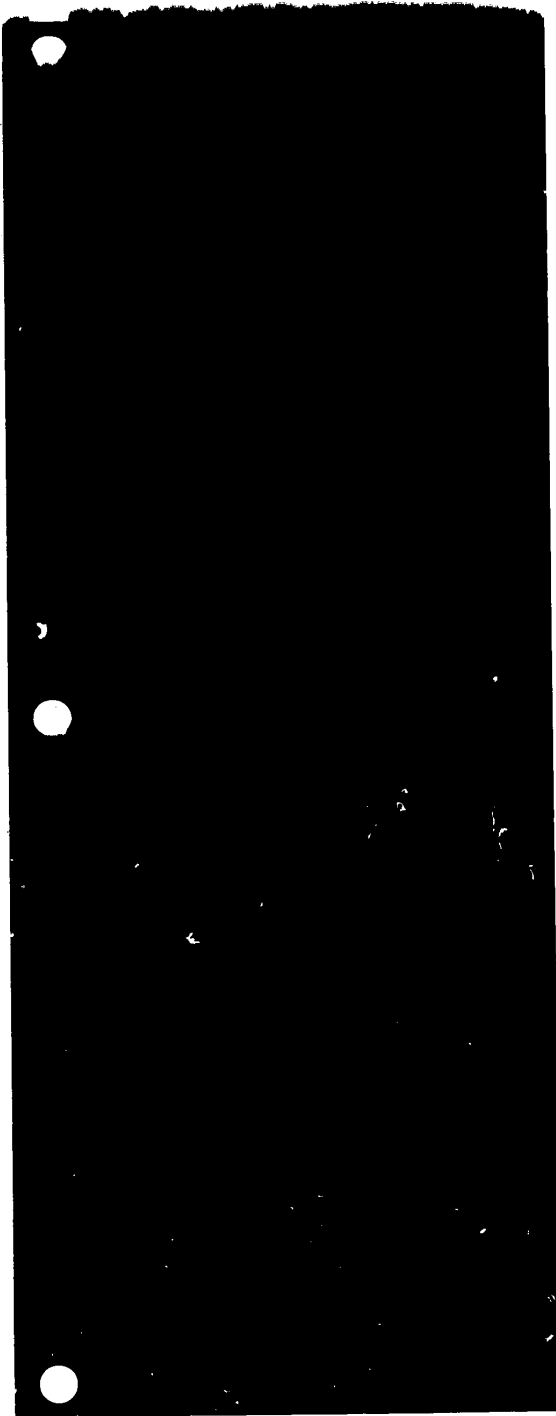
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East GERMANY

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*This chapter supersedes the geographic coverage
in the General Survey dated February 1970.*

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Military Geography

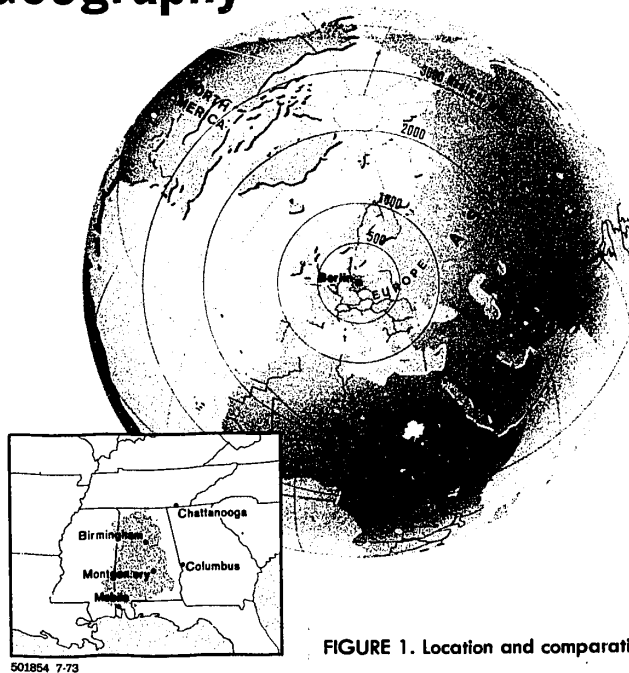


FIGURE 1. Location and comparative areas (U/OU)

A. General (U/OU)

East Germany is important from a military standpoint because it is on the North European Plain, is near the entrance to the Baltic Sea, and is the westernmost Soviet-dominated territory in Europe. The eastern border of East Germany is about 200 nautical miles from the U.S.S.R. (Figure 1), and East Berlin is less than 875 nautical miles from Moscow. Soviet forces stationed in East Germany occupy a forefront military position in north-central Europe. Nearly all NATO installations in the Federal Republic of Germany are less than 130 nautical miles from East Germany. Rhein Main Airfield, one of the largest U.S. installations in Europe, is about 60 nautical miles distant, and the Ruhr, the largest steel-producing area

in Western Europe, about 100 nautical miles. The industrial complexes of Belgium and northern France and the great ports of the Low Countries are within 250 nautical miles; the chief industrial centers of the United Kingdom, southern France, and northern Italy are only about 500 nautical miles distant. Almost all of non-Communist Europe is within 1,000 nautical miles of this Soviet-controlled country.

The total land area of East Germany is about 41,800 square miles, slightly smaller than Alabama. The country extends about 315 miles¹ north-south and approximately 225 miles east-west (Figure 21); no point in the country is more than 80 miles from some

¹Distances are in statute miles unless nautical miles are specifically indicated.

part of the border. The population, about 17 million, is slightly less than five times that of Alabama. East Germany is smaller in size than any country with which it shares a common boundary, and only Czechoslovakia has a smaller population.

1. Topography

Subdued topography and many lakes and streams characterize East Germany. The East German portion of the North European Plain is nearly flat to gently rolling and slopes from a highlands area in the south to the low-lying, island-fronted Baltic coast (Figure 2). The settlement pattern is one of numerous small towns and villages concentrated on the plains (Figure 3). Large urban and industrial centers are mainly in the southern half of the country.

In the nearly flat northern two-thirds of the East German plain elevations are less than 650 feet, most slopes are less than 10%, and local relief (differences in elevation between tops and bottoms of adjacent topographic features) is less than 250 feet. Low hillocks and ridges are in some areas near the northern lakes.

The more rolling southern third of the plain has elevations of nearly 1,600 feet, some slopes between 10% and 30%, and local relief of under 500 feet. There are a few isolated areas of hills and ridges (Figure 4) in the south where local relief is over 500 feet and slopes are over 30%. Drainage features on the low plain are closely spaced and include the relatively large northwest-flowing streams, canals, thousands of lakes (most of which are in the north), and perennially wet areas on poorly drained lowlands and on flood plains bordering some streams. Areas of vegetation on the plains include large tracts of cultivated fields, meadows, small orchards, vegetable plots, and forested areas, the most extensive of which are pine forests located north and southeast of Berlin. The principal field crops are rye, wheat, barley, oats, and potatoes. The settlement pattern in the areas of cultivation is mostly one of small villages rather than single farmsteads.

Fringing the East German plain in the south and southwest is a narrow (less than 5 to about 50 miles), discontinuous belt of spruce- and beech-forested hills that have elevations between 1,600 and 3,300 feet above sea level, slopes of 30% or greater, and local relief ranging from 500 to 1,200 feet. The highland belt consists of the steep-sided edges and rolling interior of the eastern two-thirds of the Harz (Figure

5), the heavily forested, dissected Thuringer Wald,² and the rolling lands of the Erzgebirge (Figure 6), which rise southward in long, gentle slopes. The hilly, dissected upland is interrupted or penetrated by scattered small lowlands which, in places, form corridors. Tributaries of several northward-flowing streams originate in the southern hills and flow swiftly between steep banks. Several important towns are within the highland area, but most of the highly urbanized and industrialized cities of southern East Germany are in the plains, adjacent to and north of the belt of hills.

2. Climate

East Germany has a predominantly maritime climate that is sometimes interrupted in winter by brief periods of cold continental weather from the east. Variations in climate in different parts of the country are not marked except for increased cloudiness and precipitation and lower ceilings over the hilly terrain in the south. Winter (early December through February) is characterized by high relative humidity, extensive cloudiness, frequent rain or snow, poor visibility, occasional strong winds, and moderately cold temperatures. Summer (early June through August) is slightly less cloudy, with frequent rain, mild temperatures, continued high humidity, and moderate thunderstorm activity. Spring (early March through May) and autumn (early September through November) are transitional seasons.

Mean daily minimum temperatures in winter range between 25° and 30° (F.) in the plains and between 15° and 25° in the highlands, but absolute minimums below -15° have occurred at most locations (Figure 7). Mean daily maximum temperatures in summer range from 60° to 75°; readings are slightly lower in the highlands. Temperatures occasionally reach the 90's when hot, dry winds are from the south.

Precipitation is frequent but usually light. Annual totals average 20 to 30 inches at most places, but some exposed locations in the southern hills receive more than 50 inches. Snowfall is fairly frequent from November through April. Snow falls on an average of 25 to 45 days annually over most of the country, but in the higher hills it may occur on as many as 100 days. Snow cover does not last throughout the winter except at higher elevations. Snow depths up to 16 inches have been measured in the lowlands, and depths over 10

²For diacritics on place names see the list of names on the apron of the Terrain and Transportation map, the map itself, and maps in the text.

