CANADA

TWENTY-NINTH ANNUAL REPORT

Navigation Conditions on the Hudson Bay Route from the Atlantic Seaboard to the Port of Churchill

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SEASON OF NAVIGATION
1957

DEPARTMENT OF TRANSPORT
HON. GEORGE HEES, Minister

Price 30 cents

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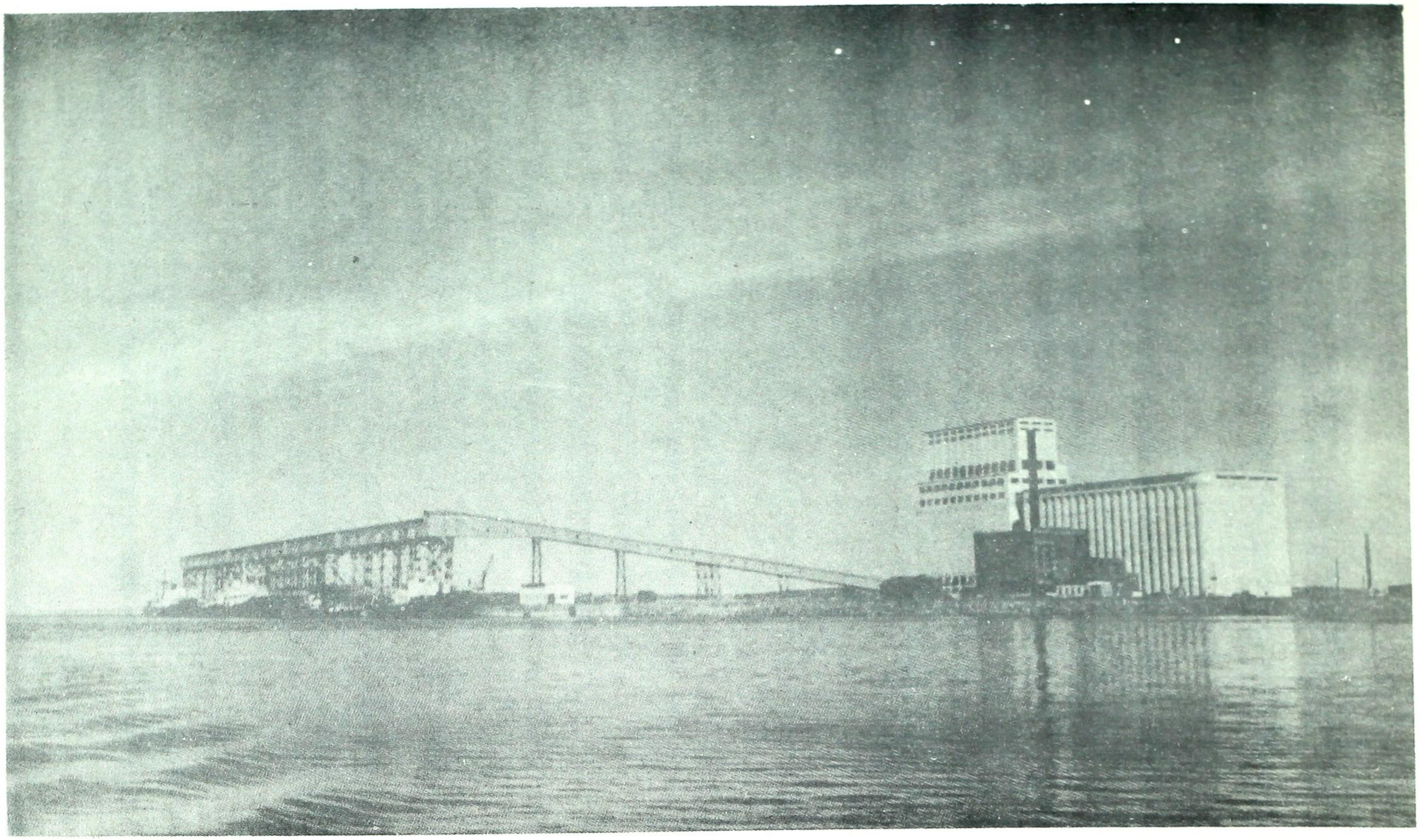
C O N T E N T S



CHURCHILL - SHIPS BERTHED IN HARBOUR, WITH GOVERNMENT ELEVATOR AND OVERHEAD CONVEYER FOR LOADING GRAIN IN BULK.

(NATIONAL FILM BOARD PHOTOGRAPH)

AIDS TO NAVIGATION

Radio

There are five direction finding stations on the Hudson Bay route and one unattended responder type Marine Radio Beacon.

Detailed information regarding these Aids to Navigation will be found on pages 14 to 16.

Lights

There are fourteen lights in the Hudson Bay and Strait area, ten of which are unwatched. A list will be found on page 15 and their locations are indicated on the frontispiece chart. At Churchill, there is a light on top of the grain elevator building. A lighted buoy lies off the entrance and a range of day beacons marks the channel in.

Fog Signals

Ships approaching Acadia Cove, Resolution Island, may request the firing of an explosive bomb signal. This signal is fired at ten minute intervals by the radio personnel and has an audible range of six miles.

Hydrography

For available charts and hydrographic publications see pages 12 and 13.

SHIPPING

Forty-six ocean-going cargo vessels made the voyage to Churchill during the season. Twelve of the vessels involved made two voyages each. Details will be found on pages 18 and 19.

REPORTS MADE BY MASTERS OF VESSELS

For the benefit of mariners on the Hudson Bay Route, reports and comments are invited from masters of vessels navigating these waters. The reports made in 1957 are reproduced in full, whether favourable or otherwise. Masters may be assured that their comments and suggestions are valued even if the Department finds itself unable to implement them immediately.

Reports made in 1957 on Form MN-2-7, on the Radar Detection of Ice, were passed to the National Research Council, and the analysis appears on page 65 et seq. This is a summary analysis based on all reports received over the past five years. Master will no longer be requested to submit the reports.

AERIAL SURVEY

During the 1957 season an aerial ice survey was conducted and the results communicated to masters of ships. Subject to limitations of available aircraft and to weather conditions a similar aerial survey will be carried out in 1958.

THE HUDSON BAY ROUTE

by

Dr. N. L. Nicholson

Geographical Branch, Department of Mines and Technical Surveys

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Toward the end of the sixteenth century the wave of overseas colonization stimulated various English adventurers to sponsor the search for a northwest passage to Asia.

The earliest of these voyages was made by Frobisher between 1576 and 1578 but he did not penetrate further west than the bay which now bears his name. Davis, from 1585 to 1587, just entered Hudson Strait and named Capes Chidley and Warwick. But it was not until 1610 that Hudson Bay and Strait were really "discovered" by the navigator whose name these features now bear. He sailed south along the eastern shore of the bay and was frozen in by November 1st. After wintering at the southeast corner of James Bay, he, and a few sick sailors, were cast adrift by his mutinous crew, never to be heard of again. Nevertheless, many of the principal points along the Hudson Strait route were named by him and have been retained to this day. Cape Hopes Advance, Digges Island, Cape Wolstenholme and Nottingham and Salisbury Islands are but examples of this. Sir Thomas Button entered the Strait and Bay in 1612, and to him we owe the names Button Islands, Resolution Island, Cary's Swan Nest and Cape Southampton. He wintered at the mouth of Nelson River, which he named after his mate who died there. Bylot and Baffin, in 1615, sailed through Hudson Strait to the northeast coast of Southampton Island naming Savage Islands, Cape Comfort and Mill Island. In 1619, the only British expedition to northern Canada discovered Churchill River. Under the command of Jens Munck, this expedition arrived early in September and wintered there. In 1631, rival interests sent Luke Foxe and Thomas James to explore the bay, Foxe entered Roes Welcome Sound and named Marble Island (though he called it Brooke Cobham) and returned to England. James sailed south naming Cape Henrietta Maria and Charlton Island, where he wintered, and, of course, the bay itself was later named for him.

Thus, within thirty years of Hudson entering the Strait and Bay, the main outlines of their coasts were known, the existence of many islands mapped and information on ice conditions and other navigational hazards, collected.

Meanwhile, two Frenchmen, Radisson and Groseilliers, had learned that the area around James Bay was rich in furs. They ultimately succeeded in persuading the English authorities of this and as a result a party was sent out in 1668. They built a fort on Rupert River, wintered there and returned to England the next summer with a full cargo of furs. This led to the incorporation of the Hudson's Bay Company in 1670, an organization which for nearly two hundred years was to be the chief agency in the development of the region around the Bay and Strait. By 1685 the company had established five posts on the Bay at the mouths of important rivers - Rupert House, Albany, Moose Factory, New Severn and Fort York. Churchill river was almost forgotten until its "rediscovery" in 1686. An attempt to establish a post there was made in 1689, but due to the war between France and England from 1690 to 1713, was soon discontinued and was not resumed until 1717. Few further discoveries were made around the coast of the bay. Ships entering it made immediately for the Company's posts, usually in late July

or early August, and left again in September. There was no object in their making the passage any earlier as the boat expeditions bringing furs from the interior of the country could not arrive at the coast depots before the end of July and, as soon as the imported supplies were landed and the export cargoes loaded, there was nothing to delay their return to Europe.

However, the search for the Northwest Passage was revived in the middle of the eighteenth century. Middleton's expedition of 1741-42 wintered at Churchill. He sailed up and named Wager Bay and Repulse Bay while Christopher, in 1762, explored Chesterfield Inlet, and in 1821, Parry proved conclusively that Southampton Island was not part of the mainland although it was not known to be separated from Coats Island until after 1860.

In 1860, the whaling industry shifted from the Norwegian Sea to Baffin Bay and Hudson Bay. Whalers often wintered in the Bay in order to start hunting early the following season and they accumulated much practical knowledge of navigation conditions there although it was frequently kept secret for commercial reasons.

In 1870, title to "Rupert's Land and the Northwest Territories" passed to Canada and interest turned to the possibility of using the Hudson Bay Route for purposes of commerce. In 1884, the government sent an expedition to the area to ascertain for what period of the year the straits were navigable. Scientific stations were established along it where ice observers spent the winter of 1884-85. Port Burwell was one of these and was named for the observer who established the station. Similar expeditions under Commander Wakeham, for whom Wakeham Bay is named, investigated earlier and later dates for navigation. These expeditions also surveyed the mouths of the Churchill and Nelson Rivers and carried out other scientific work. In 1903, another government expedition on similar work, wintered at Cape Fullerton.

But this sea route could be of little economic use to Canada until its terminus was connected to the southern part of the country. In 1908, a railway line from Hudson Bay Junction to The Pas was completed and, in anticipation of a terminus at Churchill, the townsite was laid out and lots granted. In 1909, the first permanent trading post along the sea route was established at Cape Wolstenholme and within the next few years other posts were opened on both sides of the Strait and along the west coast of Hudson Bay. Meantime, work had been progressing on the railway and by 1918, the track extended to 332 miles beyond The Pas. Work was then suspended until 1927, when Churchill was finally chosen as the terminus, but by 1929, the remaining 176 miles of track had been laid.

Although four freighters were unloaded at Churchill in 1928, and two in 1929, the harbour was not developed and the cargoes were entirely for local consumption. But by 1931, the port was substantially complete and two ships were cleared with full cargoes of wheat from western Canada. Thus Churchill was opened as a modern commercial port and the Hudson Bay route became a twentieth-century practical reality.

HYDROGRAPHIC INFORMATION

The Canadian Hydrographic Service, Department of Mines and Technical Surveys, publishes a series of navigation charts and a volume of Sailing Directions covering Labrador and Hudson Bay. These are kept up to date and added to from time to time as new information becomes available.

The "Tide Tables for the Atlantic Coast of Canada", published by the Tidal and Current Survey Division of the same Service, contain predictions for the port of Churchill and for Moosonee in James Bay. Tidal differences for fifteen localities in Hudson Strait, thirteen in Hudson Bay and for eight localities in James Bay afford the times of high and low waters in these areas. The time of the turn of the tidal streams in the southern offing of Resolution and Nottingham Islands and information on the currents in Digges Sound are also given. The automatic tide gauge is kept in operation each season at Churchill for the extension of the tidal records by which the predictions are improved.

HYDROGRAPHIC PUBLICATIONS - HUDSON BAY AND STRAIT

Standard Charts -

5000 - Hudson Bay and Strait
5348 - Hopes Advance Bay
5351 - Payne Bay and Approaches
5352 - Payne River and Bay
5400 - Cape Churchill to Egg River
5401 - Wakeham and Fisher Bays and Approaches
Wakeham Bay
Fisher Bay
Cape Prince of Wales to Wales Island
5402 - Cape Prince of Wales to Cape Weggs
5403 - Pritzler Harbour to Cape Weymouth
Balcom and Barrier Inlets
Shaftsbury Inlet
5405 - Port Burwell and Approaches
5406 - Cape Tatnam to Port Nelson
5407 - Anchorages in Hudson Strait
5408 - Cape Churchill to Churchill Harbour
5409 - Churchill Harbour to Hubbart Point
5410 - Coral Harbour
5411 - Lower Savage Islands to Pritzler Harbour
Pritzler Harbour
5412 - Erik Cove to Nuvuk Harbour including Digges Islands
Erik Cove
Digges Harbour
Port de Laperriere
Nuvuk Harbour
5414 - Rupert Bay
5415 - Mouth of Rupert River
5416 - Mouth of Moose River
5417 - Approaches to Nelson River
5418 - Churchill Harbour
5430 - Entrance to Chesterfield Inlet
5449 - Hudson Bay, Northern Portion
5450 - Hudson Strait
5452 - Diana Bay
5459 - Resolution Harbour and Acadia Cove
5461 - Approaches to Koksoak River
5462 - Koksoak River Mouth
5464 - Diana Bay, Southern Portion

5467 - Leaf Bay and Approaches
5468 - Leaf Passage
5469 - Leaf Basin

Provisional Charts -

4775 - Nain to Saglek Bay
4776 - Entrance to Saglek Bay to Button Islands
5331 - Abloviak Fiord and Approaches
5410A - Munn Bay
5431 - Chesterfield Inlet - Black Rocks to Imilit Islands
5432 - Chesterfield Inlet - Imilit Islands to Dangerous Point
5433 - Chesterfield Inlet - Dangerous Point to East Point
5434 - Chesterfield Inlet - East Point to Promise Point
5435 - Chesterfield Inlet - Promise Point to Primrose Island
5436 - Chesterfield Inlet - Primrose Island to Cross Bay
5437 - Chesterfield Inlet - Cross Bay to Bowell Island
5438 - Baker Lake (Eastern Portion)
Chesterfield Narrows
Polaris Narrows
Regina Narrows
5439 - Baker Lake
5440 - Wager Bay
5441 - Repulse Bay
5442 - Eskimo Point
5445 - Rankin Inlet - Vicinity of Thomson Island
5446 - Taveni and Approaches
5451 - Cape Dorset and Approaches
5453 - George River
5455 - Lake Harbour and Approaches
Lake Harbour
5456 - Button Islands
5458 - Sugluk Inlet
5470 - Belcher Islands
5471 - Port Harrison and Approaches
5473 - Little Whale River
5476 - Harbours and Anchorages in Hudson Bay and James Bay -
Winisk
Bear Island
Cape Jones
Great Whale River
Entrance to Great Whale River
Landing Beach, Cape Henrietta Maria
Fort Albany

Sailing Directions -
Labrador and Hudson Bay Pilot

Tide Tables -
Tide Tables for the Atlantic Coast of Canada

NOTE:- Copies of the above Charts and Sailing Directions are available for reference at the office of the High Commissioner for Canada, Canada House, London, England. Charts are issued at $1.00 each, with the exceptions of charts 4775 and 4776 at $1.25 each, chart 5415 at 75 cents, and charts 5410A, 5431, 5432, 5433, 5434, 5435, 5436, 5437, 5439, 5440, 5442, 5446, 5451, 5453, 5455, 5458 at 50 cents each. Charts may be obtained from Chart Distribution Office, Canadian Hydrographic Service, Department of Mines and Technical Surveys, 249 Queen Street, Ottawa, Canada. The Sailing Directions are sold at $5.00 per copy and the Tide Tables at 25 cents per copy by the Distribution Office, Department of Public Printing and Stationery, Ottawa, Canada.

