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27



Military Geography

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This chapter has been prepared for the NIS by the Defense Intelligence Agency. Research was substantially completed by January 1974.



DENMARK

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Military Geography

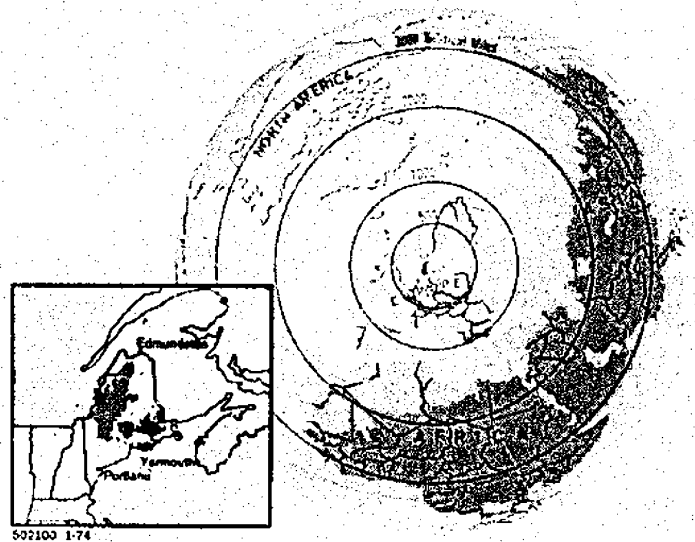


FIGURE 1. Location and comparative areas (U/OU)

A. Location and description (U/OU)

Denmark, consisting of a peninsula and numerous islands,¹ is located between West Germany and the Scandinavian peninsula and separates the Baltic Sea from the North Sea (Figure 19). From Denmark, military forces could control movement between the Baltic Sea and the Atlantic Ocean through the three tenuous, easily blocked straits of the Danish Archipelago (Lille Bælt, Store Bælt, and The Sound). The Faeroe Islands, representing approximately 3% of the land in the NIS Area, are in the North Atlantic about 525 nautical miles northwest of Denmark.

¹Denmark includes the Jutland peninsula, the adjacent islands, and the island of Bornholm. The Faeroe Islands are controlled by Denmark but are semiautonomous. Greenland, a first order administrative division of Denmark, comprises NIS 67, and its military geography is not described in this General Survey.

Denmark has an area of approximately 16,600 square miles, about one-half the size of Maine (Figure 1). More than two-thirds of the total land area of Denmark is in the Jutland peninsula. The remaining one-third is composed of approximately 500 islands and islets; two of these islands, Sjælland and Fyn, comprise nearly 75% of the island area. The length of Denmark north-south is about 210 miles,² and the maximum east-west extent, excluding Bornholm, is about 180 miles. The population, about 5,016,000, is five times that of Maine.

The Faeroe Islands have a land area of 540 square miles, divided among about 20 islands. They have a maximum north-south extent of about 70 miles and a maximum northeast-southwest extent of about 50 miles. The population is about 40,000.

²Distances are in statute miles unless nautical miles are specifically indicated.



FIGURE 2. Flat to gently rolling surfaces covered by cultivated fields interspersed with patches of forest are typical of most of Denmark. Grains and pastures predominate, and the fields are bordered mostly by dwarf trees and shrub. (U/OU)



FIGURE 3. Southern Bornholm has nearly level surfaces that are utilized mostly for the cultivation of crops and pasture. Forests (background) occupy only about 20% of the island. (U/OU)



FIGURE 4. This stream in southern Jutland winds slowly across the wide shallow valley which is typical of the nearly level plains. The banks are low, and the valley bottom contains numerous trees and a few small, open wet areas. (C)

1. Topography

Denmark consists mostly of flat to gently rolling plains and small areas of rolling to dissected plains. The flat to gently rolling surfaces (Figure 2) predominate in western and northern Jutland, northern Fyn, most of Sjaelland, Lolland, Falster, southern Bornholm (Figure 3), and the smaller Danish islands. On Jutland, broad, shallow, flat-bottomed, marshy valleys, commonly several hundred feet wide, cross these plains; in many places the valley sides are steep. The west coast is bordered by a belt of sandy beaches, bluffs, sand dunes, lagoons, and reclaimed land. Except for the stream valleys, isolated rounded hillocks, and rows of sand dunes, there are few surface irregularities. Rolling to slightly dissected plain surfaces are prevalent in eastern Jutland, southern Fyn, parts of Sjaelland, and northern Bornholm. These areas contain steep-sided, flat-bottomed, wide valleys that compartment the plains and steep or rounded hillocks and ridges. In most of Denmark slopes are less than 10% and in many areas are less than 2%. Sand dunes, steep-sided valley walls, hillocks, and ridges have slopes of 10% to 45%, and some slopes, especially in the dune belt, are as steep as 100%. Differences in elevation between interstream areas and adjacent valley bottoms are everywhere less than 500 feet; in the large areas of flat to gently rolling plains, differences are generally less than 200 feet, and in the rolling to dissected plains, they are between 200 and 500 feet. Most of Denmark is low lying; about 99% of the land is less than 300 feet above sea level, and more than half is less than 100 feet. The highest point, in east-central Jutland, is only 564 feet above sea level.

The principal drainage features are small streams; numerous wet areas, some of which are crisscrossed by drainage ditches and canals; numerous lakes; and many ponds. In coastal areas lagoons and estuaries are common. The many streams are short, shallow, narrow, and sluggish, and meander across the low-lying plains (Figure 4); no stream is more than 100 miles in length. Most streams are less than 60 feet wide, and many are less than 30 feet; only a few are more than 90 feet wide, mostly near the mouths. Streams are mainly less than 3.5 feet deep, but in their lower courses are as much as 6 to 10 feet deep. The Gudena,³ in eastern Jutland, is the longest and largest stream in Denmark. It is more than 60 feet wide and 5 to 10 feet deep only in its lower course; the stream has a depth of 3 feet or less in the upper stretches. It meanders through a poorly drained, nearly flat valley

³For diacritics on place names see the list of names and the map at the end of the chapter.

that contains several elongated lakes. The high water period for most streams and lakes is from early December through April; low water occurs from early June through August. Banks are primarily low and muddy, although steep in places, and bottoms are mostly soft. Wet areas, including bogs, marshes, and wet meadows (many crossed by narrow drainage ditches), are numerous but mostly small. Most of the bogs have been reclaimed, but many remain soft and waterlogged much or all of the time. Marshes are common along most streams and in many valley bottoms. On eastern Jutland and on the islands many poorly drained depressions are on the irregular surfaces between the valleys. There are also numerous large wet areas, in addition to the depressions and marshy areas along streams; concentrations are along the west coast of Jutland, in the southwest, in the north, and along the northeastern coast of Jutland. Drainage ditches and canals (Figure 5) are numerous in several parts of Denmark, especially along the west coast. Main drainage canals in the extensive reclaimed marshes are as much as 30 feet wide and 5 feet deep; connected to these canals are many small drainage ditches. Lakes and ponds are also numerous; most of them, however, are small and shallow. The larger lakes are along the western Jutland coast behind the sand dunes, in east-central Jutland, and on northeastern Sjaelland. The smaller lakes and ponds are most numerous in the northwestern part of Jutland and in the rolling areas of eastern Jutland and the islands, chiefly Fyn and Sjaelland, where they are in depressions among the hillocks or in the valleys.

The vegetation of Denmark consists mostly of cultivated fields (Figure 6) and smaller areas of forest, meadow, heath, and bog. Cultivated vegetation is distributed over wide expanses surrounding small, isolated areas of forest, meadow, or heath. The fields are bordered by a belt of trees (commonly spruce), some dwarfed, and by shrubs, especially in western Jutland; in places fields are bordered by stone fences. Grains, including barley, oats, rye, and wheat, are the most extensively planted crops. Forests are evenly distributed in most of the country, characteristically as isolated woodlots. Coniferous evergreen plantations, mainly spruce, occupy about half of the forest area and predominate in northern and western Jutland. Broadleaf deciduous forests and plantations, chiefly beech and some oak, predominate in eastern Jutland and on the islands. The deciduous forests are in leaf between April and October. Meadows occupy only small areas, most commonly along streams and around lakes and bogs. Many meadows have been established by providing artificial drainage, especially in the

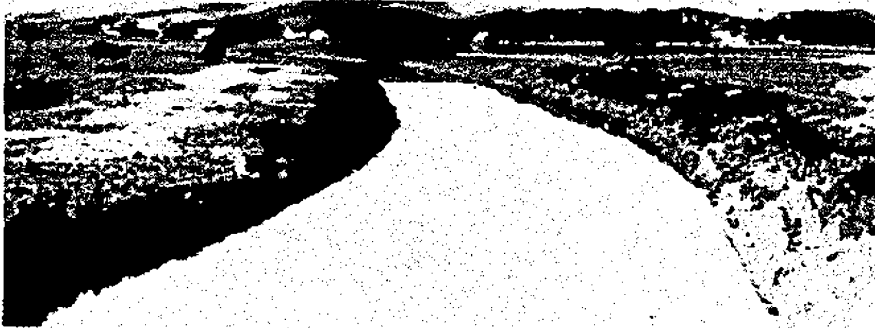


FIGURE 5. Drainage canals are numerous on the low-lying wet plains dispersed throughout the country. This canal in east-central Jutland is about 20 feet wide and 5 feet deep. Banks are low and soft. (C)

lowest areas of southwest Jutland. Bogs, also comprising only small areas, consist of a thick, soggy cover of mosses. Heath, consisting of low evergreen shrubs, is most widely distributed in northern and western Jutland (Figure 7). Low, tufted grasses and sedges and low spiny shrubs comprise the sparse vegetation in the belt of sand dunes along the northern and western coasts of Jutland (Figure 8).

The soils of Denmark are chiefly sandy and deep. In addition, there are clay soils of considerable extent. The ground in most of Denmark is prevailingly wet or moist during November through April; for short periods during this time it is frozen and snow covered. The ground is prevailingly moist or dry, with occasional wet spells, during May through October. In two general areas, however, the state of the ground varies little throughout the year—in the sand dune

areas of narrow coastal plains, chiefly in western Jutland, the ground is mostly dry and never frozen, and in the marsh, peat bog, and meadow areas, the ground is mostly wet, and soft. It is frozen (only near the surface) several times, mainly in 1- to 3-day periods, during January through March. Bogs are soft, spongy, and highly compressible below the surface at all times.

The settlement pattern of Denmark is characterized by numerous rural villages and farmsteads and a few large urban centers. The rural villages are most numerous in eastern Jutland and the larger islands and are of two general forms—a round or oval type and a linear type. The former is characterized by buildings clustered around an open space or green and is predominant in Sjaelland, Falster, and part of eastern Jutland; ordinarily there are several winding streets



FIGURE 6. A mosaic of small cultivated fields interspersed at random with diminutive dense forests (background) constitute the landscape of most of Denmark. This view is in eastern Jutland. This village is the linear type. (C)

FIGURE 7. This desolate, treeless undulating plain in west-central Jutland is covered by Scotch heather, a profusely branched evergreen shrub, 1 to 3 feet high, with roots that may penetrate the earth to depths of 8 feet. These heath plains are interrupted by areas of sparse grass. (U/OU)



radiating from the green. The linear type is characterized by buildings strung along the sides of a single road and occurs often in Fyn, Mon, Lolland, and southeastern and northeastern Jutland. Buildings in the villages are low and generally of brick or stucco and timber construction, with steep, gabled, tile or slate roofs (Figure 9). Individual farmsteads are numerous even in areas where villages are numerous. Construction is usually brick or plaster and timber; newer farmsteads are stucco covered (Figure 10). Stone is a common construction material on Bornholm. The few large urban centers are on the larger islands and in eastern Jutland. In addition, there are many small ports, market towns, and towns at transportation junctions or terminals. There is a concentration of towns in northeast Sjaelland near Copenhagen and another group near the straits between Fyn and Jutland. Danish urban centers are compactly and

substantially built. Most have an old section with narrow winding streets and closely spaced one- and two-story houses. New sections have multistory apartments and high-rise office buildings (Figure 11); large commercial and institutional buildings (Figure 12) are typical of most main urban centers. All major towns are connected by an extensive road and railroad network; a dense network of secondary roads affords access to almost all villages. The Jutland peninsula and the islands are interconnected by ferries or long bridges.

