

SECTOR 5

BAFFIN BAY TO LINCOLN SEA

Plan.—This sector describes the W coast of Greenland from Svartehuk Point to Kap Morris Jesup. It includes Baffin Bay, the E shores of Nares Strait, and the Lincoln Sea. The coastline between the two main points trends in a NW, N, NNE, and NE direction.

General Remarks

5.1 Baffin Bay is bounded on its E side by the W coast of Greenland and on its W or Canadian side by Baffin Island, Devon Island, Ellesmere Island, and several other smaller islands. The bay extends NNW from its S limit, at latitude 70°00'N, for about 530 miles to Nares Strait, which leads to the Arctic Ocean about 285 miles NE. Refer to Pub. 180, Sailing Directions (Planning Guide) for the Arctic Ocean.

The N end of Disko Island, the Nugssuaq Peninsula, Nordostbugten, and the S end of the Svartehuk Peninsula lies within the S limit of Baffin Bay.

The coast between Svartehuk Point and Wilcox Head is formed by a narrow belt of ice-free terrain. This belt is composed of numerous islands and mountainous peninsulas which are separated by fjords and backed by the Inland Icecap.

Baffin Bay is generally clear of dangers and deep. A depth of 37m, with possible less water in its vicinity, was reported (1958) to lie about 115 miles from the coast in approximate position 73°00'N, 62°00'W. A detached shoal with a depth of 35m, is reported to lie about 57 miles WNW of Disko Island in approximate position 70°00'N, 54°00'W.

The general characteristics of Melville Bugt include a coast that is formed largely by the seaward margin of the Inland Icecap, fronted in places by a few small scattered islands, and occasionally interrupted by promontories partially enclosing open bays; approaches which lead through relatively unsurveyed stretches of water and are dangerous due to numerous icebergs and changing pack ice conditions; the nonexistence of ports or surveyed anchorages; a relatively unexplored coastline; no habitation, except for a small settlement in the NW part; and there is no line-of-communication, except for a few native trails.

The chief characteristics of the coast lying between Kap York and Kap Alexander are two large indentations, Wolstenholme Fjord and Inglefield Bredning, and the extent of ice-free land located between the coast and the Inland Icecap. The most extensive ice-free area lies S of Wolstenholme Fjord. The coastal terrain is mostly steep and rocky, with elevations of 300m in places, backed by highlands with local snow fields and small glaciers. Between Kap York and Kap Alexander, glaciers from the Inland Icecap reach the sea, in places, at the heads of indentations located along the outer shores. Refer to Pub. 180, Sailing Directions (Planning Guide) for the Arctic Ocean. Soundings in the area indicate that the sea is moderately deep and, with a few exceptions, the offshore underwater gradient is steep. Communication is principally by means of coastal vessels which are subject to storms and ice conditions. A radio

station, meteorological station, and an airstrip are maintained at the port for Thule Air Base situated on the SE side of Wolstenholme Fjord. Several anchorages are available, but only those in the port for Thule Air Base are extensively used.

Navigation

5.2 Between Svartehuk Point and Wilcox Head, navigation along the coast is dangerous due to the lack of information and the existence of numerous icebergs. In spite of 200 years of whaling operations in the area and the many exploration vessels that have passed through it, most of these waters along the coast remained unsurveyed as late as 1900 and were considered unknown territory. Even today it remains comparatively unknown and, in places, there are considerable discrepancies between existing charts. Navigation along this section of the coast in good visibility and when reasonably clear of ice, presents no difficulties providing vessels remain at least 1 mile W of the outermost islands. The waters lying W of a line of bearing between the outermost islands are deep and clear of dangers.

Navigation across Melville Bugt, from the vicinity of Wilcox Head to Kap York, is rendered difficult and dangerous by the uncertain movements of the pack ice; the SW winds drive the pack ice towards Melville Bugt and it may be pressed close up against the shore ice. During July, August, and September, the sea lying between the shore ice and the pack ice is generally navigable. August is the best month; however, about one year out of every three the bay may be blocked. It was once reported that an old whaling vessels had crossed Melville Bugt in the month of June, when the winter ice lay solid along the coast. This crossing was possible only by using an open channel that exist between the pack ice and the shore ice.

During favorable times of the navigation season, vessels can navigate along the W coast of Greenland as far N as Etah, close N of Kap Alexander. As a general rule, during July, vessels could expect to navigate between Kap York and Kap Atholl; vessels also, at this time, may find it possible to proceed as far N as Kap Parry. The fairway leading to Kap Alexander is navigable during August and September.

During July and August, under normal conditions, vessels passing Melville Bugt should steer direct for Kap York from a position on the coastal track lying 21 miles W of **Upernavik** (72°47'N., 57°20'W.). If seriously obstructed by ice, vessels should find easier conditions toward the W. Fewer icebergs are met when these waters are clear of sea ice; however, vessels should steer from Upernavik for a position lying about 15 miles SW of Kap York.

Winds

During all seasons, the most frequent wind direction along the shores of Baffin Bay is NW. This frequency of NW winds is most marked in the autumn and winter and not quite so

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evident in midsummer. During July and August, SE and E winds are likely to be the most frequent directions over the water. In midsummer, there is an average of two days per month with gales, but this number increases in September and October. Gales from the N and NW are most frequent, but some may blow from the NE, or SE.

Currents

The circulation of the waters within Baffin Bay is known only in a general way. However, it seems established that a general counterclockwise circulation prevails, so that from the W and most ice-encumbered side there is an outflow through Davis Strait, while a compensating indraft flows N along the Greenland side. Current conditions within Baffin Bay are mostly unknown and it must be assumed that several weak eddies are to be found in the central part of the bay.

Ice

Pack ice normally covers about eight tenths of Baffin Bay and, in occasional winters, fills the bay solidly from shore to shore. The Baffin Bay pack has its greatest extent in March and least in August and September. During some winters, the ice completely fills the bay while, during others, open patches of water are numerous and extensive, especially in the vicinity of Lancaster Sound, Jones Sound, and Smith Sound.

North Water, a considerable area of open navigable water at the extreme N end of Baffin Bay and in Smith Sound, forms in May; however, during especially favorable years, it may appear in April. It is roughly oval in shape with its major axis lying in a N-S direction. It is bounded by the fast ice of Smith Sound and, farther S, by the Baffin Bay pack ice, which has a coverage of eight to ten tenths. The S boundary of North Water usually lies close N of the 75th parallel. This area of open water has been known to explorers for two centuries and was referred to as the "North Water" by the nineteenth century whalers; its origin is not definitely known and more than one possible explanation has been suggested. Though essentially open water, the North Water is not entirely ice-free and small patches of ice may occur within it.

The North Water was reported to be present, during May, for 15 years, during a period between 1920 and 1938; it normally persists in June when it may extend to the 75th parallel, but loses its identity in July because of the increasing clearance of the ice to the S.

Svartenhuk Peninsula to Proven

5.3 Svartenhuk Point (71°41'N., 55°53'W.), the W extremity of the Svartenhuk Peninsula, is a dark, bold, vertical promontory which rises to a round flat-topped mountain, 652m high. The sea off the promontory is subject to frequent storms and fogs. In winter, the ice off the promontory is constantly broken by strong currents.

Caution.—Magnetic disturbances have been repeatedly observed in the areas W of the Svartenhuk Peninsula.

Midtlorfik and **Amitsoq** are two inlets which indent the NW coast of the Svartenhuk Peninsula, either side of a broad promontory, 10 miles NE of Svartenhuk Point. Anchorage,

reported to be good, can be obtained in Midtlorfik by vessels with local knowledge.

Skalo (71°52'N., 55°36'W.), a roughly circular island, lies 11.5 miles NNE of Svartenhuk Point. The island, which fronts the entrance to Umiarfik Suvdlua, has precipitous sides and rises to a height of 615m. It is easily recognized from seaward.

Umiarfik Suvdlua, a long fjord, is entered 2 miles E of Skalo and separates the Svartenhuk Peninsula from the Ingnerit Peninsula. It extends NNE for 26 miles from the entrance which is 2 miles wide. A river flows into the head and drains some of the lakes which lie at the junction of the two peninsulas.

Kangarssuk (72°00'N., 55°37'W.), the site of an abandoned settlement, is situated close NE of the W extremity of the Ingnerit Peninsula. Two islets and a below-water rock lie off the point with a narrow but navigable channel between. Excellent anchorage is afforded, sheltered from N winds, just off the settlement site.

Ingnerit, an inlet, indents the W coast of the Ingnerit Peninsula, 6 miles NE of Kangarssuk. A rock with a depth of 4.6m, lies 2.5 miles WNW of the SW entrance point. Another rock, with a depth of 1.2m, lies 2 miles WNW of the NE entrance point. A dog quarantine station has been established close within the SW entrance point of the inlet.

Kigataq (Kingartak) (72°05'N., 55°50'W.), the southernmost island of a chain, lies 5.5 miles NW of Kangarssuk and rises to a height of 451m. Nua, its W extremity, is dark colored and bluff. Beacons stand on the SE and NE extremities of the island.

Tukingassoq, an island rising to a height of 163m at its center, lies 1.75 miles NW of Kigataq. A monument, reported to be prominent, stands on a hill at the SW side of the island. Due to the presence of a reef, vessels are advised to give the W extremity of the island a berth of at least 3 miles.

Satoq (Store Flado), a basalt island 56m high, lies 2 miles N of Tukingassoq at the N end of the chain. Lille Flado (Uigordluk), an islet, lies 0.5 mile N of the N extremity of Satoq. Anchorage is available off the NW end of Lille Flado from which shoal water extends for about 0.5 mile.

Ivssortussoq, a small detached island marked by a beacon, lies 3.5 miles E of Satoq.

5.4 Qeqtarssuaq (72°15'N., 55°20'W.), a very large island, is located with its SW extremity lying 3 miles N of the NE extremity of Kigataq.

Upernavik Kujalleq (72°09'N., 55°32'W.), a settlement, stands on the E side of a small peninsula which forms the S extremity of Qeqtarssuaq. A beacon stands at the S end of the peninsula and a prominent red and white chapel stands on a hill near the settlement.

Anchorage can be found close NE of the settlement in depths of 19 to 22m, good holding ground. The roadstead is open to the S and E and, although subject to heavy squalls during SW gales, icebergs seldom enter. It is free from dangers and there are only weak tidal currents. Vessels of up to 70m in length and 4.5m draft have anchored off the settlement.

Proven (72°22'N., 55°30'W.), a group consisting of four islands (a small archipelago) and several islets and rocks, lies between the Qeqtarssuaq Peninsula and the Kangeq Peninsula, 5 miles N. Nitserfik, the outer most islet of the group, lies 2.5

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miles NNW of the NW extremity of Upernavik Kujalleq and is marked by a beacon. Sandoen, an island 120m high, lies 1.5 miles NE of Nitserfik; a beacon stands on its SE extremity. Avatdleq (Torveoen), marked by a beacon, lies close N of Sandoen and is the northernmost islet of the group. Kivssaq, an island 100m high, lies at the S end of the group 2 miles NE of the NW extremity of Upernavik Kujalleq. Small islets and rocks extend up to 1 mile S and 0.5 mile NE from this island. Sagfiorfik, the largest island, lies 0.5 mile NW of Kivssaq and rises to a height of 188m. Provens Island, 150m high, lies between Sagfiorfik and Sandoen, from which it is separated by narrow channels. A cairn stands in the middle of this island.

Kangersuatsiaq (72°22'N., 55°34'W.), a trading station, stands on the N side of a cove which indents the W coast of Proven Islands and is encumbered with below-water rocks. Local knowledge is recommended. There is an anchorage and mooring berth for small vessels at the entrance to the cove. Larger vessels may anchor over a ledge N of the cove in a depth of 40m, rocky and poor holding ground.

