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Report N.:



* T E C - 4 3 1 *

SKP Box Number: 672572426



CIR-3751
TEC-431
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METEOROLOGICAL BRANCH - DEPARTMENT OF TRANSPORT - CANADA

AERIAL ICE OBSERVING AND RECONNAISSANCE

QUEEN ELIZABETH ISLANDS, 1961.

UDC: 551.311.181

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AERIAL SEA ICE OBSERVING AND RECONNAISSANCE

QUEEN ELIZABETH ISLANDS - 1961

by

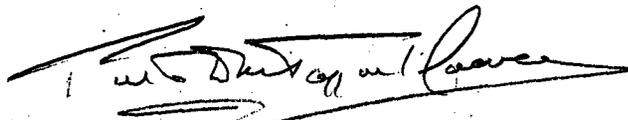
D.C. Archibald, M.N. Monsinger, T.B. Kilpatrick

This is the fifteenth technical report in the series concerning ice conditions observed by aerial ice reconnaissance, conducted by the Basic Weather Division, Meteorological Branch, Department of Transport.

This is the first annual technical report covering observed ice conditions in the Queen Elizabeth Islands.

This technical report describes observed ice conditions with regard to ice coverage, age, topography, puddling, snow cover, ice of land origin, and water features over the described area during the period from April 22, 1961 to September 13, 1961.

Approved:



P. D. McTaggart-Cowan,
Director, Meteorological Branch.

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AERIAL SEA ICE OBSERVING AND RECONNAISSANCE

QUEEN ELIZABETH ISLANDS - 1961

During the 1961 ice season, a field ice reconnaissance unit, staffed by Meteorological Branch Ice Observers, was stationed at Resolute, N.W.T., to carry out ice reconnaissance in the Queen Elizabeth Islands. The areas covered by this survey are shown on Page 8.

This ice reconnaissance programme was carried out under the direction of the Meteorological Branch, Basic Weather Division. Aircraft, chartered by the Meteorological Branch, Department of Transport, were used for all flights.

Shipboard Ice Observers were assigned to five Canadian Coast Guard Icebreakers on escort and associated duties in the Queen Elizabeth Islands, C.C.G.S. John A. Macdonald, C.C.G.S. d'Iberville, C.C.G.S. Labrador, C.C.G.S. N.B. McLean, and C.C.G.S. C.D. Howe. Short range ice reconnaissance flights, by helicopter from these icebreakers, were completed by shipboard Ice Observers as requested by the Masters of the ships.

During sealift operations and associated hydrographic and oceanographic probes, aerial and shipboard ice observations were supplemented by shore station ice reports from selected stations in the Queen Elizabeth Islands and adjacent areas. Throughout the entire year, weekly ice thickness reports were received from the following stations in the area:

Alert, N.W.T.	Resolute, N.W.T.
Eureka, N.W.T.	Arctic Bay, N.W.T.
Isachsen, N.W.T.	Clyde River, N.W.T.
Mould Bay, N.W.T.	

Two preliminary flights were conducted over the Queen Elizabeth Islands in April and May, 1961, to obtain the break-up pattern. For the period July 25, 1961, to September 15, 1961, medium range ice reconnaissance flights, based in the area, were completed as required.

A graphical summary of the ice conditions are illustrated in figures 1 - 19.

The descriptive terminology and the graphic representation of ice conditions are in accordance with the procedures outlined in the publication MANICE, Manual of Standard Practices and Procedures for Ice Reconnaissance, Second Provisional Edition.

We are indebted to Mr. E. Stasyshyn for co-ordinating the data and assembling the charts for printing, and Messrs R.V.A. Zuar, D.S. Veinot, J.A.R. Bourbonnais, and J.N. Clarey for their assistance in preparing this summary.

PRELIMINARY BREAK-UP FLIGHTS:

<u>Date</u>	<u>Area</u>	<u>Hours</u>	<u>Ice Observers</u>
April 23/25	Lancaster Sound, Peel Sound, Barrow Strait, Viscount Melville Sound, McClure Strait.	19.8	R.I. Smith A.J. Lewis S.A. Lupack E. Stasyshyn
May 20/23	Norwegian Bay, Jones Sound, Lancaster Sound, Viscount Melville Sound, McClure Strait, McLintock Channel, Barrow Strait.	10.2	W.R. Zubrecki G.T. Meek D.S. Veinot E. Stasyshyn

FLIGHTS FLOWN FROM RESOLUTE, N.W.T.:

July 29	Barrow Strait, Lancaster Sound, East Coast Baffin Island.	8.4	D.S. Veinot J. Lafontaine
Aug. 2'	Norwegian Bay, Jones Sound, Baffin Bay, Kane Basin, Eureka Sound.	9.3	D.S. Veinot J. Lafontaine
Aug. 3	Barrow Strait, Lancaster Sound.	3.6	D.S. Veinot J. Lafontaine
Aug. 5	Lancaster Sound, Davis Strait.	8.3	D.S. Veinot J. Lafontaine
Aug. 6	Barrow Strait, Viscount Melville Sound.	4.3	D.S. Veinot J. Lafontaine
Aug. 8	Jones Sound, Baffin Bay, Kane Basin, Eureka Sound, Penny Strait.	9.1	D.S. Veinot J. Lafontaine
Aug. 11	Norwegian Bay, Eureka Sound, Wellington Channel, Penny Strait.	6.4	D.S. Veinot J. Lafontaine G.T. Meek
Aug. 13	Barrow Strait, Viscount Melville Sound, Lancaster Sound, Baffin Bay.	11.0	D.S. Veinot J. Lafontaine
Aug. 15	Norwegian Bay, Jones Sound, Baffin Bay, Smith Sound, Kennedy Channel, Eureka Sound, Penny Strait.	9.6	D.S. Veinot J. Lafontaine
Aug. 17	Barrow Strait, Viscount Melville Sound.	4.3	D.S. Veinot J. Lafontaine J.C. Plamondon
Aug. 23	Jones Sound, Baffin Bay, Lancaster Sound.	6.6	D.S. Veinot J. Lafontaine
Aug. 25	Lancaster Sound, Davis Strait.	8.9	D.S. Veinot J. Lafontaine

FLIGHTS FLOWN FROM RESOLUTE, N.W.T. (Cont'd):

<u>Date</u>	<u>Area</u>	<u>Hours</u>	<u>Ice Observers</u>
Sept. 1	Baffin Bay.	2.8	D.S. Veinot J. Lafontaine
Sept. 3	Barrow Strait, Viscount Melville Sound, McClure Strait.	6.4	D.S. Veinot J. Lafontaine

TACTICAL RECONNAISSANCE FLIGHTS:

Aug. 11	Lancaster Sound, Barrow Strait.	2.8	D.S. Veinot J. Lafontaine G.T. Meek
Aug. 18	Jones Sound, Baffin Bay, Smith Sound, Kane Basin, Eureka Sound.	6.2	D.S. Veinot J. Lafontaine
Aug. 19	Eureka Sound, Norwegian Bay.	2.6	D.S. Veinot J. Lafontaine
Aug. 22	Belcher Channel, Norwegian Bay, Eureka Sound.	8.6	D.S. Veinot J. Lafontaine
Aug. 26	Wellington Channel, Penny Strait, Belcher Channel, Byam Martin Channel, Viscount Melville Sound, Barrow Strait.	8.2	D.S. Veinot J. Lafontaine
Aug. 28	Byam Martin Channel, Hazen Strait, Kellot Strait, McClure Strait, Viscount Melville Sound, Barrow Strait.	6.9	D.S. Veinot J. Lafontaine
Aug. 31	Queen's Channel, Penny Strait, Wellington Channel, Jones Sound, Baffin Bay.	6.0	D.S. Veinot J. Lafontaine
Sept. 6	Prince Regent Inlet, Gulf of Boothia, Bellot Strait, Peel Sound.	6.2	D.S. Veinot J. Lafontaine R.V. Zuar
Sept. 13	Lancaster Sound, Baffin Bay.	7.1	D.S. Veinot J. Lafontaine