The Faeroe Islands consist of rugged deeply dissected hills and mountains. Deep U-shaped valleys cut completely across several islands. These small islands are massive blocks with sheer rock sides and in many cases flat tops; glacial debris and outcrops of bedrock and boulders are common. The upland surfaces of the larger islands are cut by deep, steep-

FIGURE 8. The sand dunes along the northern coast (shown here) and the western coast of Jutland are partially stabilized by a low natural growth of coarse, sharp-edged tufted grasses and sedges. The grasses commonly occur in clumps surrounded by bare sand. (U/OU)





FIGURE 9. This rural village in southwestern Jutland is the oval type, and small green spaces interspersed among the houses are common. The houses are clustered and generally have two to three stories. (C)

sided valleys and have sharp-pointed peaks and craggy hills and mountains extending several hundred feet above the general surface. Elevations are generally between 1,000 and 1,500 feet, but numerous peaks are more than 2,000 feet above sea level. The

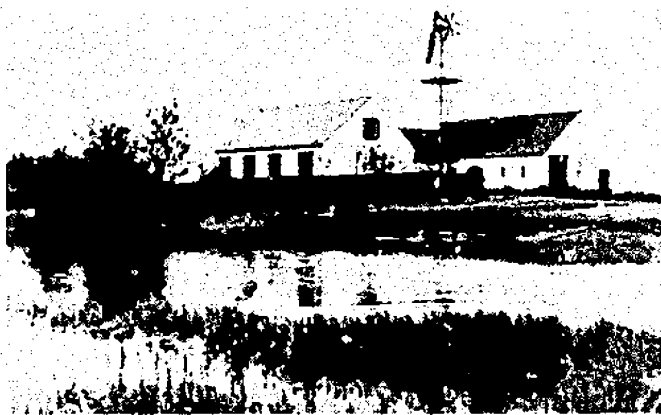


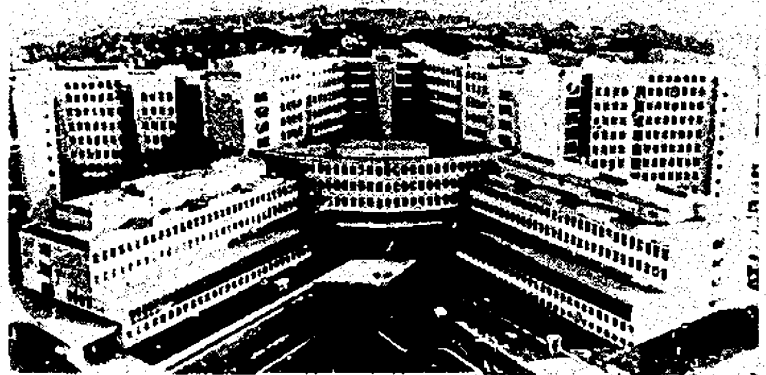
FIGURE 11. Commercial building construction in the large urban areas shows a trend toward skyscrapers. This combination office building and hotel is on the outer fringes of the commercial area of Copenhagen. (C)

highest elevation in the islands is 2,894 feet. Slopes are more than 30% in many places. Lowlands generally are confined to narrow areas between the interior highlands and the sea and are very small.

Drainage features on the Faeroe Islands consist of numerous small streams and lakes. Most streams are short and swift flowing and plunge over the steep edges of the uplands into coastal fiords and sound. No stream is more than 30 feet wide, and all are shallow. The bottoms are commonly rocky or are boulder filled.

FIGURE 10. Individual farmsteads such as shown here in central Jutland house the majority of the rural population of Denmark. The buildings generally are well constructed. (C)

FIGURE 12. This sprawling, multi-story hospital in the suburbs of Copenhagen is one of the outstanding medical facilities in the country. (C)



The larger lakes occupy valleys, but smaller lakes are on the upland surfaces; almost all are shallow. There are also small areas of drainage ditches.

Vegetation on the Faeroe Islands consists of low tufted grasses, sedges, rushes, lichens, mosses, and a few shrubs; it rarely exceeds a height of 1 foot. Bogs, with sedges and moss, are common on the wet valley floors, particularly in the many depressions. On the hills vegetation is mainly grasses and other herbs, mosses, lichens, and low, heather shrubs. Some slopes and well-drained valleys are covered mainly by tufted grasses. Small, scattered cultivated areas, with stone fences and ditches, are on several of the islands.

Soils in the Faeroe Islands are principally shallow and stony; there are small areas of peat, silt, and clay. The ground is predominantly moist during November through April and dry from May through October. The ground is snow covered at times during November through April; at high elevations during this period the ground is frozen at times and is also snow covered about half of the time.

The settlement pattern is characterized by villages located along the coast, commonly at the heads of fiords. Typical villages are composed of 25 or fewer houses, which are constructed chiefly of driftwood and have turf roofs. There are also some low stone houses that are half below the ground surface. In exposed locations houses are surrounded by outer stone walls. There are few isolated dwellings. The few towns have closely spaced buildings that are mostly one or two stories high. Houses commonly have foundation walls of stone, which may be stuccoed. The main part of the dwelling is generally frame with plank walls. Newer houses are constructed of concrete.

The transportation network on the Faeroe Islands is very sparse. There are few roads and no railroads.

2. Climate

The climate of Denmark is primarily maritime, although modified at times by continental influences, and has highly changeable weather. These characteristics are governed mainly by the surrounding seas and Atlantic Ocean, by semipermanent pressure systems responsible for contrasting flows of air across Denmark, and by a succession of migratory pressure systems that pass through or near the country. During winter (December through February) the interaction of the intense Icelandic low and the equally intense Siberian high produces a westerly or southwesterly flow of cold, moist Atlantic air across the relatively flat country. Embedded in this flow is a moderate incidence of cyclonic activity. These migratory lows and their associated fronts cause extended periods of inclement weather, characterized by overcast skies (Figure 18), frequent light precipitation, poor visibility, and a generally raw, damp condition. Migratory highs often follow the lows and produce shorter periods of less inclement weather. This succession of events is interrupted on occasion by an outbreak of polar continental air from the Siberian high to the east that may persist for days and bring the coldest temperatures of the winter and much sunshine. During summer (June through August) the Azores high becomes the dominant control and from its northern periphery directs a west-to-northwest flow of mild, less moist Atlantic air across Denmark. Embedded in this flow is a slightly greater incidence of cyclonic activity than in winter. However, the summer lows and fronts are less intense and are characterized by narrow bands of rain showers and thunderstorms; clearing is rapid in the migratory highs that follow. The passing lows and highs travel at a faster rate during this season, resulting in shorter spells of the recurrent sequence of showery and fair weather. Other

aspects of the climate are substantially improved in summer, with decreased cloudiness, better visibility, lower relative humidity, and a generally mild, pleasant condition. The spring (March through May) and autumn (September through November) seasons are transitional in nature, with autumn slightly more mild and more rainy than spring.

Winters are generally cold; mean daily maximum temperatures are in the middle or upper 30's (°F.) and mean daily minimums are near or below freezing. Frosts are frequent. The lowest readings occur when outbreaks of cold continental air send temperatures plummeting to near or below zero, especially in the interior sections. Usually, however, the cold spells are well interspersed between the string of migratory lows and highs. The high winter relative humidity, persistently in the 80's (%) or 90's, creates a penetrating dampness which is alleviated only during the infrequent invasions of drier air from the east. Cloudiness is also at a maximum in winter, averaging in the 70% to 80% range throughout the season. Low-hanging stratus or stratocumulus cloud decks are characteristic, and only occasionally is the dull, gray overcast broken by short periods of sunshine. The widespread cloudiness yields frequent precipitation, often in the form of snow. Although the precipitation persists for relatively long periods, the intensity of the falls is usually light, and monthly accumulations are normally less than 3 inches. Alternating periods of snow cover and snow melt are featured throughout winter; snow depths infrequently reach or exceed 6 inches. Fogs are common during the morning and occasionally last throughout the day. This, together with the rather high frequencies of precipitation and very low cloud ceilings, makes visibility conditions the poorest of the year. The gloomy atmosphere is made even more trying by the raw, biting winds during the passage of storms or fronts; some winds reach gale intensity (>27 knots).

Summers are pleasantly mild or warm in the afternoon, temperatures reaching average maximums in the middle or upper 60's (°F.) or low 70's, while the nights cool to average minimum temperatures in the low or middle 50's. The highest readings of the season occur during the infrequent influx of hot continental air, which sends temperatures soaring into the 80's or low 90's. Relative humidity is more tolerable in summer, especially in the afternoon, when average values are mostly in the 60% to 75% range. The pleasantness of the season includes ample sunshine as cloud cover reaches a minimum, generally averaging between 50% and 65% throughout the country. Cumulus clouds dominate the skies and often

mushroom into billowy masses, with accompanying brief shower activity. The more intense rainfall results in increases in average monthly amounts to totals of 3 or 4 inches. The heaviest falls of rain occur during the occasional thunderstorms. Early morning fogs are less frequent and quickly burn off by late morning, and the showers are usually of short duration; thus, visibility is much improved and offers the best condition of the year. The winds abate sharply during summer, and strong winds are associated mostly with the infrequent thunderstorms.

The Faeroe Islands have a maritime climate and are under the strong influence of the Icelandic low all year. The frequency of migratory low pressure systems results in highly changeable daily weather. In addition, the rugged terrain causes marked local variations in most climatic elements. In the narrow coastal lowlands of the Faeroes, mean daily maximum temperatures range from the mid-50's in summer to the low 40's in winter. Mean daily minimums range from the mid-40's in summer to the low 30's in winter. Extreme maximums in summer are about 70°F.; extreme minimums in winter are near 10°F. in most places, but are near 0°F. at the higher elevations. Mean annual precipitation ranges from about 50 inches in sheltered locations to perhaps as much as 100 inches at exposed southwesterly locations. Precipitation is heaviest during the period October through February and lightest in the period April through August. In the coastal lowlands snow occurs on approximately 45 days annually, mostly October through May; the ground is covered with an inch or more of snow on 37 days and with 6 inches or more on 13 days annually. In the mountains snow is much more frequent and remains on the ground for longer periods. Thunderstorms are rare, occurring on only 5 days a year. Skies are frequently overcast, and the mean cloud cover is generally between 80% and 90%. Visibility is frequently restricted by fog, snow, and rain and by low clouds that often obscure the hills and ridges. Relative humidity is high throughout the year; monthly means range from about 85% to 95%. Surface winds are frequently stronger than 27 knots, especially at exposed mountain locations.

B. Military geographic regions (C)

There are two military geographic regions—Denmark (Jutland peninsula, adjacent islands, and Bornholm) and the Faeroe Islands (Figure 19). The combination of environmental conditions within each region would have a relatively uniform effect on

military operations, but there would be marked differences between the two regions.