AIDS TO NAVIGATION IN HUDSON BAY AND STRAIT

Radio Coast and Direction Finding Stations

Station	Call Sign	Calling freq.(1)	Working freq.(2)	Latitude N	Longitude W	Hours of Service	Coast Charge
Resolution Island	VAW	500 Kc/s	484 Kc/s	61° 18' 30"	64° 53' 24"	Continuous during season of navigation	8¢ per word
Cape Hopes Advance	VAY	500 "	484 "	61° 05' 12"	69° 33' 24"	Continuous during season of navigation	" " "
Nottingham Island	VCB	500 "	458 "	63° 06' 48"	77° 56' 18"	Continuous during season of navigation	" " "
Churchill	VAP	500 "	420 "	58° 46' 32"	94° 10' 31"	Continuous during season of navigation	" " "
Chesterfield Inlet	VBZ	500 "	420 "	63° 20' 05"	90° 42' 33"	Continuous during season of navigation	" " "

(1) All stations maintain a listening watch on 500 and 2182 Kc/s during the navigation season.

(2) All stations except Resolution Island take and transmit bearings on 410 Kc/s after communication has been established on 500 Kc/s.

(3) All messages relative to navigation are handled free of charge. The eight cent per word coast charge applies to all other traffic. For forwarding charges beyond Churchill enquire at any of the above stations or see Canada Rate Sheet, International List of Coast and Ship Stations.

Radio Meteorological Reporting Station

Station	Call Sign	Calling freq.(1)	Working freq.(2)	Latitude N	Longitude W	Hours of Service	Coast Charge
Port Harrison	VAL	500 Kc/s	458 Kc/s	58° 27' 17"	78° 08' 29"	Keeps watch on 500 Kc/s fifteen minute periods commencing at every odd hour from 7.00 p.m., E.S.T., inclusive, during season of navigation	8¢ per word

L I G H T S

Location	Position: Latitude	Position: Longitude	Character	Elevation	Remarks
Resolution Island	61° 18' 28"	64° 53' 16"	Flashing	129 ft.	White square, wooden lantern on wooden skeleton base. One flash every ten seconds.
Cape Hopes Advance	61° 05' 00"	69° 33' 10"	Flashing	270 ft.	Steel tower.
Wales Island (U)	61° 51' 37"	71° 58' 19"	Flashing	280 ft.	Steel tower.
Ashe Inlet (U)	62° 31' 40"	70° 33' 27"	Flashing	191 ft.	On wooden pole.
East end of Charles Island (U)	62° 36' 28"	73° 56' 12"	Flashing	200 ft.	Steel tower. Radio Beacon Station (Automatic Responder Beacon).
West end of Charles Island (U)	62° 42' 30"	74° 40' 00"	Flashing	45 ft.	On wooden pole.
Nottingham Island (U)	63° 05' 48"	77° 56' 55"	Flashing	50 ft.	On wooden pole.
Digges Island (U)	62° 35' 18"	78° 06' 42"	Flashing	65 ft.	On wooden pole.
Mansel Island (U)	62° 25' 00"	79° 36' 00"	Flashing	41 ft.	Aluminum tower, Radar Reflector.
Coats Island (U)	62° 10' 00"	83° 08' 00"	Flashing	41 ft.	On steel tower, painted buff, with 12 foot square white wooden daymark and radar reflector on top.
Coral Harbour (U)	64° 07' 33"	83° 15' 15"	Flashing	70 ft.	Red lantern on pole with tripod slatwork daymark at base.
Bear Island (U)	64° 00' 30"	83° 13' 01"	Flashing	58 ft.	Red lantern on pole with tripod slatwork daymark at base.
Chesterfield Inlet	63° 20' 06"	90° 42' 32"	Flashing	121 ft.	Light on top of Radio Tower.
Churchill Harbour lighted bell buoy	58° 49' 48"	94° 06' 00"	Flashing	------	Black, steel. Equipped with radar reflector
Churchill Harbour, Manitoba	58° 46' 35"	94° 11' 18"	Flashing	218 ft.	Red light on top of elevator penthouse.

(U) Unwatched

BEACON - CHURCHILL AIRPORT

Approximate Position -- Latitude 58° 45' N, Longitude 94° 04' W.

Flash - every 10 seconds, 2.3 million candle power, 175 ft. above sea level.

CHARLES ISLAND RADIO BEACON

An unattended responder type marine radio beacon, experimental type, was established in 1953 at the opening of navigation in a position close to the light station at the east end of Charles Island. The particulars are as follows:-

Position: Latitude 62° 36' 28" N, Longitude 73° 56' 12" W

Frequency: 298 Kc/s

Characteristic — - — - — - — - — - — - —

The beacon is unattended and is automatic in operation, being brought into operation by a radio signal from the ship desiring to obtain direction-finding bearings.

The radio operator on any ship wishing to use this beacon should transmit by radio two 10-second dashes, spaced 20 seconds apart using A1 or A2 type of emission. The frequency of such transmissions must be 410 Kc/s. Approximately 50 seconds after this interrogation the beacon will transmit its characteristic for a period of 5 minutes.

In the event that the beacon is not heard, a period of 8 minutes from the end of the interrogation should be allowed to elapse before a second interrogation signal is sent.

Cape Hopes Advance (VAY) monitors this radio beacon daily and will provide any additional information required with regard to it.

Comments regarding reliability of response, range of the beacon and reliability of the bearings are invited and may be forwarded without charge to the Director of Telecommunications, Ottawa, Through the Cape Hopes Advance station.

SHIPPING REPORT - RESOLUTION ISLAND

Name of Vessel	Passed Resolution Island	
	Inward	Outward
Warkworth	July 23	August 12
Nordmeer	July 23	August 6
Ramillies	July 23	August 16
Gardenia	July 23	August 12
Suerte	July 25	August 10
Leersum	July 28	August 20
Italmare	July 28	August 15
Atreo	July 30	August 15
Athamas	July 31	August 22
Carl Julius	August 2	August 17
Corcovados	August 2	August 16
Herald	August 2	August 18
Fernland	August 2	August 20
Stanthorpe	August 8	August 24
Pindar	August 9	August 22
North Anglia	August 10	August 25
La Bahia	August 17	August 26
Corfu Island	August 18	August 29
Nordland	August 22	August 29
Haulerwijk	August 25	September 4
Cydonia	August 26	September 3
Pioneer	August 27	September 5
Fernglen	September 2	September 10
Elstead	September 3	September 13
Corcovado	September 5	September 13
Suerte	September 6	September 16
Gardenia	September 8	September 19
Vrontados	September 8	September 17
Pindar	September 9	September 17
Orient City	September 9	No report
Britsum	September 16	September 26
Anna C.	September 19	September 23
Pietro Canale	September 18	No report
Warkworth	September 19	October 5
Athamas	September 20	October 11
La Bahia	September 22	October 2
Sils	September 22	No report
Stanthorpe	September 23	October 4
Ramillies	September 24	October 6
Eurydamas	September 25	October 7
Nordland	September 26	October 9
Gerard L. D.	No report	No report
John Lyras	September 26	October 10
Corfu Island	September 30	October 15
Fernland	September 30	October 10
Ouistreham	October 1	October 16

PARTICULARS OF GRAIN SHIPS USING THE PORT OF CHURCHILL DURING 1957

	Name	Nationality	Net Register Tonnage	Arrived	Sailed	Destination	Inward Cargo (Tons)	Outward Cargo Wheat in Bulk (Bushels)
m.v.	NORDMEER	German	4,757	July 31	Aug. 2	Lands End for orders		410,666.6
s.s.	WARKWORTH	British	4,234	Aug. 1	Aug. 8	U.K. for orders	2,636	358,400.0
s.s.	SUERTE	Costa Rican	4,489	Aug. 2	Aug. 5	Lands End for orders		378,933.3
m.v.	ATREO	Italian	5,274	Aug. 2	Aug. 12	U.K. for orders		429,333.3
s.s.	GARDENIA	British	2,463	Aug. 5	Aug. 7	U.K. for orders		222,133.4
m.v.	ITALMARE	Italian	4,348	Aug. 7	Aug. 10	U.K. for orders		376,320.0
s.s.	RAMILLIES	British	3,355	Aug. 8	Aug. 11	U.K. for orders		339,733.0
m.v.	CORCOVADO	Liberian	3,590	Aug. 10	Aug. 13	U.K. for orders		388,166.7
m.v.	CARL JULIUS	German	3,217	Aug. 11	Aug. 14	Antwerp		349,066.7
s.s.	HERALD	Liberian	4,450	Aug. 12	Aug. 14	U.K. for orders		378,933.3
m.v.	FERNLAND	Norwegian	3,140	Aug. 13	Aug. 17	Norway		317,333.3
m.v.	LEERSUM	Dutch	4,829	Aug. 14	Aug. 16	U.K. for orders		365,866.6
s.s.	ATHAMAS	Costa Rican	2,665	Aug. 15	Aug. 18	U.K. for orders		308,000.0
m.v.	PINDAR	Greek	5,004	Aug. 16	Aug. 19	London		405,066.7
s.s.	STANTHORPE	British	4,204	Aug. 17	Aug. 20	Manchester		350,933.3
s.s.	NORTH ANGLIA	British	4,149	Aug. 18	Aug. 21	Lands End for orders		362,133.3
m.v.	LA BAHIA	British	2,992	Aug. 21	Aug. 22	U.K. for orders		342,346.7
s.s.	CORFU ISLAND	Panamanian	4,275	Aug. 22	Aug. 24	Lands End for orders		382,666.7
m.v.	NORDLAND	German	4,816	Aug. 24	Aug. 26	Hamburg		411,413.3
m.v.	CYDONIA	British	3,376	Aug. 29	Aug. 31	Falmouth		282,613.3
m.v.	HAULERWIJK	Dutch	3,000	Aug. 29	Aug. 31	U.K. for orders		326,666.6
s.s.	PIONEER	Panamanian	4,326	Aug. 30	Sept. 1	U.K. for orders		382,666.7
m.v.	FERNGLEN	Norwegian	3,098	Sept. 5	Sept. 7	Norway		319,200.0
s.s.	ELSTEAD	British	4,229	Sept. 7	Sept. 9	U.K. for orders		344,586.7
m.v.	CORCOVADO	Liberian	3,590	Sept. 8	Sept.11	U.K. for orders		388,640.0
s.s.	SUERTE	Costa Rican	4,489	Sept. 9	Sept.12	U.K. for orders		382,666.7
m.v.	VRONTADOS	Liberian	6,110	Sept.11	Sept.13	Rotterdam-Hamburg		472,266.7
m.v.	PINDAR	Greek	5,004	Sept.13	Sept.14	London		405,066.6
s.s.	GARDENIA	British	2,463	Sept.13	Sept.15	U.K. for orders		222,133.3

s.s.	ORIENT CITY	British	2,910	Sept.13	Sept.17	Manchester		317,333.3
m.v.	ANNA C.	Liberian	3,580	Sept.19	Sept.20	Rotterdam		386,773.3
s.s.	BRITSUM	Dutch	4,259	Sept.20	Sept.21	Antwerp		352,800.0
m.v.	PIETRO CANALE	Italian	3,838	Sept.21	Sept.23	Hull		388,266.7
s.s.	WARKWORTH	British	4,234	Sept.23	Oct. 1	U.K. for orders	1,939	360,640.0
s.s.	ATHAMAS	Costa Rican	2,665	Sept.25	Sept.27	Bremen		308,000.0
m.v.	LA BAHIA	British	2,992	Sept.26	Sept.28	Hull		343,466.6
m.v.	SILS	Swiss	3,920	Sept.27	Sept.29	Hamburg & Antwerp		384,160.0
s.s.	STANTHORPE	British	4,204	Sept.28	Sept.30	Imstrihull for orders		350,933.4
s.s.	RAMILLIES	British	3,355	Sept.30	Oct. 2	London		343,466.7
m.v.	GERARD L.D.	French	3,223	Oct. 1	Oct. 3	Antwerp		330,400.0
m.v.	EURYDAMAS	Liberian	5,373	Oct. 1	Oct. 4	Antwerp/Hamburg		450,800.0
m.v.	JOHN LYRAS	British	5,172	Oct. 2	Oct. 5	Rotterdam		372,400.0
m.v.	NORDLAND	German	4,816	Oct. 3	Oct. 6	Antwerp/Hamburg		411,413.4
m.v.	FERNLAND	Norwegian	3,140	Oct. 4	Oct. 7	Norway		316,400.0
s.s.	CORFU ISLAND	Panamanian	4,275	Oct. 6	Oct. 8	U.K. for orders		380,800.0
s.s.	OUISTREHAM	French	4,380	Oct. 7	Oct. 10	Amsterdam		375,200.0
						TOTAL -	4,875	16,577,206.2

Although the number of voyages made into Churchill in 1957 numbered two less than in 1956, many of the ships were larger with the result that there was an increase of 326,887.2 bushels in the amount of cargo carried out. Thus, 1957 once again constitutes a record year as far as cargo exported is concerned. In addition, there were three vessels with part loads which carried a total of 3,425 short tons of No. 1 Feed Screenings and 965 tons of Mixed Feed Oats from Churchill, two to Montreal, P.Q., and one to Liverpool, England.