Proven To Upernavik

5.5 Kangeq Peninsula (72°27'N., 55°05'W.) terminates at its broad W end in a bold promontory with steep, dark bluffs and is marked by a number of mountain peaks. Kivssavaussaq, a prominent mountain 805m high, stands 8 miles E of the W extremity and a beacon stands near the coast 2 miles SSE of the same point. The islands of Manitsoq, Sagdleg, and Iperaq lie off the NW side of the peninsula, along with several islets and rocks. Beacons stand on the NE extremity of Manitsoq, on the W extremity of Iperaq, and on an islet lying close to the N extremity of Sagdleg. A narrow channel with deep water lies between Iperaq and Sagdleg.

Laksefjorden is entered between the NW extremity of the Kangeq Peninsula and the SW extremity of Akuliaruseq, 2 miles NE. The latter is the SW island of a group of islands which lie N of the peninsula and form the N side of Laksefjorden.

At the head of the fjord there are several valleys occupied by lakes and streams which drain from the icecap.

Angmarqua (72°36'N., 55°17'W.), a narrow sound, extends NE from the entrance to Laksefjorden. It is one of a series of sounds called Norde Sunds which lead between the above islands and connect Laksefjorden with the head of Upernaviks Isjford; the depths within them are unknown.

Nutarmiut, the largest of the off-lying islands, rises to a height of 1,000m and forms the W side of Norde Sunds.

Singarnaq (72°35'N., 55°46'W.), an island marked by a beacon at its W extremity, lies 1 mile S of the SW extremity of Nutarmiut and rises to a height of 630m. Kangeq, a small island marked by a beacon at its N end, lies close to the SW end of Singarnaq. There is a least depth of 5m in the narrow passage lying between this island and Singarnaq.

Qaersorsuaq, a large island close W of Nutarmiut, is located with its S extremity lying 4 miles NNW of Singarnaq. A number of islets and rocks lie in the channel between the S side of this island and Singarnaq. Anana, the outermost islet of these, rises to a height of 192m and is prominent. A beacon stands on the N islet which lies close off the S extremity of Qaersorsuaq.

Qaersog, an outpost reported to be occupied during the winter, is located on a green slope on the W side of a small bay, 1.5 miles NE of the S extremity of Qaersorsuaq. Anchorage, with a sandy bottom, has been found off the outpost.

Sandersons Hope (72°43'N., 56°11'W.), the W extremity of Qaersorsuaq, is formed by steep precipitous cliffs, which rise to heights of 305m and, in places, overhang. It is famous for the sea birds which congregate along the face of the cliffs. A racon is local on Hval O, a 27m high islet lying about 3 miles SW of Sandersons Hope.

Upernavik (72°46'N., 56°09'W.) (World Port Index No. 00960), the northernmost principal settlement on the coast of West Greenland, is situated on a small island of the same name.

The principal approach to the settlement is from the S, but numerous dangers lie adjacent to the channels. A range indicates the entrance fairway into the harbor. An aeronautical radiobeacon is situated near the port.

Port radio contact may be made through Aasiaat Radio (OYR) for Upernavik during the navigation season on:

WT(MF) frequency 420 & 500MHz

VHF channel 4 and 16.

Telephone +299 42766

Fax +299 4277

Telex x91020 ASSRDO GD

Tides—Currents.—Tides rise about 2m at springs and 1.3m at neaps. The tidal streams are weak.

Depths—Limitations.—Schooner Quay is 15m long and has a depth of 4.2m alongside. Vessels up to 70m in length and 3.4m draft have been accommodated. There is an anchorage/mooring berth in the harbor in depths of 15 to 20m. Vessels up to 75m in length and 5m draft have been handled.

Pilotage.—Pilotage is not compulsory but is advisable. An unlicensed pilot is available on request. The harbor can be contacted by VHF on channel 16; 13.

The port is open from May/June to October/November. Vessels should send request for pilot with ETA. Pilot boards 1 mile off harbor entrance.

Anchorage.—Anchorage can be obtained off the S end of Upernavik Island in depths of 30 to 40m.

Caution.—Fog often occurs during the breakup of the winter ice and usually in conjunction with N or SW winds.

During poor weather from the W, vessels may have to vacate the harbor.

Upernavik To Kap York

5.6 Upernavik Isfjord (72°53'N., 55°20'W.), a long channel, runs in an ESE direction through the middle of the mass of islands which lie between Upernavik and Qagssersuaq, a broad and rugged mainland promontory, 18 miles NE. It is reported that this promontory is not prominent, particularly to seaward.

Avssaqutaq, a group of islands and islets, is located 13 miles NNW of Upernavik and forms the S entrance point of the fjord. Beacons stand on the islets lying close to the NW and NE extremities of the main island of the Kingigtorsuaq group, about 3 miles within the entrance to the fjord.

Tuvssaq (Tugsaq) (73°03'N., 56°08'W.), an island, is located 16 miles N of Upernavik and forms the N entrance point of Upernavik Isfjord. A settlement with a boat harbor stands on

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the E side of this island and, under good conditions, small vessels can anchor NE or SW of it; however, at times, grounded icebergs send large waves through the narrow entrance channel, making the harbor dangerous.

Numerous icebergs collect in great numbers among the islands, which form the S side of Upernavik Isfjord, and tend to block the shallow channels between them until late in July. Once these channels are open, navigation is assisted rather than impeded as some of the bergs ground on rocks while others float, affording some evidence of deep water.

Kingigtortagdlit (73°02'N., 56°55'W.), a group of islets and rocks, is located 19 miles NW of Upernavik. It is the outermost of several dangers which lie in the approaches to Upernavik Isfjord. The largest islet of this group, which rises to a height of 88m, is covered with moss and grass and some ruins stand on its summit.

Kitsigsut, a group of islets and rocks surrounded by shoal water, lies on the N side of the approach to Upernavik Isfjord, 8 miles NE of Kingigtortagdlit. Larger areas of shoal water, with islets and rocks, extend 1.5 miles farther NE.

Augpilagtoq (72°53'N., 55°36'W.), an island, lies 17 miles within the entrance to Upernavik Isfjord. A settlement stands at the head of a small bay on the NW side of this island. It is normally approached from the SW, direct from Upernavik, keeping in mid-channel between the islands, but ice from Upernavik Isfjord can frequently hinder navigation. Small vessels with local knowledge, can anchor off the S end of the settlement, N of a small islet, in a depth of 25m. During unfavorable ice conditions, anchorage can be found closer inshore in a depth of 10m.

Qaersorssuatsiaq, a large island, lies 5.5 miles N of Tuvssaq. It affords good anchorage, with shelter from SW winds, within a bay on its E side. Beacons stand on the SE, E, and NE extremities of this island.

Innarssuit (Innaarsuit) (73°12'N., 56°02'W.), a small settlement, is situated 9 miles NNE of Tuvssaq. It stands on the W side of a peninsula which projects from the NW side of an island lying E of Qaersorssuatsiaq. Anchorage off the settlement is impossible because depths are too great. Small vessels with local knowledge can anchor in a depth of 25m, in a small bay located on the E side of the peninsula. A quay, with 2m alongside, is located at the settlement.

Naujat (73°09'N., 55°51'W.), a very small settlement, stands on the E side of the W island of a group lying 9 miles NE of Tuvssaq. Small vessels can anchor S of the settlement in depths of 25 to 30m. Although the area has not been surveyed, the settlement can be approached directly from Upernavik Isfjord, keeping in mid-channel between Tuvssaq and Kanek.

5.7 Tasiusaq (73°22'N., 56°00'W.) (World Port Index No. 00990), a large island 525m high, lies 14 miles NNE of Tuvssaq. A settlement stands within the N entrance point of a bay located on the W side of this island. A church, situated in the settlement, is visible from seaward. Small vessels can anchor off the settlement, but huge waves caused by capsizing icebergs sometimes roll into the bay, which is open to the SW, and endanger them. Safer anchorage, with shelter from SW gales, is available, in depths of 20 to 25m, within a cove located on the SE side of the bay, 0.75 mile from the

settlement. A beacon stands on the N entrance point of the cove. The bay is navigable from July to September.

Tasiusaq Bugt (73°12'N., 55°30'W.) lies between the Qagsserssuaq promontory and Nunatarssuak (Nunatarsuak). Two large glaciers form the head of this bay.

Nutarmiut-Ikerasaarsuk (73°32'N., 56°26'W.), a settlement, stands on an islet which lies close off the NE extremity of Nutarmiut, an island. The islet forms part of a narrow sound in which there is a good harbor for small craft. The harbor is protected from all winds, but navigation is difficult because of several rocks lying on the SE side of the sound. The largestest craft that can anchor SE of Nutarmiut is 40m long and 3m draft.

5.8 Tugtorqortoq (73°40'N., 56°58'W.), a large island, bounds the S side of the outer part of Gieseckes Isfjord. It rises to a height of 587m and is divided into two cliffy masses by a deep valley.

Gieseckes Isfjord (73°37'N., 56°00'W.), a long channel, extends in a SE direction between the NW extremity of Tugtorqortoq and Kap Shackleton, 6 miles N. Agpalarsalik, a small island, is located 1.5 miles W of Tugtorqortoq, from which it is separated by a safe, and deep channel. A rock with a depth of 9m, lies 2.5 miles SE of the island. Horse Head, the NW extremity of Agpalarsalik, forms a prominent landmark and is easy to identify, except from the W, when it blends with the land behind it. Ikardlunguaq, consisting of a below-water rock and a rock awash, lies in the approach to Gieseckes Isfjord, 4 miles NW of Tugtorqortoq.

Kap Shackleton (73°47'N., 56°50'W.), the W extremity of Agparssuit, an island 658m high, lies 6 miles N of Tugtorqortoq and is the N entrance point of Gieseckes Isfjord. The cape, from which a reef extends, is formed by a noble headland rising steeply from the sea to a height of 426m. Its cliffs are the nesting places of many birds.

Several small islets lie off the NW side of Agparssuit and the innermost of these is marked by a beacon at its E end. The N extremity of Agparssuit is bordered by below-water rocks and a beacon stands on its E extremity.

Qutdlikorssuit (Kugdlerkorsuit), the largest of the islands off this part of the coast, rises to a height of 822m and forms the N side of the outer part of Gieseckes Isfjord. It is easy to recognize, being reddish brown in color and of massive appearance, with a steep W face 440m high. The island is separated from Agparssuit by a deep channel with a least known depth of 225m.

The two bays which indent the W and S sides of Qutdlikorssuit afford good anchorage sheltered from all directions. Rocks were reported to lie within the bay on the E side where icebergs frequently ground.

Kuk (73°43'N., 56°13'W.), a small settlement, stands near a cove at the S end of Mernok, an island lying on the N side of Gieseckes Isfjord. Small vessels may anchor off the cove in a depth of 25m.

Nuluk (73°33'N., 55°58'W.), an island, lies mid-way along the SW side of the inner part of Gieseckes Isfjord. A small harbor is located within a bay on its N side near the site of an abandoned settlement.

Gieseckes Glaciers discharge into the NE side of the inner part of the fjord at several places. As the tidal currents in the

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fjord are very strong and the depths considerable, icebergs immediately drift away from the front of the glaciers leaving, in both summer and winter, a large ice-free basin at the head. Although most of the icebergs drift seaward along the NE side of the fjord, a considerable number veer to the SW side and block the channels between the islands. Some of the large icebergs on reaching the outer fjord are carried N and eventually strand in the large bay which indents the S side of Qutdlakorssuit. Here they remain until they break up into small bergs and make their way seaward through the narrow channels.