1. Denmark

Jutland and the islands are generally well suited for large-scale conventional ground operations. Conditions for cross-country movement of tracked and wheeled vehicles are poor on most of Jutland and Bornholm but are good on most of Fyn, Sjælland, Falster, Lolland, and the smaller islands. On Jutland the ground is usually soft and untrafficable in numerous peat bogs and marshes (some crisscrossed by ditches and canals) that are most widespread in the western part and in other wet areas that border most streams. Although most streams are shallow, marshy approaches and steep, muddy banks make stream crossings difficult. On Bornholm small, narrow, steep-sided valleys that have soft, untrafficable soils hinder cross-country movement. In parts of northern and northwestern Jutland and on most of the islands conditions for cross-country movement are good on flat to rolling plains that are dry and firm most of the year. Movement would be expedited in the greater part of Jutland and the islands by numerous roads in good condition. The only limitations to onroad movement would be narrow streets in towns, some narrow bridges (mainly on secondary roads), a few sharp curves, and short, steep grades. Offroad dispersal of wheeled vehicles would be hampered in many places by ditches and stone fences that line the roads and by wet areas and soft soils. Conditions are generally good for the construction of new roads. Natural construction materials are readily available; road alignments generally would be unrestricted, and the prevailing gentle slopes would require little cut and fill. Natural foundations are generally fair to good except in valley bottoms and in low-lying marshes and peat bogs, where fill, embankments, drainage facilities, and soil stabilization would be necessary. Rainfall, generally greatest from July to November or December, causes drainage problems in low-lying areas. Soils are difficult to work after rains and thaws; thaws are most common in January, February, and March. Concealment, mainly from ground observation, would be afforded by hedgerows, small scattered wooded areas, embankments, buildings, minor relief irregularities, and coastal sand dunes. Cover from flat-trajectory fire is generally lacking, but some cover, mainly from small arms fire, would be afforded by stone fences, earth banks, urban structures, irregularities in the terrain, and coastal sand dunes. Only a few small, scattered areas are

suitable for the construction of tunnel-type installations because of the low relief. Extensive areas in the northern and eastern parts of Jutland and in scattered parts of the islands contain deep, well-drained soils that are good to fair for the construction of bunker-type installations and hasty ground shelters, but elsewhere a high water table greatly hinders or precludes bunker construction.

Most of the Denmark Region is well suited for airborne and airmobile operations. Nearly all parts are suitable for large-scale parachute operations. Cloudy weather and strong winds, especially during winter, would be the most serious handicaps to airborne operations. The large continuous areas of nearly flat to gently rolling plains provide numerous helicopter landing sites. The many airfields scattered throughout the region are suitable for landings of assault-type aircraft. About two-thirds of them are small, natural-surfaced fields, but several are large and permanently surfaced. The flat to gently rolling plains, especially in western and northern Jutland, also provide numerous good sites for the construction of airfields. Obtaining proper drainage would be the principal problem in western Jutland; natural foundations are mostly good. In eastern Jutland and the islands potential sites have fair to poor natural foundations, and much fill and extensive drainage facilities would be required.

Most of the region is poorly suited for irregular force operations. Little concealment from air observation would be available on the mainly flat to rolling cultivated plains. Forests are evenly distributed over Jutland and the islands, but they are small and isolated and cover only 10% of the region. Coniferous evergreen woodlots predominate in northern and western Jutland, and broadleaf deciduous woodlots predominate in eastern Jutland and on the islands; the deciduous forests are leafless from about early October through April. All forests are scientifically managed and are easily traversed via logging roads and trails. Concealment from ground observation and cover from flat-trajectory fire would be afforded by stone fences, sand dunes, which extend along the northern and western coasts, and by dissected terrain, which extends southward from the Limfjorden in eastern Jutland and is most rugged in the triangular-shaped area between Silkeborg, Århus, and Horsens. Additional concealment from ground observation would be provided by the numerous dense woodlots, hedges, earthen banks that may be topped by scrubby hedges, and by windbreaks, which are common in western Jutland and are composed of belts of dwarfed trees and shrubs. Although concealment would be limited, visibility in winter is frequently restricted by morning fog, which

occasionally persists all day, rain, and low clouds. Cross-country movement on foot would be easy in most areas; the major obstacles are the numerous, widely distributed peat bogs and tidal marshes, both of which have prevailing soft ground. During the winter, however, the ground freezes periodically, facilitating movement on foot. The region is densely settled, and the population is most heavily concentrated on the larger islands and in eastern Jutland. There are numerous rural villages and a few large urban centers. All are interconnected by an extensive transportation network. Food and water are available in most of the region. Cultivated crops include grains, vegetables, and tree fruits; although grains are abundant, supplies of vegetables and fruits are limited. Beef cattle, swine, and meat poultry are plentiful, and fish are available in coastal waters and adjacent open seas. There are abundant supplies of surface and ground water, but most supplies are bacterially contaminated. Materials for use as shelter and firewood are available in the ubiquitous woodlots; in addition, peat for fuel can be cut from meadows and bogs. Conditions are favorable for supplying irregular forces by air except for periods in winter, when the weather is rainy and cloudy and strong winds prevail. Although there are many beaches, supply by sea would be difficult because of obstructed and restricted approaches and flat nearshore gradients. The flat to rolling cultivated plains that constitute the border zone in West Germany contain no suitable sites for sanctuaries.

The coasts of this region are, in general, unsuited for large-scale amphibious operations because of partly obstructed and restricted approaches, flat nearshore gradients, and wet areas or rugged terrain backing parts of the coasts. Offshore approaches are generally clear; nearshore approaches are partly obstructed by sand flats, shoals, and shifting sandbars. Nearshore bottom material consists mostly of sand. Beach gradients range from flat to moderate along the North Sea and from moderate to steep elsewhere in both the low water to high water and high water zones. Tides are semidiurnal with a maximum spring range of about 6 feet. Surf 4 feet or higher may occur 25% to 35% of the time during all months along the unprotected stretches of the North Sea coast, but is infrequent elsewhere. The many beaches consist mainly of sand, pebbles, and cobble. Most of the beaches are over 4 miles long and range in width from a few yards to 200 yards. The coasts in many places are backed by marshes and lagoons, and the coast of Bornholm is generally rocky and backed by steep cliffs and rugged terrain. Exits from the beaches would be fair to good.

2. Faeroe Islands

The Faeroe Islands are almost entirely unsuited for large-scale conventional ground operations. Cross-country movement would be difficult because of steep slopes, surface irregularities, and the many areas covered by boulders. The small, isolated lowlands are the only nearly flat areas where conditions would be fair for movement of tracked and wheeled vehicles; however, the limited size of the lowlands restricts their use by vehicles. The sparse network of poor roads would not support military traffic. Dispersal from these roads would be difficult or precluded in most places. Construction of new roads would be difficult because of the rugged terrain. Steep slopes generally would limit alignments to the narrow valley bottoms, but even here numerous culverts would have to be built across small streams and gullies. Extensive grading and the blasting of bedrock would also be required. Concealment from ground observation and cover from flat-trajectory fire would be afforded by the rugged hill and mountain slopes and deep valleys. Some concealment and some cover, mainly from small arms fire, also would be provided by houses, stone fences, and drainage ditches in the lowlands. Most of the area is suited for construction of tunnel-type installations, but access to most sites in the highlands would be difficult. Sites suitable for bunker-type installations are limited to low coastal areas and valleys, and excavation by handtools would be difficult in the shallow, stony soils. In the highlands, shallow soils preclude the construction of bunkers.

Conditions are unfavorable for airborne and airmobile operations. The irregular surfaces, steep slopes, numerous boulders, high winds, summer fogs, and restricted approaches would make parachute operations hazardous. The only suitable site for landing assault-type aircraft is at the single existing airfield in the region, on Vagar. Scattered areas are suitable for helicopter landings, but strong winds would make operations hazardous at most times. Sites for construction of airfields larger than heliports are few, and all are of poor suitability; approaches are restricted, much blasting would be required, and access to upland sites would be difficult or precluded.

The region is unsuited for irregular force operations. Conditions for concealment from air observation are poor to nonexistent, and food, shelter materials, and firewood are scarce. In addition, the fragmentation and small size of the islands hinder operations. Grass and moss vegetation, mostly less than a foot in height, cover almost all of the islands and provide no concealment from either air or ground observation. The rugged highlands which compose all of the islands provide some concealment from ground observation.

but there are large nearly level upland surfaces and long smooth highland slopes where there are few possibilities for concealment. Villages (Figure 13), which are mainly located along the coasts and usually at the head of fiords, farmhouses, stonewalls, ditches, and embankments are the only other sources of concealment from ground observation. Food is available but only in limited quantities from small vegetable gardens near villages and farms; sheep are fairly numerous, and fish are in surrounding seas. Trees are rare, and there are no timber and only limited supplies of firewood. Movement on foot would be possible in most places, but sheer cliffs are numerous. The population is sparse, and there are few roads and no railroads. Supply of irregular forces by air would be hindered by rugged terrain, high winds, and low clouds. Supply by sea would be restricted by the remoteness of the islands and by obstructed approaches, particularly in the nearshore zone, rocky shores, and cliffed coasts (Figure 14).

The coasts of this region are generally unsuited for large-scale amphibious operations because of restricted approaches, rocky shores, rugged terrain backing the coast, and poor exits. Offshore approaches are generally clear, but nearshore approaches are restricted to fiords and are encumbered by scattered shoals and rocks. Nearshore bottom material consists of sand and gravel and some mud. Beach gradients are generally steep in both the low water to high water and high water zones. Tides are semidiurnal with a spring range of 4 feet. Surf 4 feet or higher may occur at any time along the unprotected stretches of coast. The few beaches are short and narrow and consist of sand, silt, cobble, and pebble. The beaches are generally located at the heads of fiords along the eastern coasts of the islands. Exits from the beaches would be poor.



FIGURE 14. Most of the coasts of the Faeroe Islands are bordered by steep, rocky cliffs. These almost vertical walls in western Suduroy rise 1,500 to 2,400 feet above sea level. (U/OU)

C. Strategic area (C)

The most strategic area in Denmark is the Danish Straits area (Figure 19). It contains the three important straits through the Danish Archipelago, a major part of the industry, the largest urban area, and

FIGURE 13. Built-up areas are one of the few sources of concealment from air observation in the Faeroe Islands, which are covered primarily by a grass-moss growth less than a foot high. This view shows part of the village of Torshavn. (U/OU)



key transportation, communication, political, and economic centers of the country. The narrow straits afford passage and control of shipping between the North Sea and the Baltic Sea and, strategically, are the most important geographic feature in the NIS Area. If the Kiel Canal (suitable for vessels drawing 51 feet) were blocked, these straits would be the only practicable water link between the North and Baltic Seas. From east to west, the straits are The Sound, Store Baelt, and Lille Baelt. The Sound, between Sweden and Sjaelland, has a minimum width of about 2 nautical miles. The two navigation channels in the strait (east and west) have minimum depths of 23 and 26 feet, respectively; the main channel (west) has a minimum width of about 1 nautical mile. The Store Baelt, between Sjaelland and Fyn, is the widest and deepest of the straits, but has the most constricted navigation channel. The minimum width of the Store Baelt is approximately 9 nautical miles, but the winding navigation channel, which has a minimum depth of 42 feet, narrows to as little as 200 yards. The Lille Baelt, between Ju'land and Fyn, is the narrowest of the straits—650 yards wide at its most constricted part. Its navigation channel has a minimum width of 400 yards and a minimum depth of 39 feet. Ice conditions in the three straits vary greatly from year to year, but all are navigable in normal winters. In severe winters ice may be a hindrance in January and February and occasionally in March. Besides being in a position to afford control of shipping between the North Sea and Baltic Sea, the strategic area also is astride important routes between West Germany and Sweden. The area contains Copenhagen (Figure 15), the largest metropolitan area (population about 1,344,000) and the political and economic core of the country. The metropolitan area of Copenhagen contains more than one-fourth of the population of Denmark. The city has the largest naval base and the

only free port in the country. Strategically important industries, although concentrated in Copenhagen, are located throughout the strategic area. The largest industries are food processing, followed by production of machinery, chemicals, and electrical equipment. Other important industries include shipbuilding and ship repair, production and assembly of transportation equipment, and production of metalware products. Three petroleum refineries in the area have all of the country's throughput capacity. There are numerous ports and airfields in the area, including five of the six largest ports. Copenhagen alone handles about 20% of the total tonnage of exports and imports. Of the 50 airfields, most are small and have natural surfaces. Strategically important are the main commercial field, largest in the country, southeast of Copenhagen (Figure 16), and military airfields northwest of Copenhagen and along the northern and western edges of the strategic area. All of these have important roles in NATO planning.