REPORT MADE BY CAPT. E.G. STEINBECK,
MASTER, M.V. "NORDMEER"

The m.v. Nordmeer left Antwerp in ballast at 9.00 hours, p.m. on the 9th of July, 1957, bound for Port Churchill. Due to the 23rd of July rule for entering Hudson Strait I dropped down to half speed and arrived at 19th of July in a position one hundred and forty miles south-east of Resolution Island. On this day we contacted Resolution Island wireless station and the C.G.S. N.B. McLean. I received permission from Captain Dufour of N.B. McLean to enter the Strait "at my own risk, as a large concentration of ice still exists east of Cape Hopes Advance."

During waiting time off the entrance to the Strait, the weather continuously changed between calm and south-east breeze, cloudy and foggy. The ship slowly drifted westward, but there was no ice in sight. The checking of position was performed by D/F bearings of Saglek aerial beacon and Resolution Island. During the waiting period, the Hudson Strait entrance was closed by dense fog, so that we could not collect any information regarding ice conditions.

Having no ice reports for this district, I left my position on the afternoon of the 22nd to explore the conditions. Three hours later we approached the Labrador Current, water temperature appeared below zero, and the visibility became worse. At this time, thirty icebergs of different sizes were registered on the ten miles range of our Decca-Radar. After touching the border of an extended icefield, I turned in a north easterly direction in vicinity of twenty-one bergs. The average visibility had been less than half a mile. Icebergs and fields were not reported.

At daybreak on the 23rd, I made a new attempt. I could not make out a way around the ice, which was fairly loose and navigation was only possible with care. The hard southerly running current drifted the ship far away from the intended position causing the ship to drift away from her course as she was going always at a slow speed. Mainly I steered in the wake of another ship. Nordmeer needed six hours to cross the field and she passed Resolution Island at 5.20 hours p.m. on the 23rd of July.

After passing Resolution Island I took the suggested northerly track by N.B. McLean. We had nice weather and smooth sea, but after a few hours the ice situation became worse. Large bergs, surrounded by growlers, bits and broken pieces blocked our way, till we came at last in sight of the ice edge, which reached from far north to the southern horizon.

With three other ships we utilized the four following days searching for navigable lanes along the icewall. The weather remained beautiful and intensive mirages enlarged the apparently endless icefields.

Receiving only scanty information, concerning the extent of the icefields, I finally went in the ice on the northern side together with the s.s. Warkworth, which sailed under experienced command. After ten miles we turned back to open waters, when the ice became too closely packed.

Here I have to repeat the opinion of many other captains, that ice reports in the begining of the season are not always as they might be, as one plane - based at Churchill - and the icebreaker information of such an extensive district are not sufficient.

At noon on the 26th fortified by reports from N.B. McLean, indicating that the south side of the Strait should be clear, as south-west wind was blowing at thirty miles per hour, I decided again to search for a passage, this time I was following the s.s. Ramillies. On a north-west position of Cape Hopes Advance my ship was stopped again by heavy ice. With an open lane behind me I held this position for thirty hours, slowly drifting westward. In such a situation, it would have been of the greatest assistance to get not only ice reports but also forecasts, referring to the ice drift and altering conditions.

Late afternoon on the 27th of July we finally got an accurate report from the plane under command of Captain Carsell. Following his instructions, both ships should go back some miles and then alter the course straight to Cape Hopes Advance on a three miles track to navigable waters. I decided to try it, as we had good visibility and time enough before sunset to arrive at the said clear lanes. However, I was unable to know how many large and dangerous pieces lay in wait for us in apparently navigable waters.

In sight of the ice edge, two ships length distant, the vessel was stopped as change of tide currents, whirpools and heavy tide-rips were experienced, causing large pieces of floe ice to strike the ship. Strong pans were turning around, an iceball of three yards diameter jumped out of the water between the floes.

To avoid heavy damage to hull and rudder, I ordered the engine to full ahead for two minutes, as half speed could not help us. While passing this fast running ice the ship's propeller was felt to strike submerged ice.

From this position, eight miles north-east of Cape Hopes Advance we did not encounter any more difficulties apart from large strings of pack ice before Cape Prince of Wales, which we could have avoided on a southerly course. In such events I learned, that the possession of sea charts with a larger scale could be of great importance. Close by the coast, I registered soundings of considerable difference from the normal chart.

Stopping during the few night hours, we proceeded on the voyage along the south coast, assisted by the air survey of Captain Carsell. Hard easterly currents, however, pressed always against us, till we passed on the north side of Charles Island, receiving good information also from C.G.S.Montcalm regarding the effects of local currents. Near coast and one hundred and fifty miles north-east of Port Churchill we ran in sight of some small strings of floe ice extending to the south. We controlled our position by astronomical observations in mostly nice weather, also we took bearings of aerial D/F stations with good success. The first radar echo of Port Churchill Elevator was registered at twenty-four miles distance. The west coast, however, could not be seen on the radar. The ship arrived alongside at 11.00 hours on the 31st of July, half an hour before the change of tide. Only one tug was available. After inspection of our propeller damage, the ship started to load at one o'clock and stopped at 10.00 p.m. Commenced loading on August 1st at 5.00 p.m. (some lost time in rain).

Homeward Voyage

Owing to misty weather and ice on the way outwards I did not leave during darkness. The ship sailed with the next low water tide at 10.00 a.m. on the 2nd of August. On the homeward passage we met with conspic-

iously changed conditions. After ten days the track through Hudson Bay and Strait was really easy to navigate. In the Bay we got the best possible information from Captain Carsell and the helicopter of C.G.S. C.D. Howe. The steamer track had been nearly clear apart from different ice strings. Choosing the way on the south side of the Strait, I followed the directions of N.B. McLean. The wind freshened to thirty miles per hour, the visibility became worse, but no more ice was sighted. Fifteen miles east of Cape Hopes Advance, I reduced the speed in dense fog and darkness. Unable to make any detection of small bergs or growlers, as the rough sea caused a considerable clutter effect on the radar screen, I turned back with dead slow, waiting for daylight.

Two hours later, on the 6th of August, I went on again now in handy weather and sea. I had to circumnavigate many small bergs and growlers west of the Cape. Later the water was covered with different kinds of ice, navigable however with care. Fortunately, the visibility became better, when the wind rose shortly to gale-force. An extended icefield could be avoided with a northerly course, till the strong easterly swell gave me the best intuition to choose the way out. Now rough sea stopped the ship and dense fog enshrouded us again. By and by, however, I took my course from the useful bearings given by Resolution Island and Cape Hopes Advance.

On the 6th of August at 8.00 p.m., the ship passed Resolution Island, at sixteen miles distance. After crossing the cold water zone of the Labrador current, we had a rapid change in the weather condition. On the 9th of August we passed the last iceberg in sight of Cape Farewell. During the course of the voyage nothing special happened. The ship entered Tyne-mouth on Friday, 16th of August, 1957.

Ship, Master and crew made their first voyage to this Hudson Bay district. It seems that the conditions prevailing were abnormal. Nevertheless, my officers and I have profitted greatly by reading literature regarding previous trips as published in the Annual Report of Hudson Bay Route (1954).

I have to express my thanks for the kind cooperation and cordiality of everybody at sea with the icebreakers N.B. McLean and C.D. Howe, and in the port with the Officials, Agents, Stevedores and A.S.O. Last, but not least, I should like to record my appreciation of the valuable service rendered by Harbour Master Mr. Wilson, Captain Carsell and Captain J. Rose, when they came aboard to give me assistance and information.

REPORT MADE BY CAPT. CORRADO GRAVONE. MASTER, M.N. ATREO

The m.n. Atreo met the heaviest ices in Hudson Strait, off Cape Hopes Advance, extending for about thirty miles westward on the south side of the abovementioned Strait. Scattered ices and small icebergs were found off Resolution Island.

We wish to point out that our experience is only based on this voyage, but on the opinion of local experts, the 1957 season has been the worst since fifty years.

Ice patrol service was helpful and very appreciated. Suggestions were to keep south side of the Strait and we personally guess it was right, in order to use the current stream as icesweeper but, unfortunately, we must point out the deficience in soundings, specially on

approaching Cape Hopes Advance and all the coast line on the south side of the Strait. If there is any further suggestion we could give, that is to provide an icebreaker service in order to avoid ships-blockage owing to packed ices and we suppose all the masters that experienced the Hudson Strait track will be of the same advice.

REPORT MADE BY CAPT. T. G. MENZIES, MASTER, S.S. GARDENIA

The s.s. Gardenia left Hull on the 11th of July for Churchill. She arrived east of Resolution Island at 12.00 hours on the 20th of July and passed Cape Chidley and entered the Hudson Strait at 10.00 hours, on the 23rd of July.

The vessel arrived and anchored off Churchill at 12.20 hours on the 2nd of August but due to congestion in the port she was only able to berth over three days later at 15.50 hours on the 5th. She commenced loading at 18.00 hours on the 5th of August and completed at 11.40 hours on the 7th. She sailed from Churchill at 15.20 on the 7th of August and after a good passage, apart from the icebergs, arrived at Barry on the 21st of August.

Lights Inwards: Captain Menzies reports that the light at Cape Hopes Advance was exceptionally good and he saw it at twenty-five to thirty miles. He reports that the light at Coats Island when passing four miles off in clear weather, midnight was out.

Beacons: He found them generally unreliable.

Radar Reflectors: On the way out although he passed four miles off the coast of Coats Island and the coast showed up well on the radar screen, he never picked up the radar reflector on Coats Island. He suggests that a reflector might be fitted with advantage on the northwest corner of Mansel Island.

Icebreaker Service: We should be interested to know whether if help was provided by one of the icebreakers there would be a charge or whether this is a service that the Canadian government provides without specific charges against the ships that use the service.

Radar Iceberg reports: We regret that the Master was unable to devote the time to providing reports on the icebergs because there was really too much ice about and he and his officers had more than sufficient to occupy themselves fully.

Aerial Survey: Although the Master advises that aerial survey of the Hudson Bay is of great assistance he feels that the greatest value to ships on the Hudson Bay route would be more information on the ice conditions at the entrance to the Hudson Strait. This year the fleet of ships apparently tried to find a way through the ice for three to five days and it was only after the aeroplane had been called to help them in this particular operation that they were directed by the aeroplane to open parts in the ice and were able to start moving up the Strait. He suggests that the greatest value from an aeroplane would be by an aerial survey of the Hudson Strait starting about fifty miles east of Resolution Island on the 20th of July followed by a check on the 22nd with a view to advising ships via Resolution Island on ice conditions in the Strait and any clear passages through the Hudson Strait.

He further feels that once traffic is moving regularly up and down the Strait, the need for aircraft is over. The Master rather felt

that the aircraft had too much work to do in the early stages and wonders whether there was sufficient liaison between the icebreakers and the aircraft. Most merchant ships advise each other as to conditions en route.

Apparently the radio on the aircraft cannot transmit above 425 meters and we suggest that it would be an advantage if the aircraft could be supplied with a set that would cover ships usual working frequencies (at least up to 500 meters).

Churchill: The Master particularly asked us to report on the cooperation received by all at Churchill for the slight repairs that had to be carried out to try and get the ship a quick turnround. Against this, however, although she arrived off the port at noon on the 2nd of August she was only able to berth three days later at 15.50 hours on the 5th of August and was able to put in her Notice of Readiness at 16.45 hours that day.

REPORT ON ICE - HUDSON STRAIT - JULY, 1957

20.7.57. Noon reduced speed, dense fog, approaching ice area.
Total Av. Sp. since Hull..... 9.97 knots.
" " Conspt. " " .....15.8 tons per 24 hours.

21/22 Stopped outside berg area. Dense fog, waiting 23rd to pass Cape Chidley.

23.7.57. Visibility 1-5 miles, passed C. Chidley/Resolution at 1000 hours ship Warkworth ahead. Gardenia second ship into Hudson Straits. After passing Resolution fog set in, passing bergs by radar. 2315 hours arrived off edge icefield, message from Warkworth stating that they could not find a passage so stopped till day.

24.7.57. At daylight Warkworth, Gardenia accompanied by Nordmeer and Ramillies sailed to north side of Straits to look for passage, Nordmeer and Warkworth entered icefield but had to return, so all four ships returned to southward and stopped off icefield for night.

25.7.57. Nordmeer and Ramillies entered icefield but about 15 miles in were ice bound.

26.7.57. Warkworth and Gardenia waiting outside icefield the other two ships held in ice.

27.7.57. In first radio watch I send a message to Ice Information Officer Churchill asking for aerial survey and plane came over in the afternoon giving all four ships a route to make for Cape Hopes Advance.
1800 hours entered icefield, 2318 stopped for night, ice cover 8/10ths. Engine movements today.....111.

28.7.57. 0230 hours. Proceeded with various stops in ice 10/10.
0800 " During s top in heavy ice propeller examined and the tips of three blades found to be missing.
Ramillies and Nordmeer reported propeller damage also.
Warkworth no report.
Suerte trying to force through on north side of Straits onto ice and calling for icebreaker assistance, to get off.
2044 hours Stop for night 10/10 ice. Eng. mov. today....115.

29.7.57. 0423 " Proceeded. 1850...Cape Hopes Advance abm. 2 miles off. Nordmeer and Warkworth ahead of us.
2320 Stopped in heavy ice awaiting daylight. Eng. mov. today ...302.

30.7.57. 0311 Proceeded, ice 7/10 to 3/10.
1300 Clear of ice, full speed. Eng. mov. today...129.

The aerial survey was not so very good as we did not get any information as to where the ice was thinnest scattered, till after Cape Hopes Advance. Average thickness of field was from 4 to 15 feet thick with some growlers 8 feet above water.