5.9 Sugar Loaf Bugt (74°03'N., 56°40'W.), extending E for 20 miles, is entered between the NW extremity of Qutdlakorssuit and the SW extremity of Nugssuaq, 15 miles NW. The central part of its head is occupied by an irregular land mass which rises to a height of more than 900m. Ussings Isfjord, on the S side of this land mass, extends SE for 10 miles to its head. Ryders Isfjord, on the N side of this land mass, extends NE for 6 miles to its head. Several small islands lie within Sugar Loaf Bugt.

Kigtorsaq (73°56'N., 56°45'W.), an island, lies on the SE side of the entrance to Sugar Loaf Bugt. Good anchorage is available off the site of an abandoned settlement situated on this island.

Edderfugleoer, a scattered group of islands and rocks, lies between 7 and 10 miles SW of Nugssuaq, in the W approach to Sugar Loaf Bugt. There are three islands in the group, two of which lie close together and appear as one island, with the third located about 2 miles NE. The southwesternmost island is the highest and rises to a height of 82m; its summit is surmounted by a cairn. Rocks extend up to 2 miles from the islands. The tidal streams in the channel between the two close-lying islands are strong. It has a rocky bottom and is not suitable as an anchorage.

Umanak (Sugar Loaf) (74°01'N., 56°58'W.), the outermost of the islands in the bay, lies in the middle of the entrance. It has a symmetrical, rounded summit, which rises to a height of 280m, and is very conspicuous from seaward. A rock with a depth of 9m, lies 1 mile W of this island.

Nugssuaq (Nugssuaq), a rugged peninsula with many sharp peaks, extends 25 miles SW from the mainland and has an average width of about 3 miles. It separates Sugar Loaf Bugt from Nunugsulik Bugt to the N.

Nuussuaq (Kraulshavn) (74°07'N., 57°04'W.), a small supply outpost, is situated on the E entrance point of a bay which indents the S side of the Nugssuaq Peninsula, 3 miles E of its SW extremity. The bay forms a large, deep harbor in which small vessels can anchor. It is normally navigable from mid-June to mid-October. The tidal currents within the bay are reported to be weak. Qeqertanguaq, a small island 49m high, is located 90m E of the W entrance point of the bay and marked by a beacon. Range beacons, bearing 048°, stand on the E side of the bay close N of the supply outpost and lead W of this island and into the anchorage. Vessels usually anchor, in a depth of 15m, about 90m NW of the outpost. Shallow draft vessels can also obtain anchorage in an inlet which indents the N coast of the peninsula, 2 miles N of the outpost.

Inugsulik Bugt (74°19'N., 57°00'W.) is entered between the SW extremity of Nugssuaq and Wilcox Head, 23 miles N. Two

glaciers discharge into the head of this bay, but as the icecap levels off in this vicinity, the icebergs produced are not high. During the summer, the land located around the bay has a comparatively rich vegetation and the remains of earlier habitations have been found in many places. Several groups of small islands, islets, and rocks, lie within the bay and can best be seen on a chart of the area.

Kangerdluarssuk, a short fjord, indents the SE corner of the bay and extends almost as far as the icecap located between Nugssuaq and a shorter peninsula, 1.5 miles N. A steep bluff, located at about the middle of the N shore of the fjord, is prominent.

Igdulik (74°21'N., 56°43'W.), a small settlement accessible only by boat, is situated at the W end of the N peninsula.

Pokulufik (Pukulugfik) (74°15'N., 57°30'W.), a small and low islet, lies in the approaches to Inugsulik Bugt, 9 miles NNW of the S entrance point. This islet is sometimes difficult to identify.

5.10 Melville Bugt, an extensive bight, lies between Wilcox Head and Kap York, 160 miles NW. Most of its shoreline is covered by enormous glaciers, their crevassed surfaces broken only occasionally by steep mountain tops. In contrast to the numerous islands that fringe the coast to the S, only a few islands front this stretch of coast; all of them are small and they lie up to 15 miles offshore.

Melville Bugt contains large numbers of icebergs throughout the year. During average years, the bight is only ice-free from pack ice and fast ice from mid-August until the end of September. In the spring, the fast ice normally lies in a direct line from Wilcox Head to Kap York. The break-up begins in June with the formation of leads between this fast ice and the pack ice of Baffin Bay. However, the movements of the latter are uncertain and SW winds may close the gap; on the other hand, a continuous lead may develop right across the bight, ending S of Wilcox Head.

During July, in average years, the break up of the fast ice and pack ice in the region is rapid and by mid-August none remains. From then till the end of September it does not normally impede navigation, but August is generally the best month for navigation.

Caution.—Vessels making way within Melville Bugt are advised to keep in depths of over 600m so as to prevent from getting caught in ice.

Holms O, an island 935m high, is the largest within the bight and lies close to the E shore.

Wilcox Head (74°29'N., 57°31'W.), the W extremity of Holms O and the SE entrance point of Melville Bugt, is a salient point 750m high. A large cairn stands on this headland. Areas of foul ground are reported to exist up to about 7 miles W and NW of the headland.

Alison Bugt lies at the SE end of Melville Bugt, between the E end of Holms O and the mainland to the E. Wandels Land. A table-like mainland peninsula, rises to a height of 940m on the NE side of Alison Bugt. A small and heavily crevassed glacier, which discharges icebergs to the W, is located on the N side of this peninsula.

Ryders Oer (74°39'N., 57°40'W.), a group of four small and widely separated islands, lies between 6 and 13 miles NNW of Wilcox Head. Foul ground is reported to lie in the vicinity of

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this group. It was reported that vessels had obtained anchorage off the southernmost and northwesternmost islands of the group.

Sardlia, a small island, lies 4 miles NE of Wilcox Head. Its W end is lower than the E end, which rises to a height of 122m, and a marshy depression lies between them. A bay lies at the S end of this depression and forms a good anchorage, but the depths within it are unknown.

Kuvdlorssuaq, an island, lies 2 miles NE of Sardlia on the S side of the approach to Alison Bugt. **Kullorsuaq** (Djavelens Tommelfinger) (74°36'N., 57°10'W.), a remarkable landmark, stands on the S side of this island. It consists of a 540m high column of rock which has the appearance of a gigantic thumb extending upwards from a hand.

Kuvdlorssup Timmilerssua (Sarqardlerssuaq), an island 583m high, lies between Kuvdlorssuaq and the N side of Holms O. Good anchorage is available off the NW side of this island in a depth of 35m; however, the bottom is uneven and the area has not been surveyed (1973).

5.11 Amdrups O (74°45'N., 57°30'W.), an island 415m high, lies on the N side of the approach to Alison Bugt, 13 miles N of Wilcox Head. Blochs O, an island 90m high, lies off its SW extremity. A vessel detained here because of ice reported finding anchorage off both islands.

Hovgaards Kystland (74°43'N., 56°55'W.), a small, ice free part of the coast, lies 10 miles NW of Wandels Land. Hayes Gletscher, a glacier, forms the shore between Hovgaards Kystland and Lille Renland, a mountain 765m high, standing 15 miles NNW.

De Greers Oer, three small islands, and I.A.D. Jensens Oer, two islands and an islet, lie centered 2.5 miles SW and 9 miles W, respectively, of Lille Renland, with a detached islet between them. Hammers O, 70m high, Gardes Oer, and Bluhme Oer, lie, in that order from NW to SE, between I.A.D. Jensens Oer and Amdrups O.

Kjaers Gletscher, which produces few icebergs, forms the shore between Lille Renland and Red Head, 13 miles NW.

Red Head (75°04'N., 58°08'W.), a promontory bordered by islands and islets, extends about 2 miles SW from the edge of the icecap and rises to a prominent rock knoll, 263m high, which falls steeply on its NW side.

Steenstrups Gletscher, the largest glacier in Melville Bugt, covers the shoreline NNW of Red Head for a distance of 14 miles. This glacier produces many icebergs up to 25m high.

Depot Oer and N.E. Balles O, two small groups of islands and islets, lie about 9 miles seaward of Steenstrups Gletscher.

Kap Seddon (75°21'N., 58°39'W.), located 19 miles NNW of Red Head, is the SW extremity of Tugtulgissuaq, a narrow and prominent promontory which extends 7 miles SW from the NW side of Steenstrups Gletscher. Numerous ruins found on the promontory indicate that it was once the site of a large settlement.

A small islet with a rock close off its SE side, lies close S of Kap Seddon and there are indications that a bank extends up to 7.5 miles WNW of the cape. Hoj O, an islet, lies about 11 miles NW of the cape.

Between Kap Seddon and Kap Walker, 31 miles NNW, the coast recedes for about 12 miles and forms a bight in which there are several islands.

Duneira Bugt, a small bay fronted by islands, lies in the bight between Kap Seddon and Kap Lewis, 14 miles NNE.

Mylius Erichsens Monument, a solitary pillar 545m high, appears from offshore to be encircled by peaked mountains and rises above the glacier ice 10 miles NE of Kap Lewis.

Melville Monument (75°46'N., 59°25'W.), a familiar landmark to Arctic navigators, is a small island lying about 5.5 miles ESE of Kap Walker. When seen from SW, the island appears very similar to Kullorsuaq (see paragraph 5.10) and is very conspicuous.

5.12 Off-Lying Islands and Dangers.—Sabine Oer (75°30'N., 60°13'W.), two low islets, lie about 25 miles WNW of Kap Seddon. During most of the summer months, open water extends inshore as far as these islets. Several islets and a below-water rock, position doubtful, lie in an arc between about 6 miles NE and 15 miles ESE of Sabine Oer. Five rocks awash are reported to lie about 7 miles N of Sabine Oer.

It was reported (1988) that a useful emergency anchorage can be found between the two islets of Sabine Oer, in a depth of about 10m. The approach from the SW was reported to be clear of dangers with a least depth of 8m existing at the entrance to the anchorage. A prominent hut is reported to stand at the W end of the westernmost islet.

Thoms O (75°43'N., 60°36'W.), a small island, lies 15 miles NNE of Sabine Oer. In its center there is a cone-shaped rock formation, 90 to 120m high, with a rounded summit. It is formed of alternate red and gray strata, not found elsewhere in the vicinity. Below-water rocks lie about 1.5 miles WNW and 3 miles NE of this island, but their positions are doubtful.

Caution.—A Marine Nature Reserve area lies within Melville Bugt. The seaward limit of this area extends from **Tugtupaluk** (75°34'N., 58°23'W.) in a WSW direction to the SW extremity of Sabine Oer, then to Thoms O, Bryants O, and finally to Kap Melville. Navigation is prohibited within this protected area. Exceptions may be made to allow local hunters and scientific expeditions to operate within certain parts of the reserve.

5.13 Kap Walker (75°48'N., 59°45'W.) is the SW extremity of the Nugsuak Promontory. This promontory, which projects about 8 miles SW from the edge of the land ice, has steep ice covered sides and rises to heights of over 1,000m.

Kong Oscar Brae and Peary Gletscher are two glaciers which occupy the shoreline between Kap Walker and Thalbitzers Naes, 23 miles NW. Peary Gletscher discharges few icebergs, but Kong Oscar Brae is reported to be very productive. The iceberg bank, which occupies the bay on the NW side of the Nugsuak Promontory, extends for about 12 miles along the face of these glaciers.

Thalbitzers Naes (76°03'N., 60°58'W.), 220m high, is the SW extremity of the largest of several small islands which lie close together off the NW end of Peary Gletscher.

Kap Murdoch (76°08'N., 61°52'W.), located 14 miles WNW of Thalbitzers Naes, is the S extremity of an unnamed island which rises to a height of 480m.

Between Kap Murdoch and Thalbitzers Naes, the coast recedes to form a bay that is fronted by many small islands. Two glaciers form the head of the bay and several mountains (nunataks) interrupt the faces of these glaciers.