D. Internal routes (C)

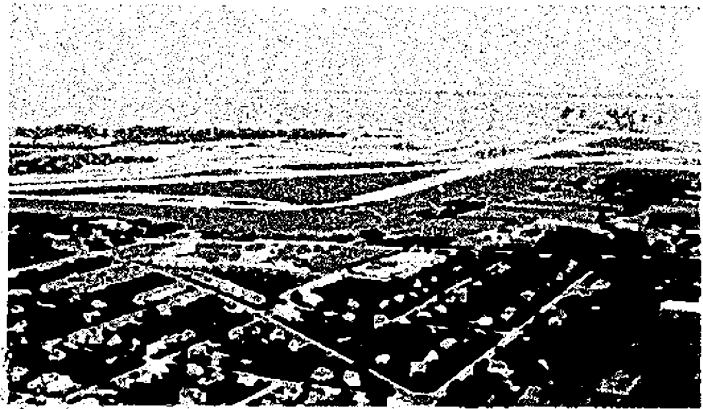
The internal routes (Figure 19) afford the easiest avenues of movement from the West German land approach to the strategic area and from the amphibious landing area near Lokken to the strategic area; three other amphibious landing areas are in the strategic area.

The internal route between the land approach from Flensburg, West Germany, and Copenhagen is across flat to rolling plains. Vegetation consists mostly of cultivated crops and a few small patches of forest. The route contains a railroad and a road. The railroad is 4' 8½" gage and in good condition; it is single track from the border to a point a few miles west of Kolding and double track elsewhere. It utilizes a ferry to cross the Store Baelt. The road, which generally parallels



FIGURE 15. Copenhagen is the principal port. The port facilities extend along both sides of the waterway that divides the city. This view shows the densely built up central city. (C)

FIGURE 16. Copenhagen/Kastrup airfield is on the island of Amager and is one of the largest and most important airfields in Europe. The runway and parking areas are in the background; administrative buildings are near the center. (C)



the railroad but in places, especially on Jutland, is widely separated from it, is two to three lanes and has stretches of concrete, bituminous, and bituminous-treated surface in fair to good condition. In places the road is four lanes wide and divided. Significant bottlenecks to onroad movement are narrow streets and sharp turns in the towns, a bridge across the Lille Bælt, and a ferry across the Store Bælt. Offroad dispersal would be hindered by stone walls, drainage ditches, and, locally, by wet areas. Cross-country movement conditions are prevailingly poor on Jutland, eastern Fyn, and western Sjælland; the major hindrances are streams, soft wet ground bordering the streams, steep valley slopes, stone walls, and hedgerows. Elsewhere, conditions are good.

The internal route connecting the amphibious landing area at Lokken to the route from Flensburg near Fredericia in the Danish Straits Strategic Area crosses flat or rolling to dissected plains. Vegetation in the route is predominantly cultivated crops; there are also small, scattered areas of meadow, bog, and forest. Transportation facilities consist of a road and for most of the length of the route, a railroad. The road is two to three lanes and has stretches of bituminous, bituminous-treated, and concrete surface in fair to good condition. Bottlenecks to onroad movement include numerous bridges and underpasses, some with a minimum vertical clearance of 13 feet and a maximum capacity of 12 tons. The railroad is 4'8 1/2" gage, single track, and as much as 10 miles east of the road from Lokken to Alborg, service has been discontinued on this stretch. In the remainder of the route the railroad is double track, in good condition, and near the road. Offroad dispersal would be restricted by stone walls, drainage ditches, and areas of marsh and bog. Conditions for cross-country movement are poor in most of the route. Northwest of Alborg conditions are favorable on flat to rolling sandy

coastal plains, but in scattered areas elsewhere conditions are unsuited because of soft ground in marshes and bogs. The major impediments to cross-country movement in most of the route are steep-sided valley walls; soft, untrafficable soils and wet areas, mostly bordering streams; lakes; streams; stone walls; and hedgerows.

E. Approaches

The perimeter of Denmark consists of approximately 2,100 miles of coastline, including Bornholm but excluding the Faeroe Islands, minor islets, and narrow coastal indentations, and about 42 miles of land boundary with West Germany. The coast is characterized by many indentations and stretches of sandy shore and cliffs (Figure 17), and is backed by cultivated flat to rolling plains. Territorial jurisdiction is claimed to 3 nautical miles offshore. (U/OU)

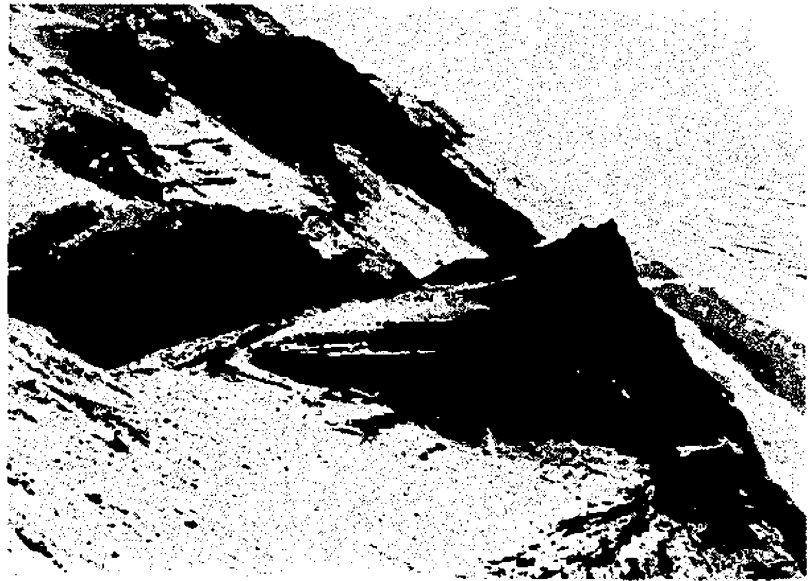
The boundary with West Germany is demarcated, unfortified, and undisputed. It extends between the North Sea and the Baltic Sea across nearly flat to rolling plains. Vegetation consists predominantly of croplands, but perennially wet areas (meadow, bog, and marsh), are common. (U/OU)

The Faeroe Islands have 475 miles of coastline. The coast is irregular, characterized by rocky shores and fiords, and backed by precipitous cliffs and rugged terrain. Territorial waters are claimed for 3 nautical miles seaward. (U/OU)

1. Land (C)

Conditions for cross-country movement along the western part of the border zone with West Germany are largely unsuited because of numerous marshes, peat bogs, soft soils, and drainage features. In the east conditions are fair to poor; the principal hindrances

FIGURE 17. The coasts of Denmark are fringed mostly by sandy shores, which are backed in places by low cliffs, as along the northern Jutland coast. (C)



are drainage features and soft, poorly drained soils bordering streams. Two 4'8½"-gauge railroads, one single track and one double track, and several bituminous or concrete, mostly one-lane roads cross the boundary. The approach from Flensburg is the best land approach to Denmark. It is across low, nearly flat to gently rolling plains. Vegetation consists mainly of cultivated cropland and some grass. Transportation facilities include a two-lane bituminous-concrete road in good condition and a double-track 4'8½"-gauge railroad in good condition. Conditions are generally fair for offroad dispersal and cross-country movement; the major hindrances are wet areas, drainage features, and soft soils for brief periods during thaws following occasional freezing in winter and early spring.

2. Sea (C)

Sea approaches to Denmark are across the North Sea, and through the Skagerrak, the Kattegat, and the Baltic Sea. Conditions are generally unfavorable for large-scale amphibious operations because of partly obstructed and restricted approaches, flat nearshore gradients, and poorly drained terrain backing parts of the coast. Offshore approaches are mostly deep and clear, but are channelized in a few places. Nearshore approaches are partly obstructed by shallow water, shifting sandbanks, shoals, sandbars, and rough surf, especially in winter. Most of the coast is ice free; sea ice may form in the bays and harbors, however, during the winter months. Nearshore bottom material is

mainly sand. Tides are semidiurnal with a maximum spring range of nearly 6 feet. Surf 4 feet or higher may occur at any time of the year; there is a maximum occurrence of 35% during the winter months along the North Sea coast; elsewhere, surf is negligible. Heavy sea and swell are more common during winter than during the rest of the year. Of the numerous beaches along the coast, the best are located along the northern tip of Jutland, the north coasts of Fyn and Sjælland Islands, and the east coast of Falster. Exits from the beaches would be fair to good by tracks, trails, and hard- and loose-surfaced roads and by cross-country movement to the main road network.

Sea approaches to the Faeroe Islands are across the North Atlantic Ocean and the Norwegian Sea. Conditions are generally unfavorable for large-scale amphibious operations because of restricted approaches, rocky shores, rugged terrain backing the coast, and poor exits inland. Offshore approaches are generally clear, but nearshore approaches are mostly restricted to fiords and are partly obstructed by rocks and shoals. Bottom materials are sand, gravel, and shell. Tides are semidiurnal, and the spring range is 4 feet. Surf 4 feet or higher may occur at any time along the unprotected stretches of coast. Of the beaches along the coasts of the islands, the best are located on the northwestern end of Suduroy. Exits from the beaches would be poor.

Of the four amphibious landing areas shown on Figure 19, three are in the strategic area and one provides access to the internal route leading from Lokken, on the northwestern coast of Jutland. Sea

approaches to the Lokken area are generally clear except for shifting sandbars and scattered rocks near the low water line. Nearshore bottom material is composed of sand and shell; bottom slopes would preclude dry-ramp LST landings. Tides are semidiurnal, and the spring range is about 1 foot. Surf 4 feet or higher may occur as much as 26% of the time January through March, 22% April through June, 30% July through September, and 23% October through December. The landing area is approximately 4 miles long and is all usable; widths range from 20 to 120 yards at low water and from 10 to 80 yards at high water. Gradients range from moderate to flat in the low water to high water zone and from steep to mild in the high water zone. Beach material consists of sand and is generally firm where wet and soft where dry. Most of the beach is backed by irregular, broken bluffs of sand and clay and dunes as much as 35 feet high that are backed by a flat to gently rolling cultivated plain. Exits would be by tracks and loose- and hard-surfaced roads to a main hard-surfaced highway from about 328 to 3,500 yards inland.

An area suitable for amphibious landings is located along the northern coast of Fyn. Offshore approaches are generally clear; nearshore approaches are partly obstructed by scattered shoals and sandbars. Nearshore bottom material is mainly sand; bottom slopes would preclude dry-ramp LST landings. Tides are negligible; surf 4 feet or higher is infrequent in all months. The landing area has a total length of 7 miles, of which 6 miles are usable; widths are mostly 10 yards at both low water and high water. Gradients are generally moderate. Beach material consists of sand and is firm where wet and soft where dry. Most of the beach is backed by a flat to gently rising cultivated or wooded plain that has scattered areas of marsh. Exits would be by trails and loose-surfaced roads leading inland to a hard-surfaced road and a railroad.

The amphibious landing area nearest Copenhagen is located on the northern coast of Sjaelland. Offshore approaches are generally clear, but are restricted in the channel near Helsingor; scattered sea ice may be present during the winter months. Nearshore approaches are partly obstructed by scattered shoals, shifting sandbars, and rocks. Nearshore bottom material is mainly sand; bottom slopes in most places would preclude dry-ramp LST landings. Tides are negligible, and surf 4 feet or higher is infrequent in all months. The landing area is approximately 6 1/4 miles long and nearly all usable; widths range from 20 to 50 yards at both low water and high water. Gradients range from steep to moderate. Beach material consists of sand, pebble, cobble, and some boulders and is

firm. The eastern two-thirds of the beach is backed by a low, sandy embankment, and the remainder is backed by an intensively built-up area. Farther inland, the entire beach is backed by a flat to gently rolling cultivated plain with numerous large wooded areas. Exits from the beach would be by streets, tracks, and trails to a hard-surfaced coastal highway.