31.7.57/1.8.57. -

During night passed through pan of ice ten miles, some heavy pieces. First ship at Churchill was Nordmeer, second Warkworth, third Suerte. Two hours before arrival Churchill we were passed by s.s. Atreo doing 16.5 knots. She had bow damage. We were the fifth ship.

Second Voyage

After discharging her first Churchill grain cargo at Barry and Swansea, the s.s. Gardenia left Swansea on the 29th of August for Churchill to load her second cargo. Capt. J. H. Gray is the vessel's permanent Master.

REPORT MADE BY CAPT. GIUSEPPE CAMPI,
MASTER, M.V. ITALMARE

The m.v. Italmare sailed from Gdynia via Copenhagen, on July 19th bound to Churchill to load wheat in bulk for England.

The crossing of the ocean, during this voyage, was marked by good conditions of wind and sea. Fog was encountered at various stages.

Some bergs and growlers were observed crossing Davis Strait. First ice, on our track, was found fifty-five miles off Resolution Island where we found our course barred by heavy ice. From a position SS westward from Button Islands we found a passage through the ice.

We have tried to reach Cape Hopes Advance but westward of longitude 68° West, we have met heavy ice pack, extending from northward to southward for all the width of the Strait.

We have cruised along the pack from southward to northward, searching an easy way, and then to southward.

We have reached Cape Hopes Advance crossing the pack, and from Cape Hopes Advance we have had clear way by the side of south coast of the Strait. We have reached Churchill without further difficulties.

Very useful was the collaboration of C.G.S. N.B. McLean with her accurate ice and weather reports. Excellent the service of Direction Finding Stations in Hudson Bay and Strait.

We have noted that bearings given from Churchill Direction Finding Station were more exact than those we have had from Nottingham Island and Burwell Harbour.

We have found the port of Churchill congestioned by damaged ships and we lost four days on the anchorage waiting place to the berth.

REPORT MADE BY CAPT. W. J. THOMAS,
MASTER, S.S. RAMILLIES

At 0100 hours, on the 23rd of July, when making towards the entrance of the Hudson Strait, dense fog was encountered and speed was reduced to dead slow ahead. About 0400 hours, the s.s. Ramillies met the field ice which was coming out of the Strait with the tide and speed was reduced to a minimum.

As we progressed, the ice got very heavy and we had to pick our way through it in the fog.

On passing Resolution Island at 1720 hours the same day, the ice and fog cleared together and we then had a clear run until we were about forty miles off Cape Hopes Advance, when we again met the ice and stopped at the edge of it.

July 24th - This day was spent moving along the edge of the ice trying to find an opening but without success and had to come back to the position off Cape Hopes Advance, where we stopped for the night.

July 25th - At 0500 hours, proceeded on a 270 degrees course towards Cape Hopes Advance, as being the course suggested by the Ice Patrol. As we advanced the ice got heavier and speed was kept to a minimum, so our progress was very slow. At 2000 hours, we stopped for the night, as it was too risky to keep going during darkness.

We kept going during the daytime and stopping at night, and on the 27th of July, at 1950 hours, and with only one mile to go to open water, we unfortunately damaged the propeller and had to stop. The cause of this was due to meeting the change of tides at this particular place which was about eleven miles off Cape Hopes Advance.

At the change of the tides, the ice is subjected to heavy pressure as it tends to move in the opposite direction, and the motion of the ship through the ice was not sufficient to keep the propeller clear.

The accident caused me much delay, and it was not until 1915 hours on the 30th of July that we eventually passed Cape Hopes Advance and proceeded towards Port Churchill where we arrived and anchored at 1800 hours on the 3rd of August.

On the passage back, sailing from Port Churchill on the 11th of August, the field ice had all gone and we only had the occasional berg to contend with.

REPORT MADE BY CAPT. J. VOIROL, MASTER, M.S. CORCOVADO

From north of Ireland, the course of the m.s. Corcovado was set to pass sixty-five miles off Farewell whence, to midway between Resolution Island and the mainland, ice patrol reported streaks of ice at the entrance to Hudson Strait. Few icebergs were also reported in the area of Davis Strait's approaches. We saw and met all as scheduled.

Advice was given to keep south of Strait and report said that from Cape Hopes Advance to Coats Island, the sea was clear of ice. Fair enough - but nobody could tell anyone how to reach that Cape Hopes Advance.

A plane should be stationed near Cape Hopes Advance to give permanent information about that area. We passed Resolution Island at 0515 hours on the 2nd of August, after feeling our way through ice streaks during the night.

We arrived at the ice field at 1010 hours. We were then fifty-six miles off Cape Hopes Advance and could see it. Refraction was so phenomenal that the approach of the field looked like a wall of ice. In fact, as we came closer the floes were quite loose, at least for the ten first miles. We manoeuvred through slack ice which became constantly denser, floes larger and water more scarce.

The upper part of the ice was quite soft. We proceeded at the slowest speed possible (covered twenty-two miles in ten hours thirty minutes), tried never to be stopped and never went astern. At 2225 hours, we stopped for darkness.

On the 3rd of August, we resumed our trip at 0300 hours. Ice had drifted away during the night and cleared the area. At 0455 hours, we reached Cape Hopes Advance - at last.

From the time the ship entered the iceberg zone in Davis Strait the weather has been most favourable. With the sea very calm and no fog around we were able to make some headway, at least where there was no ice. Every bit of ice was detected on the P.P.I., as there was no sea clutter at all. In the eastern part of the Hudson Bay, we experienced some bad weather with strong North to North-Westerly winds.

When approaching Churchill, the weather presented itself from its very finest side and the silo as well as the rocket launch station could be seen thirty miles off. Due to the numerous damaged ships, port speed was slowed down. We had to wait our turn from Monday to Saturday. Loading which started Sunday at 1800 hours was completed Tuesday at 2200 hours. We had to wait for the morning time to leave.

North of Digges Island, strong westerly current was experienced on both (West and East bound) journeys. On the return trip, we met many icebergs on the steamer's track between 72° West and Cape Hopes Advance. The track was then clear to about twenty miles of Resolution Island where a few large bergs were seen. Davis Strait was clear, but many large bergs were seen thirty to fifty miles south-south-east of Cape Farewell.

Contrary to the westward trip during which visibility was unlimited, it was about nil on the return voyage. Plenty sea clutter due to rough sea made navigation hazardous in the vicinity of growlers as they could not be detected.

We found very good collaboration from ship to ship, icebreaker and air patrol to ship. We also got all the help we asked for, from people at Churchill. However, I would like to suggest that ships which have to wait for berth be given clearance upon arrival on Roads.

REPORT MADE BY CAPT. A. STADA,
MASTER, M. V. LEERSUM

The m.v. Leersum met the first icebergs and growlers on July 28th, at about fifty miles east of Resolution Island. A few hours later at 1000 A.M., we found an extensive ice field, which we could not pass.

Steered different courses to find a passage which we found at about 1600 P.M. Passed Resolution Island 1055 at a distance of six miles and proceeded for Cape Hopes Advance. Stopped the ship at darkness and kept the radar turning. Continued again at daybreak (July 29th) at about 2.00 A.M.

At 8.00 A.M. (thirty miles east of Cape Hopes Advance) we met an extensive ice field of heavy drift ice from the southern to the northern shore of Hudson Strait.

Because of not finding a passage through the ice the ship was stopped. On August 3rd, we tried to find a passage through the ice and we were in the ice for about two hours but the ice became so heavy that

had to return to open water and wait till August the 6th. That morning at 10.00 A.M., we proceeded again and passed Cape Hopes Advance at the distance of eight miles.

On the rest of the voyage we met only a few icebergs and growlers and Hudson Bay was clear of ice on the recommended track.

Homeward bound we only met a few bergs and growlers near Cape Hopes Advance and east of Resolution Island.

REPORT MADE BY CAPT. W. R. NELSON, MASTER, S.S. STANTHORPE

The s.s. Stanthorpe arrived at Churchill outer anchorage at 2350 hours on 11th of August. The weather on passage from Brake was very good as the average speed of 10.8 knots indicate.

During the passage through Hudson Strait passed many bergs, growlers and bergy bits but no pack ice. Had some fog but the weather was calm during this and as there was little sea clutter showing on the radar, this was able to pick out even the smallest piece of ice at one to two miles. I was very satisfied with its results. The wind increased and so did sea clutter on radar during the evening of the 8th of August, so I was forced to stop for five hours during the hours of darkness.

During the passage across Hudson Bay I saw no ice but I kept a course north of the usual track to Churchill as advised by ice information officer, Churchill. Touched no ice on voyage. The gyro worked well but magnetic compasses went haywire.

On arrival at anchorage found five ships already there. I was very surprised that no one came to meet me, not even a pilot. The only communication I had from agents was a request by wireless for my exact time of arrival at anchorage and adding that I could not hope to start loading before 16th of August.

On Monday afternoon I went ashore in the lifeboat and saw our Agent. He informed me that the Charterer's agent would not accept my Notice of Readiness as the ship had not been cleared by the Customs and not passed by the Port Warden. I then asked that these people be sent out to ship but Agent told me that it was an order from Ottawa that these men were not allowed to pass ships at anchor.

REPORT MADE BY CAPT. JOHN J. WATSON, MASTER, S. S. NORTH ANGLIA

The s.s. North Anglia left London at 1900 hours on July 30th on her only Churchill voyage of the 1957 season. After calling into Falmouth from 0700 hours on 1st of August to 0600 hours on 2nd of August, the voyage was continued in remarkably good weather. Course was set to pass one hundred miles south of Cape Farewell and thence to a position eleven miles south of Resolution Island. A fair amount of fog was experienced, but the ocean passage was otherwise uneventful.

The first ice was detected by radar on August 9th, and from that time on, bergs were passed with increasing frequency. The vessel passed 11 miles south of Resolution Island at 0707 on August 10th, after having set a little to the north in Davis Strait. I had reason to believe that the calibrated area of Resolution Island D/F Station was not as

published, as the vessel should have been well inside this area when I was informed that we were outside of it.

Between Resolution Island and Cape Hopes Advance many bergs and growlers were sighted visually and on radar screen, and after passing Cape Hopes Advance at 1911 hours on 10th of August at a distance of 8.5 miles more ice was encountered until the vessel was approaching Charles Island. The automatic beacon on Charles Island was in operation but signals were very weak.

No further ice was sighted after passing Charles Island, and after having had radio contact with s.s. Warkworth it was decided to follow as nearly as possible the courses which that vessel had made from Churchill, no ice having been encountered by her since leaving.

The Army Camp and Grain Elevator were detected at twenty-two miles distance by radar on August 13th, and the vessel anchored in the company of five other vessels at 2327 hours.

The vessel remained at anchor, with no contact with the shore, except by radio, until 1430 hours on 18th of August, during which time the weather was fortunately very good, previous experience having shown the anchorage to be poor, and arrived in berth at 1630 hours.

Loading was commenced at 0800 hours on 20th of August and completed at 1045 hours on 21st, and the vessel sailed at 1325 hours that day. The passage to Coats and Mansel Islands was without incident, and again no ice was encountered until east of Charles Island, from whence bergs and growlers were fairly frequent until Resolution Island was passed on 25th of August. No further ice of any description was seen after passing Resolution Island, and the passage to London was without further incident, the vessel mooring in berth at 0560 hours on 7th of September.

On this voyage, I was again greatly helped by bearings from all shore stations, whom I found to be very cooperative, and I also received very good ice reports from other vessels, particularly s.s. Stanthorpe, and was able in turn to pass on reports of all ice encountered to other vessels and shore stations. The patrol aircraft contacted us by radio on one occasion, and the visit of the Ice Information Officer while we were in Churchill was very helpful.

I must again say that the efficiency of the port is greatly increased by the cooperation given by all concerned in handling the vessels, officials and civilians alike. In particular I should like to pay tribute to the Pilotage services rendered by Captain Rose as well as his Port Warden's duties.

In view of the unusually late clearing of the ice in this season, it was perhaps inevitable that ships should be delayed at the anchorage. In the case of this vessel, the delay amounted to almost five days, this time being a total loss to the shipowner because of the fact that the necessary officials do not board vessels at anchor to enable them to be passed for loading and entered in at Customs. As most Charter Parties state that this must be done before vessel's time counts, then all time spent at anchor is lost. If boarding at the anchorage is not practicable, would it not then be possible to construct waiting berths in the harbour, possibly in the form of sets of dolphins, where vessels could be boarded and passed for loading on arrival? This would, in the long run, increase trade to Churchill by eliminating the risk to the shipowner of time lost awaiting berth at what is in any case not the best of anchorages.

REPORT MADE BY CAPT. W. R. HUNTER, MASTER, S.S. CYDONIA

The s.s. Cydonia sailed from London on 17th of August, 1957 for Churchill. Proceeding via the Pentland Firth a reasonable passage was made to south of Greenland. Here numerous icebergs were passed. Thence to Resolution Island in occasional fog and drizzle, encountering a few more bergs about 80' east of Resolution Island.

The radar showed Lacy Island and Cape Chidley at 45' and Resolution Island at 41'. Although clear passing the Island fog set in later, lifting now and then and only clearing west of Charles Island. Numerous bergs large and small were encountered between position about 40' east of Wales Island and Charles Island. From there on it was a clear run through to Churchill. Good radar results from Digges Island - 30', Mansel Island - 25' and Churchill - 45'.

The usual Churchill welcome and dispatch was afforded the ship and once again I wish to convey my thanks to all concerned.

The return passage too, did not present any difficulties and only a few bergs seen on the radar between Charles Island and Button Islands. Good weather was carried all the way to the River Tyne where the cargo was destined.

The whole trip was quite a good one thus the reason for my brief report. Having a good radar, TM 46, and Gyro, navigation was straight forward, all land appearing on the screen at about maximum range. Fog was not so prevalent and with only slight sea running even two small bergy bits were shown clearly at one mile.

D/F Stations at Resolution Island, Nottingham Island and Churchill were good and proved useful. Responder beacon on Charles Island was very weak. Lights on Wales and Mansel Islands were very poor although passed close to on a clear night.

The need for continuous aerial survey of the east end of the Straits at the beginning of the season cannot be stressed too much. The first ships have come to depend on this a great deal and the position and type of ice and possible routes through same is greatly appreciated. I am one of those that have come along later and even then know it is a great help to get ice positions.