FLIGHT TIMES FOR ICE OBSERVERS

Preliminary Break-up Flights

Type of Aircraft: Douglas DC-4

<u>OBSERVER</u>	<u>PERIOD</u>	<u>NUMBER OF FLIGHTS</u>	<u>HOURS FLOWN</u>	<u>MILES (STATUTE)</u>
E. Stasyshyn	April	1	53.1	10,089
	May	<u>1</u>	<u>51.3</u>	<u>9,747</u>
		2	104.4	19,836
R.I. Smith	April	1	53.1	10,089
A.J. Lewis	April	1	53.1	10,089
S.A. Lupack	April	1	53.1	10,089
W.R. Zubrecki	May	1	51.3	9,747
G.T. Meek	May	1	51.3	9,747
D.S. Veinot	May	1	51.3	9,747

REGULAR AND TACTICAL ICE RECONNAISSANCE FLIGHTS

Type of Aircraft: Curtiss C-46T

<u>OBSERVER</u>	<u>PERIOD</u>	<u>NUMBER OF FLIGHTS</u>	<u>HOURS FLOWN</u>	<u>MILES (STATUTE)</u>
D.S. Veinot	July	1	8.4	1,610
	August	18	122.6	20,368
	September	<u>4</u>	<u>22.5</u>	<u>3,775</u>
		23	153.5	25,753
J.Y. Lafontaine	July	1	8.4	1,610
	August	18	122.6	20,368
	September	<u>4</u>	<u>22.5</u>	<u>3,775</u>
		23	153.5	25,753
G.T. Meek	August	2	9.2	1,335
J.C. Flamondon	August	1	4.3	702
R.V. Zuar	September	1	6.2	1,010

FLIGHT TIMES FOR SHIPBOARD ICE OBSERVERS

Type of Aircraft: Bell Helicopter

	<u>TOTAL NUMBER OF FLIGHTS</u>	<u>TOTAL FLYING HOURS</u>	<u>TOTAL MILES (STATUTE)</u>
C.C.G.S. JOHN A. MACDONALD			
MASTER: J. Cuthbert			
ICE OBSERVER: G.T. Meek			
August	18	19.6	1,176
September	<u>7</u>	<u>5.7</u>	<u>324</u>
	25	25.3	1,518
C.C.G.S. C. D. HOWE			
MASTER: J.A. Ouellet			
ICE OBSERVER: A.J. Lewis			
August	5	2.8	168
C.C.G.S. LABRADOR			
MASTER: N.V. Clark			
ICE OBSERVER: R.V. Zuar			
August	5	2.5	150
September	<u>3</u>	<u>3.2</u>	<u>192</u>
	8	5.7	342
C.C.G.S. N. B. MCLEAN			
MASTER: M. Gagne			
ICE OBSERVER: R.G. Rannard			
August	5	5.7	342

DESCRIPTIVE TERMS USED IN THIS REPORT

- | | |
|----------------------|---|
| (a) Ice-free | No ice present. |
| (b) Open Water | Less than 1/10 ice cover. |
| (c) Scattered Ice | 1/10 to 5/10 ice cover. |
| (d) Broken Ice | 5/10 to 8/10 ice cover. |
| (e) Close Ice | 8/10 to 10/10 ice cover. |
| (f) Consolidated Ice | 10/10, little or no water present on the sea surface. |
| (g) Brash | Floes less than 6 feet across. |
| (h) Block | Floes from 6 feet to 30 feet across. |
| (i) Small Floe | Floes from 30 feet to 600 feet across. |
| (j) Medium Floe | Floes from 600 feet to 3,000 feet across. |
| (k) Giant Floe | Floes from 3,000 feet to 5 miles across. |
| (l) Ice Field | Floes more than 5 miles across. |

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KEY TO ICE SYMBOLS

<u>CONCENTRATION</u>		<u>AGE</u>	<u>ICE OF LAND ORIGIN</u>
	< 0.1 coverage	A dominant, secondary	▲ Icebergs (many) △ Icebergs (few)
	0.1 to 0.5 coverage	Sl - Slush Y - Young Ice W - Winter Ice Pl - Polar Ice	▲ Bergy bits and growlers (many) △ Bergy bits and growlers (few)
	0.5 to 0.8 coverage	Examples: A , A , etc. Sl, W, Pl	
	0.8 to 1.0 coverage		
	1.0 coverage (no water)		
<u>CONCENTRATION BY SIZE</u>		<u>PUDDLES</u>	<u>WATER FEATURES</u>
$\frac{C_n}{n_1 \cdot n_2 \cdot n_3}$		Pd dominant condition	 Crack  Lead
n_1 - tenths of slush, brash and block		Tenths of ice covered if not frozen or rotten	 Polynya
n_2 - tenths of small and medium floes		F - Frozen R - Rotten	
n_3 - tenths of giant floes and field		Examples: $\frac{Pd, Pd, Pd}{3 \quad F \quad R}$ etc.	<u>UNDERCAST</u>  Limits
<u>TOPOGRAPHY</u>		<u>THICKNESS OF SEA ICE AND SNOW</u>	<u>BOUNDARY</u>
	Rafted ice	$T, S,$ where n - nearest ft. $n \quad n$	— Known - - - - Assumed
	Ridged ice	Examples: $\frac{T, S}{5 \quad 2}$ etc.	*** Radar oooo Limit of Estimated data
	Hummocks		

Symbols used for Recording the Various Ice, Snow, and Water Features.

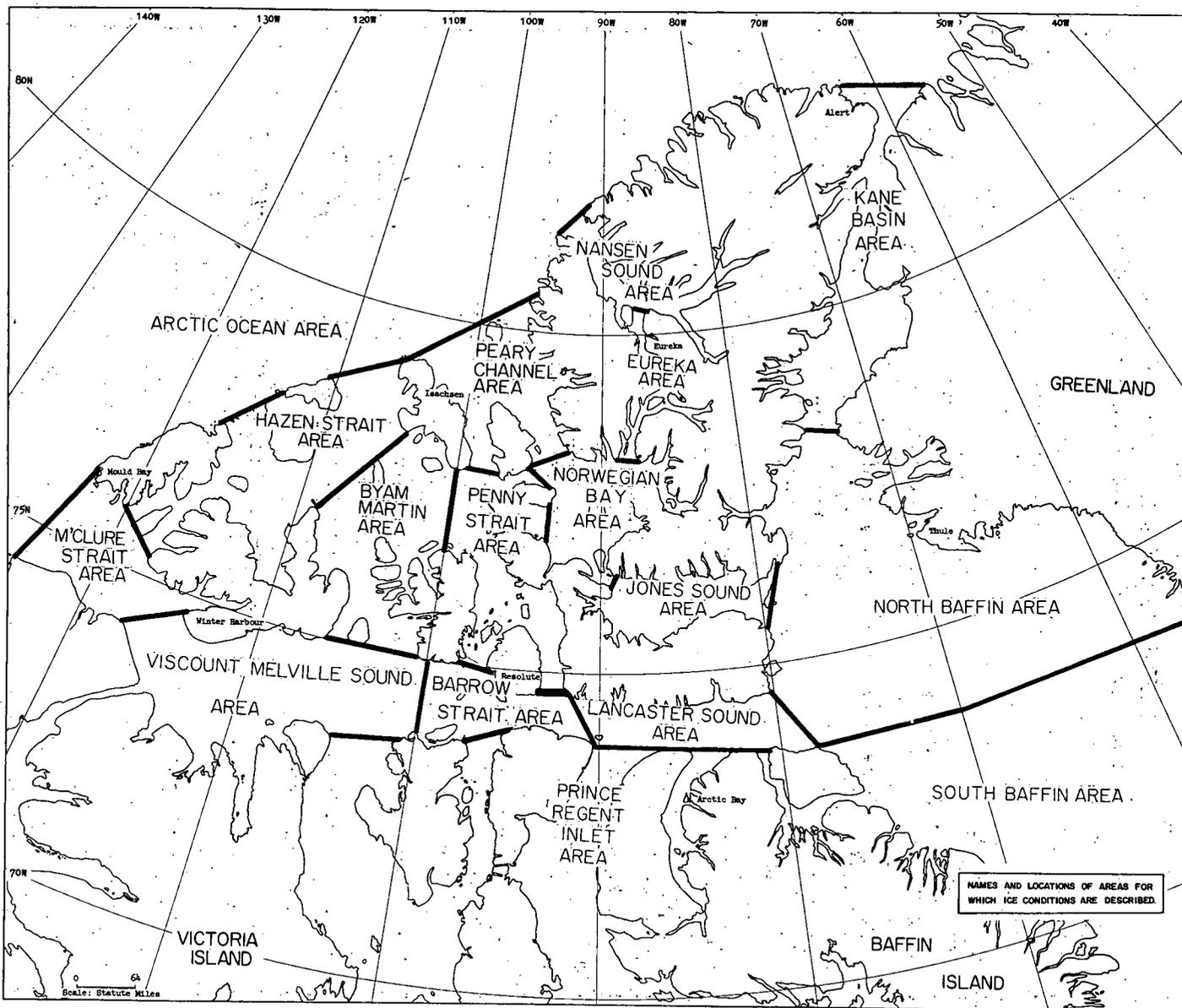




CHART OF PLACE NAMES—QUEEN ELIZABETH ISLANDS

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ICE CONDITIONS ON APRIL 22 - 23, 1961.