An amphibious landing area is located along the southeastern coast of Falster. Offshore approaches are generally clear; scattered sea ice may be present during the winter months. Nearshore approaches are clear except for a few scattered shoals and a wreck. Nearshore bottom material consists of sand and some mud; bottom slopes would preclude dry-ramp LST landings. Tides are negligible, and surf 4 feet or higher is infrequent in all months. The landing area is approximately 18 miles long and is all usable; widths range from 10 to 17 yards at both low water and high water. Gradients are generally steep. Beach material consists of sand, pebble, and cobble and is generally firm. Most of the beach is backed by a low clay bank or low dune, covered by trees and grass, and backed by an intensively built-up area. Farther inland, the beach is backed by a flat cultivated plain, which has large marshy areas crossed by canals and ditches. Exits from the beach would be by cross-country movement or by tracks and trails leading to a hard-surfaced coastal road.

3. Air (U/OU)

Air approaches to Denmark⁴ from the north are over the Skagerrak, the rugged hills and mountains of southern Norway and southwestern Sweden; from the east over the Baltic Sea, the plains of southern Sweden, and the Kattegat; from the south mainly over the low plains of the Netherlands, West Germany, East Germany, and Poland, and the low hills of West and East Germany; and from the west entirely over the North Sea. Air approaches to the Faeroe Islands are mostly over the North Atlantic Ocean and the Norwegian Sea.

All approaches in Denmark are affected by cyclonic storms from the North Atlantic. These storms reach their maximum intensity and frequency in the period November through March. They are accompanied by extensive and thick cloud layers in which icing frequently occurs. Frontal turbulence is also prevalent. The most favorable flying conditions occur in summer, when these storms are less frequent and less severe. In

⁴The discussion zone for air approaches extends approximately 250 nautical miles beyond the limits of Denmark and the Faeroe Islands.

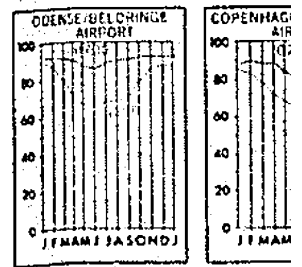
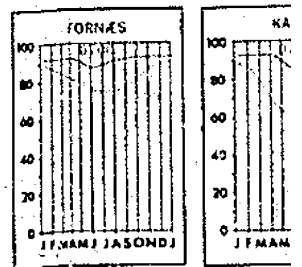
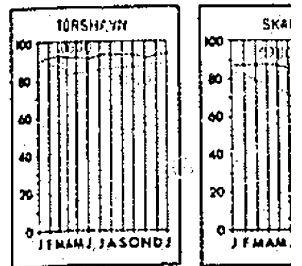
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summer the mean height of the freezing level is close to 9,000 feet in all approaches. In winter it is close to 2,000 feet over the North Sea; over land, however, freezing temperatures occur at the surface from about mid-November to mid-March. The upper-air winds in all approaches prevail from the west, and average speeds are generally less than 50 knots. Speeds in excess of 50 knots, however, frequently occur near 30,000 feet in winter. In all approaches maximum cloudiness occurs in the period October through February, when the average cloud cover ranges from 65% to 80%; during the remaining months, averages range from 50% to 65%. Thunderstorms are infrequent in the approaches over water; in the approaches over land they occur more often, principally during the period May through September. The average number of days with thunderstorms ranges from 10 or fewer annually in the northern approaches to 15 to 20 in the southern approaches.

All approaches to the Faeroe Islands are periodically affected by cyclonic storms; their frequency and intensity are greatest in the period November through March. They are accompanied by extensive and thick cloud layers, in which icing frequently occurs. Turbulent air conditions also occur in the frontal systems. The most favorable flying weather occurs in the summer, when these adverse conditions are less pronounced, although fog occasionally restricts visibility. Average cloudiness is about 80% in all

approaches throughout the year. Thunderstorms are rare. The average height of the freezing level is near 8,000 feet in all approaches in summer; in winter it fluctuates between the surface and 2,000 to 3,000 feet. Upper-air winds are predominantly from the west, with average speeds generally less than 50 knots except near 30,000 feet in winter, when they frequently exceed 60 knots.

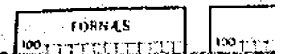
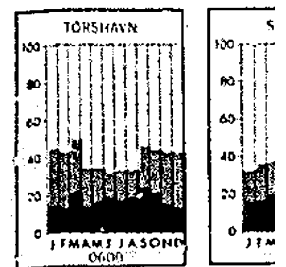
Topographic hazards to flying are greatest in the approaches from the north, where the maximum elevation is 8,100 feet in south-central Norway, approximately 250 nautical miles from Denmark. Most elevations in these approaches are less than about 6,500 feet, and large areas are less than 3,300 feet. There are no topographic hazards to flying in the approaches from the east; large areas are less than 650 feet above sea level, and the highest elevation is 1,237 feet in southern Sweden, about 110 nautical miles from eastern Denmark. In the approaches from the south elevations are mostly less than 3,300 feet, and large areas are less than 650 feet. A peak in the Harz mountains on the border between West and East Germany, about 170 nautical miles from Denmark, is 3,747 feet in elevation, and the maximum elevation in the southern approaches is 3,950 feet in the Erzgebirge mountains of East Germany, about 250 nautical miles from southeastern Denmark. There are no topographic hazards to flying in air approaches from the west.



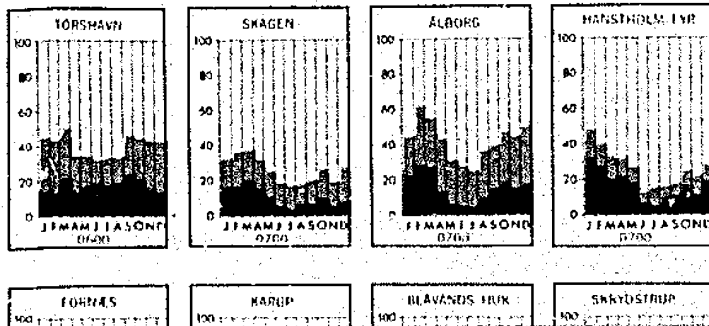
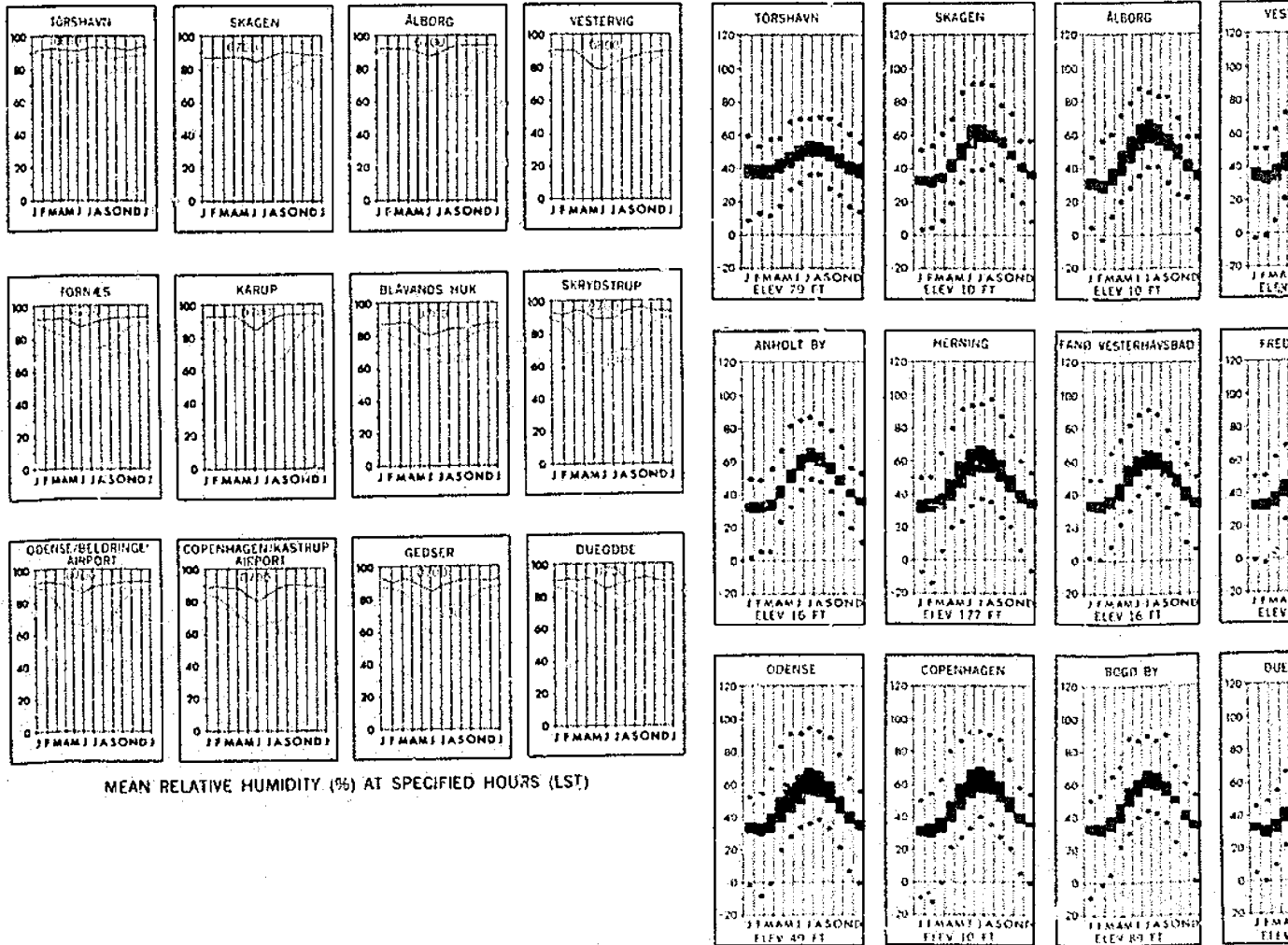
LIST OF STATIONS

STATION	LATITUDE*	LONGITUDE*	ELEVATION
ALBORG	57°06'N	9°52'E	10
ANHOLT BY	56°42'N	11°33'E	16
BLAVANDS HUK	55°33'N	8°05'E	39
BOGØ BY	54°56'N	12°03'E	89
COPENHAGEN	55°41'N	12°36'E	10
COPENHAGEN/KASTRUP AIRPORT	55°37'N	12°39'E	15
DUEDDØ	55°00'N	15°05'E	20
FANØ VESTERHAVSBAD	55°26'N	8°23'E	16
FORNAES	56°27'N	10°58'E	26
FREDERICIA	55°35'N	9°36'E	26
GEDSER	54°34'N	11°58'E	20
HANSTHOLM FYR	57°07'N	8°36'E	148
HERNING	56°08'N	8°59'E	177
KARUP	56°18'N	9°07'E	163
ODENSE	55°23'N	10°26'E	49
ODENSE/BELDRINGE AIRPORT	55°29'N	10°20'E	56
SANDVIG	55°17'N	14°47'E	49
SKAGEN	57°46'N	10°39'E	10
SKRYDSTRUP	55°14'N	9°16'E	131
SPRØGØ	55°20'N	10°58'E	82
TORSHAVN	62°01'N	6°46'W	79
TVINGSTRUP	55°55'N	9°55'E	216
TYLSTRUP	57°11'N	9°57'E	39
VESTERVIG	56°46'N	8°19'E	62