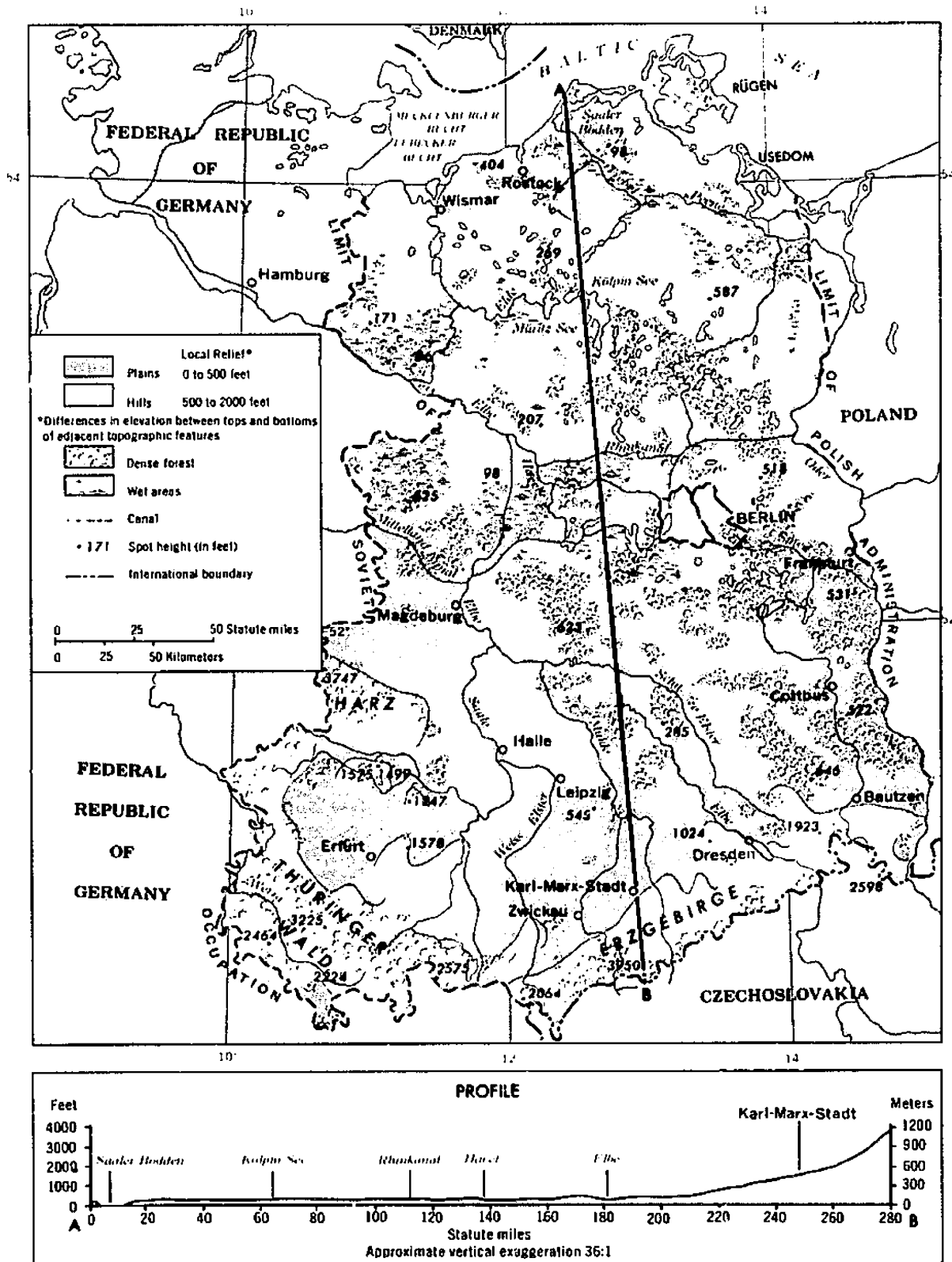


FIGURE 2. Terrain (C)

FIGURE 3. Village in the northern plains (U/OU)



feet have occurred in the southern hills. Thunderstorms are fairly common in late spring and summer, when they occur on 3 to 7 days per month.

Average cloud cover is mostly 50% to 80% in summer and 70% to 90% in winter. Ceilings are lowest and visibilities poorest in late autumn, winter, and early spring. Fog, smoke, and haze are the chief obstructions to visibility.

Strong surface winds (28 knots or greater) are infrequent except at higher locations in the south, where they may occur on 10 to 15 days per month in winter and on 2 to 6 days per month in summer.

B. Military geographic region (C)

East Germany is one military geographic region. Throughout the country, the combination of environmental conditions would have a relatively uniform effect on military operations.

Conditions are generally suited for conventional ground operations. Fairly extensive areas of nearly flat to rolling cultivated plains are well drained and suitable for the cross-country movement of wheeled and tracked vehicles, particularly south of a line from Magdeburg to Bautzen. There are scattered areas fairly well suited for cross-country movement of tracked vehicles in the northern part of the plains. Extensive areas of marshes and lakes on the plains and tracts of dense forests in the central and northeastern parts of the country preclude or restrict all but local movement. In the hills, steep slopes generally greater than 30%, dense spruce and beech forests, and deep winter snows in the Thuringer Wald are the major hindrances to movement.

Most streams would be difficult to cross during high-water periods. Ice breakup and snowmelt cause high water from early February through April; highest



FIGURE 4. Steep forested slopes along the Elbe River (C)

levels are in late March. Heavy showers during July and August may cause short secondary high-water levels. Flooding is common along lower stream courses during these periods. Low water usually occurs from mid-June or early July through October. Most streams are 2 to 10 feet deep, and principal rivers are generally more than 5 feet in their middle and lower courses. Many streams are more than 200 feet wide, but only the Elbe and the Oder are more than 500 feet wide. Except in the southern hills, streams generally flow sluggishly between low, marshy banks through broad, shallow valleys. Most streambanks and bottoms are clay or sand. Only tributaries originating in the southern hills and the upper reaches of major streams (Figure 8) have high, steep banks and rocky or gravelly bottoms. Streambanks and canals are commonly revetted within cities. Cross-country vehicular movement would be restricted and channeled or compartmented by numerous drainage features, especially the broad, deep Elbe south of Magdeburg, the Oder along the eastern boundary, the many lakes and interconnecting canals and rivers, the extensive canal system linking the Oder and Elbe and focusing



FIGURE 5. The rolling interior of the Harz (U/OU)

on Berlin, and the numerous seasonally and perennially wet areas.

Good facilities for rapid onroad movement are provided by the dense network of surfaced roads augmented by several high-capacity autobahns (four-lane, limited-access, divided, concrete highways) which serve all large urban areas and important industrial concentrations. Berlin is the focus of the East German highway system, but the greatest concentration of roads is in the southern half of the country. The major roads are capable of supporting sustained heavy traffic during all seasons of the year. The few bottlenecks to onroad movement consist of steep grades and winter snows in the hills and sharp curves, stone gateways, and narrow streets in towns and villages. Offroad dispersal would be hindered mainly by wet ground and drainage ditches in the north and by steep slopes and rugged terrain in the southern hills. Roads with unrestricted alignments and gentle grades could be built relatively easily in most places. Natural foundations are fair to poor, but natural construction materials are readily available. Major construction problems would be encountered in areas of poorly drained soils, in scattered tracts of dense forest, and on steep slopes of the southern hills.



FIGURE 6. Village in the Erzgebirge (U/OU)

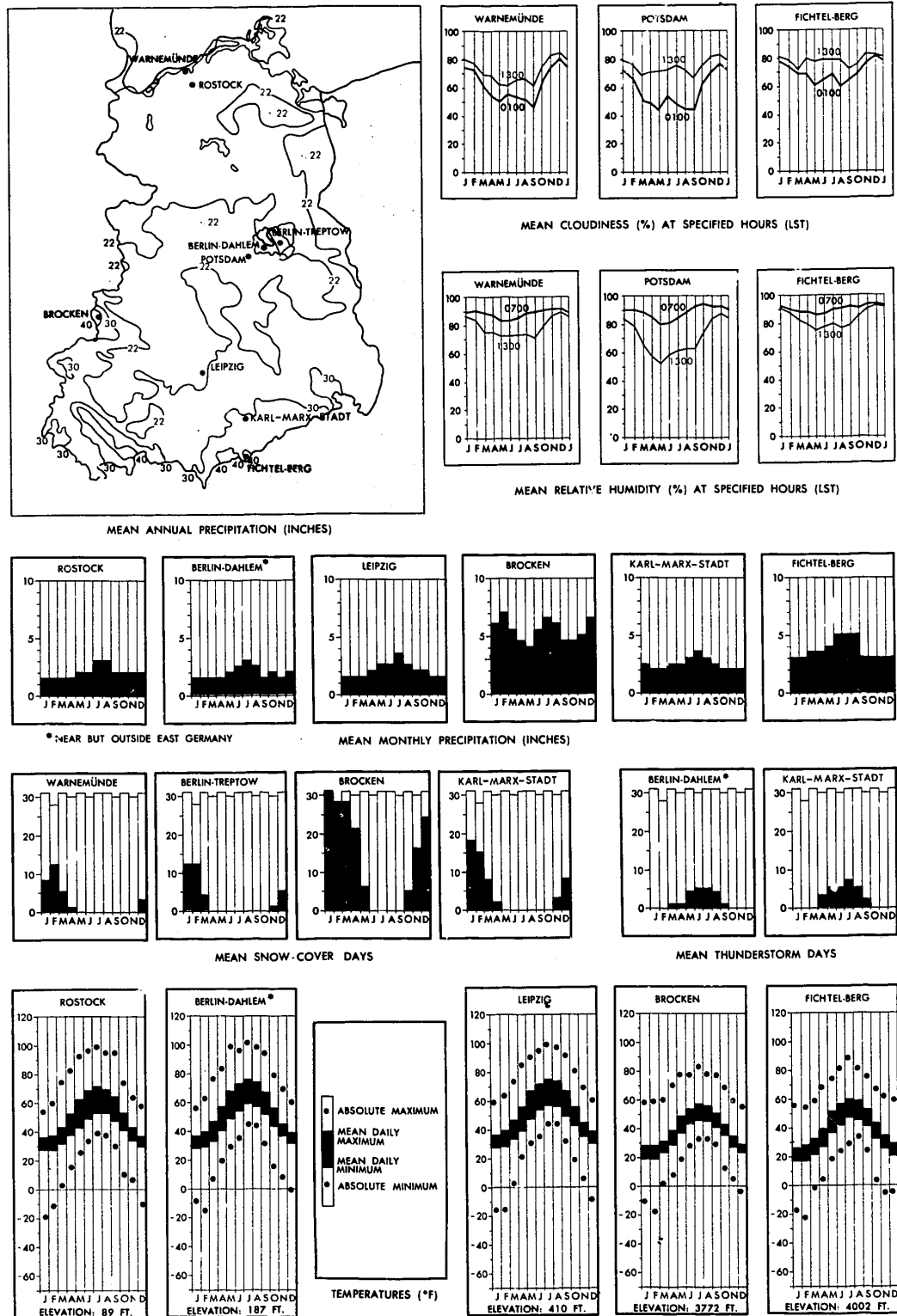


FIGURE 7. Precipitation, cloudiness, humidity, snow cover, thunderstorms, and temperatures (U/OU)



FIGURE 8. The Elbe River in southern East Germany (U OU)

Soils freeze to a depth of 1 foot in most plains areas and to 2 feet in the higher hills. In most places the ground is frozen periodically from early December through February and is snow covered for about one-third of that period; the ground at higher elevations in the south and southwest is almost continuously frozen and snow covered from early December through February. During the spring thaw, beginning in March in most places and in April at higher elevations in the southern highlands, the ground is wet for several weeks. After the thaw, most of the ground remains moist until freezing in early December.