Ice conditions are illustrated in fig. 1.

SOUTH BAFFIN AREA: A twenty to thirty-mile-wide band of consolidated polar and winter ice lay along the Baffin Island east coast. East of this lay close winter ice containing a small percentage of young ice. Throughout this area ridging was moderate to heavy, with the snow cover being continuous. Many icebergs and bergy bits were observed in the coastal area.

LANCASTER SOUND AREA: West of longitude 85°W was predominantly consolidated snow covered winter ice. East of this was close winter and young ice, with moderate ridging and rafting.

BARROW STRAIT AREA: East of longitude 98°W , consolidated snow covered winter ice with moderate ridging was observed. West of this was consolidated winter and polar ice with heavy ridging, moderate hummocking and drifted snow cover.

VISCOUNT MELVILLE SOUND AREA: In this area southwest of a line Dundas Peninsula - Stefansson Island, consolidated, snow covered, polar and winter ice moderately ridged and hummocked was noted. The remainder of the area was consolidated, snow covered, winter ice, heavily ridged. A small percentage of polar ice was observed in the extreme eastern sector.

ICE CONDITIONS ON MAY 21 - 22, 1961:

Ice conditions are illustrated in fig. 2.

NORTH BAFFIN AREA: A ten-mile-wide band of consolidated winter ice lay along the east coast of Devon Island. A ten to twenty-five mile flaw lead lay eastward of this and extended in Jones and Lancaster Sounds. Seaward of the open water close winter ice with light to moderate ridging was observed.

LANCASTER SOUND AREA: West of longitude 85°W and extending eastward along the coast to ten miles off the north shore was lightly ridged, consolidated, winter ice. An open water area extended north-eastward across the Sound from Admiralty Inlet. East of the open water lay broken winter ice moderately ridged.

BARROW STRAIT AREA: Consolidated winter ice with light to moderate ridging covered the entire area. A small percentage of polar ice was observed west of longitude 94°W .

VISCOUNT MELVILLE SOUND AREA: The observed portion of this area was consolidated, predominantly winter ice with moderate to heavy ridging. A small percentage of polar ice was noted in the eastern sector.

PENNY STRAIT AREA: Lightly ridged consolidated ice prevailed throughout the area, with the exception of a small area of close ice in Penny Strait. The ice was predominantly winter with small amounts of polar ice in the southern area and larger amounts in the northern area. A few polyni were observed north of Baillie Hamilton Island.

NORWEGIAN BAY AREA: In Norwegian Bay consolidated winter and polar ice, with light ridging was observed. Hell's Gate and Western Cardigan Strait contained scattered slush and grease ice, while the eastern part of the Strait was open water.

JONES SOUND AREA: The Sound was predominantly consolidated, lightly ridged winter ice, except for an open water area extending from King Edward VII Point south-eastward through Lady Ann Strait.

ARCTIC OCEAN AREA: Broken young and winter ice was noted in the observed sector northwest of Banks Island.

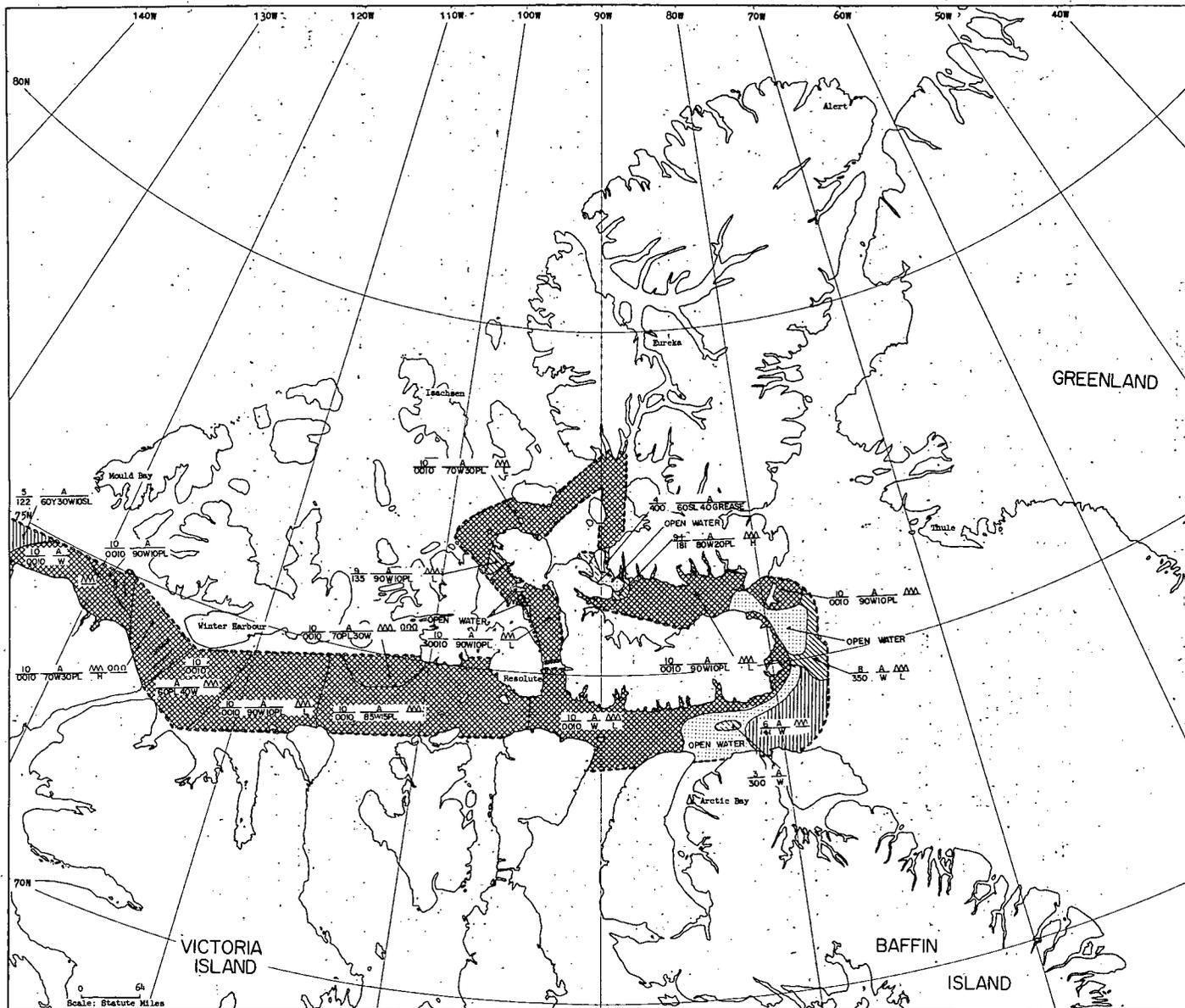


FIG. 2. - OBSERVED ICE CONDITIONS, MAY 21-22, 1961.

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ICE CONDITIONS ON JUNE 24 - 26, 1961.

Ice conditions are illustrated in fig. 3.

BARROW STRAIT AREA: Consolidated ice, predominantly winter with small amounts of polar, covered this area. Throughout the area ridging was moderate to heavy and hummocking was light. Several north-south cracks were observed and puddling was evident.