On the navigational side it appears that the lights are as usual - poor. The suggestions by masters in previous years to help navigation has borne fruit in the air but nothing so far on the land.

REPORT MADE BY CAPT. H. J. van der WEIJDE, MASTER, M.S. HAULERWIJK

The Dutch m.v. Haulerwijk, Owner, Erhardt & Dekkers, Rotterdam, P.O. Box 313, sailed from Rotterdam on the 14th of August, 1957, on her first voyage to Port Churchill, Manitoba, Hudson Bay, Canada, proceeding via the English Channel and from twenty miles west by north of Bishop Rock, by Great circle course to a position one hundred and twenty miles south of Cape Farewell, thence by Mercator course to the Hudson Strait.

We had a moderate crossing and experienced mostly overcast, rainy and misty weather, with moderate to strong headwinds. Passed 22nd of August at 0900 hours, Cape Farewell, at one hundred and twenty miles

distance. 25th of August we detected our first iceberg by radar at 0155 hours, in position abouth eighty miles east-south-east from Resolution Island. At the entrance we met several icebergs, passed Resolution Island at 1000 hours at twenty miles distance (position by D/F bearings from Resolution Island and Cape Hopes Advance). After passing and until abeam Charles Island we encountered numerous icebergs, bergy bits and several growlers. In the afternoon of the 25th drizzle started, visibility two miles to almost zero, at 2032 hours. I stopped and the voyage was not resumed until 0329 hours the following morning. At 0400 hours we passed Cape Hopes Advance at twenty miles distance. At 1500 hours we encountered dense fog and proceeded with caution, at 2114 hours, clear again.

Passed Charles Island at 2200 hours at eight miles radar distance (southeast point) but the light could not be seen, the light on the north-west side came in sight as expected. 27th of August at 0040 hours, fog again closed in, visibility near zero, at 0103 hours. I stopped until 0358 hours, the visibility had improved somewhat and we felt our way with caution, the fog cleared at 0921 hours, and the remainder of the voyage to Churchill, was good except for much drizzle and fog, but no ice was sighted.

The vessel arrived alongside at Churchill on the 29th of August at 1252 hours, after loading 8,750 tons of wheat in bulk, we sailed from Churchill on August the 31st at 1028 hours, for Lands End for orders (ultimately London).

In the Hudson Bay we experienced mostly misty weather. From Digges Island to Charles Island, very good visibility, in the passage between Charles Island and Cape Weggs, fog closed down, later in patches, this lasted until off Cape Hopes Advance.

The first iceberg was spotted on the radar screen off Cape Prince of Wales, passed Cape Hopes Advance, September 3rd at 1700 hours at three miles distance, and Lacy Island the following morning at 1100 hours, at ten miles distance. From Cape Prince of Wales to Lacy Island we passed fourteen icebergs and one growler, to sides of our course, the last berg was sighted fifty miles east by south from Lacy Island.

In the Davis Strait we experienced very fine weather until Cape Farewell. After passing said Cape, the weather was generally rough, winds mostly from westerly directions, this weather lasted until well in the English Channel.

On the 7th of September at 0325 hours, in position 57° 53' N and 43° 40' W, (about one hundred and twenty miles south of Cape Farewell) we spotted a weak echo on the radar screen at three miles distance, on our port side, assumedly an iceberg; the weather was showery, wind south force 3-4.

The vessel arrived alongside the Empire Mills, Victoria Docks, London, at 0700 hours, September 15th. The voyage was completed.

General Remarks:

As previously stated in former reports, made in 1956, aids are still few and poor in Hudson Bay and Strait, the light system is inadequate and the few lights on poles are a poor aid to navigation.

If any suggestions can be made for improvements, it seems to me important that: a) the existing lights should be improved by increasing the candle power; b) more light towers should be erected, i.e. on Lacy Island; Cape Weggs and on the westerly side of Mansel Island.

The power source of the responder beacon on Charles Island should be improved (although the beacon did respond, the signals were too weak to get a bearing from it). There is also need for more radio beacons and I would suggest to establish a beacon on Lacy Island, on the westerly side of Mansel Island and on Eskimo Point.

The aircraft flying from Churchill once a week giving ice reports is inadequate, especially at the opening of the season, when much field-ice may encounter with, these flights should be more frequent, as the ice situation changes rapidly with the strong tidal currents and prevailing winds.

Besides these remarks, I have to express my thanks to all concerned in the running of the D/F and or coast radio stations for their reliable bearings, kind and always ready cooperation. Also my thanks to the Port Warden, Captain Rose, Immigration and Customs Officers, Agents, Stevedores and other Officials, for their friendly manners and fine cooperation. Finally, I have to thank the Ice Information Officer Churchill, Captain Carsell, for the information he gave me regarding ice conditions in the Bay and Strait and for his advice concerning favourable route in same,

REPORT MADE BY CAPT. PETER SJONG, MASTER, M.S. FERNGLEN

The m.s. Fernglen sailed from Dieppe, France, on the 23rd of August at 2100 hours, bound for Churchill, Manitoba. Proceeding via English Channel, fine weather was experienced. After passing Scilly Islands strong north-westerly gale was encountered which lasted for about twenty-four hours. Later on variable light breeze and calm, with smooth sea was experienced.

From a point eight miles off Bishop Rock shaped course thirty miles off Fastnet. From this point the Great Circle were followed to a position 50° North and 45° West, about one hundred and ten miles off Cape Farewell. From this position shaped course ten miles off Resolution Island. In Davis Strait in position 58° 35' North, 49° 35' West, passed a growler about two miles off, it could not be detected by radar.

On 1st of September at 1800 hours, in a position about one hundred and twenty miles east-south-east from Cape Chidley, fog and fog patches were encountered, which made it necessary to reduce speed. A large iceberg was sighted in position 60° 8' North, 60° 50' West. Full speed was resumed at 0325 hours next morning as the fog cleared.

On 2nd of September at 0730 hours, passed Button Islands eight miles off. The weather was fine and visibility good.

On 3rd of September at 0900 hours, the vessel passed eight miles north of Charles Island. A number of icebergs and growlers were sighted in Hudson Strait; the weather was fine and clear. Arrived at Churchill on 5th of September at 1200 hours, berthed on arrival as there were no other ship in port, except a small icebreaker. The pilot boat met outside, the tide was favourable, and the vessel was moored alongside the quay at 1400 hours. The ship had to be refitted, and the stevedores were working on this till 2200 hours.

Loading commenced at 0900 hours on 6th of September. Completed loading at 2005 hours the same day; running grain nine hours five minutes. Sailed on 7th of September at 0515 hours, bound for Norway.

On homeward passage, the weather in the Bay and Strait was remarkably fine with gentle southerly breeze. No fog. Some bergs and growlers were sighted.

The vessel passed out of the Strait twelve miles off Resolution Island on 10th of September at 1100 hours. Some bergs were sighted here to the south. Crossing Davis Strait the weather was also fine. At 1800 hours on 12th of September passed one hundred and fifteen miles off Cape Farewell. A large iceberg was sighted in position 58° 00' N, 44° 45' W.

In the Atlantic Ocean strong easterly gale was encountered which lasted for more than three days. The vessel arrived Buvika in Trondheimsfjord on 20th of September.

REPORT MADE BY CAPT. J. C. ITUARTE, MASTER, S.S. ELSTEAD

I expect that a bit of report regarding navigational aids to and from Fort Churchill would be welcome by the Department of Transport, to help the Department in perhaps increasing the aids, so that they may become so, as at present one or two could be increased or altered, and would make a great difference to vessels approaching the Hudson Bay.

Lights - -The power of the lights on the present season, or at least while I went there was poor, and even though I passed quite close to Cape Hopes Advance, Charles Island, Digges Island and also Mansel Island, I was only able to see Cape Hopes Advance. The power is very poor, and I do think that a bit more power in all those lights would be of the greatest help.

Radio beacons - Before I go unto them I would like to say how much I do appreciate the cooperation of the wireless operators in Resolution Island, Cape Hopes Advance and Nottingham Island. Their constant work cooperation was very welcome when the weather deteriorated, and the radar was not working. But I think that the Automatic Beacon at Charles Island should be changed, or done away with, and a manned radio beacon put in its place, as it is in a place where a proper aid should be installed, as it is one of the main points in the voyage.

Ice reports - - I think that the ice reports are not frequent enough, and they are not explicit enough, and very often are not existent, and very hard to get, and is one of the things that could be improved a great deal.

But though I think that these few things could be done to improve the voyages to and from Fort Churchill, I do say that in most respects I found every one concern with the navigation, etc., was most willing and prepared to help us in every respect, and for that I am most grateful.

GLOSSARY OF TERMS USED IN ICE NAVIGATION

Growler ..... Smaller piece of ice than a bergy-bit, frequently appearing greenish in colour and barely showing above water. May originate both from sea-ice and from glacier ice.

Hummocked ice ..... Ice piled haphazardly one piece over another.

Ice-blink ..... A typical whitish glare on low clouds above an accumulation of distant ice. It is especially glowing when observed on the horizon.

Ice-field or Field of ice ... Area of pack-ice or drift ice, consisting of any size of floes, of such extent that its limits cannot be seen from the crow's nest.

Ice-floe or Floe ..... A single piece of sea-ice, other than fast-ice, large or small, described if possible as "Light" or "Heavy" according to thickness

Vast	-	over 10 km across
Big	-	1 - 10 km across
Medium	-	200 - 1000 m across
Small	-	10 - 200 m across

Lead or Lane ..... A navigable passage through pack-ice or drift ice.

Pack-ice or drift ice ..... Term used in a wide sense to include any area of sea-ice, other than fast-ice, no matter what form it takes or how disposed.

Pancake ice ..... Pieces of newly-formed ice, usually approximately circular, about 30 cm to 3 m across and with raised rims, due to the pieces striking against each other, as the result of wind and swell.

Rafted-ice ..... Type of pressure-ice or screw ice formed by one floe over-riding another.

Slush or Sludge ..... An accumulation of ice crystals which remain separate or only slightly frozen together. It forms a thin layer and gives the sea surface a greyish or leaden-tinted colour. With light winds no ripples appear.

Water-sky ..... Typical dark patches and strips on low clouds over a water area enclosed in ice or behind its edge. It is due sometimes to an open water area out of the limits of visibility.

ICE REPORT BY MASTER OF C.G.S. N.B. McLEAN

IN APPROACHES TO AND IN HUDSON STRAIT AND IN HUDSON BAY

SUMMER 1957

(R.T.: Radar Target)

Date	Time (AST)	
July 13	1040	One growler: 57 34 N, 57 00 W.
	1125	Two small bergs and several growlers: 57 23 N, 51 05 W.
	1502	One small berg: 51 29 N, 56 33 W.
	1502	One R.T. 51 30 N, 56 40 W.
	1508	Two bergs: 51 32 N, 56 32 W.
	1545	Ten bergs and several growlers and bergy bits in a radius of 3 miles, position 51 38 N, 56 18 W.
	1600	From 1600 position 51 39 N, 56 12 W to 2000 position 53 04 N, 55 58 W, steamed through numerous bergs and bergy bits also scattered ice one to two tenths coverage.
	2300	One berg: 52 33 N, 57 17 W.
July 14	0137	In Latitude 52 55 N, Longitude 55 09 W, entering in ice-field 5 to 6 tenths coverage and steamed through until 0500. Position 53 32 N, 55 13 W.
	0700	Entering in scattered ice-field one tenth coverage. Position 53 49 N, 55 12 W, and cleared same at 53 59 N, 55 13 W.
	0800	From Lat. 54 00 N, 55 10 W, to 54 00 N, 54 30 W, steamed through heavy field of ice 5 tenths coverage and few scattered bergs cleared same at 1030.
	1305	From 54 25 N, 54 30 W, to 54 34 N, 54 40 W, steamed through ice field approximatively one tenth coverage.
	1400	Clear of ice.
	1525	In Latitude 54 46 N, 54 37 W, to 55 05 N, 54 40 W, proceeded through field of scattered ice approximatively 3 tenths coverage. Cleared same at 1700.
		From July 14th, 2000 position: 55 27 N, 55 05 W, to July 16th, position: 59 40 N, 61 00 W, no ice sighted.
July 16	0220	One berg: 59 40 N, 61 00 W.
	1000	One large berg: 60 31 N, 62 25 W.
	1200	Three large bergs: 60 45 N, 61 55 W.
	1300	In vicinity of Latitude 60 50 N, 61 50 W, numerous bergs and bergy bits.
	1540	Two bergs: 61 00 N, 63 10 W.
	2100	Dropped anchor in Acadia Cove, Resolution Island. No ice in sight until 15 miles vicinity.
July 19	1015	Numerous bergs in vicinity of position 61 18 N, 64 18 W.
	1035	Two large bergs: 61 18 N, 64 28 W.
	1105	One large berg: 61 18 N, 64 48 W.
	1135	One large berg and several growlers: 61 18 N, 64 54 W.
	1200	One large berg: 61 18 N, 64 58 W.
	1225	R.T. 61 15 N, 66 12 W, - 61 24 N, 66 12 W.
	1247	R.T. 61 15 N, 66 20 W. Thick fog.
	1314	One small berg: 61 22 N, 66 31 W.
	1400	Entering in scattered ice less than one tenth coverage. Co. 270° True.
July 20	1507	N.B. McLean stopped at edge of ice field position 12 miles 012 degrees from northern tip of Diana Island, ice extends northward and eastward as far as we can see. Strong N.W. gale with rain and fog. At 2015 dropped anchor in Diana Bay off R.C. Mission. Ice drifting in western part of Diana Bay with N.W. gale.