Good concealment of troops and vehicles from aerial observation would be provided by forested areas. Cover from flat-trajectory fire and good concealment from ground observation would be available in the deeply dissected parts of the southern hills, in the low hills, incised valleys, and escarpments of the rolling plains, and in the hillocks and low ridges of the lake belt in the northern part of the plains. Fair concealment and cover from small arms fire would be afforded by river dikes, ditches in fields, and embankments. Some concealment for foot troops

would be provided in June and July by extensive grainfields. Bunkers and hasty ground shelters could be constructed readily in most parts of the country, especially in large areas of the plains where soils are deep, well drained, and easily excavated. Construction of tunnel-type installations would be feasible only in scattered areas of the southern hills; extensive drilling and blasting would be required.

Most of East Germany is well suited for airborne and airmobile operations. The nearly flat to rolling, cultivated plains offer numerous sites for airdrops, helicopter and assault-type aircraft landings, and the construction of large airfields. Airdrop sites are particularly good in the northern and southern parts of the plain where air approaches are generally unobstructed, and movement from sites would be facilitated by numerous good roads. The large number of airfields scattered throughout the country would provide landing strips for assault-type aircraft. These airfields are most numerous near the center of the country, especially in the vicinity of Berlin. Many sections of autobahns and World War II airstrips now under cultivation or completely abandoned would

provide secondary sites suitable for the landing of assault-type aircraft. The plains afford the most sites suited for airfield construction. Major hindrances to construction are soils that require artificial drainage and frozen ground, generally occurring from December to February. In the southern hill belt, sites for the construction of airfields are few and poor; in the dissected parts of the hill belt, steep slopes, scattered areas of wet ground, and dense forests would hinder or preclude airmobile and airborne operations. Weather conditions throughout East Germany are well suited for airborne operations during most of the year but are best in summer, when extensive cloudiness and high surface winds are at minimums.

Conditions are generally unsuited for large-scale amphibious operations because of poor sea approaches, rock-littered sandy shores, and lack of good exits from most beaches. Although offshore approaches to the low, sandy coast are predominantly clear, most nearshore approaches through the shallow coastal waters are encumbered by large and small islands, shoals, submerged and exposed rocks, shifting bars, wrecks, and groins. Tidal ranges are negligible. Sea ice forms during most winters, and the coastal ice cover is nearly complete in exceptionally severe winters. Exits from the beaches are cross-country, and movement inland would be hindered in some places by cliffs and bluffs and in others by extensive lagoons and marshes behind the beaches.

East Germany is generally unsuited for irregular force operations. The nearly flat to rolling plains and the extensive network of roads and railroads, especially in the vicinity of Berlin and in the south, would favor the rapid movement of conventional forces and severely restrict irregular force operations. Movement on foot would generally be possible everywhere except in areas of soft ground and across canals and streams too deep to ford. On the plains, local hindrances to movement on foot such as hillocks and tracts of forests could be easily bypassed. In the dissected areas of the southern hills, deep snow in winter and steep slopes constitute major obstacles to movement on foot. In the southern hills, dense forests and caves provide cover and concealment from air and ground observation; surface irregularities provide additional cover from flat-trajectory fire. Adequate amounts of water are generally available, but water quality is mostly poor. Chemical and biological contamination is prevalent in the populous industrial areas of the southern and central parts of East Germany; contamination is less serious in the rivers and lakes of the northern plains. Food, small arms, ammunition, and shelter would be available at scattered farms and small villages.

Numerous forest areas provide adequate sources of wood for fuel or construction of shelters. The supplying of irregular forces by air is aided by numerous sites suitable for airdrops, especially in the northern and southern sections of the plains. Supply by air would be best in the summer, when flying conditions are most favorable and when forests and cultivated crops would provide irregular forces with concealment from ground observation. There are few environmental factors adversely affecting health. The temperate climate, usually adequate rainfall, and the relative scarcity of dangerous plants and animals are factors favorable for irregular force operations.

C. Strategic areas (C)

There are two strategic areas in East Germany—Saxony and East Berlin (Figure 15). They contain the major industrial concentrations and population centers, numerous important military installations, much of the skilled labor, and the principal transportation, communication, political, economic, and marketing centers of the country.

1. Saxony

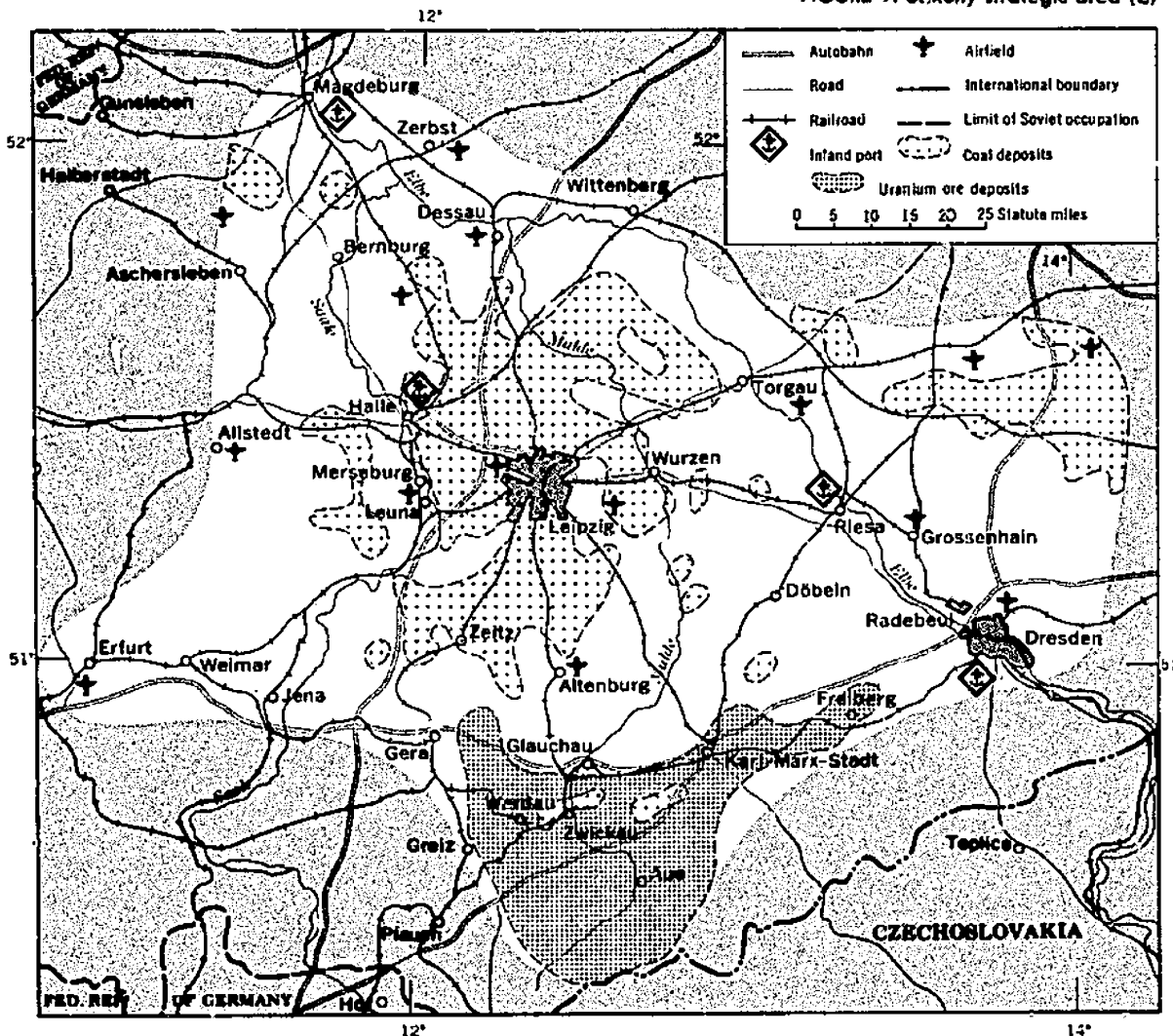
This strategic area (Figure 9) is the industrial heart of East Germany and makes a substantial contribution to the industrial capacity of the Soviet-oriented countries. More than half of the gross output of manufacturing is produced in this heavily industrialized area. It contains the main coal region and the principal uranium ore deposits in East Germany.

The Saxony strategic area contains five of the six largest cities in the country. These are Leipzig (population estimated at 583,000), second only to East Berlin in size; Dresden (population estimated at 506,000); Karl-Marx-Stadt (population estimated at 300,000); Magdeburg (population estimated at 272,000); and Halle (population estimated at 257,000).

Leipzig (Figure 10) is the second most important transportation and telecommunication center in the country and an important producer of ball bearings, heavy equipment such as cranes and hoists, and complete chemical installations. Other principal industries produce industrial and agricultural machinery, electrical and electronic equipment, mining equipment, machine tools, iron and steel, cement products, and refined petroleum products.

Dresden is the largest producer of small electric motors and a major producer of transformers and related electrical equipment, pharmaceuticals, and

FIGURE 9. Saxony strategic area (C)



cameras. Other important products are telecommunications equipment, machine tools, chemicals and chemical equipment, steel, and precision instruments. In Dresden and its environs are numerous institutes and technical schools, one of which has the only nuclear research reactor in East Germany.

Karl-Marx-Stadt is the country's largest producer of textile machinery, machine tools, precision instruments, and small weapons. Equipment for telecommunications, chemical, and electrical uses are also manufactured here.

Halle contains the most important railroad car plant in the country, the only plant producing synthetic rubber, and important chemical, petroleum

products, industrial machinery, and motor vehicle plants.

Magdeburg (Figure 11) is one of the largest inland ports in the country and has major shipbuilding and repair facilities. The city is the most important heavy machine building center in the nation and an important producer of chemical equipment. It is also a significant producer of iron and steel, explosives, tractors, chemicals, and pharmaceuticals.

Jena (population estimated at 91,000) is the only producer of infrared components and is the principal optical glass and pharmaceutical center in the country.