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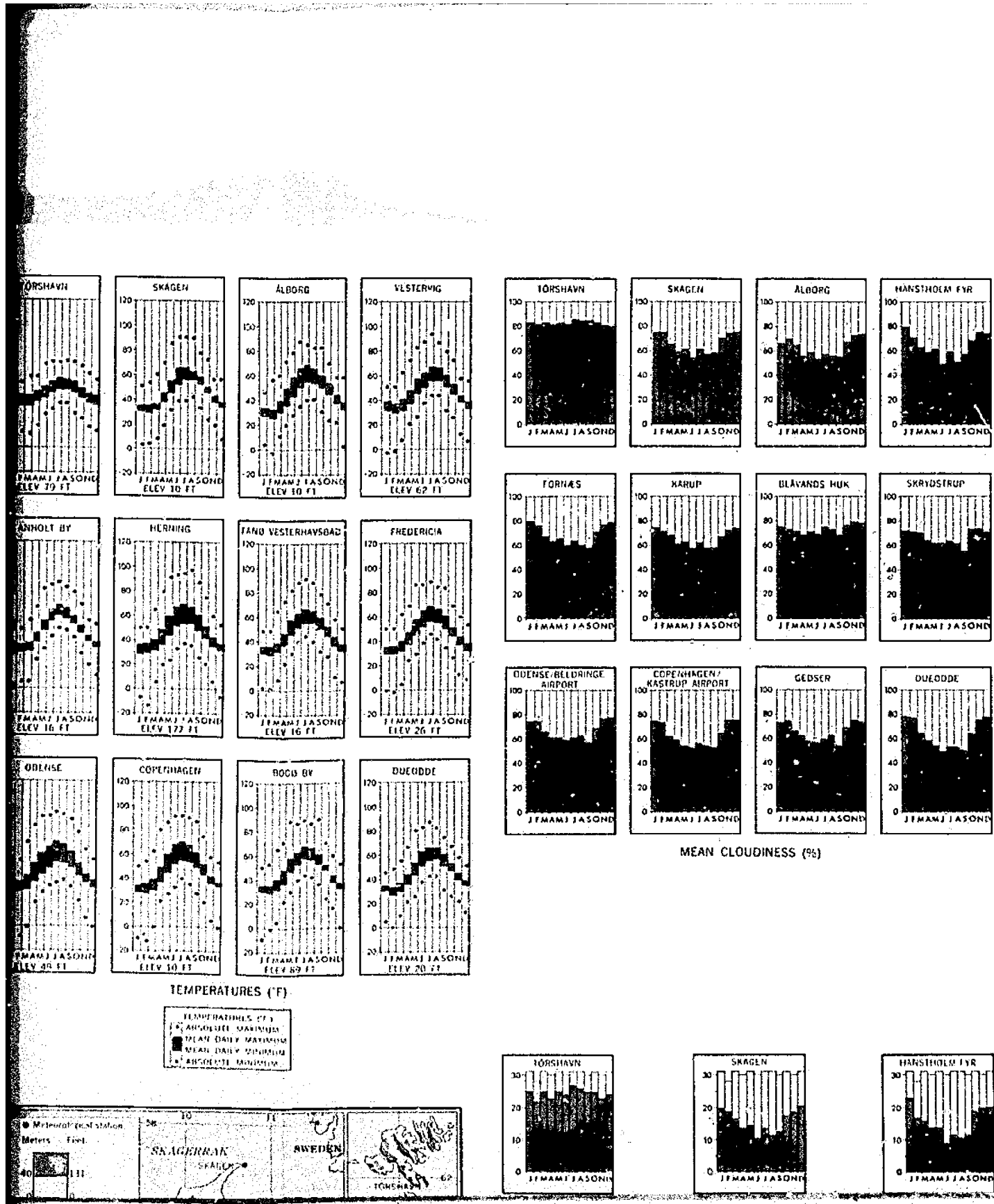


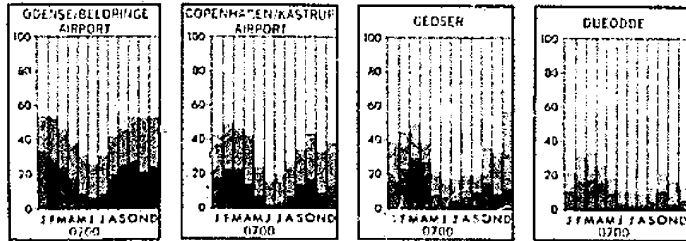
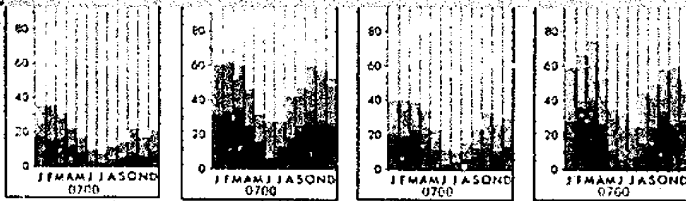
*COORDINATES GIVE LOCATION OF WEATHER STATIONS AND DO NOT NECESSARILY CORRESPOND TO THOSE FOR POPULATED PLACES



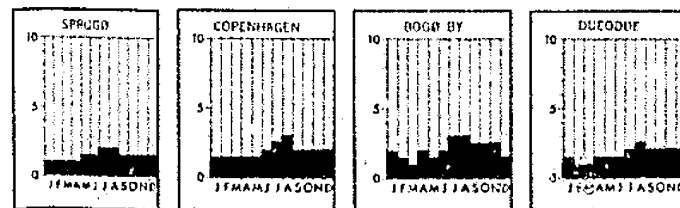
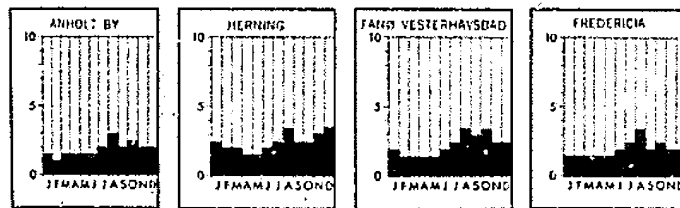
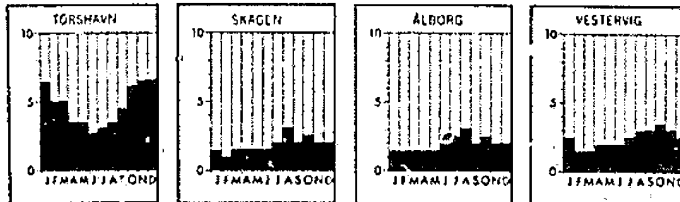
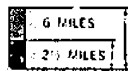
TEMPERATURES (°F)
 ○ MONTHLY MAXIMUM
 ● MONTHLY MINIMUM
 ■ MEAN DAILY MAXIMUM
 ◆ MEAN DAILY MINIMUM
 * MONTHLY MEAN



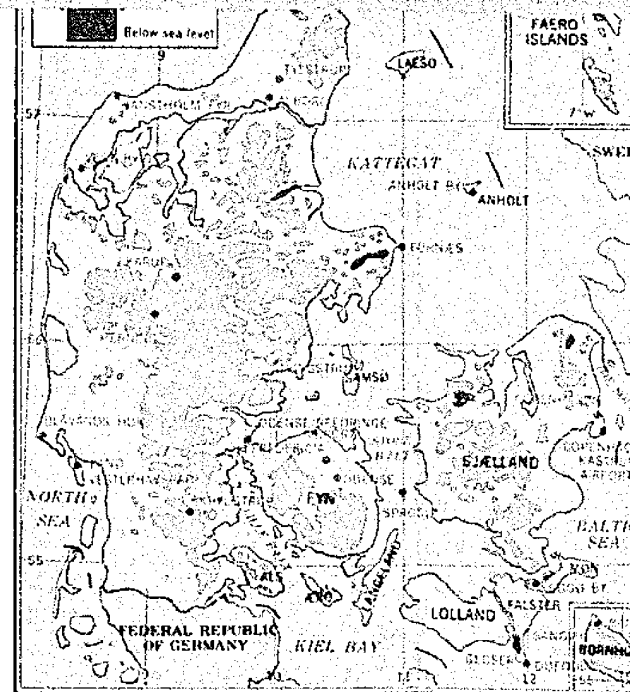




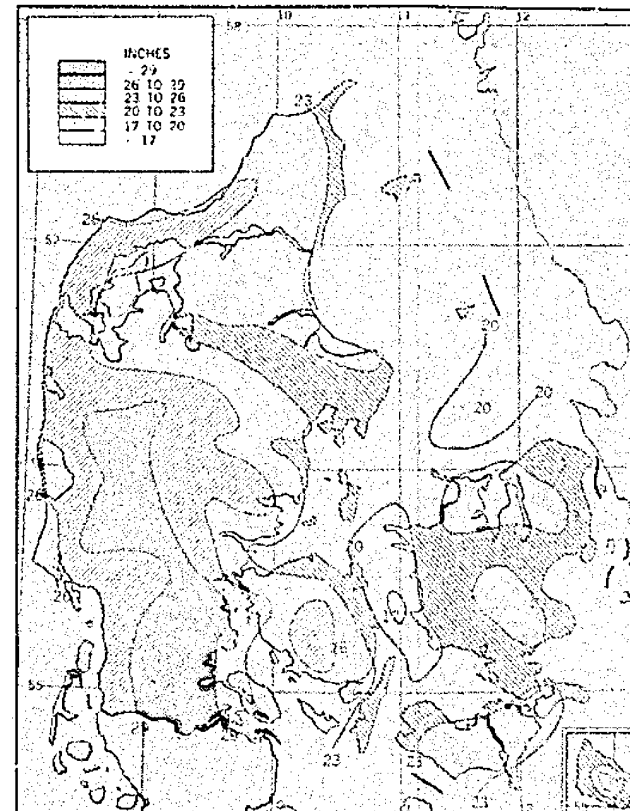
PERCENTAGE FREQUENCY OF SPECIFIED VISIBILITIES IN MORNING
TIMES SHOWN LST



MEAN MONTHLY PRECIPITATION (INCHES)

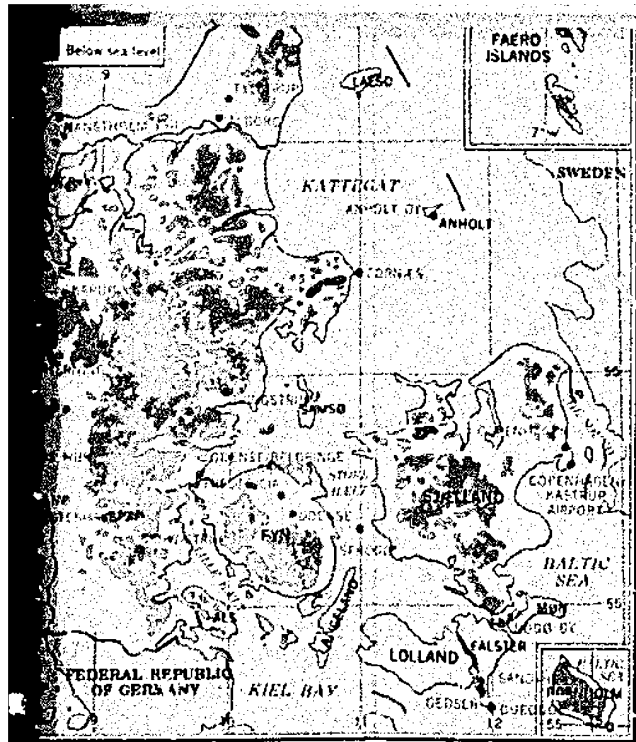


STATION LOCATIONS

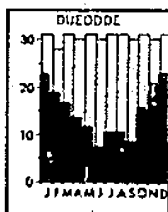
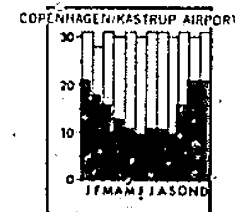
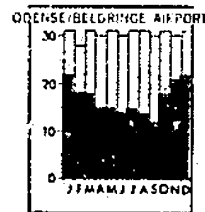
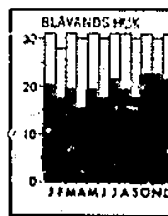
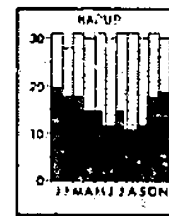
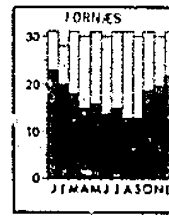


MEAN ANNUAL PRECIPITATION (INCHES)