VISCOUNT MELVILLE SOUND AREA: Consolidated winter and polar ice, moderately ridged and lightly hummocked, was observed. Some puddling and snow cover was noted along with a few north-south cracks west of Byam Martin Island.

HAZEN STRAIT AREA: Consolidated polar and winter ice, with moderate ridging and light to moderate hummocking, was observed. An Ice Island was observed east of Lougheed Island.

NORWEGIAN BAY AREA: Consolidated polar and winter ice covered the area with a smaller amount of polar ice noted in the northeast portion. There was moderate ridging and light to moderate hummocking throughout the area. A few puddles and some snow cover was observed.

EUREKA AREA: Lightly ridged consolidated ice predominantly winter, with small amounts of puddling and snow cover, was noted in this area.

NANSEN SOUND AREA: The observed northern sector was consolidated snow covered mostly polar ice, with heavy ridging and hummocking. The southern sector was consolidated winter ice with a small percentage of polar ice. Ridging was light and some puddling was observed.

KANE BASIN AREA: Consolidated ice covered this area, except for a small open water area projecting into Kane Basin from Smith Sound. Winter ice prevailed throughout the area, except for Hall Basin where a large percentage of polar ice was noted. Varying amounts of snow cover were observed. South of latitude 80°N was moderate ridging, light hummocking and a large amount of puddling.

ICE CONDITIONS ON JULY 28, 1961.

Ice conditions are illustrated in fig. 4.

SOUTH BAFFIN AREA: Except for a few patches of scattered to broken ice, this area was open water. Many icebergs, bergy bits and growlers were noted along the coastal area.

NORTH BAFFIN AREA: A ten-mile-wide band of ice, with concentrations varying from scattered in the south to consolidated in the north, lay along the east coast of Devon Island. The remainder of the observed area was open water. Many icebergs, bergy bits and growlers were observed in the vicinity of Philpots Island.

LANCASTER SOUND AREA: North of a line Radstock Bay - Bylot Island was open water. To the south was mostly scattered to broken winter ice with considerable puddling.

PRINCE REGENT INLET AREA: Open water was observed west of longitude Cape Clarence, with broken to close winter ice to the east. Puddling was well advanced in this area.

BARROW STRAIT AREA: South of a line Prince Leopold Island - Lowther Island thence west-north westward lay well puddled broken to close winter ice. Open water was observed north of this area.

PENNY STRAIT AREA: Open water was observed east of a line extending southwest from Cape Grinnel, while a close to broken concentration of winter ice lay to the west.

ICE CONDITIONS ON AUGUST 1, 1961.

Ice conditions are illustrated in fig. 5.

NORTH BAFFIN AREA: West of a line Cape Dunsterville - Clarence Head consolidated winter and polar ice was observed. A small area of close winter and polar ice extended seaward from Clarence Head. A narrow band of scattered winter ice lay along the east of Devon Island. The remainder of the observed area was observed to be open water.

BARROW STRAIT AREA: Generally, the south-western two-thirds of the area was close to broken, predominantly winter ice. A belt projected southward from Queen's Channel, and from Wellington Channel westward to Lowther Island off the coast of Cornwallis Island. The remaining central sector and along the south coast of Bathurst Island was observed to be open water. Puddling was well advanced in the area.

BYAM MARTIN AREA: Bracebridge Inlet and approaches was open water. The observed portion of the area north of Bathurst Island was close winter ice with a small percentage of polar ice.

PENNY STRAIT AREA: The area north and northwest of Grinnel Peninsula contained close ice, predominantly winter with some polar floes. A small area of broken winter and polar ice lay along the south and west coasts of Cornwall Island. Penny Strait and Queen's Channel west of longitude 96°W was scattered to broken mostly winter ice with some polar. The western two-thirds of Wellington Channel south of Baillie Hamilton Island was mostly winter ice. Open water was observed in the eastern and northern sectors of Wellington Channel. Throughout the area the ice was observed to be moderately ridged and hummocked with puddling in the advanced stages.

NORWEGIAN BAY AREA: A lead ten miles wide extended from Cornwall Island to Buckingham Island and from Graham Island south-eastward to the coast of Ellesmere Island. Hell's Gate and Cardigan Strait contained scattered winter and polar ice. South of the previously mentioned lead, close winter and polar ice was observed. Northern Norwegian Bay contained consolidated winter and polar ice. In this area, ridging and hummocking were moderate and puddling well advanced.

JONES SOUND AREA: Open water was observed in Glacier Strait and into Sarnes Fiord, the coastal area west of Cape Sparbo and the northwest sector of the Sound. Scattered winter and polar ice was noted west of longitude 89°W. Broken to close ice was general in the remainder of the Sound. Throughout the area, ridging and hummocking were moderate and in the advanced stages.

EUREKA AREA: South of Stor Island consolidated, well-puddled, winter ice was observed. North of this lay close winter ice with a larger amount of puddling. Ridging was found to be moderate throughout the area.

NANSEN SOUND AREA: The observed portion of Nansen Sound and Greely Fiord was observed to be consolidated, well-puddled, polar and winter ice. Several un-orientated cracks were noted in these areas. Canon Fiord was close winter and polar ice with some puddling evident.

KANE BASIN AREA: The eastern half of Kennedy Channel, except for a small open water area in the northern sector, was scattered winter and polar ice. The western half of the channel was close winter and polar ice. Kane Basin was consolidated polar and winter ice. Buchanan Bay was scattered polar and winter ice. Close polar and winter ice was noted in the northern half of Smith Sound, becoming broken in the southern half. Throughout the area ridging and hummocking were generally moderate.



FIG. 5.-OBSERVED ICE CONDITIONS, AUGUST 1, 1961

ICE CONDITIONS ON AUGUST 3 - 4, 1961.

Ice conditions are illustrated in fig. 6.

SOUTH BAFFIN AREA: Open water prevailed throughout the observed portion of the area, except for the portion south of latitude 72°N which was scattered polar and winter ice.

NORTH BAFFIN AREA: Open water was noted in the observed portion of this area.

LANCASTER SOUND AREA: Open water prevailed throughout, except for a small area of scattered and close winter ice in the vicinity of Prince Leopold Island.

BARROW STRAIT AREA: A twenty-mile-wide area of open water extended southward from Queen's Channel to latitude 74°10'N. West of this and the northern entrance to Peel Sound was close winter and polar ice. The remaining eastern portion was observed to be scattered to broken winter ice.

VISCOUNT MELVILLE SOUND AREA: The observed portion was observed to be close winter and polar ice.

PENNY STRAIT AREA: The western half of Queen's Channel was mostly close winter and polar ice; while the eastern half was observed to be open water. In Wellington Channel open water was noted in the eastern two-thirds of the Channel, with broken winter ice along the coast of Cornwallis Island.