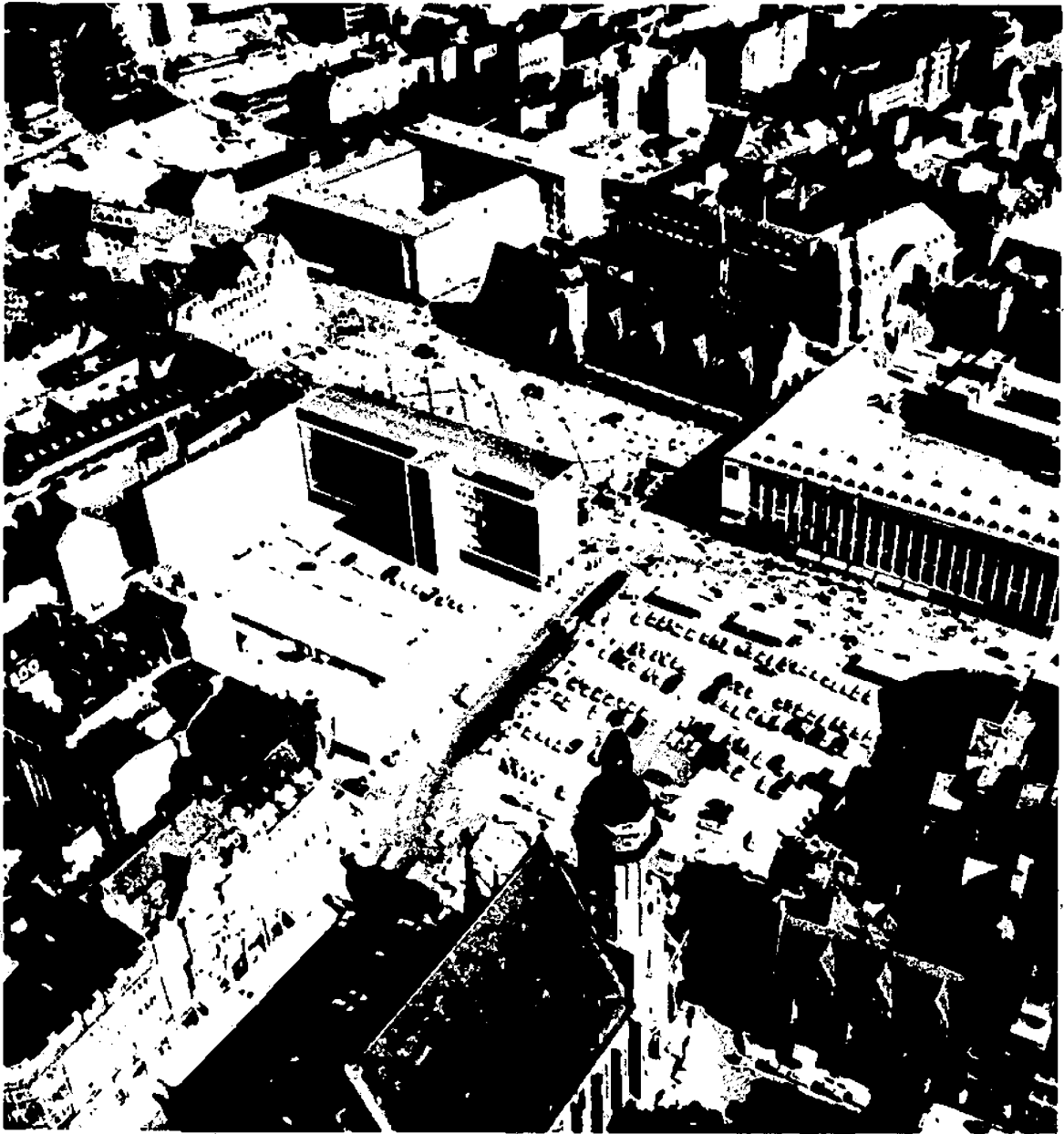


FIGURE 10. Historic inner city of Leipzig (U/OU)

The strategic area contains a large petroleum refinery and an important chemical center at Leuna (population estimated at 12,000). Large rubber tire factories and steel plants are at Riesa (population estimated at 50,000), and important motor vehicle, compressor, and coke and chemical plants are at Zwickau (population estimated at 128,000). The largest uranium ore-concentrating plant in the world is

located northwest of Zwickau. Erfurt (Figure 12) is an important center for manufacturing telecommunications equipment (population estimated at 197,000).

Other cities and towns in the strategic area produce mining, electrical, and heavy equipment, agricultural and industrial machinery, chemicals, pharmaceuticals, textiles, precision instruments, motor vehicles, rolling stock, machine tools, and refined metals. Extensive deposits of brown coal in the

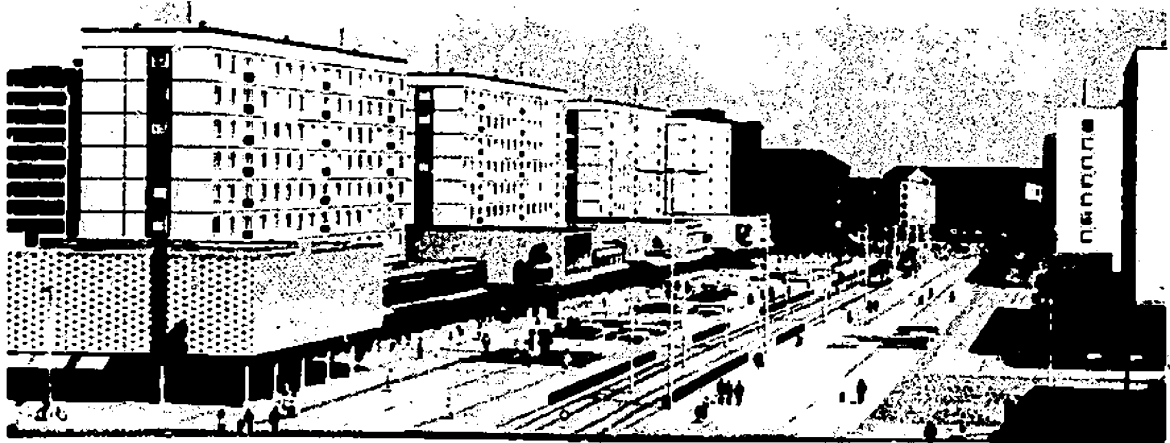


FIGURE 11. Modern shopping district in Magdeburg (U/OU)

strategic area are a basic source of power for the industries and the chief source of fuel for electric powerplants. There are numerous refineries, extensive storage facilities for refined petroleum products (capacity more than 3.5 million barrels), and major ammunition storage depots in the strategic area. Also in the area are 15 large, permanent-surface airfields.

2. East Berlin

The significance of this strategic area (Figure 13) derives from its functions as a political, industrial,

transportation, and telecommunications center and from its sensitive position around the West Berlin enclave. East Berlin (Figure 14), the capital and largest urban center in East Germany (population estimated at 1.1 million), is the most significant domestic and international telecommunications center in the country and serves as a control and coordination point for telephone, telegraph, and radio communications. It is second only to the Saxony strategic area in manufacturing importance and is a leading producer of electrical, telecommunication, and electronic

FIGURE 12. The architectural styles of buildings in Erfurt range from the very old to very new (U/OU)



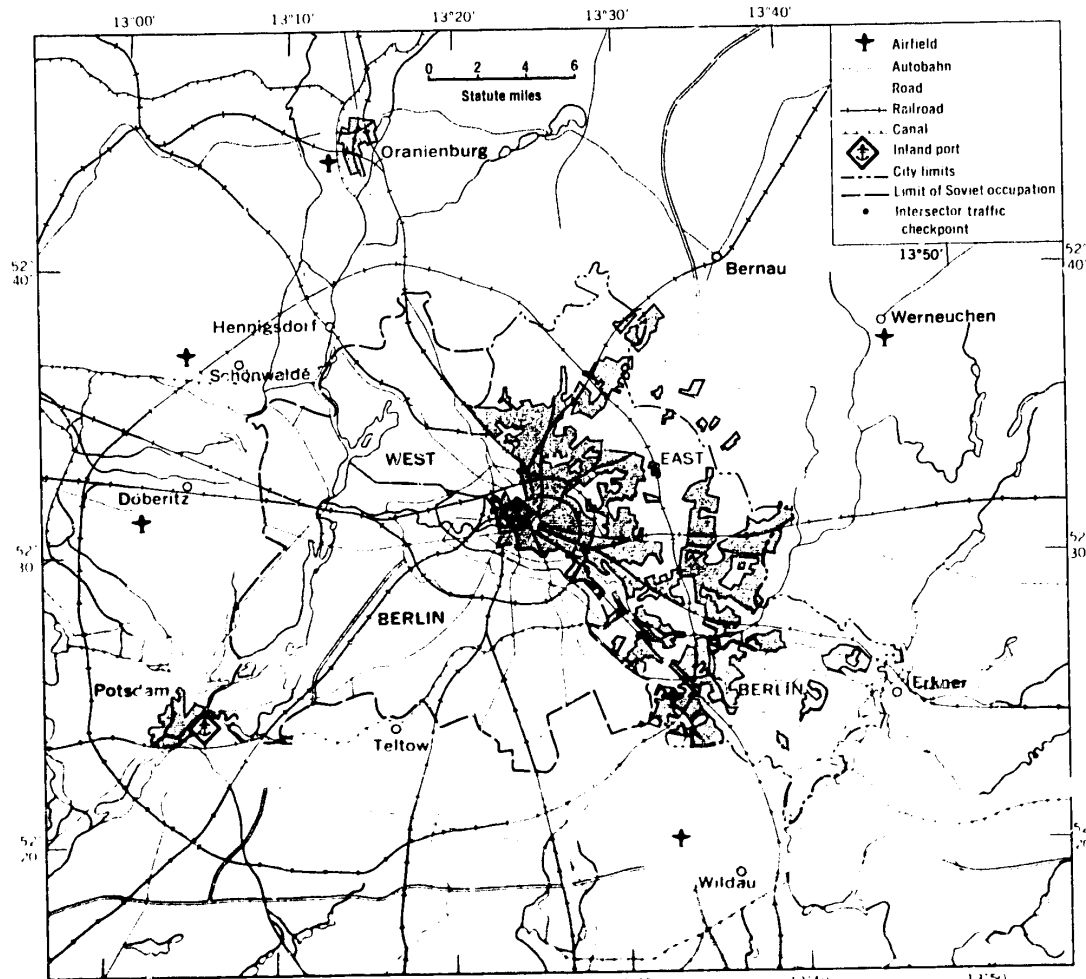


FIGURE 13. East Berlin strategic area (C)

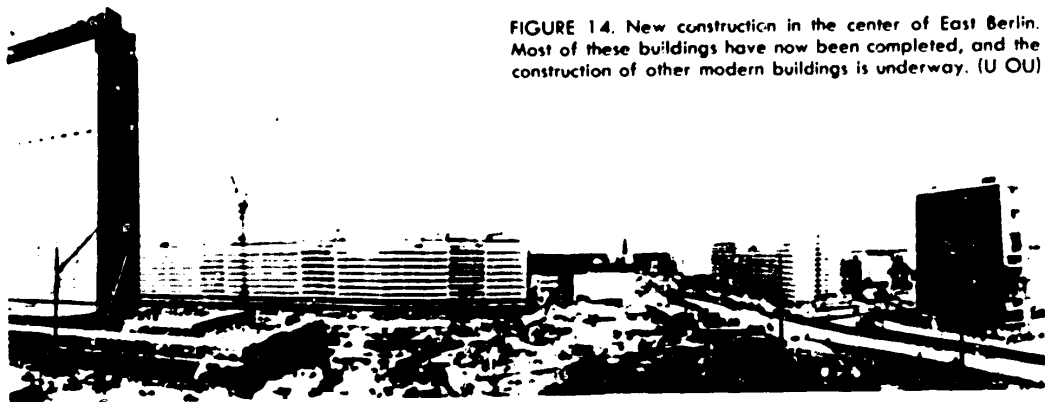


FIGURE 14. New construction in the center of East Berlin. Most of these buildings have now been completed, and the construction of other modern buildings is underway. (U OU)

equipment; it has the largest turbine, generator, transformer, power cable, and radar equipment plants in the country. Other industrial products in which East Berlin accounts for a significant part of East Germany production are machinery and machine tools, locomotives, rubber tires, chemicals, pharmaceuticals, motor vehicles, automotive parts, precision instruments, clothing, and cement. There are storage facilities for more than 450,000 barrels of refined petroleum products. Hennigsdorf (population estimated at 25,000), northwest of East Berlin, besides being an important steel producer, also produces locomotives, melting furnaces, and generators and other heavy electrical equipment. Potsdam (population estimated at 111,000), southwest of East Berlin, is the principal transshipment point from railroad to inland waterway in East Germany and also contributes to the industrial importance of the strategic area. Important products are refrigeration equipment, chemicals, and motion pictures.