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Fisher Oer, a group of several islands, lie up to 7 miles E of Kap Murdoch.

Balgoni Oer, a chain of three small islands and rocks, extends about 4 miles W from Thalbitzers Naes. Kloft O, a small island, lies 3.75 miles S of Balgoni Oer. Heilprin O, a larger island than most in this vicinity, lies 4 miles SW of Fisher Oer. It rises to a height of 350m and a small islet lies 1 mile off its NW extremity.

A large bay lies between Kap Murdoch and Kap Melville. It is encumbered by a number of islands and has several glaciers along its shores.

Kap Melville (76°03'N., 64°01'W.), 275m high and prominent, is the S extremity of an L-shaped promontory which is connected to the shore by a low isthmus, awash at high water. The cape can be recognized by a large, steep, and black mountain wall, 512m high, which extends seaward on a low headland. Huts, used by hunters, stand on its S side.

Bushnans O, an island 230m high, lies 14.5 miles WSW of Kap Melville and is almost divided in half by a glacier. It appears to be fertile, especially around the site of an old settlement standing on its SW side. A rocky shoal, with a depth of 4.9m, lies close off the NW coast of this island.

Caution.—It was reported (1976) and (1988) that shoal water extends up to 2 miles W of Bushnans O. It was observed (1988) that pack ice and numerous bergs were in the area between Bushnan O and Cape York.

Meteorite O (76°03'N., 65°00'W.), 336m high, is located 1.5 miles N of Bushnans O and is the largest island located off the N shore of Melville Bugt. It lies on the W side of the entrance to Meteorbugt.

Savignivik (76°01'N., 65°05'W.) a trading station, is situated on the N side of a bay which indents the SW coast of the island. Vessels up to 90m in length and 6m draft have anchored, in a depth of 16m, about 60m off the station, in August. Maximum tide ranges to 3.5m. Local knowledge is advisable.

Pattefjeldene, a prominent mountain 380m high, stands 15 miles NE of Kap York on the W extremity of a peninsula which separates Meteorbugt from Sidebrikdfjord.

Georg O, 345m high, and Salve O, 470m high, are two steep islands which lie off the SW side of this peninsula, with some islets between.

Akuliaruserssuaq, located 4.5 miles NW of Salve O, is the S extremity of a broad promontory which separates Sidebrikdfjord from De Dodes Fjord.

Kap York (75°54'N., 66°27'W.), the NW entrance point of Melville Bugt, is the outer extremity of a narrow peninsula which extends 13 miles SE from the mainland. The cape itself consists of a bold and bluff headland, 445m high, with dark snow-capped cliffs. It is very conspicuous from seaward. There is deep water close off the S and W sides of the cape, but the depths on the E side are unknown. Peary Minevarde, a prominent monument 18m high, stands on the cape.

The high land forming the cape has been reported to be visible at a distance of 30 miles. When seen from between E and SE, the left tangent of the cape rises abruptly as a steep dark cliff, then trends NW and slopes gradually towards a large glacier. The land then becomes a series of snow-capped peaks which rise to heights of over 760m and are interrupted by glaciers.

Kap York To Kap Atholl

5.14 The coast between Kap York and Kap Atholl, 54 miles WNW, can be divided into two quite distinct parts. As far as Parker Snow Bugt, 33 miles WNW of Kap York, it consists of steep bluffs and precipitous cliffs, about 300 to 600m high, which are separated by numerous small glaciers above which rise snow-capped summits. Anchorages are available off this part of the coast, but a sudden inset of ice may make them untenable. Most of the coast is ice-free except for Pituffik (Petowik) Gletscher which enters the sea about 15 miles SE of Kap Atholl.

Numerous seabirds breed all along this stretch of coast. The fertilizing effect of their presence combined with the natural deep rock gives the cliffs, in summer, unexpected rich colors. In addition, during early summer when the melting of the snow is well advanced, the presence of numerous microscopic plants produces a phenomenon of red or pink snow. Because of this effect, the cliffs are called Crimson Cliffs.

Caution.—Local magnetic disturbances have been reported to exist off this part of the coast.

Parker Snow Point, the W extremity of a bluff 550m high, is located at the NW end of Crimson Cliffs.

Conical Rock, an islet 299m high, lies 2.25 miles SW of Parker Snow Point and is steep and sharp-pointed. Because of its shape and color, the islet forms an excellent landmark. Vessels may pass either side of the rock, depending upon ice conditions at the time.

Parker Snow Bugt (76°09'N., 68°37'W.) is entered between Parker Snow Point and Kap Dudley Diggs (Cape Dudley Digges). The shores of this bay rise in abrupt cliffs to heights of about 450m. Two glaciers are located near the head, but they terminate against steep banks of boulder clay and do not discharge into the bay. A settlement, normally deserted in summer, stands on a plain on the N side of the bay near its head. Excellent anchorage can be found in the innermost part of the bay, about 100m offshore, in a depth of 20m, clay.

Kap Dudley Diggs (76°10'N., 68°49'W.), the W extremity of a fairly extensive area of ice-free land N of Parker Snow Bugt, is a precipice 245m high. It is reported to be clear of snow with yellow vegetation at the top.

Pituffik Gletscher, located close N of Kap Dudley Diggs, is conspicuous and easy to identify. Its outer face, about 3 miles wide, extends about 1 mile seaward from the land on either side and presents a line of low abrupt cliffs rising directly from the sea. Large icebergs frequently break off from the face of this glacier; some of them ground on ledges which extend on each side of the glacier. Good anchorage can be obtained off the N side of the face of the glacier in depths of 42 to 46m.

Hule, a prominent cave, is located close N of Pituffik Gletscher; it is about 6m high and wide.

Quaratit (76°19'N., 69°21'W.), the former site of the Kap Atholl Loran Station, is located 7 miles NW of the N end of the face of Pituffik Gletscher and about 5 miles SE of Kap Atholl.

Kap Atholl (76°23'N., 69°38'W.) is located 12.5 miles NW of the N end of the face of Pituffik Gletscher. It is 230m high and forms the S entrance point of Wolstenholme Fjord. Tonge Skaer, a low table rock, almost awash, lies 3 miles SE of Kap Atholl and about 0.75 mile from the shore. A dark patch on the

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mountain side in the vicinity of this rock is prominent from a considerable distance.

Outlying Islands

5.15 Carey Oer (76°47'N., 72°58'W.), an isolated group of islands, islets, and rocks, lies with its center located 50 miles WNW of Kap Atholl. Some of the greatest depths in the N part of Baffin Bay, over 600m, are found to lie between this group and the mainland NE. The islands lie on foul ground where icebergs strand and rocks, awash and below-water, are located off the SW side of the group. They must be approached with care as the waters in the vicinity are not completely surveyed. The group is only accessible to vessels from early August until the middle of September, although the surrounding waters are never completely frozen over.

Bjorlings O (76°43'N., 72°33'W.), the easternmost island of the group, rises to a height of 300m and is surmounted by a cairn.

Nordvest O, the largest and westernmost island of the group, lies 7.5 miles W of Bjorlings O and rises to a height of 225m. This island is fringed by islets and rocks which extend up to about 1 mile from its NE extremity.

Bordo, Hollaenderhatten, Fireo, Isbjorneo O, Mellemo O, and Tyreojet are the more important islands and islets which complete the group.

Isbojorn (76°44'N., 73°03'W.), a harbor, is formed in the SE end of a channel which separates Isbjorneo O from Mellemo O to the SW. It affords almost landlocked anchorage, reported to be sheltered in all weathers, in depths of 16 to 22m. The anchorage berth lies off a small bight which indents the S side of Isbjorneo O. A cairn surmounted by a staff stands on the shore of the bight. It is reported that there is little swell and weak tidal current is experienced within the harbor.

Anchorage can also be found in a bay at the SE end of Mellemo O.

Bylot Sund and Wolstenholme Fjord

5.16 Bylot Sund (76°30'N., 69°30'W.), deep and free of dangers, is entered between Kap Atholl and the S extremity of Wolstenholme O, 5 miles WNW. The sound extends NE for 14 miles, between the mainland on the E and some islands on the W, to join Wolstenholme Fjord. For Greenland Ship Reporting System (GREENPOS & KYSTKONTROL) refer to Pub. 180, Sailing Directions (Planning Guide) for the Arctic Ocean.

Wolstenholme O is a steep-sided island which, when viewed from the S, appears saddle-shaped. Its E and higher part rises to a height of about 550m and is surmounted by a cairn. Dalrymple Rock, a peaked islet 146m high, lies 1 mile NW of Wolstenholme O and is the breeding place of numerous seabirds.

Caution.—A local magnetic anomaly has been reported in the vicinity of Dalrymple Rock.

Ederfugleoer, consisting of two islets and a rock awash, lies on a shoal located 2 miles N of Wolstenholme O; a below-water rock lies midway between them. It was reported that an isolated shoal patch with a depth of 25m, lies about 7.5 miles W of Ederfugleoer.

Saunders O (76°34'N., 69°43'W.), located 5 miles NNE of Wolstenholme O, rises steeply to an almost level top. The prominence of this island is enhanced by the color of its cliffs, banded in red and yellow, which are the breeding place of innumerable seabirds. The NW part of the island is comprised of a huge semi-detached mass of rock over 305m high. On its SW and E sides there are small, flat, raised patches of debris lying at the foot of the cliffs.

Wolstenholme Fjord (76°38'N., 68°30'W.), fronted by the above islands, is entered between an unnamed point, located 13.5 miles NE of Kap Atholl, and Kap Abernathy, 10.5 miles NNW. The fjord extends E for about 22 miles, terminating in three great glacier faces. Prohibited Area lies in the fjord, which is best seen on the chart.

Several good anchorage roadsteads lie in the fjord, the best of which is North Star Bugt, located 2 miles within the SE entrance point.

Dundas Fjeld (76°34'N., 68°53'W.), a dark and isolated mountain, stands on the N shore of North Star Bugt and forms a very prominent landmark. A cairn stands on the E side of its flat top and its steep sides are dangerous due to avalanches.

North Star Bugt (76°34'N., 68°52'W.), a small bay, is formed between Dundas Fjeld and Pituffik (Astro), a low-lying point, 1 mile SSE. The width of the entrance to the bay is reduced to 0.53 mile by a causeway and berthing pier which extends 245m WNW from Pituffik (Astro).

Dundas, a small Danish settlement, lies at the head of the bay. Originally founded as Thule, this name now applies to a larger settlement situated in the vicinity of Ingelfield Bredning (see paragraph 5.21).

The S side of the bay consists of a harbor and port facilities for use of the U.S. Air Force Base at Thule, the installations of which are situated about 1 mile S of the port. The bay is open to navigation from the 20th of July to the 30th of September. Icebreakers are stationed in the area to assist vessels during difficult periods.

Aspect.—An airfield is situated 2 miles SSE of the cairn standing on Dundas Fjeld. The buildings in its vicinity are prominent. An aeronautical light is shown from a position close S of the airfield. A conspicuous red house stands on the N side of the bay, in the settlement of Dundas. A radar dome is reported to stand about 0.75 mile ESE of the root of the causeway. A group of storage tanks stand close SE of the root of the causeway.

Caution.—North Star Bugt is a restricted U.S. Defense area and permission to enter must be obtained from the authorities.

Submarine cables lie within the approaches to the bay and can best be seen on the chart. A large and prominent sign "Submarine Cables—Do Not Anchor" stands on the SE shore of North Star Bugt, 0.75 mile NE of the root of the causeway.

Port of Thule Air Base (Pituffik) (76°32'N., 68°52'W.)