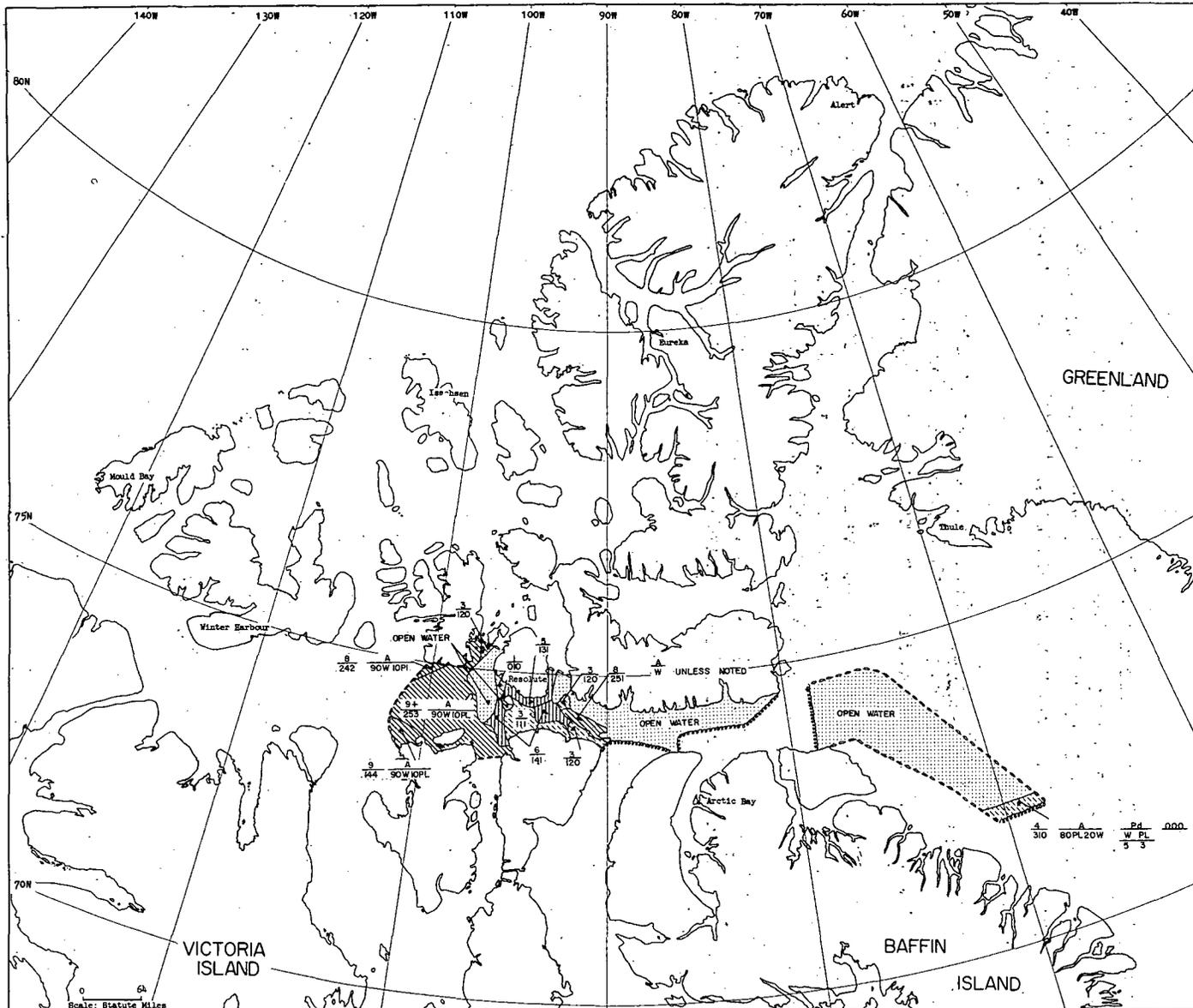


FIG. 6. --OBSERVED ICE CONDITIONS, AUGUST 3-4, 1961.

ICE CONDITIONS ON AUGUST 5, 1961.

Ice conditions are illustrated in fig. 7.

BARROW STRAIT AREA: Scattered to broken winter ice was observed south of Cornwallis Island, with open water along the coast of Somerset Island. In the area south of Bathurst Island and the entrance to Peel Sound there was close winter ice. The open water area south of Queen's Channel remained unchanged.

VISCOUNT MELVILLE SOUND AREA: Close winter and polar ice covered the observed portion of this area, with a large percentage of polar ice southwest of Elvira Island. Puddling was noted to be well advanced in this area.

BYAM MARTIN AREA: Graham Moore Bay was observed to be open water. Small areas of scattered winter ice were noted in Byam Channel and west of Cape Cockburn. The remainder of the observed area was close winter ice.

PENNY STRAIT AREA: A ten-mile-wide band of close winter ice lay along the coast of Bathurst Island. The remaining portion of the observed area was open water.



FIG. 7. - OBSERVED ICE CONDITIONS, AUGUST 5, 1961.

ICE CONDITIONS ON AUGUST 7, 1961.

Ice conditions are illustrated in fig. 8.

NORTH BAFFIN AREA: The area west of a line Clarence Head - Cairn Point was mostly close winter and polar ice, except for Mackinson Inlet which was consolidated ice. Open water prevailed in the remainder of the observed area.

BARROW STRAIT AREA: A band of scattered winter ice was noted along the coast of Somerset Island and in the vicinity of Griffith Island. A narrow belt of close winter ice extended southwest from Wellington Channel into the center of the Strait. A five-mile-wide shore lead was observed along the south coast of Cornwallis Island. Open water was also noted in the northeastern sector of the area.

PENNY STRAIT AREA: The observed portion south of Belcher Channel was observed to be open water except for narrow belts of close ice along the east coast of Cornwallis Island and central Penny Strait. A shore lead was noted along the south coast of Cornwall Island, while the remainder of Belcher Channel was well puddled, close winter and polar ice.

NORWEGIAN BAY AREA: A fifteen-mile-wide lead extended from Cornwall Island to Buckingham Island. The observed area in the vicinity of North Kent Island was broken winter and polar ice. The remaining northern sector of the area was consolidated, well puddled, winter and polar ice. Ridging and hummocking was moderate throughout the area.

JONES SOUND AREA: In the Bear Bay area and eastern approaches to Cardigan Strait there was mostly scattered to broken winter and polar ice. Scattered ice conditions were observed along the coast of Ellesmere Island, while the central portion and eastern portion of the Sound was open water.

EUREKA SOUND AREA: Consolidated winter ice was observed in the southern portion of Eureka Sound. The remainder of the Sound contained close winter ice, except for the area between May Point to just north of Slidre Fiord which was open water. In this area ridging was light with puddling in the advanced stages.

NANSEN SOUND AREA: In the observed portion of Nansen Sound and Greely Fiord consolidated winter and polar ice was noted. Canon Fiord was broken winter and polar ice. In the area ridging and hummocking was moderate and puddling was well advanced.

KANE BASIN AREA: The eastern two-thirds of Kennedy Channel was open water, while close polar and winter ice covered the western third. In Kane Basin generally close to consolidated polar and winter ice conditions were noted, except for an area of scattered ice in the northern portion. Smith Sound contained close polar and winter ice, except for a narrow shore lead along the coast of Greenland. Throughout the area ridging and hummocking were moderate with the puddling being well advanced especially on the winter ice.



FIG. 8.—OBSERVED ICE CONDITIONS, AUGUST 7, 1961.

ICE CONDITIONS ON AUGUST 11 - 12, 1961.

Ice conditions are illustrated in fig. 9.

NORTH BAFFIN AREA: A thirty to forty-mile-wide band of close to consolidated winter and polar ice lay along the east coast of Ellesmere Island. Many icebergs, bergy bits and growlers were observed throughout the area. In the remaining area to the east open water was observed.

LANCASTER SOUND AREA: Open water was noted in the observed portion of the area.

BARROW STRAIT AREA: A band of scattered and close winter and polar ice lay along the north coast of Somerset Island. An area of close winter and polar ice extending to mid-channel lay along the north coast of Prince of Wales Island. Along the southeast coast of Bathurst Island was an area of broken winter and polar ice. The remainder of the Strait was observed to be open water. In the area moderate ridging and heavy hummocking with well advanced puddling was noted.

VISCOUNT MELVILLE SOUND AREA: A large area of open water extending almost across the Sound was noted south of Austin Channel. A five to ten-mile-wide shore lead was noted along the south coast of Melville Island. In Goldsmith Channel and the entrance to M'Clintock Channel was consolidated winter and polar ice. The remainder of the area was close winter and polar ice with an increase in the amount of polar ice west of Elvira Island. Throughout the area hummocking was heavy, ridging was light and puddling well advanced.

BYAM MARTIN AREA: The western half of the observed portion was close winter and polar ice. The remaining area to the east was open water.

PENNY STRAIT AREA: Along the coast of Bathurst Island and south of Little Cornwallis Island was an area of broken winter and polar ice. A small area of scattered winter and polar ice was noted in northern Penny Strait. The remaining observed portion was open water.

NORWEGIAN BAY AREA: An area of open water was observed west of Graham Island, while south and east of this was close winter and polar ice. North of Graham Island consolidated winter and polar ice was noted. Throughout the area ridging was moderate, hummocking was heavy, and puddling was well advanced.

JONES SOUND AREA: A few small scattered to broken patches of winter and polar ice were observed in a few of the coastal areas of the Sound. The remainder of the Sound was observed to be open water with scattered bergy bits and growlers near the eastern entrance.

EUREKA AREA: The observed portion of the area was mainly consolidated winter ice in the disintegration stage.

ICE CONDITIONS ON AUGUST 15 - 17, 1961.