Large concentrations of troops, military installations, and billeting facilities are distributed throughout the strategic area. East Berlin is the hub of the East German transportation network. Important highways and railroads radiate from East Berlin and connect the strategic area to all parts of East Germany and surrounding countries. The urban area is served by a partial bypass ring of autobahns and is crossed by navigable canals and a river which affords access to the inland waterway systems of East and West Germany and to neighboring countries. There are three important airfields in the area, including the international airfield south of East Berlin, which is the second largest airfield in the country.

D. Internal routes (C)

The internal routes (Figure 15) are the easiest avenues of movement between the major land approaches and the strategic areas, between the coastal area best suited for amphibious landings and the East Berlin strategic area, and between strategic areas. Most of the routes contain surfaced roads and 4'8 1/2"-gauge railroads. Alternate lines of transportation are present in many of the routes and would greatly facilitate the bypassing of any bottlenecks. Several routes contain autobahns. The roads are generally in good condition, have easy grades and gentle curves, and are suitable for heavy traffic. Conditions for offroad dispersal and vehicular cross-country movement in most of the routes are generally fair to poor. In most of the routes, cross-country vehicular movement would be seriously hindered or precluded

by soft ground at least part of the time during the period early November or December through March. Soft ground conditions are generally most severe from late February through March, and in parts of some routes soft soils preclude offroad movement when not frozen. Between December and March, snow and ice create hazardous driving conditions, and the width of roadways may be reduced by snow. Detailed information on the internal routes is presented in Figure 18.

E. Approaches

The perimeter of East Germany consists of 560 miles of coastline, including four major islands and numerous islets, and 1,433 miles of land boundaries. The boundary between East Germany and West Berlin, the 185-square mile Allied-administered exclave of West Germany, is strictly patrolled. East and West Berlin are separated by the Berlin wall (Figure 16), a masonry, wire, and wooden barrier about 26 miles long. Tank traps, light fortifications, water bodies, and embankments strengthen the barrier. There are several official crossing points between East and West Berlin; various obstructions (Figure 17) control the flow of traffic through these heavily guarded checkpoints. East Germany claims territorial jurisdiction for 3 nautical miles offshore. Figure 19 presents more detailed data on the perimeter of the country. (U/OU)

I. Land (C)

Conditions for movement across the borders range from good to unsuited. Cross-country movement would be unsuited in places because of rugged highlands, dense forests, wet ground, and wide, deep streams. Conditions are generally favorable for movement when the soils are dry or are frozen in winter. Winter snow cover and wet ground during the spring thaw are the major deterrents to movement. Numerous roads and railroads cross the East German borders from Poland and West Germany; few roads and railroads cross the border from Czechoslovakia. Most developed lines of transportation from West Germany are blocked, obstructed, or partially or completely destroyed to prevent or control through traffic at or near the border. The approaches shown on Figure 15 are the best means of land access to East Germany. Detailed information on selected land approaches is presented in Figure 20.

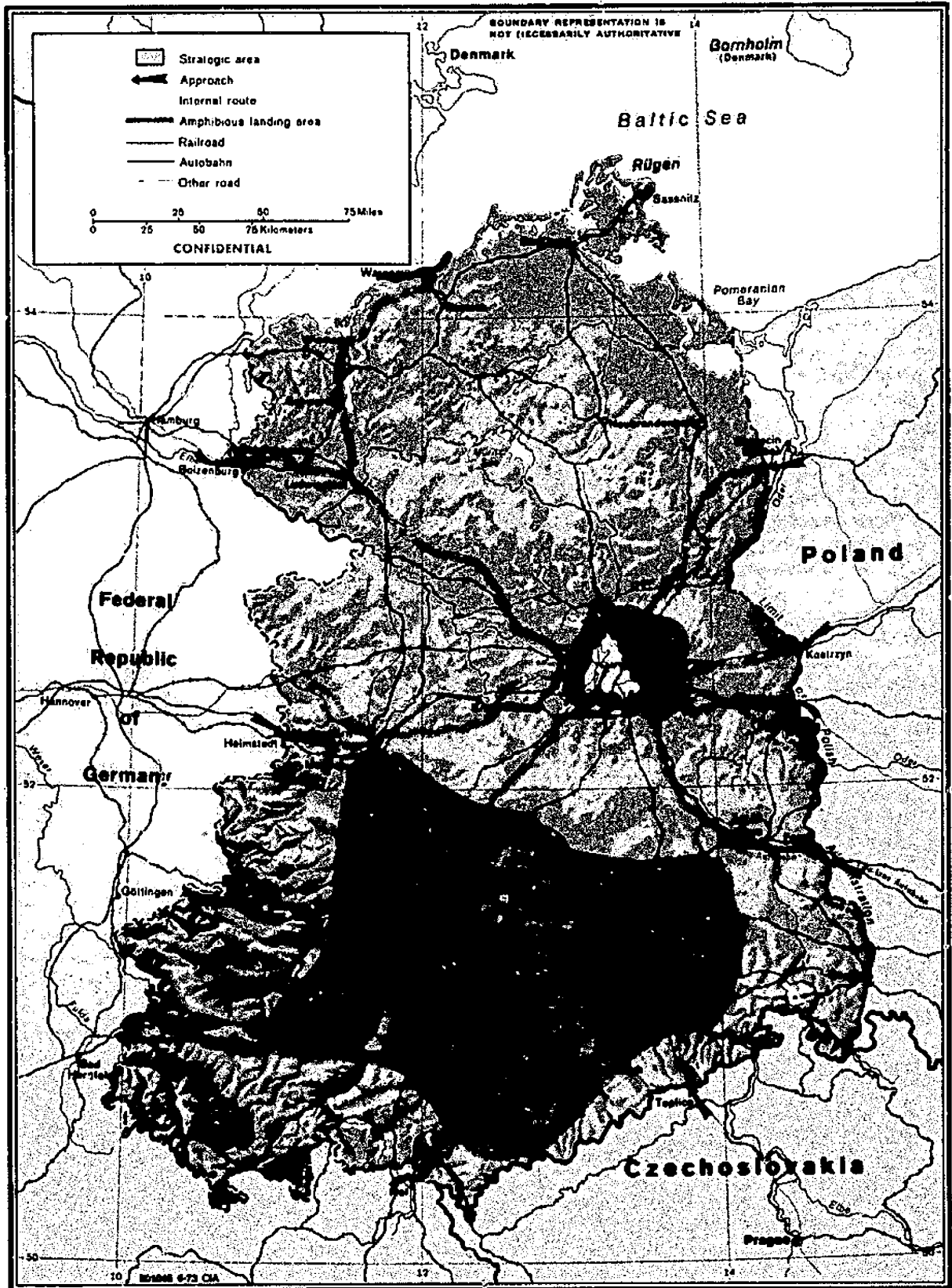


FIGURE 15. Strategic areas, internal routes, and approaches (C)

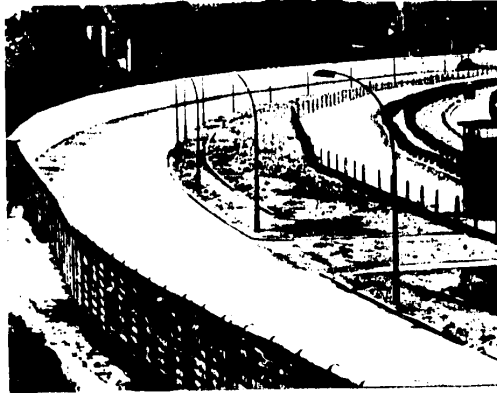


FIGURE 16. Multiple border obstacles along the Berlin wall (C)

2. Sea (C)

The Baltic Sea coast of East Germany is generally unfavorable for large-scale amphibious operations because of obstructed and restricted approaches and dunes, bluffs, or poorly drained terrain backing the coast. Seaward of the 5-fathom curve, approaches are predominantly clear, but shoreward, approaches are encumbered in many places by islets, islands, shoals, rocks, shifting bars, wrecks, and groins and piers. In addition, littoral drift and stream discharge cause considerable shoaling in the long, narrow, shallow channels, necessitating frequent dredging if navigable depths are to be maintained. Sea ice forms during most winters, ranging from very small amounts in the more protected bays during mild winters to a nearly complete cover in exceptionally severe winters. Ice may seriously hinder or prevent navigation near the Baltic shore for as long as 30 days between January and April. Although tidal ranges are negligible throughout the year, water levels may be raised or lowered as much as 7½ feet by winter storms in the Baltic. Surf 4 feet or higher seldom occurs. Nearshore bottom materials are mostly sand mixed with mud or gravel; bottom slopes are predominantly mild. Beach gradients are mostly mild to steep between the low-water and high-water lines and predominantly steep in the high-water zone. The beaches suitable for amphibious landings are concentrated along the western half of the mainland coast and on the seaward coasts of the islands. The major beaches range from 800 yards to 7½ miles long and from 10 to 150 yards wide; there are only slight width variations between

low water and high water. Beach materials consist of sand with some gravel and are generally firm in the wetted area and soft where dry. Backing the beaches in many places is a nearly flat to rolling plain covered by low field crops and patches of forest; there are scattered low hillocks and numerous lakes, marshes, peat bogs, ditches, and streams. Exits from the beaches would be by tracks, trails, and streets of Warnemunde, or cross-country to nearby roads; conditions for cross-country movement range from good in a few places to poor or unsuited in most places. The amphibious landing area shown on Figure 15 provides access to a route leading to the East Berlin strategic area.