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5.17 The port of Thule Air Base is situated on the S side of North Star Bugt. There are anchoring and berthing facilities for large vessels. Pituffik or Pitugfik is a harbor and oil terminal exclusively reserved and secured to serve the Thule Air Force

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Base (TAB). Vessels must obtain permission from the authorities prior to entering and anchoring as directed in the North Star Bught. During the navigation season, ice conditions in the Bught may unexpectedly change and vessels may require to leave the bay on short notice.

Refer to Pub. 180, Sailing Directions (Planning Guide) for the Arctic Ocean for vessels entry, requirements, and other pertinent information.

Winds—Weather.—The wind direction is quite variable, but generally prevailing from a W direction in June and July and shifting to the E in September. Average winds are light, being 4 to 11 knots or less 82% of the time. September and October are months in which the possibility of storms is greatest. Storms are rare in July and August, but, when occurring, come mostly from the SE quadrant. Icebreakers are available during severe ice conditions.

Tides—Currents.—Tides in the bay rise about 3m at springs and 1.7m at neaps. The tidal currents within the bay are weak.

Depths—Limitations.—The principal berth in the port is a pier, 305m long, connected to Pituffik (Astro) by a 430m long causeway.

The pier has a depth of 9.4m alongside its N side. The S side is not used because of shoal depths and rocks. It is reported that range beacons stand close E of the root of the causeway and indicate the approach to the pier.

Vessels up to 130m in length and 7m draft can be accommodated alongside.

A submarine pipeline extends in a W direction for nearly 0.5 mile from the S side of Pituffik (Astro). Tankers moor at the seaward end of this pipeline where six mooring buoys are available.

A number of hulks, lying at the head of the bight close S of Pituffik (Astro), are used as finger piers for the handling of cargo, but are reported to be in poor condition.

Pilotage.—Pilots are not available; however, the harbor authorities will assist vessels to enter the port and berth. Permission to anchor and the anchorage berth position must be obtained from the harbor authorities. Vessels bound for the bay should send an ETA in advance to: the U.S. Base Authority at Thule and also to the Danish Harbor Authority at Dundas. The port can be contacted by VHF.

Anchorage.—Several designated anchorage berths lie within the bay and are best seen on the chart. These berths, which have depths of 13 to 18m, good holding ground, are sheltered from the strong SE winds the bay is occasionally subject to.

Vessels up to 80m in length and 5.5m draft have anchored at Dundas, close SSW of the settlement.

Wolstenholme Fjord to Inglefield Bredning

5.18 From **Kap Abernathy** (76°41'N., 69°16'W.), the N entrance point of Wolstenholme Fjord, the coast trends NW for 35 miles to Kap Parry. The coast in this area has several indentations, the largest of which is Granville Fjord.

Manson Oer, two small islands, lie close off Kap Abernathy in an extensive area of water which remains unsurveyed.

Moriusaq (Manussaq) (76°45'N., 69°54'W.), a native settlement, is situated 10 miles NW of Kap Abernathy on the

SE entrance point of Granville Fjord. Vessels can anchor 90m offshore in a depth of 33m with a prominent red house in the settlement bearing 214°. Range beacons, situated close E of Manussaq and bearing 007°, lead into the anchorage.

Granville Fjord is entered between Manussaq and Uvdilsauntinguag, a point 8 miles NW. Three Sister Bees, a group of small and flat islands, lie in the middle of the entrance to the fjord. The shores of the fjord are bound by mountains with ice-covered summits. Two glaciers enter a basin that forms the head of the fjord at the edge of the Greenland Icecap.

Drown Bught (76°52'N., 70°48'W.), a small bay, lies 9.5 miles NW of the Three Sister Bees. This bay forms part of the SW side of Steensby Land, the W end of an ice-covered peninsula which rises to a height of 1,190m.

Booth Sund is entered 5 miles NNW of Drown Bught. A sandbar, barely awash, extends across the entrance to this sound. Fitz Clarence Rock, an islet 105m high, lies 1 mile within the S entrance to the sound and is a very conspicuous mark.

Kap Parry (77°01'N., 71°22'W.), one of the most striking landmarks on this coast, rises to a height of 470m and is precipitous on its W and NW sides. Winter ice rarely forms off Kap Parry.

Caution.—The waters within the vicinity of the cape are subject to sudden offshore storms; warning of these storms is usually given by low fast-moving, woolly clouds gathering over the cape.

Approaches to Inglefield Bredning

5.19 **Hvalsund** and **Murchison Sund**, two channels, lead from Baffin Bay into Inglefield Bredning and Olrik Fjord. The former channel passes on the S side of Hakluyt O, Northumberland O, and Herbert O, and the latter channel passes on the N side of these islands.

Hakluyt O (77°26'N., 72°42'W.), a small island 400m high, lies 1.5 miles W of Northumberland O. A tableland, about 1 mile long, forms the top of the island. In summer, grass and flowers flourish on its SE side. Northumberland O, an island 1,030m high, can be recognized from the S by a snow-covered peak standing on its W end. Foul ground, the outer extremity of which is awash, extends up to 2.5 miles from the SE side of the island.

Herbert O (77°25'N., 70°29'W.), an island 890m high, lies 3 miles E of Northumberland O and is separated from it by a channel with a least known depth of 16m. Icebergs frequently strand on foul ground that borders the E end of this island. It is formed from a vertical, flat-topped mass of sandstone. Three glaciers descend from a small icecap to the N side of the island, but only one reaches the sea.

A small settlement is situated at **Qeqertarssuaq** (77°25'N., 70°09'W.), a low foreland 4 miles NW of the E extremity of the island. Vessels can anchor in depths of 20 to 25m, 120m off this settlement. Range beacons, bearing 177°, lead through a foul area to the roadstead. Larger vessels anchor on the same bearing 0.5 mile off shore in 40m depth.

Hvalsund (77°19'N., 70°40'W.) is the S approach channel. Its S side between Kap Parry and Kap Radcliff, 7 miles NNE, is high and bold with scanty vegetation. Drifts of snow remain here throughout the year, under the crests of cliffs. Barden

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Bugt, an inlet into which several glaciers descend, is entered between Kap Radcliff and Kap Powlett, 4.5 miles NE. A reef, partially awash and of unknown extent, stretches SW from Kap Powlett. A rock, on which the sea breaks, lies 0.75 mile off shore, midway along the S side of the inlet. It is reported that vessels can anchor off **Natsilivik** (77°10'N., 70°52'W.), a winter settlement standing 1 mile within Kap Powlett, in depths of 85 to 90m, soft bottom.

Caution.— A local magnetic anomaly exists in the W part of Hvalsund.

5.20 Olrik Fjord (77°12'N., 67°35'W.), long and narrow, is unique on the NW coast of Greenland, being more like a river than a fjord. Between Kap Powlett and Kap Trauwine, 11 miles ESE, the S side of the approach is formed by a continuous line of multi-colored cliffs which rise vertically to a height of 680m. The tidal currents in the fjord are strong. Its outer part is probably navigable as far as a reef which is reported to extend S from the N side near the narrows, about 13 miles within the entrance. At its head, the fjord is almost joined to Inglefield Bredning by Academy Bugt, but is blocked by Leidy Gletscher.

Murchison Sund, the N approach channel, is 28 miles wide at its NW entrance between Hakluyt O and Kap Robertson, on the mainland NE. The outer part of the NE side of the sound between Kap Robertson and Kap Cleveland, 20 miles SE, is deeply indented by Robertson Fjord and MacCormick Fjord.

Kap Robertson (77°48'N., 71°26'W.), the NE entrance point, is the W extremity of a large mainland promontory. This promontory can be recognized by three glaciers, located on its S side, which extend toward the S, but do not reach it.

Robertson Fjord is entered between Kap Robertson and Iglunaksuak Pynt. Close within its entrance the fjord narrows to a width of 3 to 4 miles and maintains this width to the head. The scenery in the fjord is very bold and the precipitous cliffs at its head are majestic. Verhoeff Gletscher, a rapidly moving glacier, terminates at the head of the fjord in a wall of ice nearly 30m high. The depths within the fjord are great and decrease only close inshore.

Siorapaluk (77°47'N., 70°42'W.), a small trading station, is situated on the SW side of Robertson Fjord. Vessels can anchor in depths of 27 to 50m, sand, about 150 to 200m off the station. At times, numerous icebergs are reported to drift by the station. A supply vessel is reported to call here during August. Vessels up to 70m in length and 6.5m draft have been handled.

MacCormick Fjord (77°39'N., 70°00'W.) is entered between Iglunaksuak Pynt and Kap Cleveland. The shores of the fjord present an almost continuous line of beach. The head of the fjord is occupied by a glacier about 1 mile wide; it has a vertical face, about 30m high, from which numerous icebergs are discharged. On the NW side of the fjord, the land, which slopes up moderately from the shore, is intersected by numerous ravines and crested with an isolated icecap.

Red Cliff Halvo, a peninsula separating MacCormick Fjord from Bowdoin Fjord, extends 15 miles S from the coast to which it is joined by an isthmus, 8 miles wide. It is about 22 miles wide at its seaward face and is fringed by foul ground.

Thule (Qaanaaq) (77°28'N., 69°18'W.), a small settlement, stands on the S coast of Red Cliff Halvo. It was transferred from Dundas in North Star Bugt (see paragraph 5.16).

Contact with radio station may be established on RT (MF) frequency 2182, during the navigation season, Monday through Friday between 1000-1400 and 1500-1900 hours.

Tides rise about 3m at springs and 1.7m at neaps. Vessels with local knowledge normally anchor about 180m off the settlement, in a depth of 15m; the holding ground is good, but a sternline is secured ashore. Anchor beacons indicate the berth. Vessels up to 135m in length and 7m draft have been handled. Pilots are not available, but local officials will assist during entering and anchoring. The ice-free calling period lasts from early July until the end of September. The dark period lasts from 3 November to 9 February and the midnight sun period lasts 24 April to 18 August.

Inglefield Bredning

5.21 Inglefield Bredning (77°26'N., 68°00'W.), a wide and branching fjord, is entered between **Kangeq** (77°16'N., 69°06'W.) and Kap Ackland. For the greater part, the fjord is bordered by promontories, 300 to 900m high, from the base of which the snow melts off in summer. At several places the shores are interrupted by fjord-like depressions through which short glaciers flow from the Greenland Icecap and discharge a few small icebergs. The innermost part of the bay, by contrast, is almost entirely occupied by large and very productive glaciers which are fronted by ice-scoured islands.

Tidal currents are reported to run very strongly along the S shore of Inglefield Bredning, with many eddies.

Bowdoin Fjord is entered 8 miles ENE of Kap Ackland. Igdlorssuit, a small settlement, is situated on the W side of this short fjord, about 2 miles N of **Kap Tyrconnel** (77°31'N., 68°36'W.), the W entrance point. Vessels can anchor, in a depth of 55m, about 0.1 mile off the settlement; a windmill and a flagpole in line, bearing 205°, indicate the berth.

Academy Bugt, a short arm of Inglefield Bredning, extends SE between a number of lake-strewn and ice-free plateaus, about 1,000m high, and terminates close N of the head of Olrik Fjord, in a glacier common to both. The SW side of this arm is formed by a continuous, inaccessible, and vertical cliff that extends from a bluff at the entrance to beyond the glacier face. The NE side of the arm is also bold, but, towards the entrance, there are some deep valleys that give access to the easternmost plateau.

The Head.—The S side of the head of Inglefield Bredning, E of Academy Bugt, is bold but ice-free. The E and N sides form an almost continuous glacier face. Four huge ice streams, separated by precipitous mountains (nunataks), flow down from the Greenland Icecap to release great quantities of icebergs along this face. As a result of this heavy discharge, the ice located in the interior E part of the head has settled down into a huge semi-circular basin.