July 21	0800	Landing cargo at Cape Hopes Advance. Heavy close packed ice 5 to 8 tenths coverage extended from one mile off shore as far as we can see in all directions.
July 22		Ice condition to one mile off Cape Hopes Advance same as July 21st. Diana Bay close pack of heavy ice from one mile off shore 3 to 4 tenths coverage.
July 23	0800	N.B. McLean landing cargo at Cape Hopes Advance: Scattered ice one tenth coverage.
		From C.G.S. Montcalm from Resolution Island to Payne Bay: No ice except for scattered strings of ice less than one tenth coverage.
	2000	From N.B. McLean from Cape Hopes Advance to position 2000 61 22 N, 70 24 W, scattered ice one to three tenths coverage thence close packed ice eight tenths coverage to 0600 position 61 58 N, 71 45 W. From last position to 0930 position 62 22 N, 72 37 W, no ice. Steamed in clear water, edge ice 2 miles north of our track. South side clear of ice from this last position to Charles Island. No ice sighted except for few small strings at horizon northward of our track.
July 25	1200	From Charles Island to Erik Cove: No ice sighted.
July 29	0600	In position 62 27 N, 72 20 W, entering in extensive ice field 80 percent coverage. True course 085, proceed through to position 62 21 N, 71 15 W, thence altered course 210 True. Heavy scattered ice 60 to 75 percent coverage. At 2030 cleared ice in position 14 miles 047 degrees from Wales Island light. South side of Strait is free of ice to 8 miles off Wales Island.
July 30		Ice conditions in Straits still very bad for shipping. East of Cape Hopes Advance: close packed ice and very heavy ice extend from coast to coast across the Straits. West of Cape Hopes Advance, south of Straits is free of ice to about 8 miles of Wales Island along coast.
Aug. 5	1400	Two rafted pans of ice in position 61 36 N, 71 04 W.
	1510	Several growlers and broken pieces of ice in vicinity of position 61 34 N, 70 48 W.
	2000	Off Cape Hopes Advance in position 61 20 N, 68 30 W, steaming through widely scattered growlers and pieces of ice at full speed.
	2400	Still patrolling all areas 15 miles of Cape Hopes Advance and to position 61 24 N, 68 32 W, where shipping reported ice and no ice sighted except for widely scattered growlers and pieces of ice.
Aug. 6	0730	In position 61 21 N, 68 47 W, outward bound. No ice sighted.
	1150	One small berg and two growlers.
	1210	In latitude 61 35 N, 70 40 W,: one large growler.
	1245	One growler at 61 37 N, 70 54 W.
Aug. 7	0730	One berg 61 31 N, 70 30 W.
		One small berg 61 27 N, 70 40 W.
	1000	One berg and two growlers 61 13 N, 69 56 W.
	1045	One small berg 61 12 N, 69 52 W.
	1135	One berg 61 05 N, 69 25 W.
		From 1200 position 61 05 N, 69 52 W, steamed through numerous growlers and pieces of ice widely scattered.
	1530	One large berg 61 08 N, 68 08 W.
	1545	Radar Target 61 00 N, 68 00 W.
	1555	Two Radar Targets 61 10 N, 67 52 W.
	1656	One Radar Target 61 06 N, 67 29 W.

Aug. 7	1705	Three Radar Targets 61 09 N, 67 35 W.
	1725	One Radar Target 61 09 N, 67 16 W.
	1735	One Radar Target 61 06 N, 67 16 W.
	1755	One Radar Target 61 05 N, 67 04 W.
	1845	One Radar Target 61 11 N, 66 48 W.
	1930	One Radar Target 61 11 N, 66 30 W.
		Steaming through thick fog.
Aug. 8	0400	Two Radar Targets 61 40 N, 63 49 W.
		One Radar Target 61 42 N, 63 35 W.
	2230	One Radar Target 63 55 N, 66 00 W.
Aug. 9	0342	One Radar Target 64 40 N, 58 43 W.
	0400	One Radar Target 64 45 N, 58 50 W.
		Following is ice report of Baffin Bay Quote (Southern Baffin Bay) Packed boundary 67 15 N, 63 00 W to 68 00 N, 69 50 W, thence northward to 70 00 N, 59 00 W, thence to 74 00 N, 60 00 W. Scattered patches of ice in Melville Bay. Many bergs in open water. Unquote.
	0630	One Radar Target 65 12 N, 58 52 W.
	0715	One Radar Target 65 20 N, 58 45 W.
	0745	One Radar Target 65 26 N, 58 39 W.
	0800	One Radar Target 65 28 N, 58 44 W.
	0800	One Radar Target 65 28 N, 58 33 W.
	1115	Ice report from H.M.C.S. Labrador: Lancaster Sound and Barrow Strait are both free as far as Resolute Bay. Steaming in thick fog. Visibility half to two miles.
	0920	One Radar Target 65 35 N, 58 35 W.
	0925	One Radar Target 65 35 N, 58 30 W.
	0945	Two Radar Targets 65 57 N, 58 28 W.
	1000	One Radar Target 65 40 N, 58 35 W.
	1030	One Radar Target 65 40 N, 58 33 W.
	1110	One Radar Target 65 44 N, 58 32 W.
	1120	One Radar Target 65 45 N, 58 30 W.
	1145	One large berg 65 61 N, 58 27 W.
	1413	One Radar Target 66 28 N, 58 30 W.
	2015	One Radar Target 67 25 N, 58 16 W.
	2145	One Radar Target 67 53 N, 58 16 W, and patches of several broken pieces of ice and one Radar Target on port side of track.
	2150	One Radar Target 67 55 N, 58 16 W.
Aug. 10	0030	One Radar Target 68 10 N, 58 10 W, steaming in fog.
	0115	Two Radar Targets 68 16 N, 58 28 W. 68 16 N, 58 25 W.
	0145	One Radar Target 68 21 N, 58 10 W.
	0345	Three bergs and two small 68 44 N, 57 47 W.
	0520	From position 69 02 N, 57 43 W, to 69 10 N, 57 35 W,: steaming along coast edge of ice field at various courses extending westward. From last position to 69 23 N, 57 10 W, several Radar Targets on both sides of ship thence to 69 28 N, 57 10 W, steamed along edge of scattered broken ice. At 1200 fog cleared; visibility unlimited.
	1200	Position 70 03 N, 57 10 W,: Fog cleared and edge of ice was about 5 miles off our port side and extending Northeastward to cross our track in position 70 27 N, 56 57 W. Starboard of our track commencing at above position: narrow string of widely scattered ice running northeastward about 5 miles off. At 1410 in position 70 27 N, 56 57 W, altered course 350 True; numerous bergs and growlers.
	1257	Radar Target 69 42 N, 57 10 W.

Aug. 10	1600	In position 70 45 N, 57 08 W, 16 bergs and numerous growlers in radius of 8 miles.
		From 1600 position to midnight position 72 10 N, 57 50 W, course 350 True: encountered numerous bergs and growlers on both sides of air track.
Aug. 11		From position 72 10 N, 57 50 W to 0400 position 73 34.5 N, 58 37.5 W,: numerous bergs and growlers thence entered in thick fog and numerous Radar Targets were sighted to 1600 position 74 32 N, 61 58 W. From last position eastward in thick fog and entered in ice field at 1840 with 20 to 30 percent coverage and numerous bergs. Cleared same ice field at 2215 course 305 True. At 2340 entered in an other small ice field and cleared it at 2400 in position 75 01 N, 66 00 W, course 315 True.
Aug. 12		From position 75 01 N, 66 00 W to Thule, Greenland, encountered numerous bergs and growlers. Arrived Thule at 1200, August 12th.
Aug. 13		Left Thule at 0752 bound for Resolute Bay. Encountered numerous bergs and growlers off Wolstenholme Island in both sides of track. Numerous bergs were encountered from Wolstenholme Island to entrance of Lancaster Sound.
	(EST)	
Aug. 13	2400	Position 74 50 N, 78 20 W, six bergs in vicinity of ship course.
Aug. 14	0505	One medium berg 74 18 N, 81 36 W.
	0530	Three medium bergs 74 20 N, 81 46 W.
	0610	One medium berg 74 99 N, 82 04 W.
	0800	One medium berg 74 20 N, 83 06 W.
		Several growlers and bergs sighted close to shore on north side of Sound.
Aug. 15	0230	From Cape Riley to Cape Holhom, steamed through scattered ice 2 to 4 tenths coverage thence to Resolute Bay in clear water except for isolated pieces of ice. Arrived at Resolute Bay at 0900 and Bay was free of ice.
Aug. 24	0300	Leaving Resolute Bay with convoy.
	0430	In position 74 35 N, 94 26 W,: off Assistance Bay, passing about 2 miles off southern coast of Cornwallis Island to clear havey ice field stretching as far southerly as can be seen and cleared ice in position 74 36 N, 94 11 W. No ice sighted across Wellington Channel.
	0900	One growler 74 31.5 N, 91 36 W.
	0925	One growler 74 31 N, 91 24 W.
	2100	One small berg 74 19 N, 83 55 W.
	2245	In position 74 18 N, 83 10 W,: passed through narrow string of heavy ice extending north to south across Lancaster Sound, thence steamed through numerous bergs and widely scattered isolated strings of ice.
Aug. 25	0200	Cleared scattered ice at 0200 in position 74 17 N, 81 12 W, then no more ice sighted except for isolated bergs. Weather fine and clear.
	0420	Two big bergs: 74 18 N, 79 37 W.
		74 18 N, 79 25 W.
	1220	One large berg: 74 15 N, 74 40 W.
	1230	One large berg: 74 13 N, 74 30 W.
	1300	One large berg: 74 15 N, 74 15 W.
	1335	One large berg: 74 14 N, 73 50 W.
Aug. 26	0130	One large berg: 74 19 N, 66 18 W.
	0345	One large berg: 74 10 N, 65 00 W.
	0515	One large berg: 73 52 N, 64 33 W.
	0610	One large berg: 73 43 N, 64 00 W.
	0730	One large berg: 73 38 N, 63 25 W.

Aug. 26	0800	In position 73 35 N, 63 12 W, course 133 True, steering course 035: following edge of heavy floes extending as far as we can see southward; followed edge of ice to 1100, position 74 00 N, 62 55 W, then altered at course 120 True and steamed through widely scattered floes and numerous bergs until 1645 where we cleared ice in position 73 35 N, 59 05 W, altering course 145 True, steaming through numerous bergs and growlers.
	2400	From 1830 to midnight position 72 26 N, 58 19 W, encountered numerous bergs and growlers.
Aug. 27	0110	One berg: 72 13 N, 58 25 W.
	0127	One berg: 72 11 N, 58 20 W.
	0145	Two bergs: 72 10 N, 57 40 W.
		One berg: 72 08 N, 57 50 W.
	0235	Three bergs: 72 02 N, 57 46 W.
		Three bergs: 72 02 N, 57 35 W.
		Three bergs: 72 02 N, 57 25 W.
		Two bergs: 71 56 N, 58 02 W.
		Two bergs: 71 56 N, 58 12 W.
	0500	Three bergs in vicinity of position 71 40 N, 57 35 W.
	0600	Five bergs in vicinity of position 71 31 N, 57 25 W.
	0700	Seven bergs in vicinity of position 71 21 N, 57 20 W.
	0800	Sixteen bergs in vicinity of position 71 03 N, 57 20 W.
	0915	Six bergs in vicinity of position 70 47 N, 57 18 W.
	0935	Two large Bergs: 70 46 N, 57 18 W.
	0945	Two large bergs: 70 45 N, 57 18 W.
	0955	One large berg: 70 43 N, 57 18 W.
	1000	Four large bergs: 70 42 N, 57 24 W.
	1015	Two large bergs: 70 41 N, 57 24 W.
	1030	Four growlers and one berg: 70 36 N, 57 24 W.
	1115	Two large bergs: 70 27 N, 57 24 W.
	1600	From position 1200: 70 21 N, 57 25 W, to 69 36 N, 57 27 W, sighted numerous bergs and bergy bits also sighted patches of scattered growlers in position 69 51 N, 57 50 W.
	2000	One berg: 68 11 N, 58 02 W.
Aug. 28	0040	One berg: 68 11 N, 58 00 W.
	0040	One berg: 68 11 N, 58 20 W.
	0040	One berg: 68 12 N, 58 28 W.
	0130	One berg: 69 04 N, 58 24 W.
	0300	One berg: 67 49 N, 58 35 W.
	0525	One berg: 67 21 N, 58 28 W.
	1415	One berg: 65 45 N, 59 53 W.
	2200	Three radar targets: 64 45 N, 60 10 W.
		64 40 N, 60 36 W.
		64 40 N, 62 20 W.
Aug. 29	0030	One radar target: 64 06 N, 61 15 W.
	0127	One radar target: 63 54 N, 61 03 W.
	0645	One radar target: 63 04 N, 62 05 W.
	1330	One radar target: 62 12 N, 63 48 W.
Aug. 30	2050	One radar target: 61 19 N, 65 21 W.
	2130	One radar target: 61 19 N, 65 39 W.
Aug. 31	0010	One radar target: 61 22 N, 66 31 W.
	0010	One radar target: 61 26 N, 66 31 W.
	0057	One radar target: 61 19 N, 66 46 W.
	0145	One radar target: 61 20 N, 67 04 W.
	0230	One radar target: 61 14 N, 67 20 W.
	0645	One berg: 61 21 N, 68 51 W.
	0800	One berg: 61 13 N. 69 17 W.
Sept. 3	1407	Targets assumed bergs in position 62 11 N, 71 47 W, and radar target 61 59 N, 71 10 W.