The best amphibious landing area in East Germany is a 26-mile stretch of coast extending west and northeast of Warnemunde. This area includes six beaches with a total usable length of about 9 miles. The tidal range is negligible, and the beaches range from 800 yards to 2¾ miles long and 15 to 150 yards wide. Surf 4 feet or higher is most frequent during July through September, when it may occur as much as 10% of the time. Nearshore bottom slopes are flat to mild, and bottom materials are sand, gravel, and clay. Beach materials are sand or sand mixed with gravel; beaches are firm in the wetted areas and soft where dry. The beaches are backed by a nearly flat to gently rolling, mostly cultivated plain that contains patches of forest and marsh, numerous streams, and scattered low hillocks. Exits from the beaches would be by loose-surfaced roads to a two-lane bituminous-surfaced road that parallels the coast about 5 miles inland.

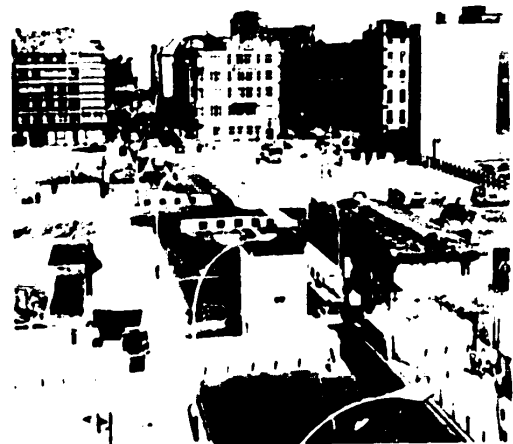


FIGURE 17. Checkpoint at the Berlin wall. Baffles slow and control traffic. View toward East Berlin. (C)

3. Air (U/OU)

Except for the North and Baltic Seas in the north, the air approaches³ are over land. Weather conditions in all air approaches are most favorable in summer, when cloud cover, low ceiling, poor visibility, and frontal activity are at a minimum. Thunderstorms and their associated turbulence, however, are more frequent and widespread in summer than in other seasons. Thunderstorms occur on 3 to 7 days a month during May through August throughout all approaches except over the North and Baltic Seas, where they are less frequent. The mean height of the

³The zone under discussion for air approaches extends approximately 200 nautical miles beyond the borders of East Germany.

freezing level in summer ranges between 8,000 and 12,000 feet. Weather conditions in all approaches are least favorable in winter, when migratory storms and their accompanying frontal systems are most frequent. Common in all approaches during winter are extensive cloudiness (60% to 80%), frequently the multilayered stratiform type; low ceilings; poor visibility caused mostly by fog, snow, and haze; and severe icing conditions. However, short periods of bright, clear weather periodically occur, primarily over the eastern approaches, when high-pressure conditions push westward from the U.S.S.R. The average height of the freezing level is at or near the surface in winter. Upper winds are predominantly westerly, and mean speeds are less than 50 knots in all seasons at all levels up to 55,000 feet.

FIGURE 18. Internal routes (C)

ROUTE AND TERRAIN	ROAD	RAILROAD	OFFROAD DISPERSAL AND VEHICULAR CROSS-COUNTRY MOVEMENT (CCM)
From Poland border near Szacecin (Stettin), to East Berlin strategic area. Nearly flat to rolling plains. Cultivated crops, forests, brush, and grass.	Autobahn (four lane, divided, limited access, concrete surface), in good condition. 30 underpasses.	Single track, 4'8 1/2" gage.....	Poor to good. Sections where dispersal and CCM seriously restricted or precluded by numerous lakes and streams, ditches, forests, and wet soils.
From Poland border near Kostrzyn to East Berlin strategic area. Nearly flat to gently rolling plains. Cultivated crops, forests, grass, and brush.	Two-lane bituminous, in good condition.	.....do.....	Fair to good. Sections where dispersal and CCM seriously restricted or precluded by numerous lakes and streams, ditches, forests, and wet soils.
From Poland border at Frankfurt to East Berlin strategic area. Nearly flat to gently rolling plains. Cultivated crops, forests, grass, and brush.	Autobahn, in good condition. Two-lane bridge at border crossing point. About 20 underpasses.	Double track, 4'8 1/2" gage.....	Fair to poor. Movement restricted or precluded in places by streams, wet soils, and extensive forests.
From Poland border at Forst to East Berlin strategic area. Nearly flat to gently rolling plains. Extensive marshes and bogs, streams, and patches of forest.	Road from Forst southwest to autobahn is two-lane bituminous, stone block, or concrete, in good condition. Autobahn is two-lane and in good condition. Numerous underpasses.	Generally single track, 4'8 1/2" gage. Double tracking is under construction on several sections.	Unsuited to poor. Extensive marshes and bogs, streams, and patches of forest.
From Czechoslovakia border near Teplice to Dresden in Saxony strategic area. Route traverses rugged hills. Hills near the border are forested. In other areas, cultivated vegetation, brush, grass, and patches of forest predominate. Narrow pass at border.	Two-lane bituminous or stone-block surface, good condition. Steep grades and sharp curves restrict movement. Snow blockage possible in December through March.	Nearest railroad is double track, 4'8 1/2" gage, and parallels Elbe.	Fair to poor. Restricted or precluded in many places by steep slopes, forests, marshes, bogs, and numerous streams. Fair most of the time near Dresden, where terrain is less rugged.
From Dresden, in the Saxony strategic area, to the route connecting the southernmost approach from Poland to the East Berlin strategic area. Nearly flat to rolling plains. Dense forests, grass, and cultivated crops.	Autobahn, in good condition. Many underpasses.	Single track, 4'8 1/2" gage. Railroad and autobahn are widely separated.	Mainly poor, but fair to good in small areas in the south. Deterred by dense forests, wet areas, and soft ground.
From southernmost approach in West Germany near Hof to Karl-Marx-Stadt, in Saxony strategic area. Small, relatively low corridor of scattered rolling plains through the southern highland rim and nearly flat to rolling plains along the edge of the highlands. Brush, patches of forest, grass, and cultivated crops.	Two-lane bituminous surface, fair to good condition from border to Plauen. Steep grades and sharp curves. Autobahn from Plauen to Karl-Marx-Stadt, in good condition. Approximately 20 underpasses.	Partially double tracked, 4'8 1/2" gage. Part of the route electrified.	In parts of the route, many opportunities for offroad dispersal of vehicles: conditions for CCM fair to poor. Restricted in many places by steep slopes, patches of forest, and areas of periodically soft, wet ground.
From West Germany border northeast of Bad Hersfeld to Saxony strategic area. Route crosses rolling to rugged hills, rolling plains, and valleys. Vegetation mostly cultivated crops.	Two-lane bituminous surface from border to autobahn near Eisenach, good condition. Remainder of route is autobahn, in good condition. About 45 underpasses.	Generally single track, 4'8 1/2" gage. Short double track section in Erfurt-Eisenach area.	Fair to unsuited in many places between border and Eisenach; hindered by steep slopes and forests. Generally good in rolling plains and broader valleys.

FIGURE 18. Internal routes (C) (Continued)

ROUTE AND TERRAIN	ROAD	RAILROAD	OFFROAD DISPERSAL AND VEHICULAR CROSS-COUNTRY MOVEMENT (CCM)
From West Germany border at Helmstedt to East Berlin strategic area. Plains mainly cultivated between border and vicinity of Magdeburg. Between Magdeburg and East Berlin, forests, grass, and crops, numerous lakes, and extensive marshes.	Autobahn, in good condition. About 45 underpasses.	Double track, 4'8 1/2" gage, from border to Magdeburg area. Generally single track to East Berlin. Railroad widely separated from road in many places.	Between border and point north of Magdeburg, many opportunities for easy offroad dispersal. CCM on cultivated surfaces usually good. Between point north of Magdeburg and East Berlin strategic area, forests and poor drainage make offroad dispersal and CCM prevalingly poor or unsuited. From Magdeburg to East Berlin strategic area, a canal generally parallels the railroad.
From West Germany border near Boizenburg to East Berlin strategic area. Nearly flat to rolling plain. Brush, forest, crops, and grass.	Three-lane concrete or stone-block surfaces, in good condition. Several through-truss bridges.	Generally single track, 4'8 1/2" gage; north of road from border to Boizenburg, roughly parallels road in remainder.	In the northwestern half of route, offroad dispersal easy; CCM fair in places but limited in some areas by marshes, bogs, and numerous lakes, streams, canals, ditches, and patches of forest. In remainder of route, these features are extensive and severely hinder or preclude all but local CCM; offroad dispersal poor to unsuited.
Route continuing area best suited for amphibious landings and the route between border near Boizenburg and East Berlin strategic area. Mostly flat, cultivated plains, a few areas of brush, forest, and grass.	Autobahn, in good condition, from Warnemunde to Rostock. From Rostock to Wismar, two-lane bituminous surface, in good condition. Remainder of route two-lane bituminous or concrete surfaces, in fair to good condition. Sharp turns and narrow streets in towns.	Predominantly single track, 4'8 1/2" gage; some sections double track.	Generally fair, but poor in places between Wismar and Ludwigslust. Wet areas, streams, lakes, ditches, canals, moist ground, and patches of forest major hindrances to movement.
From East Berlin strategic area to Leipzig in the Saxony strategic area. Mostly flat to rolling plains. Brush, forests, crops, and grass. Almost entirely cultivated vegetation in south.	Autobahn, in good condition. Numerous underpasses.	Double track, 4'8 1/2" gage. Line electrified from Bitterfeld to Leipzig.	In north, prevailing poor or unsuited. Primary hindrances are forests, moist or wet ground, and many lakes, watercourses, ditches, and canals. In southern part of route, mostly fair to good.