Several islands lie at the head; some of these islands are located in the face of the glaciers and others at a short distance from them. Josephine Peary O, the northernmost island, has almost vertical cliffs, 500m high, at its S end. Harward Oer, two large islands 100m high, lies in the middle of the semi-circular basin described above; **Qeqertat** (77°30'N., 66°42'W.), a settlement, stands on the SW end of the larger island. Vessels with local knowledge can anchor at 100m away from this settlement in a depth of 28m, holding ground is poor. Several

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islets and rocks are reported to lie on foul ground about 1 mile S of the settlement.

Murchison Sund to Kap Alexander

5.22 From Kap Robertson, the NE entrance point of Murchison Sund, the coast trends NNW for 15 miles to Kap Chalon and consists of alternating cliffs and glacier faces. Kap Saumarez, 445m high, is located 5 miles NNW of Kap Robertson and separates two glaciers, Morris Jesup Gletscher and Diebitsch Gletscher.

Caution.—A local magnetic disturbance has been observed about 3 miles SW of Kap Saumarez.

Kap Powell (77°54'N., 71°54'W.), 435m high, is located 5.5 miles WNW of Kap Saumarez. It is the NW extremity of a broad promontory which separates Diebitsch Gletscher from Clements Markham Gletscher.

Kap Chalon, a sandstone mountain 581m high, can be readily identified by a black, basalt dike which extends E along the coast for 2 miles to the face of Clements Markham Brae Gletscher. This dike, 9 to 15m high, forms a retaining wall for a mass of stratified sandstone which rises to heights of 305 to 365m above it. Icebergs are reported to ground on a bank lying off Kap Chalon.

Prudhoe Land (78°00'N., 71°00'W.), an immense area capped with ice, backs the irregular coast between Kap Chalon and Kap Alexander, 16 miles NW. Numerous glaciers descend to the sea from this area. Generally, the ice-free land consists only of a narrow band fringing the extremities of the projecting promontories.

Sonntag Bugt (78°00'N., 72°26'W.) is entered 5 miles NNW of Kap Chalon. Several glaciers enter the bay and a moraine, 50m high, on the W part of the northernmost glacier is sometimes used as a route to the Greenland Icecap. Radcliff Pynt is the SE extremity of a promontory which separates Sonntag Bugt from a small unnamed bay, the head of which is occupied by Storm Brae, an enormous glacier.

Caution.—A local magnetic disturbance has been reported close off the S part of the entrance to Sonntag Bugt.

Sutherland O, a rough-grained sandstone island, lies in the entrance to the bay 3 miles SE of Kap Alexander and rises to a height of 90m.

Kap Alexander (78°10'N., 73°09'W.), the W extremity of Greenland, forms the SE entrance point to Smith Sound. The cape, about 1 mile wide, extends 4 miles W from the glaciers at its base. It is composed of layers of light yellow sandstone and dark columnar basalt. Rising to a height of 350m, it is reported to be the highest and steepest of all the capes along this coast.

Nares Strait

Nares Strait, a channel leading NNE from Baffin Bay to the Arctic Ocean, passes between the W side of the N part of Greenland and the E coast of Ellesmere Island in Canada. The strait consists of, from S to N, Smith Sound, Kane Basin, Kennedy Channel, Hall Basin, and Robeson Channel.

Although the strait and neighboring sea are at times hazardous for navigation due to severe ice conditions, they have long been attempted by explorers seeking a NW passage between the Atlantic and Pacific Oceans. However, prior to

1948, only five vessels were recorded as having successfully navigated N of Kane Basin, the middle part of Nares Strait. Thereafter, the strait has provided a route, navigable in August by ice-breakers, to supply a meteorological station at Alert, on the NE coast of Ellesmere Island.

Smith Sound

5.23 Smith Sound (78°24'N., 73°30'W.) leads N from Baffin Bay into Kane Basin and forms part of the Nares Strait route to the Lincoln Sea. It lies between the E coast of Ellesmere Island, Canada, and the W coast of Greenland. The sound, with a general width of about 25 miles, is entered between Kap Alexander, located on the coast of Greenland, and Cape Isabella, located 26 miles WNW on the coast of Ellesmere Island.

The shores on both sides of the sound are high but differ greatly in aspect. The Greenland coast, although consisting mostly of worn headlands, has fertile land with long grass in summer. The Ellesmere Island coast is bleak, barren, desolate, and backed by extensive icefields.

From limited information, the depths in Smith Sound appear to be deep, being nowhere less than 183m and generally more than 365m. No known dangers appear farther than 1 mile offshore (1973). The tidal currents within the sound are reported to be weak.

Ice.—The S end of the sound normally remains open throughout the year although winter ice forms in the inner parts of the bays S of Etah, midway along the Greenland coast. The remainder of the sound freezes over entirely from shore to shore, every winter. The S limit of this solid ice forms a bridge across the sound, opposite Etah, which is used by Eskimo hunters.

After the breaking up of this ice, usually in June or July, conditions vary and are liable to alter radically, even within a few hours; these conditions depend upon the wind and the current that affects the entry of heavy Arctic pack ice from Kane Basin. New ice begins to form off Etah in September.

McCormick Bugt (78°14'N., 72°48'W.) lies 5 miles NNE of Kap Alexander. Kap Kenrick, the N entrance point of the bay, is a prominent headland 240m high. A drying reef, on which icebergs ground, extends off the S side of this point. Pandora Havn, the inner part of the head of the bay, forms a harbor for small vessels, but is exposed to W winds. Vessels can anchor, NE of a small projection on the S side of the harbor, in a depth of 12m, good holding ground.

Hartstene Bugt is entered between Kap Kenrick and Sunrise Pynt, 5 miles NNW. A bight is located close within Kap Kenrick and, at its head, a cascade falls over 100m from the hills. A small bay indents the N shore of Hartstene Bugt and has been reported to be bordered by an icefoot fringed by rocks. Anchorage has been obtained by small vessels, in a depth of 15m, within this bay.

Foulke Havn, a small deep inlet, is fronted by three small islands and indents the head of Hartstene Bugt. It is fully exposed to the SW and open to the entry of ice. It was reported that a small vessel with a draft of 2.4m was icebound in the bay and wintered there protected from SW winds by grounded icebergs off the entrance to the inlet.

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Foulke Fjord, about 1 mile wide and 4 miles long, opens E from the head of Hartstene Bugt, close N of Foulke Havn. It has been visited by many expeditions and used as a winter base. Numerous islets and rocks encumber both sides of the entrance and a 12.8m shoal patch lies in the middle of it. Vessels entering this fjord are advised to keep slightly N of mid-channel to avoid the known dangers.

Several mountains, 610 to 740m high, stand on the N side of the inner part of the fjord and are fronted by shores which rise almost vertically to a height of 335m.

Etah (78°19'N., 72°36'W.), lying at the head of a bay 1.5 miles within the N entrance point of Foulke Fjord, is the site of a former Eskimo settlement.

Anchorage.—Vessels can anchor in the inner part of Foulke Fjord, in depths over 25m, about 30m off a small peninsula.

Kap Ohlsen, a prominent steep cape of light reddish rock, is located 11 miles NNE of Kap Alexander. The cliffs in its vicinity are precipitous.

Littelton O (78°21'N., 72°52'W.), a small island 180m high, is the largest of a group of islands, islets, and rocks which lie close NW of Kap Ohlsen. It is flat-topped and prominent and has been used as a repository for the records of various expeditions. McGary O, a much smaller island, lies close NW of Littelton O. Rocks encumber the SW end of the passage that lies between them. Small vessels have anchored at the NE end of this passage, but found it unsatisfactory due to the limited swinging room and the entry of ice.

Kap Hatherton (78°28'N., 72°34'W.), located 6 miles NNE of Kap Ohlsen, is a bold, rocky mass. The small bays lying close N and S of the cape have sandy bottoms but are shallow. Refuge Havn, an inlet located 3 miles NNE of the cape, is open to the S and the W and can be entered close S of Cairn Pynt. Small vessels can anchor, in a depth of 14m, in the NW part of this inlet.

Kane Basin

5.24 Kane Basin lies between Smith Sound and Kennedy Channel. It is about 110 miles long and has a greatest width of about 80 miles in its middle.

Cairn Pynt (78°31'N., 72°29'W.), the SE entrance point of Kane Basin, is a square-faced headland, surmounted by a cairn. It forms the W extremity of a small, but prominent, peninsula of laminated rock.

Inglefield Land, a broad strip of ice-free land, extends from Foulke Fjord to Kap Agassiz, 83 miles NE. The coast, which fronts it, is generally formed of almost vertical cliffs, from 150 to 305m high, some of which have long slopes of rock debris reaching to an icefoot at their bases. Bays and deep inlets indent the shore, but none afford refuge or shelter from the ice, the pressure of which is severe along this coast. The ice-free land, which extends inland for about 20 miles, is comparatively level, except in its E part where small elevations alternate with the valleys.

Rensselaer Bugt is entered 15 miles ENE of Cairn Pynt, between Kap Ingersoll and Kap Leiper, 7 miles farther ENE. It is reported that a small vessel wintered in this bay by mooring to the shore, in a depth of 13m, between two islands in the innermost part, safe from outside ice pressure. However, the

vessel had to be abandoned because the winter ice failed to move out of the bay.

Bancroft Bugt (78°47'N., 70°16'W.) is entered between Kap Francis, 5 miles NE of Kap Leiper, and Kap Taney, 4 miles farther NE. The Minturn River, about 0.75 mile wide at its mouth, discharges 8 miles ENE of this inlet and is shallow,

Marshall Bugt lies 13 miles NE of Bancroft Bugt and is entered between Inuarfigssuaq and Kap Russell, 2 miles N. The bay penetrates 6.5 miles into the coast, its inner part having the character of a fjord. It connects to the mouth of a river which drains several lakes located near a glacier. A group of small, steep-sided islands occupies the NE portion of the outer part of this bay.

5.25 Dallas Bugt (79°05'N., 68°00'W.) is entered between Kap Kent and Kap Scott, 5 miles ENE. This bay extends 3 miles SE to its head where it receives the flow of two rivers. Several islets lie near the head and a small islet lies close off Kap Scott.

Advance Bugt, an irregular bay, is entered 2 miles E of Kap Scott from which it is separated by a small inlet and promontory. This bay is 4 miles wide and extends S for 1.5 miles. It is fronted by an island chain and encumbered with islets. A river flows into its head.

Bonsall Oer (79°10'N., 66°39'W.), a chain of islands and islets about 6 miles long, fronts the coast 4 miles WNW of Kap Agassiz. They lie close off the shore which is indented by numerous small inlets and bays.

Kap Agassiz (79°08'N., 66°10'W.) is the NE extremity of Inglefield Land. A number of islets lie close off this cape. McGary Oer, a small group of islands, lies 4 miles N of the cape and close off the S end of Humboldt Gletscher.

Peabody Bugt (79°37'N., 65°10'W.), the E part of Kane Basin, fronts Humboldt Gletscher, the glacier which covers the coast from close N of Kap Agassiz to Kap Forbes, 50 miles N. The edge of this glacier slopes down evenly to the bay and is almost without crevasses. In most places, the edge is no more than 50m high and, in several places, it is easily accessible from a boat. The icebergs from Humboldt Gletscher look like huge pieces of ice from polar regions and are never as high as those discharged from the glaciers of Inglefield Bredning and Melville Bugt, to the S.

Benton Bugt, an open bight, is formed by the shore which recedes N for 2.5 miles between Kap Forbes and Kap Clay, 10 miles WNW. Putdlerssuaq, an island 1 mile long, lies near the E end of this bay, 2 miles SW of Kap Forbes.

Cass Fjord (80°05'N., 64°32'W.), a branching indentation about 2 miles wide, extends 15 miles NE and N from its entrance. Poulsens Klints, cliffs 180m high, extend NE for several miles along the N shore of this fjord.