Ice conditions are illustrated in fig. 10.

NORTH BAFFIN AREA: Broken to close winter and polar ice covered the observed portion of this area, except for open water near Northumberland Island and east of Coburg Island. In this area ridging and hummocking were moderate and the puddling was well advanced especially on the winter floes.

BARROW STRAIT AREA: Scattered, broken and close winter and polar ice covered the area between Bathurst Island and Prince of Wales Island and to the north coast of Somerset Island. Puddling was well advanced, while ridging and hummocking were mostly moderate. The remainder of the observed area east of this was open water.

VISCOUNT MELVILLE SOUND AREA: An area of open water extended southward from Austin Channel. With the exception of a band of scattered ice between Byam Martin Island and Prince of Wales Island the area was close winter and polar ice. Throughout the area ridging and hummocking were moderate with puddling well advanced.

BYAM MARTIN AREA: The western half of Austin Channel was scattered to close winter and polar ice, while the eastern half was observed to be open water.

PENNY STRAIT AREA: Queen's Channel west of longitude 96°W. and the southern half of Penny Strait was scattered to broken winter and polar ice. The northern half of the Strait and Belcher Channel west of Cornwall Island was close to consolidated winter and polar ice. Belcher Channel south of Cornwall Island was scattered winter and polar ice. Open water was observed in the remaining areas south of Grinnell Peninsula and south of Amund Ringnes Island. In the area ridging and hummocking were moderate with puddling well advanced.

NORWEGIAN BAY AREA: An area of open water was noted between Cornwall Island and Buckingham Island. South and east of this was broken to close winter and polar ice with the lighter concentration in Hell's Gate and Cardigan Strait. The remaining area to the north was consolidated winter and polar ice. In the area ridging and hummocking were moderate and puddling was in the advanced stages.

JONES SOUND AREA: In the vicinity of King Edward VII Point and extending eastward through Glacier Strait was an area of broken winter and polar ice. A patch of scattered winter and polar ice was observed in the center of the Sound and along the coast near Cape Sparbo. Open water was observed in the remainder of the area.

EUREKA AREA: South of Stor Island was close to consolidated winter ice, while a broken concentration existed in Bay Fiord. From Stor Island to ten miles south of Slidre Fiord was mostly scattered winter ice. Slidre Fiord and the immediate vicinity was observed to be open water. The northern entrance of Eureka Sound was close winter ice. Throughout the area ridging was light and puddling was in the disintegration stage.

NANSEN SOUND AREA: Well puddled close to consolidated winter and polar ice with moderate ridging and hummocking covered the observed portion of the area.

KANE BASIN AREA: Kennedy Channel was observed to be close winter and polar ice. In the central portion of Kane Basin and in Buchanan Bay was broken winter and polar ice. The eastern portion and southwestern portion was consolidated winter and polar ice. There was moderate ridging and hummocking with well advanced puddling in the entire observed area.

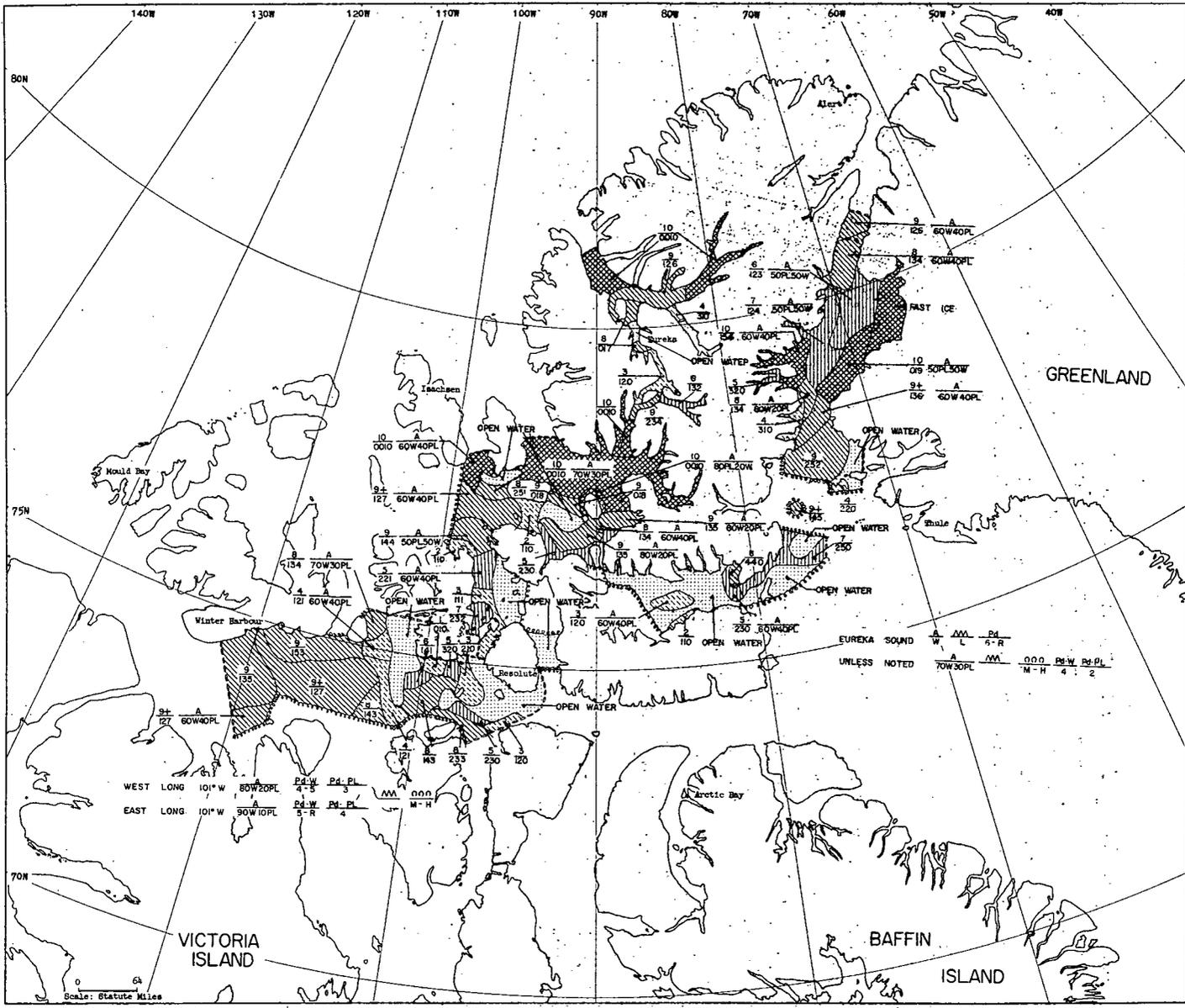


FIG. 10 - OBSERVED ICE CONDITIONS, AUGUST 15-17, 1961.

ICE CONDITIONS ON AUGUST 18, 1961.

Ice conditions are illustrated in fig. 11.

NORTH BAFFIN AREA: Broken to close winter and polar ice covered the western half of Baffin Bay north of Coburg Island. An area of scattered winter and polar ice was observed just east of Devon Island. The remaining observed portion was open water. Moderate ridging and hummocking with puddling well advanced was noted in this area.

BARROW STRAIT AREA: Open water was noted in the observed portion of this area.

PENNY STRAIT AREA: Open water was noted in the observed portion of this area.

NORWEGIAN BAY AREA: Open water was noted in eastern Cardigan Strait and southern Hell's Gate. The remaining observed portion of Cardigan Strait was scattered winter and polar ice, while the northern portion of Hell's Gate was close winter and polar ice. The observed portion of Norwegian Bay was mostly consolidated winter and polar ice. Well advanced puddling along with moderate ridging and hummocking was observed in the area.

JONES SOUND AREA: A band of scattered to broken winter and polar ice lay along the coast east of Grise Fiord. Scattered winter and polar ice was noted in the southwestern portion of Bear Bay. The remainder of the Sound was observed to be mostly open water.

EUREKA AREA: In the vicinity of Slidre Fiord there was a narrow shore lead along the coast of Ellesmere Island. The remainder of the observed area was broken winter ice except for a small open water area in the southern sector.



FIG. 11. - OBSERVED ICE CONDITIONS, AUGUST 18, 1961.