Sept. 6	0700	One berg: 61 10 N, 69 20 W.
	0930	One berg: 61 22 N, 70 04 W.
	1010	One berg: 61 27 N, 70 20 W.
	1100	One small berg: 61 35 N, 70 30 W.
	1400	One small berg: 61 53 N, 71 03 W.
	1400	One medium berg: 61 54 N, 71 06 W.
	1600	One big berg: 62 05 N, 71 47 W.
	1600	One small berg: 62 06 N, 71 47 W.
	1600	One small berg: 62 10 N, 71 43 W.
	2300	One radar target: 61 18 N, 70 01 W.
Sept. 8	0010	One radar target: 61 18 N, 69 50 W.
	0030	One radar target: 61 18 N, 69 37 W.
	0045	One radar target: 61 42 N, 69 30 W.
Sept. 16	1300	One small berg: 59 24 N, 61 47 W.
Sept. 18	0930	One large berg: 61 38 N, 69 37 W.
		One large berg: 61 29 N, 70 22 W.
	1600	One berg off Reeves Harbour, Big Island.
		Two bergs off Ash Inlet.
		Two bergs off North Bluff.
	2200	One large berg: 62 40 N, 71 37 W.
		One large berg: 62 44 N, 71 59 W.
Sept. 19	0200	One radar target: 62 50 N, 72 55 W.
	1035	One large berg: 63 38 N, 75 32 W.
	1220	One large berg: 63 40 N, 76 22 W.
	1300	In latitude 63 52 N, 76 57 W, edge of ice to 63 49.5 N, 77 46 W, steered along edge through scattered strings at various courses. From position 64 02 N, 78 18 W, steamed along edge of ice to 2000, position 61 14.5 N, 78 19 W, thence to midnight position 64 38 N, 78 46 W, where we entered in scattered ice 2 to 4 tenths coverage.
Sept. 20	0145	Stopped in position 64 42 N, 78 53 W, awaiting daylight.
	0550	Ship underway again followed by Hillcrest and cleared ice at 0645 in position 64 53 N, 79 02 W, altering course 338. From past position to noon position 65 54 N, 79 38 W, steered between 338 to 360 degrees clearing all strings of ice by east side.
Sept. 21		On leaving Hall Lake, September 21st, 1600, steamed through scattered strings of ice with 2 to 5 tenths coverage. Cleared ice 25 miles south of Hall Lake, thence no ice sighted to midnight position 67 25 N, 80 37 W.
Sept. 22	0735	Northeast extremity of ice pack in position 66 25 N, 79 10 W, and altered course 180 True. Steamed alongside of eastern edge of heavy packed ice to position 64 52 N, 78 45.5.W, thence entered in heavy scattered ice 2 to 5 tenths coverage; ice extends as far as we can see on both sides of our course. Visibility unlimited.
Sept. 23		Cleared last ice field in position 63 41 N, 76 12 W, thence on course to Sugluk and no ice sighted.
Sept. 24	1340	Encountered ice field in position 63 06 N, 79 30 W, and steamed along the edge to position 63 06 N, 81 46 W. Ice was 6 to 9 tenths coverage at edge and extended northward as far as we can see.
Sept. 25		Evans Strait close packed with ice from position 63 06 N, 79 28 W, to 10 miles north of Cape Pembroke to 5 miles south of Walrus Island to Bear Cove. Ice spread northward as far as Bear Island entrance of Coral Harbour 2 to 6 tenths coverage in all areas.
Oct. 13	2000	N.B. McLean Ice Report of Hudson Bay: First met ice abeam Cape Prefontaine 10 miles off, ice on shore at Cape Pembroke and extending southward and northward as far as we can see. From Cape Prefontaine to position 63 04 N,

Oct. 13	2000	81 53 W, to 62 54 N, 79 34 W, 8 to 10 tenths coverage. From last position to 62 51 N, 79 04 W, 5 tenths coverage, thence clear water to 61 51 N, 78 14 W. Stopped at edge of heavy close packed ice 10 tenths coverage extending across Straits. Awaiting daylight. No ice east of Mansel Island and clear water to Digges Island. From north tip of Mansel Island on a line to position 63 00 N, 79 00 W, clear water eastward. Appear to be close packed ice between Coats Island and Mansel Island. 2000 position, stopped at edge of heavy close packed ice 62 50 N, 78 14 W, awaiting daylight.
Oct. 14	0600	In position 62 50 N, 78 14 W, course 125° True, steaming along edge of ice escorting ss. Ouistreham and ss. Sheldrake. Noon position 62 34 N, 76 42 W, widely scattered ice less than one tenth coverage. From last position on course for Dorset 020, encountered scattered ice 1 to 5 tenths coverage to 20 miles off coast, then clear water up to Dorset.
Oct. 17		Extensive ice field 5 miles off Wolstenholme with west edge in position 62 40 N, 77 52 W, extending northward about 15 miles and eastward as far as can be seen.
Oct. 17		Heavy ice drifting along south coast of Nottingham Island and landing cove and approaches blocked with heavy ice and growlers all grounded.
Oct. 19		Left Digges Island anchorage at 1530 escorting D.O.T. 54. Met ice in position 62 48 N, 78 00 W, and steamed along the edge to position 63 03 N, 77 39 W, thence altered course through scattered ice 2 to 5 tenths coverage to position 63 06 N, 76 34 W. Steaming along north edge of ice leaving D.O.T. 54. Proceed on her own. N.B. McLean returning to Wolstenholme. From last position to 0800, position October 20th, 8.6 miles, 191 degrees from Wolstenholme, steamed through scattered ice 3 to 8 tenths coverage.
Oct. 20	0000	From 63 02 N, 72 28 W, to 63 06 N, 76 34 W, to 63 00 N, 76 46 W, 2 to 4 tenths coverage, heavy ice.
	0400	From 0400 position 63 00 N, 76 46 W, to 62 46 N, 76 44 W, steamed through scattered strings of heavy ice 3 to 5 tenths coverage, thence to 62 45 N, 77 20 W, 4 to 10 tenths coverage. 0830, stopped at edge of ice field. Position 8.6 miles, 001 degrees from Wolstenholme.
Oct. 21	0455	In position 62 39 N, 76 04 W, steaming through close packed ice, 10 tenths coverage.
	0615	In latitude 62 24 N, 76 04 W, entering ice field 5 to 10 tenths coverage and extending to 5 miles off entrance of Sugluk Inlet.
Oct. 23	0600	Entering ice field 3 miles off Sugluk Inlet, 8 to 10 tenths coverage about 2 miles wide. Ice field in position 62 50 N, 75 36 W, extending northward about 3 miles and as far as seen on both sides of ship.
Oct. 23		From 62 40 N, 75 30 W, steamed along edge of ice field of close packed ice, 10 tenths coverage to position 62 38 N, 75 27 W, extending, thence steamed through to position 62 28 N, 74 52 W, 7 to 8 tenths coverage. Entered in clear water in position 62 29 N, 74 34 W.

ICE REPORT BY MASTER OF C.G.S. C.D. HOWE

EIGHTH EASTERN ARCTIC PATROL VOYAGE

SUMMER 1957

Date		Position Lat. N.		Long. W.			Size	Quantity
July 4		50	38	58	34		Medium	1
		50	37	58	21		Large	1
		50	50	58	26		Large	1
		50	46	58	12		Small	2
	From	50	46	58	12	to		
		50	51	57	54		Heavy ice	40% coverage
		51	15	57	08		Medium	1
		51	22	56	56		Large	1
July 5	From	51	33	56	28	to	Scattered ice	5 to 10% coverage
		51	39	56	15			
		51	34	56	25		Large	1
		51	41	56	13		Medium	1
		51	43	56	02		Small	1
		51	45	56	04		Small	1
	From	51	39	56	15	to		
		51	52	55	57		Heavy ice	60% coverage
		51	59	55	40		Large	1
	From	52	00	55	37	to		
		52	02	55	34		Scattered ice	10% coverage
	From	52	02	55	34	to		
		52	03	55	28		Heavy ice	60% coverage
		52	09	55	16		Large	1
	From	52	16	55	05	to		
		52	19	54	58		Scattered ice	5% coverage
	From	52	04	55	29	to		
		52	16	55	05		Growlers	25
	From	50	03	55	28	to		
		52	30	54	52		Growlers	50
July 6	From	54	16	54	00	to		
		54	19	53	42		Icefield	30% coverage
	From	54	19	53	42	to		
		54	32	52	50		Scattered ice	15% coverage
	From	55	08	53	08	to		
		55	12	53	10		Scattered ice	30% coverage
July 8	From	61	14	62	42	to		
July 8		61	11	64	36		Growlers	50
		61	11	64	47		Medium	1
		61	11	64	47		Growlers	6
		61	17	65	03		Large	1
		61	17	65	03		Growlers	5
		61	34	65	48		Large	1
		61	34	65	48		Growlers	5
July 9		61	34	66	14		Icefield	40% coverage
		61	33	66	07		Large	1
	From	61	57	67	10	to		
		61	59	67	50		Packed ice	90% coverage
	From	61	57	67	10	to		
		61	58	67	36		Medium	6
	From	62	04	68	24	to		
		62	12	68	48		Icefield	90% coverage
	From	62	12	68	48	to		
		62	17	69	10		Icefield	90% coverage
July 13	From	61	30	68	19	to		
		61	20	68	34		Icefield	50% coverage

Date		Position Lat. N.		Long. W.			Size	Quantity
July 13	From	61	17	68	56	to	Icefield	80% coverage
		61	12	69	12			
July 15		61	16	70	08		Icefield	10% coverage
July 16	From	62	52	75	34	to		
		63	04	75	38		Icefield	25% coverage
	From	63	09	75	38	to		
		63	18	75	36		Icefield	40% coverage
July 17		64	07	76	06		Icefield	15% coverage
July 19	From	63	22	75	42	to		
		63	08	76	06		Loose ice	20% coverage
July 24	From	58	40	82	36	to		
		58	44	84	05		Icefield	20% coverage
	From	58	44	84	05	to		10 to 20%
		58	50	85	28		Scattered ice	coverage
July 24	From	58	33	86	40	to	Heavy ice	30 to 50%
		58	56	87	18			coverage
	From	58	56	87	16	to	Heavy ice	30 to 50%
		58	58	88	06			coverage
July 25	From	59	04	89	30	to	Heavy ice	30 to 50%
		59	05	90	04			coverage
	From	59	05	90	04	to	Heavy ice	40 to 50%
		59	06	90	34			coverage
	From	59	08	90	50	to	Heavy ice	50% coverage
		59	14	91	00			
	From	59	14	91	00	to	Heavy ice	40% coverage
		59	14	91	16			
	From	59	14	91	26	to	Heavy ice	40% coverage
		59	30	92	12			
Aug. 2	From	59	38	92	21	to	Heavy ice	40% coverage
		59	52	91	50			
Aug. 5	From	63	50	83	24	to	Scattered ice	15% coverage
		63	33	83	00			
Aug. 7	From	62	10	70	36	to	Icefield	45% coverage
		62	18	70	14			
		62	26	69	48		Growlers	20
Aug. 8		61	28	64	30		Medium	1
Aug. 9		65	35	58	15		Medium	1
		65	49	58	20		Large	1
		65	55	58	20		Medium	2
		66	04	58	21		Small	1
Aug. 11		70	32	56	52		Large	1
		71	12	57	40		Large	2
		71	16	58	25		Medium	1
		71	26	58	28		Large and medium	2
		71	23	58	40		Large	1
		71	30	59	35		Medium	3
		72	05	59	24		Large	1
		72	11	59	12		Medium	2
		72	14	59	09		Large	2
		72	25	58	53		Large	1
		72	33	58	37		Large	1
	From	72	39	59	35	to	Icefield	20% coverage
		72	41	60	06			
Aug. 13		74	15	72	30		Large	1
		74	06	80	40		Large	1
		74	06	80	40		Growler	1
		74	01	81	18		Large	1
		73	53	81	28		Medium	1
Aug. 14		74	21	89	50		Growlers	20

Date		Position Lat. N.		Long. W.			Size	Quantity
Aug. 27	From	74	32	79	28	to	Scattered ice	30% coverage
		74	50	78	18			
		74	55	78	15		Large	2
Aug. 28		74	23	79	02		Large	1
		74	17	79	23		Large	2
Aug. 31		70	50	68	12		Large	10
		70	47	67	55		Large	1
		70	38	67	48		Small	1
		70	35	68	06		Medium	1
Sept. 3		70	10	66	50		Small	1
		70	06	67	06		Large	1
		70	06	66	42		Small	1
		69	54	65	40		Large	1
		69	11	65	25		Medium	1
		69	02	64	40		Small	1
Sept. 4		67	50	64	03		Medium and large	11
Sept. 5		67	28	63	16		Large	1
		67	25	62	54		Large	2
		67	25	62	42		Large	1
Sept. 6		64	53	63	44		Medium	1
		64	52	64	07		Medium	1
		64	54	64	10		Large and medium	2
		64	54	64	20		Medium	1
		64	56	64	27		Large	1
	From	65	12	65	15	to	Scattered ice	10% coverage
		65	48	66	14			
Sept. 9		64	32	64	00		Large	1
		64	32	63	58		Large	1
		63	49	63	02		Large	1
		62	45	63	17		Large	1
Sept. 13		61	42	66	06		Large	1
		61	47	66	11		Large	1
		61	44	66	27		Large	1
		61	51	66	57		Large	1
	From	62	00	67	15	to	Medium	10
		62	13	68	59			
Sept. 14		62	18	69	12		Medium	1
		62	18	69	25		Large	1
		62	34	69	40		Medium	3

ICE REPORT BY MASTER OF C.G.S. EDWARD CORNWALLIS

FOURTH ARCTIC VOYAGE - SUMMER 1957

Date	Position Lat. N.	Long. W.	Bergs	Growlers
July 13	51 03	57 35		2
	51 03	57 47		1
	51 26	56 35	1	
	51 27	56 37 30	1	
	51 28	56 34	1	
	51 29	56 33 30	1	
	51 30	56 30 30	1	
	51 31	56 30	1	
	51 32	56 32	1	
	51 34	56 25	1	
	51 36	56 23	1	
	51 32	56 18	1	
	51 39	56 16	1	
	51 40	51 11	1	
	51 41	56 12	1	
	51 42	55 57	1 small	
	51 42	55 59	1 small	
	51 48	55 27	1 small	
	51 48	55 49	1	
	51 52	55 34	1	
	51 57	55 35	1	
	51 58	55 20	1	
	52 12	55 23	1 small	
	52 15	55 22	1	
	52 18	55 26	1	
July 14	53 13	55 20	1	
	53 16	55 19	1	
	53 33	55 35	1	
	53 30	55 34	1	
	53 31	55 31	1	
	53 32	55 32	1	
	53 32	55 31	1	
	55 33	55 35	1	
	53 37	55 36	1	
	53 47	55 47	1	
	53 54	56 02	2	
	53 41	55 06	1	
	53 57	55 53	1	
	53 57	56 10	1	
	54 00	56 00	1	
	54 07	56 11	1	
	54 11	55 56	1	
	54 13	56 23	1	
	54 14	56 26	2 small	
	54 18	56 20	1 small	
	54 22	56 25	1	
	54 23	56 25	1	
	54 24	56 42	1	
	54 27	56 23	1	
	54 29	56 25	1	
	54 29	56 23	1	
	54 28	54 42	1	
	54 32	56 37	1	
	54 33 30	56 42	1 small	