FIGURE 19. Boundaries (U/OU)

BOUNDARY	LENGTH	STATUS	TERRAIN
	<i>Miles</i>		
Baltic Sea coastline, including major islands and islets.	560	Territorial jurisdiction claimed 3 nautical miles offshore. Permanent batteries concentrated at Warnemunde and on the island of Ruegen.	Nearly flat to gently undulating plain. Mostly cultivated, but many patches of forests.
West Germany.....	858	Demarcated but not recognized as an international boundary by U.S. No major permanent fortifications. Fences, trip flares, minefields, and bunkers. Border guarded and patrolled. Quality of fences and guard towers is continuously upgraded.	Northern half (north of 52°N.) mostly flat to rolling plains. More than 50 miles of northern half formed by Elbe River. Patches of forests, cultivated vegetation, and wet areas.
Poland.....	290	Demarcated and undisputed. No major permanent fortifications. Fences, flares, and guard towers. Guarded, but security measures less than along boundary with West Germany. Not recognized by U.S. as international boundary.	Boundary formed mainly by Oder and Neisse rivers through nearly flat to gently rolling, poorly drained plains. Vegetation mainly forests and cultivated crops, small areas of brush, grass, and peat bogs.
Czechoslovakia.....	285	Demarcated and undisputed. No major permanent fortifications. Fences, flares, cleared strips, and guard towers. Guarded, but security measures less than along boundary with West Germany.	Boundary through mostly forested, rugged hills. Brush and cultivated crops locally.

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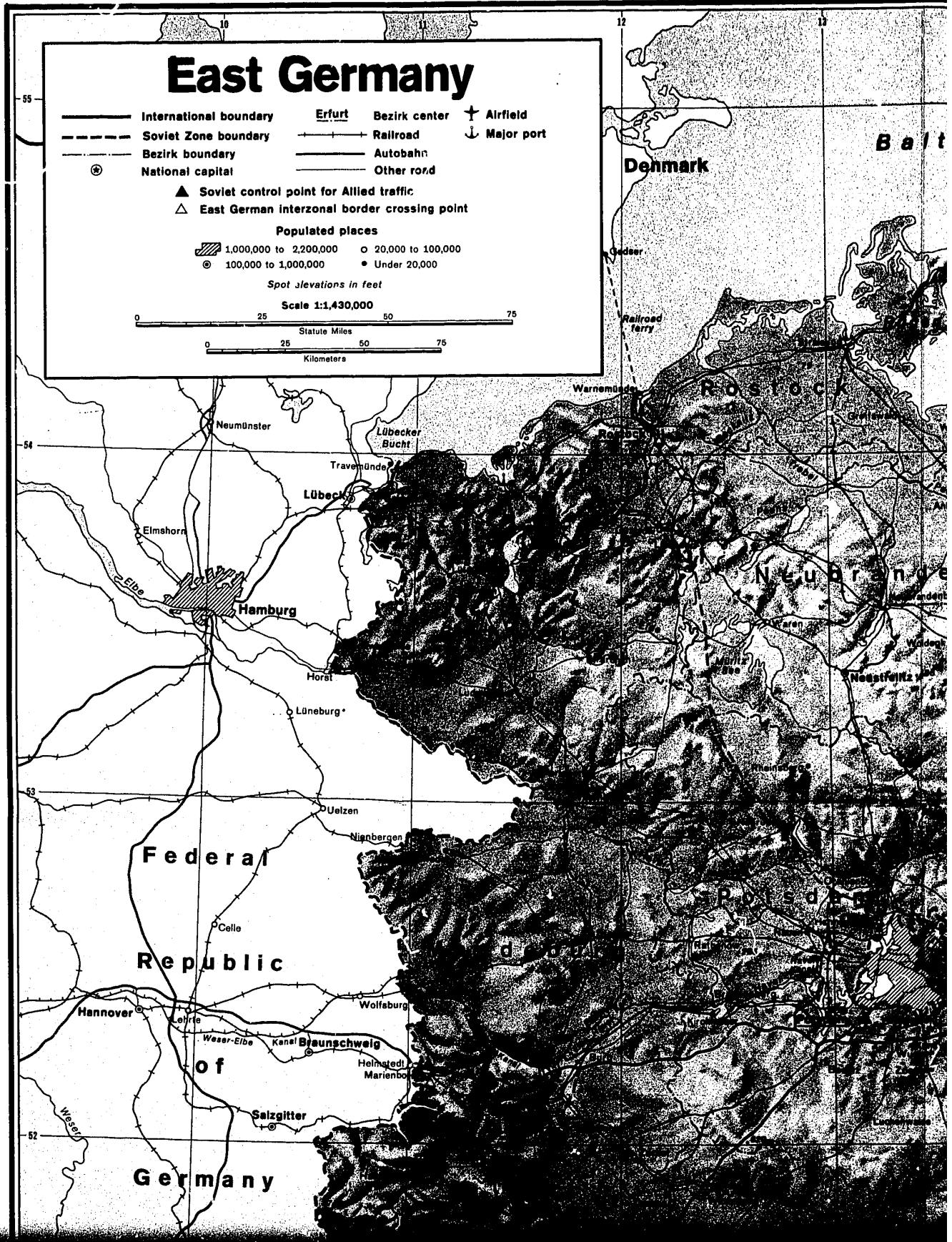
FIGURE 20. Land approaches (C)

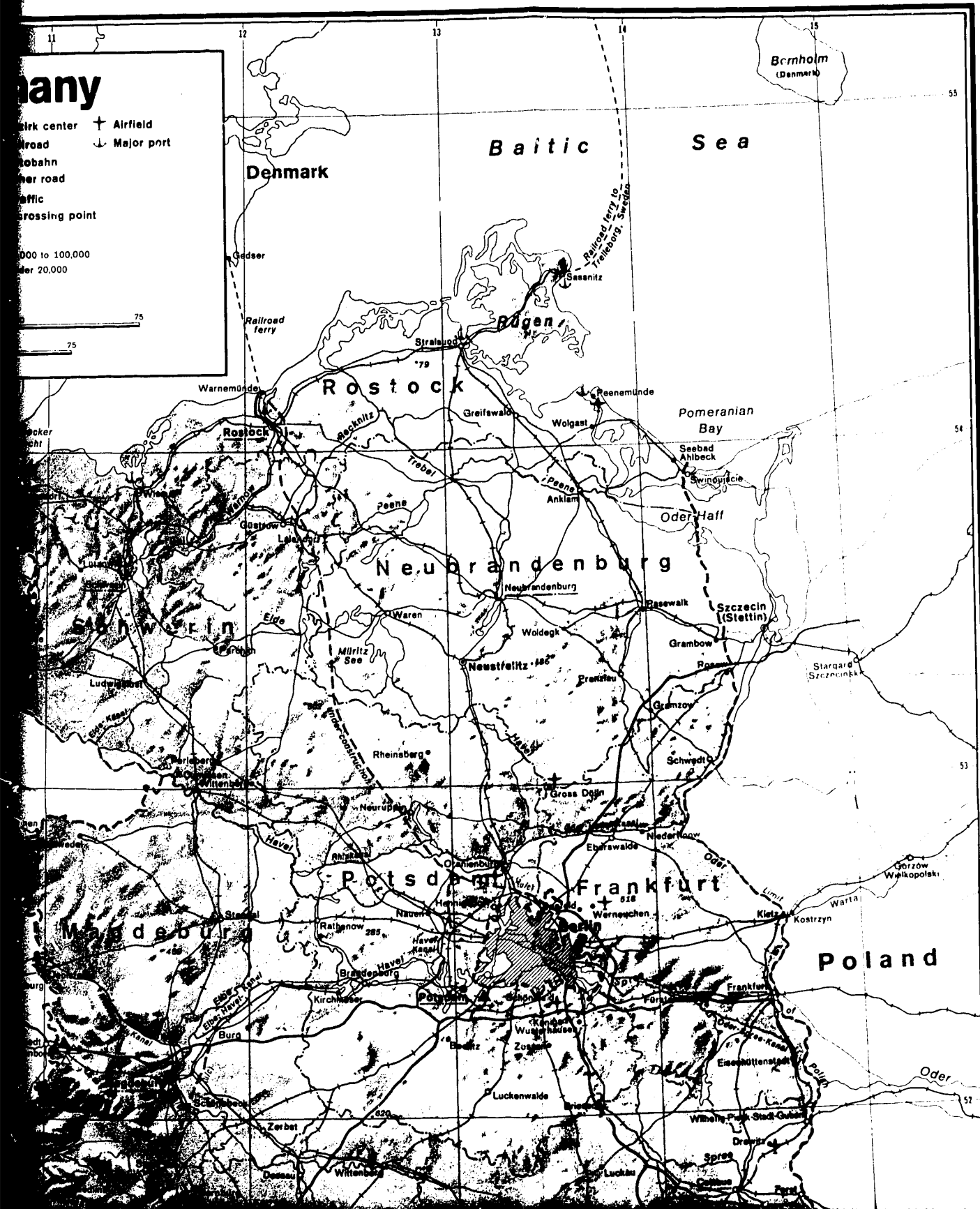
APPROACH	ROAD	RAILROAD	OFFROAD DISPERSAL AND CROSS-COUNTRY MOVEMENT
From east of Szczecin, Poland. Nearly flat to gently rolling area of cultivated crops.	Autobahn, in good condition.....	4'8 1/2" gage, partly double track. Section crossing border is single track, 4'8 1/2" gage.	Generally good. Restricted in places by wet soils, streams, swamps, marshes, ditches, bogs, and scattered forests.
From Kostrzyn, Poland. Nearly flat to gently rolling plains, mostly cultivated.	Two-lane bituminous surface, fair to good condition. .....do.....	Double track, 4'8 1/2" gage..... .....do.....	Poor. Restricted by wet soils, streams, swamps, marshes, ditches, bogs, and scattered forests.
From Poland border near Frankfurt, East Germany. Nearly flat to gently rolling plains, mostly cultivated.	.....do.....	.....do.....	Generally good, poor in places. Restricted primarily by extensive, predominantly evergreen forests.
Southernmost land approach from Poland. Nearly flat to gently rolling plains, areas of cultivated crops and forests.	Two-lane concrete or bituminous surfaces, in fair to good condition.	.....do.....	Unsuited. Restricted primarily by extensive, predominantly evergreen forests and marshes.
From Teplice, Czechoslovakia. Mostly forested hills and low mountains, some areas gently rolling and cultivated.	Two-lane concrete, bituminous, or stone-block surfaces, in good condition. Movement restricted near border by sharp curves, steep grades, and from December to March by heavy snow.	None near road. Closest railroad parallels Elbe, double track, 4'8 1/2" gage.	Poor to unsuited. Limited by snow, moderate to steep slopes, and dense evergreen forests, particularly along the border.
From Hof, West Germany. Low, rolling to steep, partly forested hills and nearly flat to rolling, chiefly cultivated plains.	One- and two-lane bituminous-surfaced roads.	Double track, 4'8 1/2" gage.....	Generally fair through the nearly flat to rolling gap near Hof. Hindered in places by patches of forest, some steep slopes, and wet ground.
From Bad Hersfeld, West Germany. Forested rolling plains and hills, some areas of cultivation.	Autobahn from Bad Hersfeld to area west of Gerstungen; one- and two-lane bituminous-surfaced roads to border.	.....do.....	Unsuited. Restricted or precluded by steep hill slopes, dense forests, and at times by deep winter snow and wet ground.
From Helmstedt, West Germany. Nearly flat to gently rolling, cultivated plains.	Autobahn, in good condition. Movement restricted in places by sharp curves and by narrow streets in towns.	.....do.....	Fair to good except for some areas of bogs, marshes, lakes, streams, ditches, soft soils, forests, and road embankments.
From Hamburg, West Germany, to border near Boizenburg. Nearly flat to gently rolling plain with patches of forests, cultivated vegetation, and areas of peat bogs.	Two-lane, mostly bituminous surface, in fair condition. Movement restricted by sharp curves and by narrow streets in towns.	Single track, 4'8 1/2" gage.....	Fair to good except for some areas of bogs, marshes, lakes, streams, ditches, soft soils, forests, and road embankments.