ICE CONDITIONS ON AUGUST 21, 1961.

Ice conditions are illustrated in fig. 12.

BARROW STRAIT AREA: Scattered winter and polar ice was noted in the area south of Queen's Channel, while open water was observed along the coast of Cornwallis Island.

PENNY STRAIT AREA: An area of open water was observed along the south coast of Grinnell Peninsula, while along the observed portion of the north coast broken winter and polar ice was noted.

NORWEGIAN BAY AREA: Southeast Cardigan Strait contained scattered winter and polar ice. Broken to close winter and polar ice was observed in the southern half of the area. In the northern half consolidated winter and polar ice was noted. A small amount of ice crust was evident along the coast of Ellesmere Island. In the area ridging and hummocking were moderate with continuous snow cover.

JONES SOUND AREA: The observed portion of this area was mainly scattered winter and polar ice.

EUREKA AREA: In the vicinity of Slidre Fiord there was a narrow shore lead along the coast of Ellesmere Island. The remainder of the observed area was broken ice except for a small area of open water in the southern sector.



FIG. 12.—OBSERVED ICE CONDITIONS, AUGUST 21, 1961.

ICE CONDITIONS ON AUGUST 22, 1961.

Ice conditions are illustrated in fig. 13.

PENNY STRAIT AREA: The area north of Cornwall Island was consolidated winter and polar ice. South and west of the Island was open water except for a small area of close ice in the vicinity of Table Island.

NORWEGIAN BAY AREA: An open water area was noted between Cornwall Island and Buckingham Island. The remainder of the observed area was close to consolidated winter and polar ice. Ice in the early stages of formation was noted in the areas of lighter concentration. Moderate ridging and hummocking were present throughout the area.

EUREKA AREA: Close ice, mainly winter, was observed in the northern and southern entrance of Eureka Sound. The remaining central portion was open water with a few patches of broken winter ice. Small amounts of ice crust were noted in this area.

NANSEN SOUND AREA: In the observed portion of this area there was close winter and polar ice with a small amount of ice crust. There were many icebergs, bergy bits and growlers noted in Greely Fiord.



FIG. 13.—OBSERVED ICE CONDITIONS, AUGUST 22, 1961.

ICE CONDITIONS ON AUGUST 23 - 26, 1961.

Ice conditions are illustrated in fig. 14.

SOUTH BAFFIN AREA: In the observed portion of the area between longitude 65°W and 68°W there was scattered to broken polar and winter ice. Within the area ridging and hummocking were moderate and puddling was well advanced. The remainder of the observed area was open water with scattered icebergs, bergy bits and growlers.

NORTH BAFFIN AREA: Smith Bay and adjacent coastal areas contained consolidated winter and polar ice, except for an area of open water in the vicinity of Clarence Head. The remaining western half of the observed portion north of Coburg Island was close to broken winter and polar ice. To the east and south of the latter area open water with many icebergs was observed. Throughout the area ridging and hummocking were moderate.

LANCASTER SOUND AREA: Open water was observed throughout the area.

BARROW STRAIT AREA: An area of scattered winter and polar ice extended from Queen's Channel to just south of Lowther and Griffiths Islands. The remainder of the observed area was open water.

VISCOUNT MELVILLE SOUND AREA: Open water was observed in the eastern sector and along the south coast of Melville Island east of Winter Harbour. The remainder of the observed area was close to consolidated winter and polar ice except for a small area of scattered ice south and west of Byam Martin Island. Throughout the area small amounts of ice crust were noted. In the area ridging and hummocking were observed to be moderate.

BYAM MARTIN AREA: The southern portion of Byam Martin Channel and Austin Channel were open water, while the observed portion of Byam Channel was scattered winter and polar ice. The remainder of the area was mainly consolidated polar and winter ice, heavily ridged and hummocked.

PENNY STRAIT AREA: Open water was observed south of Cornwall Island and in Wellington Channel. The remaining observed area was close winter and polar ice, except for a scattered condition along the west coast of Grinnell Peninsula. In the area ridging and hummocking were moderate and puddles mostly frozen.

JONES SOUND AREA: The extreme western sector of the Sound was scattered winter and polar ice. Northeast of a line South Cape - Ward Point a scattered to broken concentration of winter and polar ice prevailed except for a close concentration noted in Glacier Strait. Southwest of this was open water. Throughout the area ridging and hummocking were moderate.

ICE CONDITIONS ON AUGUST 26 - 28, 1961.

Ice conditions are illustrated in fig. 15.

SOUTH BAFFIN AREA: Open water was noted in the observed portion of this area.

NORTH BAFFIN AREA: Open water was noted in the observed portion of this area except for a band of close winter and polar ice along the coast of Ellesmere Island. Many icebergs were observed along the coast of Greenland.

LANCASTER SOUND AREA: Open water was noted in the observed portion of this area.

BARROW STRAIT AREA: Open water was noted in the observed portion of this area.

VISCOUNT MELVILLE SOUND AREA: Scattered to broken winter and polar ice was noted in the observed portion of the area south of Melville Island. East of this, open water was observed.

HAZEN STRAIT AREA: Small areas of open water were noted west of Emerald Isle, in Ballantyne Strait, south and east of Borden Island and northwest of Isachsen. The remainder of the observed area was close polar and winter ice with moderate ridging and hummocking.

BYAM MARTIN AREA: Scattered polar ice was noted in Byam Channel, while open water prevailed in the remainder of the observed area.

PENNY STRAIT AREA: A scattered concentration of winter and polar ice was observed in Penny Strait, while an area of close polar and winter ice was noted just to the north of this. The remainder of the observed area was open water.

NORWEGIAN BAY AREA: To the south of, and in the entrance to Eureka Sound, close to broken winter and polar ice was observed.

EUREKA AREA: In the area south of Stor Island close winter and polar ice was noted. The remainder of the Sound contained scattered winter ice.

PEARY CHANNEL AREA: Heavily hummocked consolidated polar ice was noted in the observed portion of this area.

NANSEN SOUND AREA: A small area of close winter and polar ice was noted at the northern entrance to Eureka Sound. The southeast sector of the remaining observed area was open water, while the area to the northwest was close polar and winter ice with heavy hummocking and ridging.

KANE BASIN AREA: The observed portion of this area was close polar and winter ice, except for a small scattered concentration along the coast of Ellesmere Island. Moderate ridging and hummocking with continuous snow cover prevailed throughout the area.

ARCTIC OCEAN AREA: Close polar and winter ice prevailed in the observed area. Throughout the area snow cover was continuous with ridging and hummocking heavy west of longitude 85°W and moderate to the east of this.

ICE CONDITIONS ON AUGUST 29 - 30, 1961.

Ice conditions are illustrated in fig. 16.

NORTH BAFFIN AREA: Close winter and polar ice lay along the coast of Ellesmere Island, while open water was observed east of this. Many icebergs were noted in the coastal areas. In the area ridging and hummocking were moderate.

BARROW STRAIT AREA: Open water was noted in the observed portion of this area.

VISCOUNT MELVILLE SOUND AREA: Open water prevailed east of a line Winter Harbour - Russel Island, except for a giant floe south of Byam Channel. Close winter and polar ice was noted in the remainder of the observed area. Ridging and hummocking were moderate throughout the area.

M'CLURE STRAIT AREA: An area of open water was noted south of Eglinton Island. Close winter and polar ice covered the remainder of the observed area. Ridging and hummocking were moderate throughout the area.

HAZEN STRAIT AREA: Open water was observed along the south coast of MacKenzie King Island, north of Emerald Isle, eastern half of Kellott Strait and the bays along the south coast of Prince Patrick Island. Close winter and polar ice prevailed throughout the remainder of the observed area. Ridging and hummocking were light east of Prince Patrick Island.

BYAM MARTIN AREA: The northern entrance to Byam Martin Channel was consolidated winter and polar ice. Open water was noted in the remaining observed area, except for an area of scattered to close ice along the north coast of Byam Martin Island.

PENNY STRAIT AREA: A twenty-mile-wide band of close winter and polar ice lay along the east coast of Bathurst Island north of Little Cornwallis Island and along the north coast of Grinnell Peninsula. Scattered winter and polar ice was noted between Little Cornwallis Island and Cornwallis Island. Open water existed in the remainder of the observed area. Ridging and hummocking were moderate throughout the area.