Nygaard Bugt indents the mainland coast for 4 miles between the N entrance point of Cass Fjord and Kap Webster, 10 miles WSW. The W shore of this bay is bordered by Talilenguak Cliffs and a river enters its head.

Wright Bugt is entered between Nunatami, a point 2.5 miles W of Kap Webster, and Kap Jackson, 11 miles WNW. This bay penetrates 4.5 miles N to a narrow inlet at its head. The cliffs on its E side rise to a height of 490m and those on its W side, known as Troedsson Klipper, rise to a height of 365m.

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In the vicinity of Kap Webster and Wright Bugt, the limestone cliffs are of fantastic formation, with gray, cold colors at their feet and glowing red shales near their summits.

Kennedy Channel

5.26 Kennedy Channel connects Kane Basin with Hall Basin. It is entered from the S between **Cape Lawrence** (80°21'N., 69°35'W.) and Kap Jackson. The channel extends NE for about 80 miles between comparatively regular and almost parallel shores, 15 to 20 miles apart. Its junction with Hall Basin lies on a line joining Cape Baird and Kap Morton, 22.5 miles SSE.

There is deep water throughout Kennedy Channel; depths average 336m on the NW side and range from 183m to 275m on the SE side. No offshore dangers have been reported within the waters of the channel, but several islands are located in its middle part. On a rising tide, the tidal current sets SW through the channel and on a falling tide, it sets NE. A current is reported to set SW in the channel and may attain a considerable rate following N winds.

The relatively large range of the tide in Kennedy Channel, up to 3.8m, keeps it open late and reopens it early, in the season. Some floes of old polar ice, which are nearly always moving S through the channel, collect on the edge of the open water and pile up on the existing ice, forming high and uneven areas. They have also been known to pack up to 20m high against the islands and temporarily block all ice movement.

Kap Jackson (80°03'N., 67°03'W.), which forms the SW extremity of that part of Greenland known as Washington Land, is located at the junction of the E shores of Kane Basin and Kennedy Channel. The cape is described as bluff and comparatively low, but when viewed from a distance, it appears flat. Strong currents are reported to set around the cape.

Morris Bugt (80°08'N., 67°04'W.) is entered 2.5 miles N of Kap Jackson, between Kap Calhoun and Kap Madison, 6 miles NW. High hills, up to 200m high, stand to the E of the bight, beyond which lies a bare limestone plateau, cut by a few deep valleys, rising toward small icefields some distance inland.

From Kap Madison the coast trends N for about 8 miles to Kap Hamilton and then another 2 mile, to Kap Jefferson. This part of the coast is known as Nicolaj Nielsen Kyst. It is fronted by a limestone foreshore, up to 2 miles wide, which dries and appears at high water as a collection of low-lying reefs and islets.

Lafayette Bugt (80°27'N., 66°47'W.) indents the coast between Kap Jefferson and Kap Independence, 13.5 miles NNE. The shores of this bay are formed by steep mountains, up to 430m high, fronted by a low and narrow foreshore. Kap Independence is a precipitous headland which rises to a height of 185m.

Kap Constitution, located 2 miles N of Kap Independence, is also a precipitous headland and rises to a height of 500m.

Crozier O (80°30'N., 67°11'W.) is the southernmost island in Kennedy Channel. It fronts Lafayette Bugt and is reported to be easily identified. The cliffs at its SW side rise to a height of 60m.

Franklin O, the largest island in Kennedy Channel, lies 3 miles N of Kap Constitution and is easily identified. It is light

brown in color, very steep-sided, flat topped, and rises to a height of 215m on the SE side.

Hans Island is located 9 miles NNE of Franklin O, almost in the middle of the channel. This island, which rises to a height of 150m in its S part, is under Canadian sovereignty.

John Brown Kyst is the name applied to that part of the coastal strip which lies between Kap Constitution and Kap Bryan, 44 miles NNE. Along the N part of the ice foot is narrow and the sea ice presses hard against it, with the result that the surface of the ice foot is covered, in many places, with large ice blocks. The S part of John Brown Kyst is indented by a wide bight into which flow several streams and where signs of ancient habitation have been found.

Alakratiak Fjord (80°40'N., 65°47'W.) is entered between Kap Resser, 300m high, and Graptolit Naeset, which rises to a height of 530m, 4.5 miles NE. A river discharges into the head of this fjord.

Fossil Bugt lies 11 miles NNE of Alakratiak Fjord. Several streams discharge into the head of this wide bay. A large bay, into which several streams discharge, lies between Kap Godfred Hansen and Kap Ulrich, 5 miles NNE.

From Kap Ulrich the coast trends NE for about 11 miles to Kap Field and then another 2 miles to Kap Bryan.

Kap Bryan (81°07'N., 64°00'W.), 360m high, is the W entrance point of Bessels Fjord and the N point of Washington Land. Violent gusts of wind have been reported to sweep down the mountains which rise steeply to a height of 650m in this vicinity. The ice foot here is narrow and impassable. Hannah O lies close NE of Kap Bryan and has been described as an immense heap of pebbles and drift, probably the remains of an old glacier.

It has been reported that a vessel anchored off the entrance to Bessels Fjord, in a depth of 15m, on a bank which extended E from Hannah O. A very strong flow over the bank was observed.

Bessels Fjord is entered between Kap Bryan and Kap Maynard, 3 miles ENE. It is long and narrow and extends SSE between John Brown Iskappe, the icecap to the W, and Petermann Halvo, the peninsula to the E. The precipitous cliffs on both sides of the fjord are cut by many ravines from which small but active glaciers discharge icebergs. Many of these icebergs have been observed aground in shallow water at the entrance and much older ice has been noted in the upper reaches of the fjord.

Hall Basin

5.27 **Hall Basin** (81°25'N., 63°00'W.) lies between Kennedy Channel, to the SW, and Robeson Channel, to the NE. It is entered between Cape Baird, on the E coast of Ellesmere Island, and Kap Morton, on the NW coast of Greenland. The basin is irregular in shape; its W shore is almost entirely broken by the entrance to Lady Franklin Bay off which opens an extensive fjord system. The E shore is more regular, but deeply indented by Petermann Fjord at its S end.

The basin appears to be deep, except on the E side where depths of 55m have been reported to lie up to 5 miles from the coast. However, there are no known off-lying dangers (1973). Ice conditions in the basin depend much upon the wind and may change from day to day.

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Kap Morton (81°12'N., 63°26'W.), the N extremity of Petermann Halvo, lies at the termination of Kennedy Channel. Joe O, located 2.5 miles NNW of Kap Morton, is a small, mushroom-shaped island over 100m high. Deep water lies in the channel between the island and the cape.

Petermann Fjord is entered between Kap Lucie Marie and Kap Tyson, 13 miles NE. From about 11 miles within its entrance, the fjord is occupied by Petermann Gletscher, the longest glacier in Greenland, which extends nearly 50 miles SSE to the Greenland Icecap. However, the seaward face of this glacier is low and few icebergs are discharged from it.

On either side of Petermann Fjord, steep cliffs rise to ice-covered plateaus, 800m high, from which small glacier tongues occasionally form over the cliffs. The projecting ice then breaks off, frequently carrying with it masses of rock torn from the face of the precipice.

Offley O (81°18'N., 61°51'W.), a small and steep island, lies 1.5 miles S of Kap Tyson. Its NE extremity presents a precipitous face, 150m high.

Polaris Bugt, which indents the shore for 3 to 4 miles to the E, lies between Kap Tyson and a small, low point, where a stream enters the sea, 12 miles NNE.

Thank God Havn (81°38'N., 61°48'W.) is a small bight formed between the above low point and Kap Lupton, 4 miles N. The land behind this bight is high and consists of a series of elevations and depressions. It is reported that vessels can also anchor in a depth of 55m, mud and silt, about 0.6 mile W of a river delta located within the bight.

Robeson Channel

5.28 Robeson Channel (81°57'N., 60°47'W.) extends 50 miles NE from the N end of Hall Basin, lying between Cape Murchison and Kap Lupton, to its junction with the Lincoln Sea, lying between Cape Sheridan and Kap Stanton, 37 miles ESE. It has a least width of 11 miles and is the narrowest part of Nares Strait.

The Greenland coast of Robeson Channel is almost uniformly high and bold except where it is broken by Newman Bugt, a long inlet, opening SE, 17 miles within the entrance. The channel itself appears to be deep throughout with depths of over 360m. It has steep-to shores and no known off-lying dangers to navigation (1973).

During summer and autumn, close pack ice drift in the channel, concentrating and building up pressure, particularly in the narrowest parts. The strong S flow of the current, and the force of additional masses also drifts from the Lincoln Sea. However, conditions can vary greatly, the channel having been observed almost ice free in August and even, for brief periods, as late as mid-October, although previously closely packed with ice.

Kap Lupton (81°41'N., 61°53'W.), the SE entrance point of Robeson Channel, is a prominent landmark on the W coast of the Polaris Promontory. In this vicinity the character of the coast changes, the low-lying land to the S being replaced by high steep cliffs.

Kap Porter and Kap Ammen are located 5.5 miles N and 9 miles NNE, respectively, from Kap Lupton. The land close within the coast between these capes rises to a height of over 880m and the cliffs continue round the seaward face of the

Polaris Promontory, 9 miles farther NE, to Kap Sumner, its N extremity. The only significant break in the cliffs is a remarkable opening in the land near Kap Ammen that, when viewed from the W, has the appearance of an indentation. However, it is a straight line of coast with a low, level plain stretching inland for 2 miles to a line of hills.

Kap Sumner (81°54'N., 60°41'W.), the SW entrance point of Newman Bugt, is steep and moderately high though much less so than the cliffs to the SW. In summer it is bare of snow. A deep ravine is located close S of the cape.

Newman Bugt is entered between Kap Sumner and **Kap Brevoort** (81°59'N., 60°17'W.), 6 miles NE. This bay separates the Polaris Promontory from **Nyeboe Land** (81°55'N., 58°20'W.), a large ice-free area extending 45 miles E. The middle part of the bay is encumbered with islands. Several streams empty into the bay from the slopes draining on either side. The head of the bay is occupied by a glacier which is part of the Greenland Icecap.

Congress Hojland backs the NW coast of Nyeboe Land, about 7 miles inland, between Kap Brevoort and Kap Stanton, 28 miles ENE. Most of this stretch of coast consists of rocky cliffs. Gap Dal, a valley through which a small stream enters the sea, is located 6 miles NE of Kap Brevoort.

Repulse Havn (82°06'N., 59°08'W.), a small bay, lies 11 miles NE of Kap Brevoort. The low-lying land surrounding it can scarcely be distinguished from the sea ice so that some hills in the background give the bay the appearance of being much larger with two islands in it. A small cairn stands on one of the entrance points.

Black Horn Klint is named for a remarkable black rock which projects like a horn from one of the cliffs. These cliffs extend along the coast 16 to 20 miles ENE of Kap Brevoort. They rise precipitously from the sea to a height of 305m with neither a foreshore nor an icefoot at their base.

Lincoln Sea

5.29 The NW coast of Greenland from Kap Stanton to Kap Morris Jesup, about 170 miles ENE, forms the SE side of Lincoln Sea. The land is extensively indented by numerous fjords and in most places the shore consists of steep and stratified cliffs. The fjords are usually, if not always, filled with heavy polar pack ice.

Kap Stanton (82°13'N., 57°18'W.), the E entrance point, lies at the N end of Robeson Channel and also forms the SW entrance point of Hand Bugt. Rock Bakke, a mountain 1,050m high, stands at the head of this inlet.