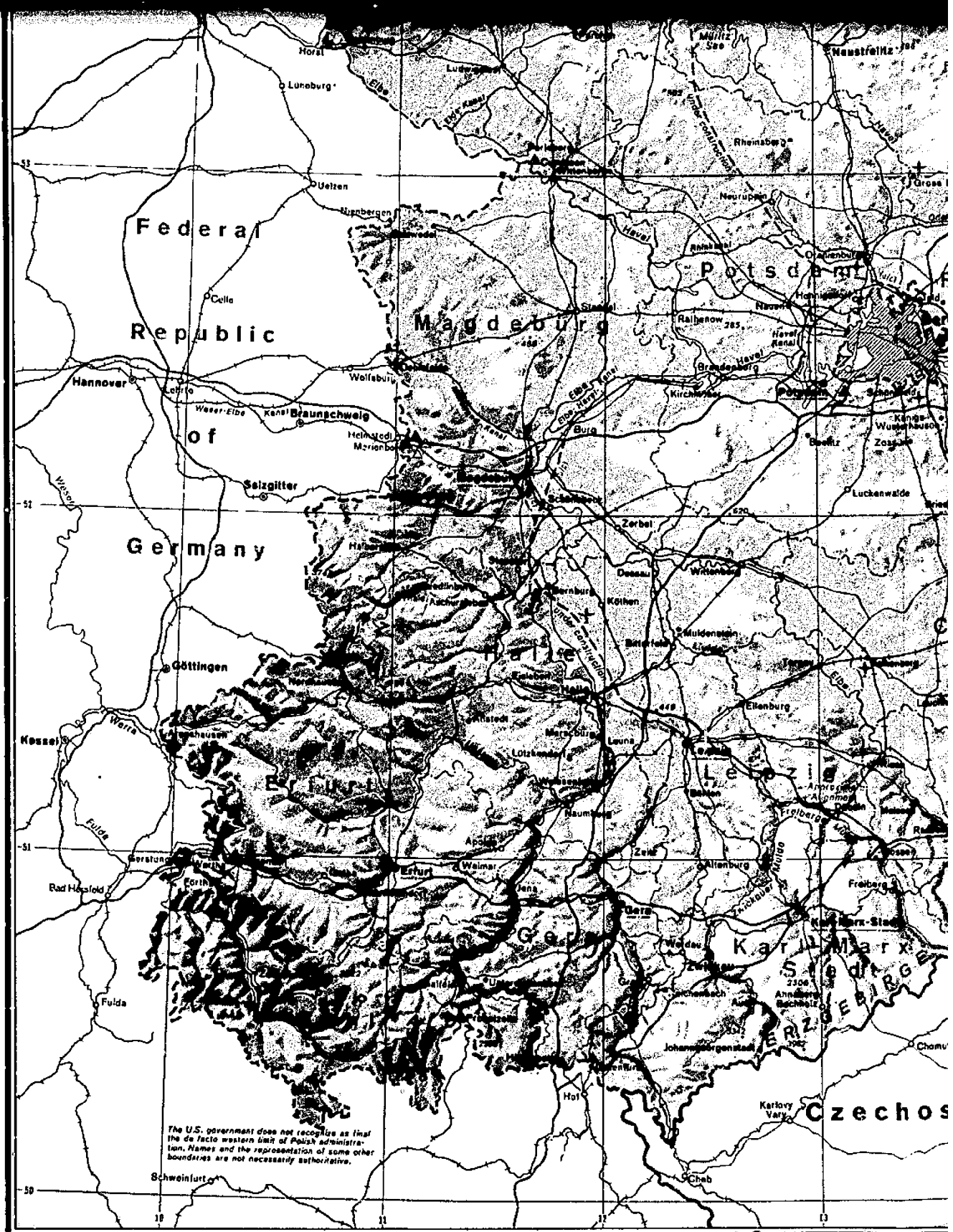
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Places and features referred to in this General Survey (u/ou)

	COORDINATES			COORDINATES	
	° 'N.	° 'E.		° 'N.	° 'E.
Adlershof (sec. of East Berlin)	52 27	13 32	Naumburg	51 09	11 49
Altenburg	50 59	12 27	Neisse (stream)	52 04	14 46
Aue	50 35	12 42	Neubrandenburg	53 34	13 16
Babelsberg	52 24	13 06	Neustrelitz	53 22	13 05
Bad Elster	50 17	12 14	Niederfinow	52 50	13 56
Bad Hersfeld, West Germany	50 52	9 42	Niemegk	52 05	12 42
Bad Schandau	50 55	14 09	Oberhof	50 43	10 44
Bansin	53 58	14 08	Oder (stream)	53 32	14 38
Barhöft	54 26	12 02	Oder-Havel-Kanal (canal)	52 52	14 02
Barth	54 22	12 44	Oder-Spree-Kanal (canal)	52 23	13 41
Bautzen	51 11	14 26	Oranienburg	52 45	13 14
Bergen	54 25	13 26	Osnabrück, West Germany	52 16	8 03
Berlin	52 31	13 24	Osthafen (port)	52 27	13 28
Biesenthal	52 46	13 38	Ostseebad Wustrow	54 21	12 24
Bitterfeld	51 37	12 19	Paderborn, West Germany	51 43	8 46
Blankenheim	51 31	11 25	Pankow (sec. of East Berlin)	52 34	13 24
Böhlen	51 12	12 23	Parow	54 21	13 05
Boizenburg	53 23	10 43	Pätz	52 14	13 39
Bonn, West Germany	50 44	7 06	Peenemünde	54 08	13 47
Boxberg	51 24	14 34	Petkus	51 59	13 21
Brandenburg	52 25	12 33	Piesteritz	51 52	12 36
Brandenburg (region)	53 00	14 00	Plauen	50 30	12 08
Braunschweig, West Germany	52 16	10 32	Pomerania (region)	53 40	15 00
Breege	54 37	13 21	Potsdam	52 24	13 04
Briesen	52 03	13 43	Prague, Czechoslovakia	50 05	14 28
Brocken (peak)	51 48	10 37	Radeberg	51 07	13 55
Buch (sec. of East Berlin)	52 39	13 30	Rheinsberg	53 06	12 53
Bug	54 37	13 13	Riems (island)	54 11	13 22
Calvörde	52 24	11 18	Riesa	51 18	13 18
Cölpin	53 31	13 26	Rosendorf	51 03	13 56
Cottbus	51 46	14 20	Rosslau	51 53	12 15
Crossen	50 46	12 29	Rostock	54 05	12 08
Dänholm (island)	54 19	13 07	Rothensee	52 11	11 40
Danube (stream)	45 20	29 40	Ruderitz	50 25	12 01
Darsser Ort (cape)	54 29	12 31	Rügen (island)	54 25	13 24
Dequede	52 50	11 41	Rummelsburg	52 30	13 31
Dessau	51 50	12 15	Saale (stream)	51 57	11 55
Dresden	51 03	13 45	Saalfeld	50 39	11 22
East Berlin	52 30	13 33	Saalow	52 12	13 23
Eberswalde	52 50	13 50	Saar, West Germany (region)	49 15	7 00
Eggersdorf	52 32	13 49	Sangerhausen	51 28	11 18
Eilenburg	51 28	12 37	Sassnitz	54 31	13 39
Eisenach	50 59	10 19	Kühlungsborn	54 09	11 43
Eisenhüttenstadt	52 09	14 39	Saxony (region)	51 00	13 00
Eisleben	51 32	11 33	Schkopau	51 24	11 59
Elbe (stream)	53 50	9 00	Schönebeck	52 01	11 45
Elbe-Havel-Kanal (canal)	52 24	12 23	Schwarzenpfost	54 11	12 18
Erfurt	50 59	11 02	Schwarze Pumpe	51 32	14 21
Erzgebirge (mts)	50 30	13 10	Schwedenschanze (site)	54 33	13 09
Espenhain	51 11	12 28	Schwedt	53 04	14 18
Fichtel-Berg (mt)	50 26	12 57	Schwerin	52 12	13 53
Forst	51 44	14 38	Seefeld	52 37	13 41
Frankfurt	52 21	14 33	Seelingstädt	50 47	12 15
Freiberg	50 55	13 22	Seiffen	50 39	13 27
Fulda, West Germany	50 33	9 40	Senftenberg	51 31	14 01
Gedser, Denmark	54 35	11 57	Silesia, Poland and Czechoslovakia (region)	51 00	18 00
Gehlsdorf	54 06	12 06	Sonneberg	50 21	11 10
Gera	50 52	12 05	Stendal	52 36	11 51
Gerstungen	50 58	10 04	Stralsund	54 18	13 06
Glöwe	54 34	13 29	Strausberg	52 35	13 53
Görlitz	51 10	15 00	Stubbenkammer	54 35	13 40
Greifswald	54 06	13 23	Südhafen (port)	52 31	13 12
Gross Inselsberg (mt)	50 52	10 28	Suhl	50 36	10 42
Güldendorf	52 19	14 32	Szczecin (Stettin), Poland	53 25	14 35
Halle	51 30	12 00	Tarnewitz	53 58	11 14
Halle-Neustadt (sec. of Halle)	51 29	11 56	Tautenburg	51 00	11 43
Hamburg, West Germany	53 33	10 00	Teplice, Czechoslovakia	50 38	13 50
Harz (mts)	51 45	10 30	Thüringer Wald (mts)	50 40	10 50
Havel (stream)	52 53	11 58	Thuringia (region)	51 00	11 00
Havel-Kanal (canal)	52 36	13 12	Torgau	51 34	13 00
Heinersdorf	53 06	14 12	Trattendorf	51 32	14 23
Helbra	51 33	11 30	Trelleborg, Sweden	55 22	13 10
Helmstedt, West Germany	52 14	11 00	Tremsdorf	52 16	13 07
	52 38	13 12	Unstrut (stream)	51 10	11 48







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