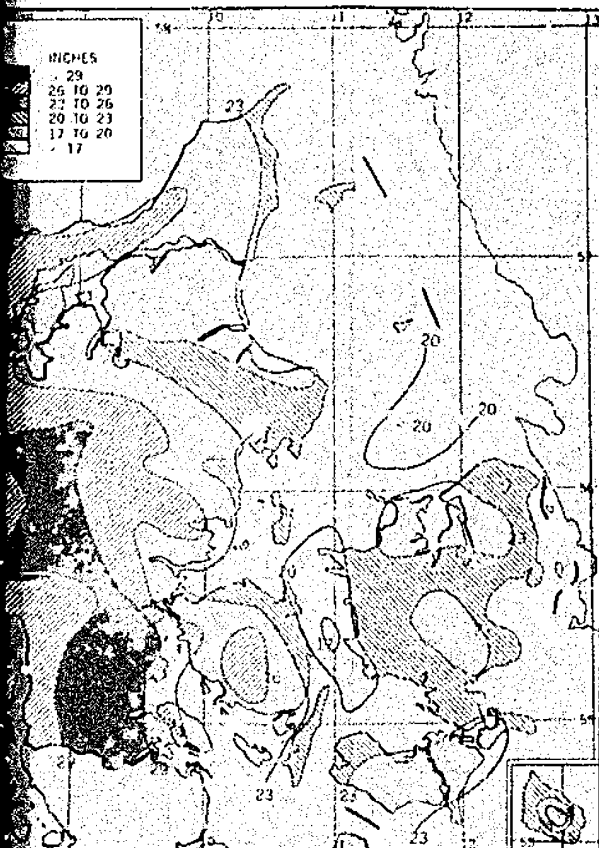
For Official Use Only



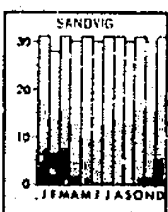
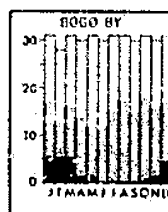
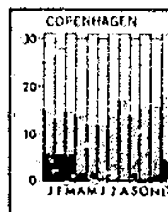
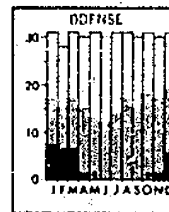
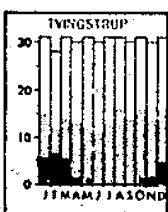
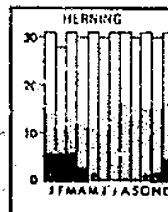
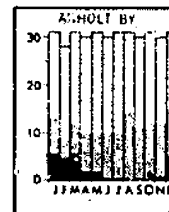
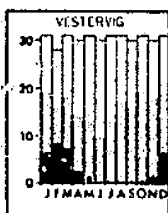
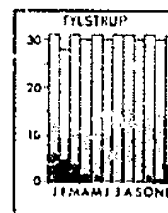
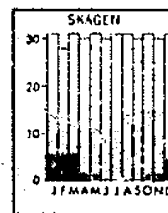
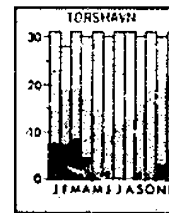
STATION LOCATIONS



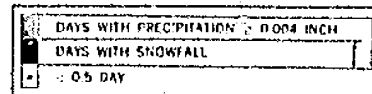
MEAN NUMBER OF DAYS WITH TOTAL CLOUD COVER 6/8 OR MORE



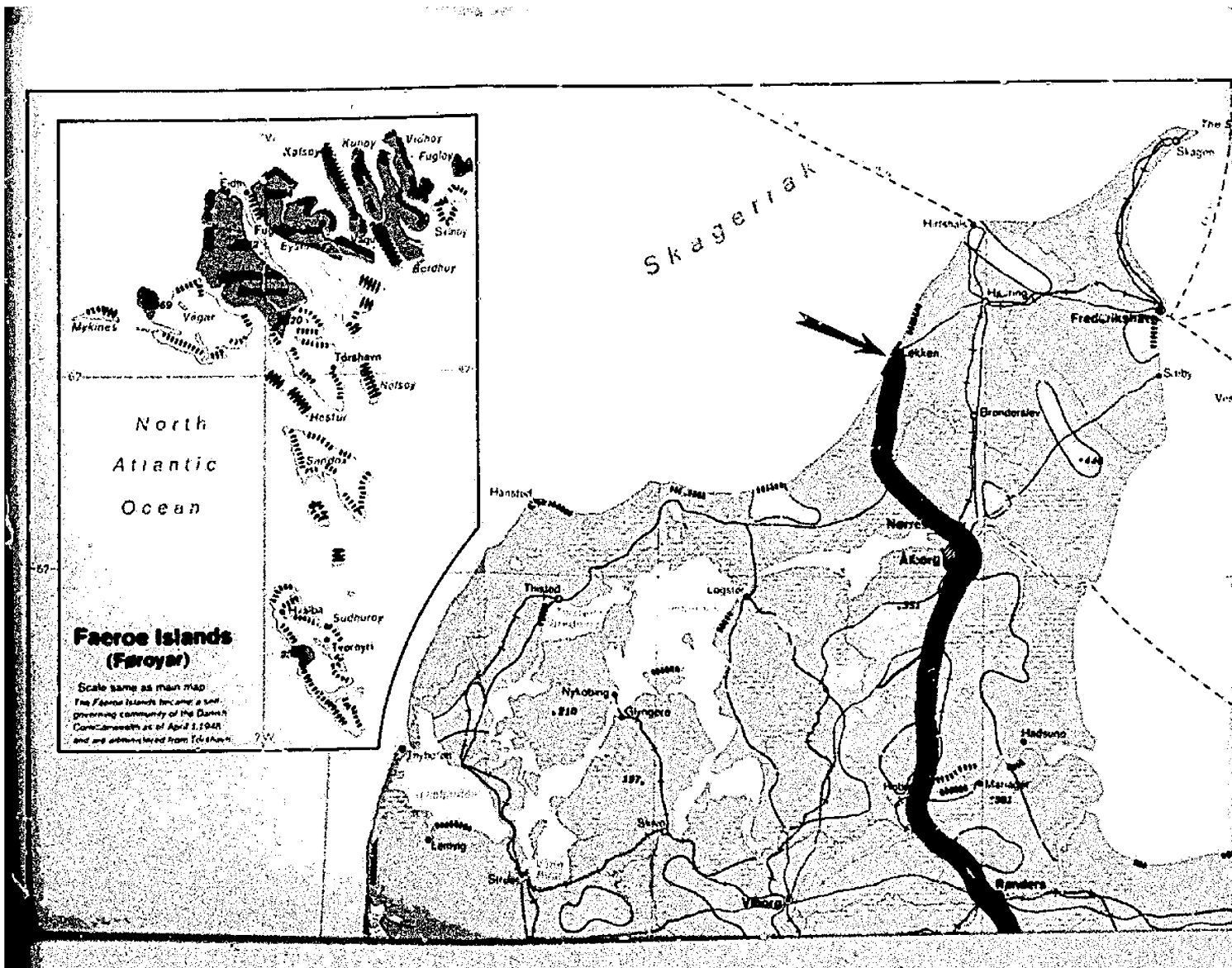
MEAN ANNUAL PRECIPITATION (INCHES);



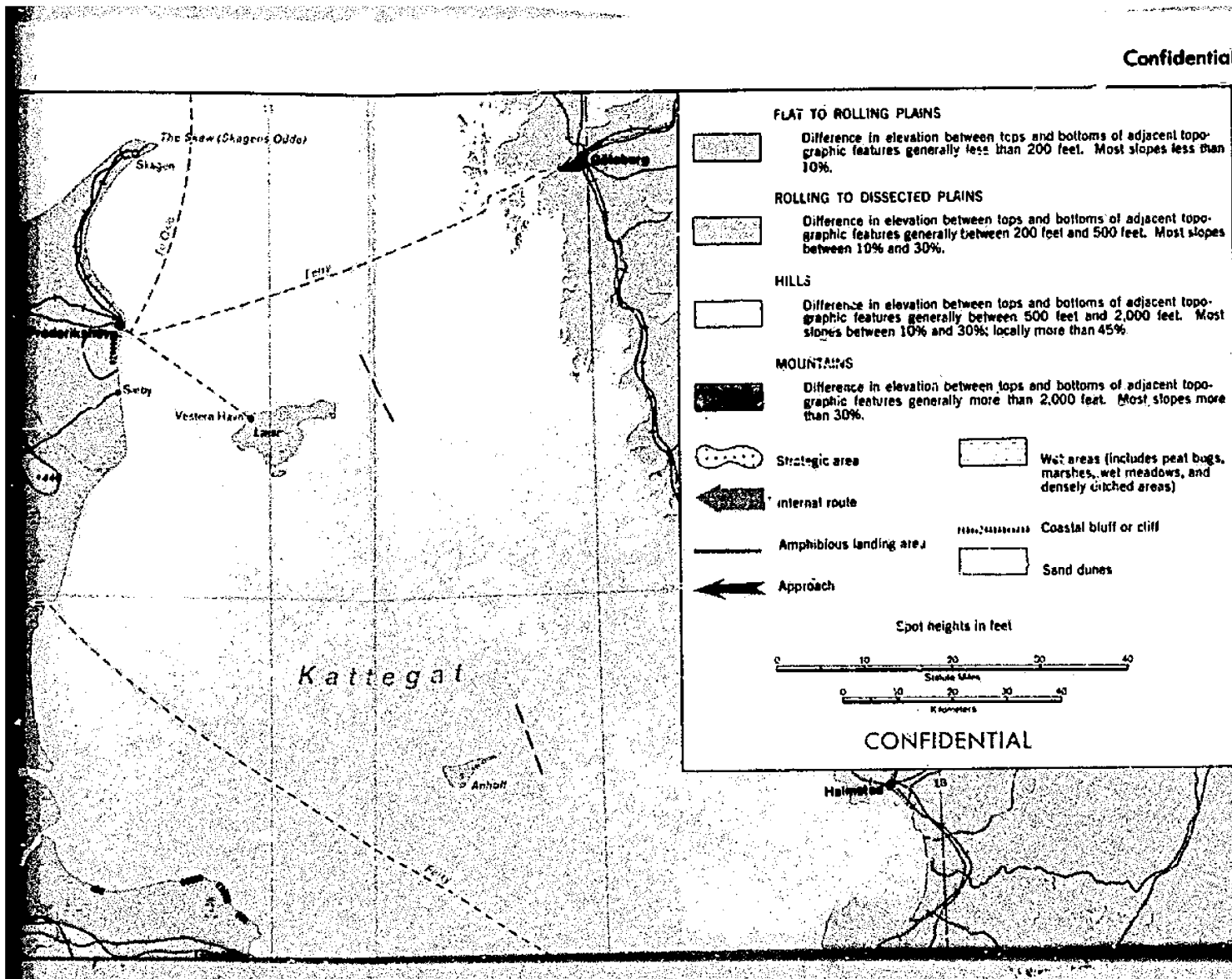
MEAN NUMBER OF DAYS WITH PRECIPITATION AND WITH SNOWFALL