JONES SOUND AREA: Broken winter and polar ice was noted in the extreme southwestern portion of the area. A few small areas of scattered winter and polar ice lay along the coast of Ellesmere Island and southwest of Coburg Island. Close winter and polar ice was observed in the vicinity of King Edward VII Point and extended through Glacier Strait. Open water prevailed in the remainder of the Sound and in the southern half of Lady Ann Strait.

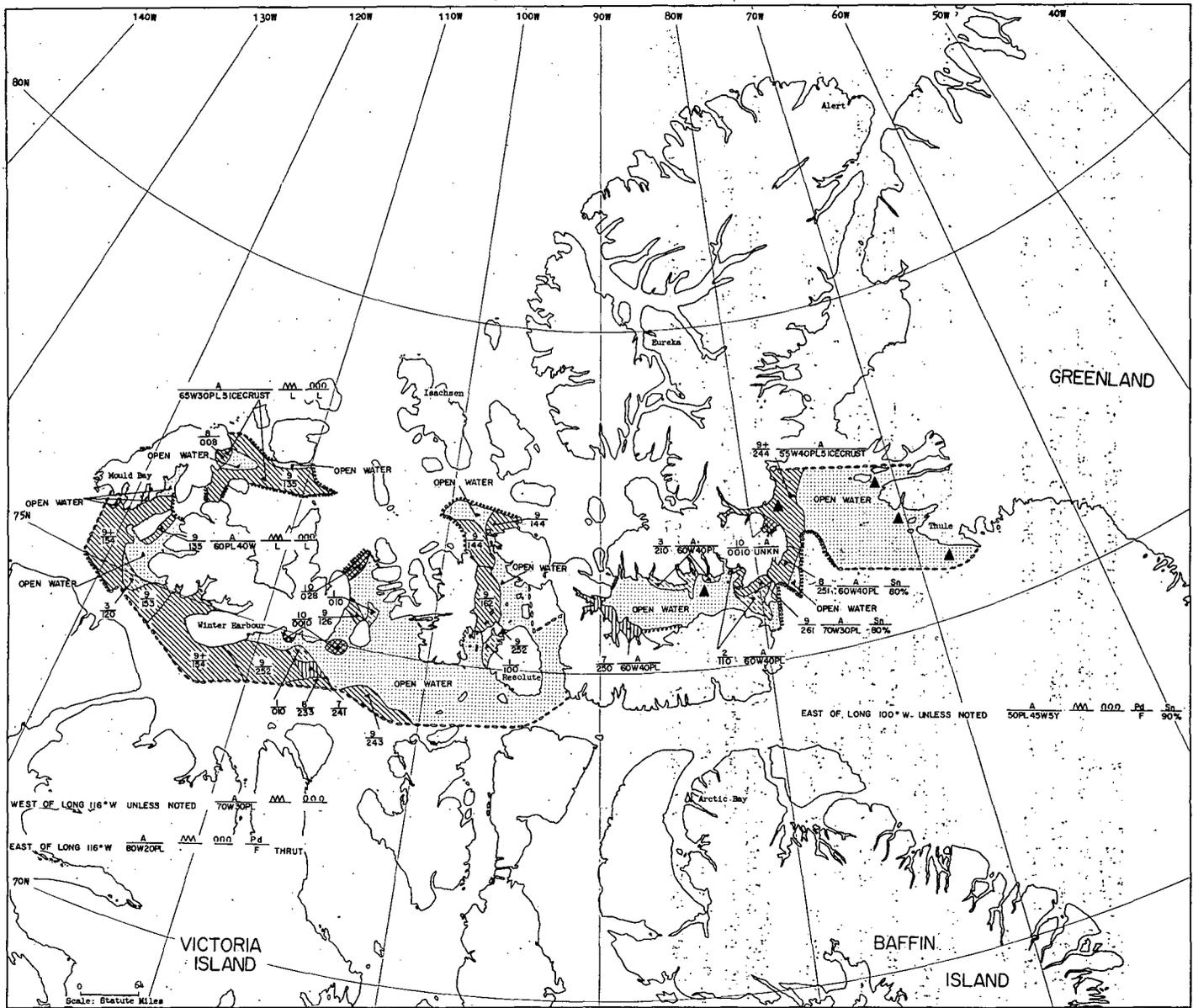


FIG. 16.—OBSERVED ICE CONDITIONS, AUGUST 29-30, 1961.

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ICE CONDITIONS ON SEPTEMBER 3, 1961.

Ice conditions are illustrated in fig. 17.

BARROW STRAIT AREA: A close concentration of winter ice and ice crust lay along the north coast of Prince of Wales Island. A wide belt of scattered winter and polar ice extended northward into Queen's Channel from the latter area. Open water was noted in the remainder of the observed area.

VISCOUNT MELVILLE SOUND AREA: Open water was observed east of longitude 103°W. The northern portion of the area east of Dundas Peninsula was close ice crust and young ice. The remainder of the observed area was mainly close to consolidated winter and polar ice. A small percentage of new ice was noted in the latter area. Moderate to heavy ridging, hummocking and rafting were evident throughout the area.

M'CLURE STRAIT AREA: An area of consolidated young ice and ice crust was noted in the northeast sector of the observed area. Close to consolidated winter, polar and young ice was observed in the remainder of the area. Ridging and hummocking were generally moderate in the area.



FIG.17.--OBSERVED ICE CONDITIONS, SEPTEMBER 3, 1961.

ICE CONDITIONS ON SEPTEMBER 9 - 11, 1961.

Ice conditions are illustrated in fig. 18.

NORTH BAFFIN AREA: Moderately ridged close winter, young and polar ice covered the western half of the observed area, while open water was observed in the eastern half. Many icebergs, bergy bits and growlers were noted in the area.

BARROW STRAIT AREA: Open water prevailed throughout the observed area, except for a small area of broken ice crust extending southwards from Queen's Channel.

HAZEN STRAIT AREA: Consolidated polar and winter ice was general throughout the observed portion of the area. Ridging and hummocking were moderate to heavy in the area.

BYAM MARTIN AREA: Open water was observed in the vicinity of Graham Moore Bay. West of Byam Martin Island was close winter and polar ice, while east and north of the Island close young ice and ice crust was observed. An area of broken to close new ice lay south of King Christian Island. Consolidated polar and winter ice covered the remainder of the observed area. An Ice Island was observed just east of Loughheed Island.

PENNY STRAIT AREA: An area of open water was observed south of Grinnell Peninsula. The area in the vicinity of Little Cornwallis Island was close winter and polar ice, while to the south of the Island was broken ice crust. The northern approaches to Penny Strait contained close winter, polar and young ice, while south of Ellef Ringnes Island an area of broken to close new ice was observed.

PEARY CHANNEL AREA: Along the north coasts of Amund Ringnes Island and Ellef Ringnes Island was heavily ridged, consolidated polar and winter ice. Along the west coast of Axel Heiberg Island was an area of close ice. In the southern sector of the latter area there was a large percentage of polar ice, while in the northern sector there was mostly ice crust.

KANE BASIN AREA: Broken polar, winter and young ice was observed in Kennedy Channel and northern Kane Basin. Western Kane Basin contained broken winter ice, young ice, and ice crust. The remainder of the area was close winter and polar ice, except for a shore lead along the coast of Greenland.

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ICE CONDITIONS ON SEPTEMBER 13, 1961.

Ice conditions are illustrated in fig. 19.

SOUTH BAFFIN AREA: Open water was noted in the observed portion of this area.

NORTH BAFFIN AREA: In the western portion of the observed area there was an area of scattered, broken and close polar and winter ice. Open water containing many icebergs was observed to the east.

LANCASTER SOUND AREA: An area of broken polar and winter ice was observed along the north coast of Bylot Island. An area of scattered to broken polar and winter ice extended southward across the entrance of Lancaster Sound. Open water was noted in the remainder of the observed area.

BARROW STRAIT AREA: Open water was noted in the observed portion of the area, except for a belt of close winter and polar ice extending south-eastward from Wellington Channel.



FIG. 12.—OBSERVED ICE CONDITIONS, SEPTEMBER 13, 1961