Frankfield Bugt is separated from Hand Bugt by a promontory, the seaward face of which is about 3 miles wide and rises to a mountain, 365m high. The entrance of this inlet is 1.5 miles wide and its E entrance point is known as Rest Pynt. A mountain range, which rises to a maximum height of 1,250m, extends between the inlet and Hand Bugt and forms the base of the above mentioned promontory.

Kap Bryant (82°20'N., 55°15'W.), the N extremity of Nyeboe Land, lies 10 miles ENE of Rest Pynt. Wyatt Bjerg, 610m high, and Punch Bjerg, 1,100m high, stand 4 miles S and 11 miles SSE, respectively, of the cape. Punch Bjerg is reported to be the most prominent landmark in this vicinity.

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Saint George Fjord is entered between Kap Bryant and Dragon Pynt, the N extremity of Hendrik O, a large island 11 miles ESE. It extends S for 45 miles to the face of Steensby Gletscher. The W side of the fjord, formed by the E coast of Nyeboe Land, consists of cliffs as far as Kap Fulford, 4 miles from the entrance. The remainder of this shore is regular in character but with several small valleys leading inland from it through mountainous country on which there are some minor icecaps.

Hendrik O (82°03'N., 53°18'W.), which separates the outer part of Saint George Fjord from Sherard Osborn Fjord, extends S and SE for a total distance of 29 miles. This island has an average width of about 5 miles and rises to a height of 1,127m in its N part. It is ice-free except for a few small glaciers. Warming Land, a peninsula located S of the island, is separated from it by Hartz Sound.

Sherard Osborn Fjord (82°15'N., 52°06'W.) is entered between Dragon Pynt and Kap May, 19 miles NE. From its entrance, the fjord narrows gradually to a width of about 10 miles abreast the S end of Hendrik O. The head of the fjord is occupied by a glacier. Castle O, an island, lies on the W side of Sherard Osborn Fjord, 6 miles within the entrance; it rises to a height of 520m at the N end. Reef O, a small island, lies close off the E shore opposite Castle O. Wedge O, a small island 150m high, lies close S of Reef O.

Kap May is the N extremity of Wulff Land, an extensive mainland peninsula that forms the E side of the fjord. The W side of the fjord is formed by Hendrik O and Permin Land, a smaller glacier-covered peninsula, lying between Wulffs Land and Warming Land.

At the head of Sherard Osborn Fjord, in the SW part of Wulff Land, there is an ice-free strip of land called Aage Bistrup Land. This strip is completely encircled by Ryder Gletscher, a glacier which slopes down evenly from the Greenland Icecap into the head of the fjord. After passing between Kap Buttress, 1,070m high and the E extremity of Permin Land, and the coast of Wulff Land, 3 miles E, the glacier spreads out and extends many miles N through the E part of the fjord as far as Wedge O.

Kap V Nordman, 800m high, is the N extremity of Permin Land. It is separated from the SE extremity of Hendrik O by a channel less than 1 mile wide.

5.30 Depot O (82°30'N., 50°30'W.), a small island, lies close off the NE end of Wulff Land, 9 miles E of Kap May. Between them, the N coast of the peninsula is ice-free but mountainous. Several fertile valleys lead inland from the coast, the largest being Gunnar Andersson Dal, located close W of Depot O.

Victoria Fjord is entered between Depot O and Kap Wohlgemuth, 18 miles ENE. The latter cape is 700m high and the NW extremity of Nares Land, a very large and high island covered with ice. Ostenfeld Gletscher, a glacier, occupies the head of the fjord and stretches from shore to shore. Its edge extends to within about 20 miles of the entrance.

Stephenson Island, 1,050m high, lies with its N extremity located 9 miles E of Depot O, on the W side of the outer part of Victoria Fjord. It is separated from Wulff Land by Nares Sund which has a least width of 3.5 miles.

Nordenskjold Fjord is entered between **Kap Middendorff** (82°40'N., 47°30'W.), the N extremity of Nares Land, and Kap Wegener, the W extremity of Freuchen Land, a high and mountainous peninsula 9 miles NE. Between Nares Land and Freuchen Land, the fjord extends SE for about 40 miles and then divides into two arms, at its head. The middle and inner parts of the fjord are entirely covered by Jungerson Gletscher, a large glacier, the edge of which lies within 10 miles of the entrance. The land on both sides of the fjord rises from the shores to glacier-covered heights of 600 to 850m. It is reported that icebergs have been found to be densely packed across the fjord, a few miles within the entrance.

J. P. Koch Fjord is entered between Kap Wegener and the SE extremity of Elison O, 5 miles NW. This island, together with Sverdrup O and Nansen Land bounds the N side of the fjord which, along its outer part, consists of wild and mostly ice-free alpine country. The land along the outer part of the S side of the fjord, which is formed by Freuchen Land, and on both sides of the inner part, is covered with glaciers except for a small ice-free shore margin.

Elison O, the S extremity of which forms the NW entrance point of J. P. Koch Fjord, lies 5 miles NNW of Kap Wegener. This island is composed almost entirely of rugged, but ice-free mountains which rise to heights of 1,000m. **Kap Salor** (82°56'N., 48°05'W.), the NW extremity of the island, is precipitous.

Sverdrup O is a much larger island than Elison O and rises to a height of 1,290m. It lies with Kap Emory, its low-lying W extremity, 2.5 miles NE of Kap Salor. The channel between these two islands is known as Chipp Sund. Numerous coves indent the shores of Sverdrup O. Markham O, a small island, lies close off Kap Emory.

Lemming Fjord is entered between Kap Emory and a point, 1 mile NE. It extends SE almost as far as a small bay located on the S side of Sverdrup O and nearly separates the SW part of the island from the larger NE part.

Blue Kap and Black Kap, the NW extremity of Sverdrup O, are located 2 miles and 4.5 miles, respectively, NE of Kap Emory. Linn Bugt, a small bay, indents the coast between Black Kap and Kap Benet, the N extremity of the island, 2.25 miles NE.

Mascart Sund is entered between Kap Benet and Kap Payer, 5 miles NE. It extends SE between Sverdrup O and Nansen Land and into the W coast of the latter. From the SW side of the sound, a narrow channel leads S into J. P. Koch Fjord and separates Sverdrup O from Nansen Land. It provides a connection between the fjord and the Arctic Ocean.

5.31 Peary Land is the extensive region that forms the N part of Greenland. With its mostly indented NW coast, extends 95 miles ENE from **Kap Payer** (83°08'N., 46°30'W.) to Kap Morris Jesup. Numerous icecaps are located inland, but there are also large ice-free areas and large valleys.

Nansen Land, the W part of Peary Land, is a large irregular projection of the mainland which lies between J. P. Koch Fjord, to the SW, and DeLong Fjord, to the NE. Four islands lie close off its seaward face which extends 22 miles ENE from Kap Payer to Kap Mohn. The edge of the Lincoln Sea pack ice lies close up to the outer projection of the coast, within which the land slopes up evenly and is very fertile.

Sector 5. Baffin Bay to Lincoln Sea

Distant Cape (83°10'N., 46°05'W.), located 1.5 miles NE of Kap Payer, is the N extremity of a high promontory which forms the E shore of the outer part of Mascart Sund.

Jewell Fjord is entered 4 miles E of Distant Cape between Low Pynt and a rounded projection, 4 miles farther NE. Three glaciers terminate at its head.

Gardiner Fjord, short and irregular, is entered close NE of Jewell Fjord. Islands lie close off each of the entrance points which are located 1 mile apart. The southwesternmost island, 825m high, lies with its SW extremity located 10 miles ENE of Kap Payer. The channel lying between the two islands is the widest opening leading into the fjord.

Kap Mohn (83°17'N., 43°24'W.) is the N extremity of an island which is located on the W side of the entrance to De Long Fjord. Kap Hommock, the E entrance point of De Long Fjord, lies 11 miles ENE of Kap Mohn and is the NW extremity of Hazen Land, a long narrow island which bounds the E side of the fjord. Nansen Land forms the W side of the fjord. From its entrance, in which lie several islands, De Long Fjord branches into three arms named from W, Thomas Thomsens Fjord, Adolf Jensen Fjord, and O.B. Bogild Fjord.

Thomas Thomsens Fjord, entered 7 miles SSE of Kap Mohn, is formed between Nansen Land and a long narrow island which, in turn, forms the W side of Adolf Jensen Fjord. The two fjords join S of the island and Adolf Jensen Fjord continues SE into Peary Land, terminating in Tjalfes Gletscher, a large glacier.

O.B. Bogild Fjord is entered through Wild Sund, the channel which separates Inge O, a small island fronting the entrance to Adolf Jensen Fjord, from Hazen Land. The fjord is formed between the W coast of Hazen Land and an island which, in turn, forms the E side of Adolf Jensen Fjord. To the S of this island, the two fjords join and O.B. Bogild Fjord continues E into Peary Land.

Weyprecht Fjord is entered between **Kap Hommock** (83°22'N., 41°31'W.) and Kap Christiansen, the NW extremity of Lockwood O, 6 miles NE. The fjord is bounded to the E by the W coast of Lockwood O, which rises to a height of 760m, and the W coast of Amundsen Land. It is bounded to the W by Hazen Land. At its inner end, off the SE end of Hazen Land, the fjord joins with Harders Fjord, which extends E into Amundsen Land and merges into a glacier. An island lying at the junction of the two fjords almost fills the entrance to Harders Fjord.

Conger Sund is entered between Kap Christiansen and Kap Kane, 4 miles NE. It separates Lockwood O from Amundsen Land and joins with Weyprecht Fjord, S of the island.

Amundsen Land forms the N part of Peary Land. From **Kap Kane** (83°27'N., 40°05'W.), the N coast extends 42 miles ENE to Kap Morris Jesup. Many promontories, separated by inlets or fjords, project from this irregular stretch of coast which is backed by Roosevelt Range with peaks rising to 2,000m.

Hunt Fjord is entered between a point, located 1 mile E of Kap Kane, and Kap Robert Lincoln, 5 miles ENE. Both entrance points are ice-free but otherwise the shores of the fjord are ice-covered except for a few protruding mountains. Thomas Gletscher, a large glacier, enters the head of the fjord.

Kap Washington (83°31'N., 38°50'W.), 885m high, is located 9 miles ENE of Kap Kane.

Benedict Fjord lies close E of Hunt Fjord and is entered between Kap Washington and Kap Cannon, 5 miles ENE. It extends SE for 8 miles to the face of Harmsworth Gletscher, a glacier that occupies the innermost part of the fjord. A small branch extends S for about 3 miles from the SW side of the fjord and almost the whole of its E shore is formed by a glacier.

Gertrude Rask Land is a promontory lying between Benedict Fjord and an unnamed fjord, 16 miles ENE. Most of it is occupied by glaciers, but a number of mountain peaks rise above the ice. It is reported that there are four separate glaciers on the N coast of Gertrude Rask Land; however, only three of them descend to the sea. The glacier located immediately E of Kap Cannon, the NW extremity of the promontory, is the only one on the NW coast of Peary Land that discharges icebergs.

Kap Christian IV, located 30 miles ENE of Kap Kane, is the N extremity of a small projection that forms the W side of the above unnamed fjord. From Kap Christian IV, the coast trends ESE for 3 miles to Kap Hans Egede, the W entrance point of Sands Fjord. This fjord extends S for about 4 miles facing the MacMillan Gletscher and the mountains, rising to heights of 800m on their sides.

Kap Morris Jesup (83°40'N., 33°24'W.), a small projection, is the N extremity of Greenland.

To the N of the cape, pack ice, up to 16m high, with snow-covered crevasses and narrow passages, has been observed in May with, farther to seaward, indications of open leads. Open water has also been seen during this month a few miles offshore, E of the cape.

The coasts and off-lying islands E of the cape are described in Sector 7.