Variations of climatic elements. Figure 18



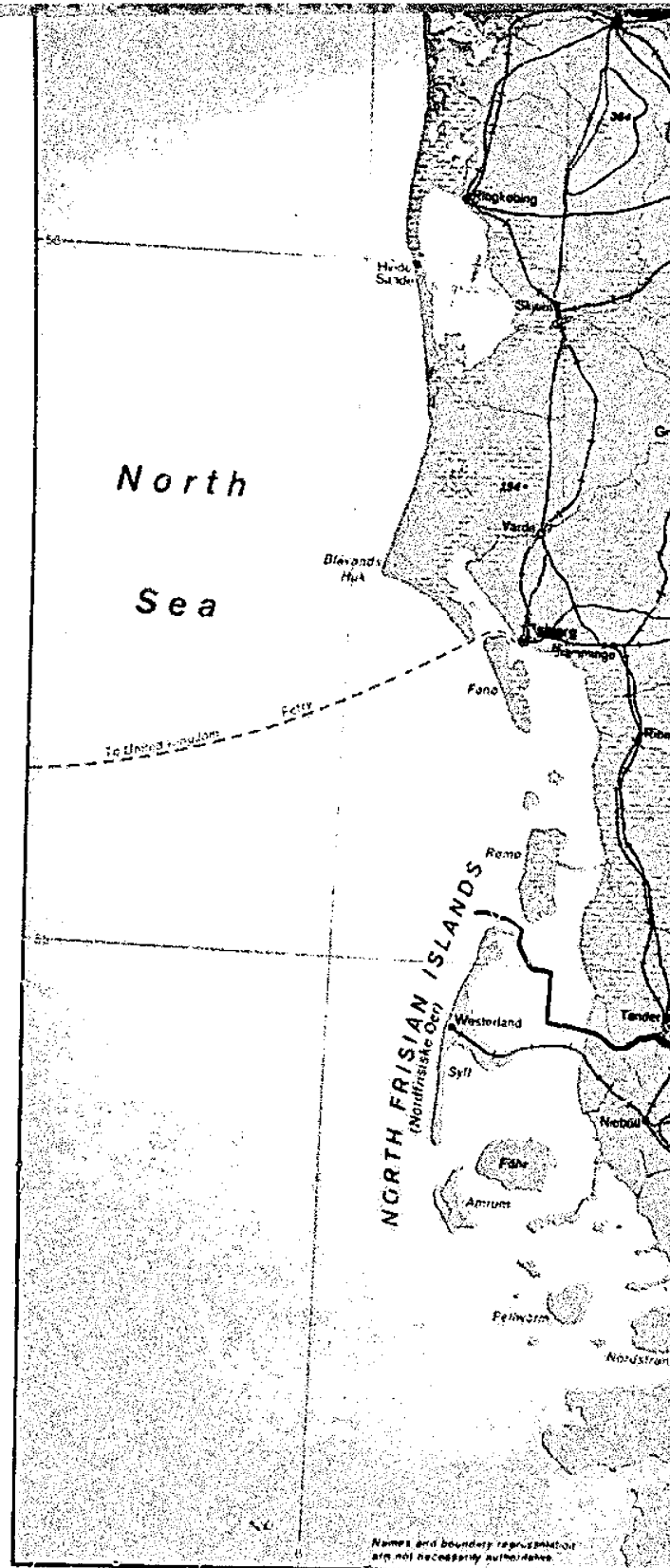
Confidential



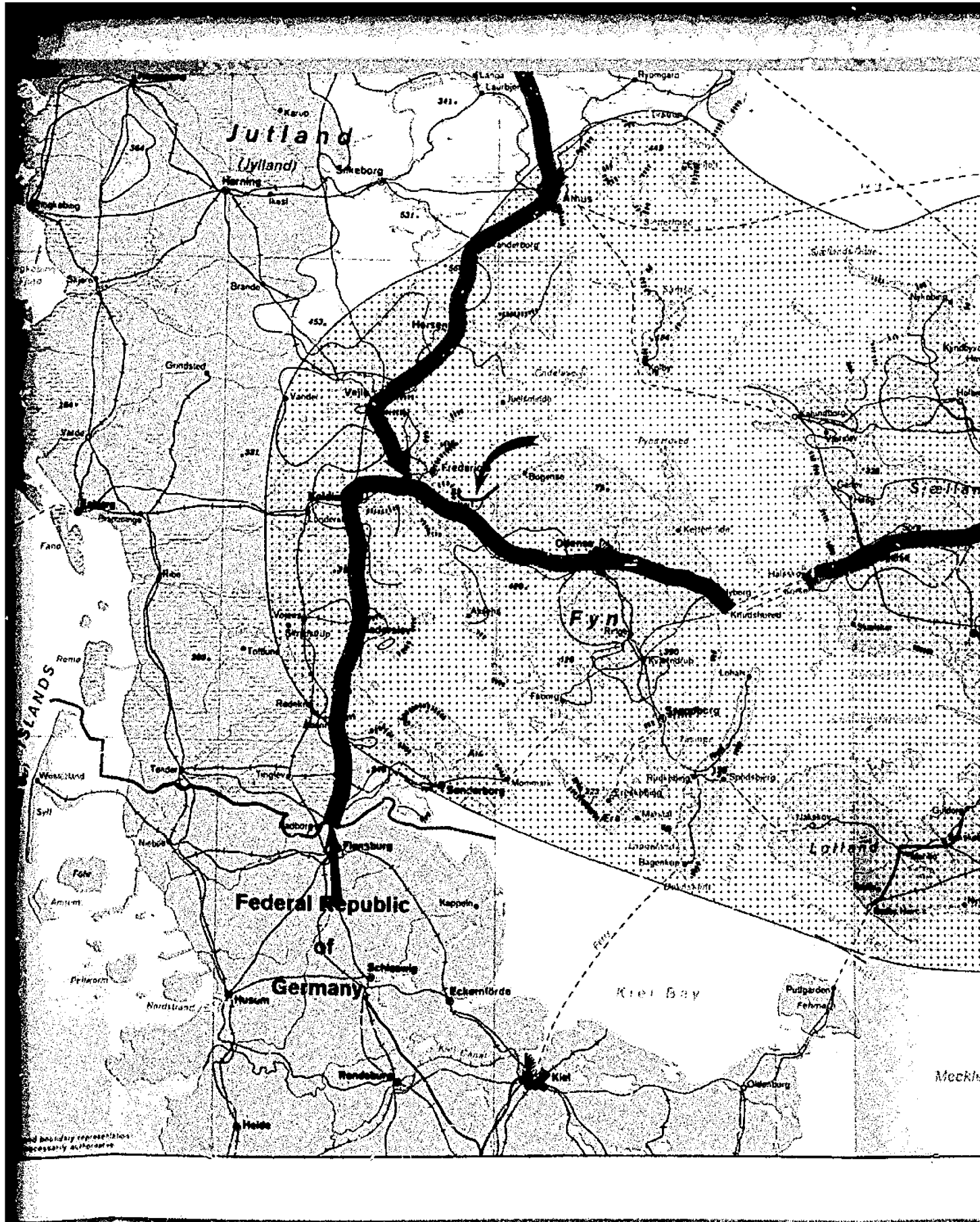
Places and features referred to in this chapter (u/ou)

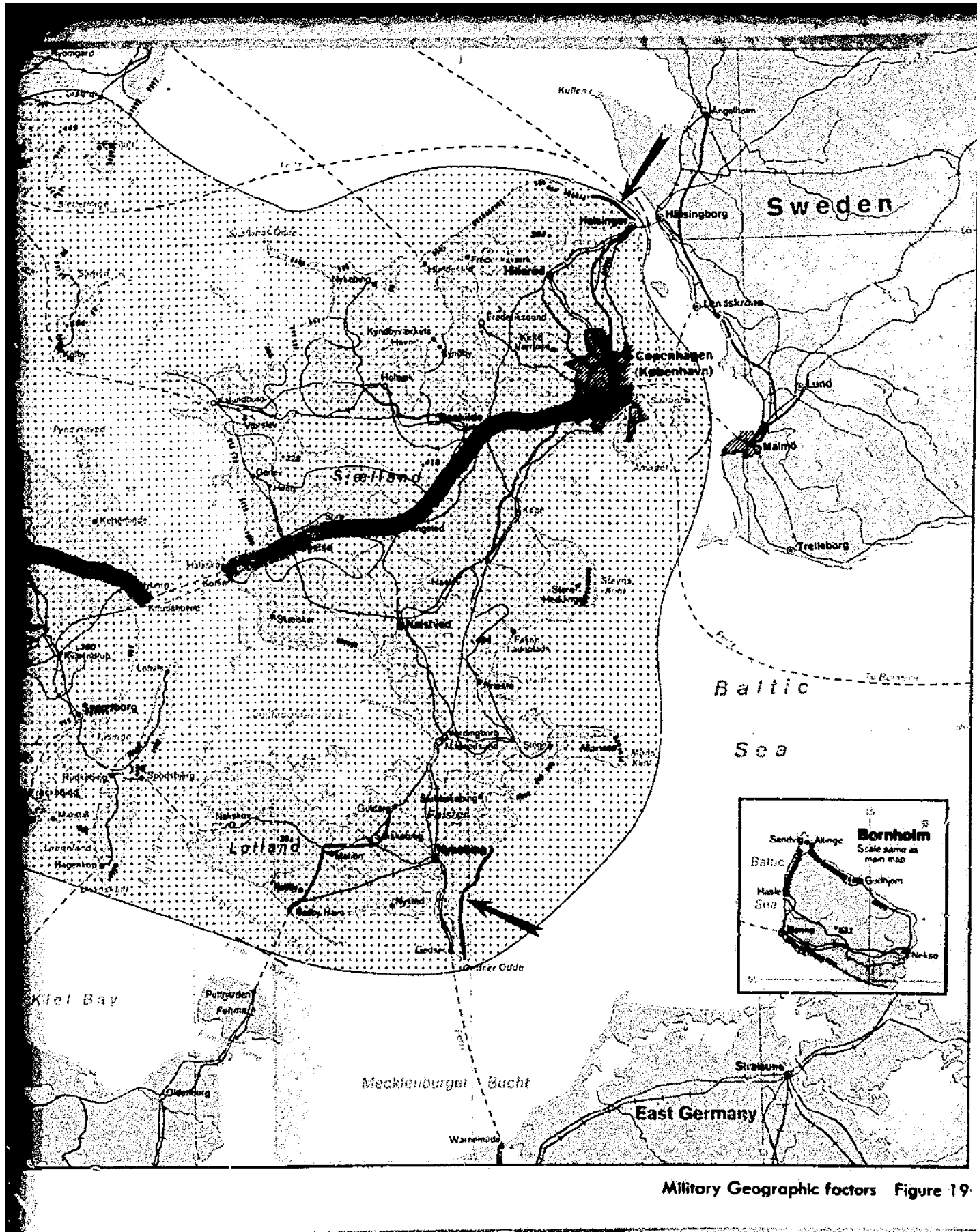
	COORDINATES	
	° 'N.	° 'E.
Ålborg.....	57 03	9 56
Åmager (isl).....	55 37	12 37
Århus.....	56 08	10 13
Baltic Sea (sea).....	56 00	18 00
Bornholm (isl).....	55 10	15 00
Copenhagen.....	55 40	12 35
Erzgebirge, East Germany (mts).....	50 30	13 10
Færoe Islands (isl).....	62 00	7 00 W.
Falster (isl).....	54 48	11 58
Flensburg, West Germany.....	54 47	9 28
Fredericia.....	55 35	9 48
Fyn (isl).....	55 20	10 30
Gudenå (strm).....	56 29	10 13
Hartz Mountain, East Germany (mts).....	51 45	10 30
Helhingor.....	58 02	12 37
Horsens.....	55 52	9 52
Jutland (rgn).....	56 00	9 15
Kattegat (str).....	57 00	11 00
Kiel Canal, West Germany (canal).....	53 53	9 08
Kolding.....	55 31	9 29
Lille Bælt (str).....	55 20	9 45
Limsfjorden.....	56 55	9 10
Løkken.....	57 22	9 43
Lolland (isl).....	54 46	11 39
Man (isl).....	55 00	12 20
North Sea (sea).....	55 20	3 00
Silkeborg.....	56 10	9 34
Sjælland (isl).....	55 30	11 45
Skagerrak (str).....	57 45	9 00
Sound, The (sd).....	55 50	12 40
Store Bælt (str).....	55 30	11 00
Suduroy (isl).....	61 32	6 50 W.
Tórshavn.....	62 01	6 46 W.
Vágar (isl).....	62 05	7 15 W.

NOTE--All longitudes are East unless otherwise indicated.



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Military Geographic factors Figure 19