ICE REPORT BY MASTER OF C.G.S. EDWARD CORNWALLIS

FOURTH ARCTIC VOYAGE - SUMMER 1957

Date	Position Lat. N.	Long. W.	Bergs	Growlers
July 14	54 35	56 31	1	
	55 23	57 10	1 small	
July 17	59 04	60 20	1	
	59 12	60 29	1	
	59 12	60 29		1
	59 17	60 34	1	1
	59 42	61 10	1	
	59 46	61 08	1	
	59 56	60 52	1 small	
	60 03	61 01	1 small	
	60 10	61 18	1 small	
	60 12	61 15	1 small	
	60 22	61 00	1	
	60 25	50 58	1	
	60 28	61 30	1	
	60 40	61 54	1	
July 18	60 48	60 54	1	
	60 54	62 02	1	
	60 36	62 45	1	
	60 36	62 50	1	
	60 53	62 00	1	
	61 07	62 03	1	
	60 57	62 30	1	
	60 56	62 38	1	
	60 55	62 36	1	
	61 03	62 15	1	
	61 00	62 38	1	
	61 04	62 20	1	
	61 05	62 13	1	
	61 09	62 41	1	
	61 09	62 50	1	
	61 08	62 56	1	
	61 13	62 30	1	
	61 17	62 32	1	
	61 08	62 48	1	
	61 10	62 13	1	
	61 16	63 20	1	
	61 00	65 24	1 small	
	61 13	65 34	1	
	61 14	66 24	1	
	61 08	67 03	1 small	
	61 16	67 49	1	
	61 14	68 02	1	
August 11	62 42	72 59	1	
	62 44	72 55	1	
	62 42	72 50	1	
	62 44	72 48	1	
	62 41	72 40	1	
	62 39	72 51	1	
	62 36	72 22	1	
	62 29	72 42	1	
	62 22	72 40	1	
	62 27	72 31	1	
	62 32	72 13	1	

ICE REPORT BY MASTER OF C.G.S. EDWARD CORNWALLIS

FOURTH ARCTIC VOYAGE - SUMMER 1957

Date	Position Lat. N.	Long. W.	Bergs	Growlers
August 11	62 31	71 53	1	
	62 38	71 41	1	
	62 37	71 39	1	
	62 38	71 50	1	
	62 36	71 37	1	
	62 25	71 37	1	
	62 25	71 36	1	
	62 30	71 36	1	
	62 38	71 25	1	
August 13	62 29	71 56	1	
	62 28	71 58	1	
	62 30	72 00	1	
	62 30	72 34	1	1
	62 31	72 37	1	1
Sept. 3	63 54	75 32	1	
	63 08	73 52	1 small	
	62 10	74 44	1 small	
Sept. 4	61 09	69 19	1	
	61 08	69 18	1	
	61 08	69 17	1	
	61 07 30	69 16	1	
	61 03	68 58	1	
	60 59	68 41	1	
	60 57	68 06	1	
	61 01	68 34	1	
	60 56	66 47	1	
	60 51	65 30	1	
	60 47	65 05	1	
Sept. 5	59 31	62 30	1	
	58 46	61 34	1	
	58 39	61 19	1	
	58 13	60 56	1	
	58 13	60 50	1	
	57 44	60 23	1	
Sept. 6	55 41	57 34	1	
Sept. 7	51 16	57 03	1	

ICE REPORT BY MASTER OF C.G.S. d'IBERVILLE

SUMMER 1957

Date	Time	Position Lat. N.		Long. W.		Remarks
Aug. 4	0740	51	27	56	47	1 berg
	0945	51	36	56	18	1 berg
	1000	51	39	56	12	1 berg
	1145	51	50	55	52	1 berg
	1240	51	52	55	33	3 bergs
	1300	51	59	55	28	2 bergs
	1600	52	25	55	10	1 berg
	1635	52	28	55	35	1 berg
	1730	52	40	55	19	1 berg
	1730	52	40	55	37	1 berg
	1910	52	53	55	29	1 berg
	1930	53	01	55	24	1 berg
Aug. 5	2400	53	45	55	26	1 berg
	0500	54	35	55	45	1 berg
	0600	54	45	55	40	1 berg
	0800	55	05	55	28	1 berg
	0830	55	10	55	30	2 large growlers
	1000	55	52	56	30	1 berg
Aug. 6	0920	58	48	61	00	1 berg
	1730	59	20	61	55	1 berg
	1800	59	35	61	45	1 berg
	1810	59	23	61	58	1 berg
	0345	59	45	63	50	1 berg
Aug. 7	2130	62	25	63	34	1 berg
Aug. 8	2400	62	48	63	34	1 berg
	2400	62	50	63	11	1 berg
	0400	63	29	63	10	1 berg
	1240	65	03	60	50	1 berg
	1300	65	08	60	28	1 berg
	1350	65	17	60	44	1 berg
	1600	65	28	60	25	Very scattered ice field
	2000	65	25	61	03	South edge ice field
	2200	65	21	59	45	Southeast edge ice field
	2300	65	21	59	48	1 large berg
	0140	65	34	59	22	1 berg
	0220	65	41	59	04	1 berg
Aug. 9	1610	67	20	58	29	1 berg
	2120	68	30	58	32	1 large berg
	2440	69	09	58	19	1 berg and ice field
	0300	69	10	58	15	1 berg
	0340	69	15	58	30	1 berg
Aug. 11	0400	69	20	58	16	Ice field and berg
	0700	69	35	58	20	Ice field and berg
	1730	70	19	56	57	Ice field and berg
	1800	70	32	56	40	Southeast edge ice field
	2000	70	55	57	02	5 bergs
	2100	70	65	57	04	2 bergs
Aug. 12	2400	71	29	57	25	Many large bergs in all directions
	0350	71	57	57	30	Many large bergs in all directions
	0500	72	08	57	50	Many large bergs in all directions
	1200	73	12	57	50	1 berg

ICE REPORT BY MASTER OF C.G.S. d'IBERVILLE

SUMMER 1957

Date	Time	Position Lat. N.		Long. W.		Remarks
Aug. 12	1350	73	17	57	55	Many bergs in all directions
	1800	73	43	60	15	Many bergs and ice field in all directions
	2130	74	20	60	30	1 berg
Aug. 13	2430	74	35	61	49	Many bergs in sight in all directions
	0500	74	51	63	55	Ice field and many bergs in all directions
	1445	74	49	66	15	1 large berg
Aug. 14	0500	74	45	75	45	2 bergs
	1400	74	25	79	55	Many bergs in sight in all directions
Aug. 15	0600	74	27	91	23	Scattered ice
Aug. 18	1730	74	32	94	30	Scattered ice
	2345	74	28	91	24	Scattered ice
Aug. 19	1415	74	45	79	08	Many bergs and growlers in all directions
Aug. 20	0230	76	10	85	34	Many bergs
	0600	76	19	88	30	Ice field in all directions
	0730	76	27	89	50	Entering Hell Gate ice about 3 to 4 feet thick but soft all over Hell Gate Channel. From Hell Gate to lat. 77 44 N, heavy ice floes and heavy pans.
Aug. 21	0220	77	55	88	50	Open water, few growlers
	0430	77	25	88	00	Scattered ice
	0500	77	27	88	00	1 berg
	0530	78	35	87	30	1 berg
	0700	78	52	86	40	2 bergs
Aug. 23	0400	79	40	85	39	Many large ice pans
	0800	78	52	85	50	Many large ice pans
Aug. 24	0800	76	22	89	06	Ice field
	0300	76	05	84	20	Many bergs and growlers
	1700	76	00	82	00	1 berg
	2000	75	46	80	12	Scattered ice in all directions
	2200	75	42	79	45	Many ice floes and open water
	2210	75	39	79	40	Heavy Arctic floes
	2400	75	00	78	41	Many bergs in all directions
Aug. 25	0500	74	16	77	25	1 berg
	0600	74	05	77	10	1 berg
	0800	73	46	76	34	1 berg
	0900	73	32	76	30	1 berg
	1600	72	42	78	02	2 bergs
						Navy Board Inlet, - many bergs seen on each side of track. Ship steaming in center of Inlet.
	0245	73	48	81	08	1 berg

ICE REPORT BY MASTER OF C.G.S. d'IBERVILLE

SUMMER 1957

Date	Time	Position Lat. N.		Long. W.		Remarks
Aug. 26	0215	74	23	81	43	Heavy floes
Aug. 27	0700	72	44	73	57	5 bergs
Aug. 28	0200	71	18	69	35	5 large bergs
	0330	71	04	68	55	3 bergs
	0600	70	53	68	19	20 bergs in sight
	0630	70	40	68	00	Very scattered ice
	0700	70	44	67	55	Light scattered ice
	0800	70	36	67	23	Few bergs and open water
	1000	70	12	66	40	1 berg
	1000	70	10	66	45	1 berg
	1100	70	07	66	15	5 bergs
	1230	69	30	64	48	Icefield
Aug. 29	0150	69	18	64	52	Many growlers
	2100	68	14	62	55	2 bergs
Aug. 29	1900	63	50	62	50	3 bergs
Aug. 30	2000	61	20	69	16	2 bergs
Sept. 1	2100	61	02	69	10	1 berg
Sept. 2	0639	60	50	64	55	1 berg
	1700	59	18	62	10	2 bergs
	1930	59	00	61	50	1 berg
Sept. 4	1100	51	39	56	11	1 berg
	1100	51	41	56	12	1 berg
	1220	51	29	56	34	Many bergs and growlers

ICE REPORT BY MASTER OF C.G.S. MONTCALM

SUMMER 1957

Date	Time	Description of ice	Position Lat. N.	Long. W.
July 16	1945	2 bergs	51 20	57 09
	2030	1 berg	51 20 9	56 56 5
	2050	1 berg	51 19 8	56 51 8
	2105	1 berg	51 21 6	56 49 2
	2115	1 berg	51 26 4	56 50 5
	2117	1 berg	51 23 2	56 47 1
	2130	1 berg	51 22 1	56 44 6
	2255	1 berg	51 25 2	56 38 8
	2300	1 berg	51 26 5	56 39 8
	2306	1 berg	51 26 6	56 39 1
	2330	1 berg	51 27 9	56 38 9
	2334	1 berg	51 31 3	56 42 0
July 17	From 00000	1 berg	51 31	56 32
	50 0400	2 bergs	51 31 5	56 30 5
	"	1 berg	51 29	56 30
	"	1 berg	51 30 5	56 23
	"	1 berg	51 31 5	56 24
	"	1 berg	51 33	56 23
	"	1 berg	51 34	56 22
	"	2 bergs	51 25 5	56 19
	"	1 berg	51 36 5	56 16
	0425	1 berg	51 44	56 06
	0430	1 berg	51 48	56 03
	0547	1 berg	51 47	56 02
	0600	1 berg	51 45	56 00
	0615	1 berg	51 52	55 50
	0650	7 bergs	51 55	55 42
	0655	6 bergs	51 56	55 45
	0745	8 targets	51 57	55 34
	0845	1 target	52 00 5	55 23
	0815	1 target	52 01 5	55 22
	0940	1 target	52 16	55 25
	1025	1 growler	52 12	55 13
	1200	1 berg	52 12 5	55 06
	1740	1 growler	52 36	54 33
	1830	1 berg	52 35	54 20
July 18	0400	1 berg	53 31	53 41
	0730	2 growlers	53 45	53 35
	0845	1 growler	53 57	53 20
	1030	1 berg	54 13	53 45
	From 0830	10 growlers from	53 56	53 21
	to 1030	to	54 13	53 45
	1145	1 berg	54 24	54 04
	1207	1 berg	54 26	54 04
	From 54 33 N, 54 10 W. Co. 320 T. String of ice approx. 4 miles			
	to 54 36 N, 54 15 W.			
July 19	2010	1 target	59 00	60 48
	2038	1 target	59 05	61 00
	2055	1 target	59 09	60 57
	2310	1 target	59 24	61 35
July 20	0230	1 target	60 01	62 20
	0450	1 target	60 10	62 50
	0615	1 target	60 15	63 25
	From 1130	Packed ice	Off Cape Chidley to Port Burwell	
	to 1430			

ICE REPORT BY MASTER OF C.G.S. MONTCALM

SUMMER 1957

Date		Time	Description of Ice	Position	Lat. N.	Long. W.
July 20	From	1430	Packed ice	Off Port Burwell to		
	to	2030			60 50	64 54
		2215	1 target		61 00	64 50
July 22		1730	1 berg		60 50	65 54
		1800	1 berg		60 42 5	66 00
		1800	1 berg		60 41 5	65 57
		1830	Many growlers and bergs		60 44	66 14
		2000	Many growlers and bergs		60 32	66 40
	From	2000	Growlers coverage 20%	From	60 32	66 40
	to	2230		to	60 25	67 02
	From	2230	Growlers coverage 2%	From	60 25	67 02
	to	2330		to	60 19	67 15
July 25		1515	1 berg		60 20	67 40
		1600	Ice 90% coverage		60 36	67 48
		2000	Ice 90% coverage		60 51	68 18
	From	2000	Growlers			
	to	2400	Ice 90% coverage	From	60 51	68 18
				to	61 04	68 50
July 26	From	0800	Packed ice 90% coverage	From	61 50	69 26
	to	1200	North of this position	to	61 30	70 38
	From	2137	Packed ice 90% coverage	From	62 03	71 36
	to	2400	North of this position	to	(as far as we can see)	
		2400	Iceberg		62 06	71 06
July 27	From	0000	Packed ice 90% coverage	From	62 06	71 27
	to	0400		to	62 22	70 50
	From	0400	Packed ice 90% coverage	From	62 18	71 02
	to	0800		to	61 48	71 18
		1025	1 berg		62 10	71 44
	From	0800	Packed ice 80% coverage	From	61 48	71 18
	to	1200		to	62 10	71 44
			From Wales Island ice extends 12 miles off Coast to Saddle Island, then to 16 miles. Co. 308° T.			
July 30		0430	3 bergs		62 14	72 17
Aug. 5		1600	1 growler		61 444	71 02
	From	2045	Ice line by radar		61 20	69 58
	to	2400	north of these positions		61 11	69 33
Aug. 6	From	0000	Ice 70% coverage	From	61 06	69 10
	to	0400		to	61 10	68 29
		1105	Iceberg		60 55	67 11
		1115	Iceberg		60 55	67 10
	From	1000	Growlers 1% coverage	From	60 58	67 27
	to	1200		to	60 53	67 00
Aug. 8		2145	Iceberg		61 33	66 01
Aug. 9		0145	Large berg		61 46	67 32
		0340	Large berg		61 58	68 12
		0515	Large berg		61 55	68 50
		0610	One growler		61 56	69 13
		0830	Iceberg		62 09	70 04
		0850	Iceberg		62 09	70 12
		0905	Iceberg		62 11	70 16
		0930	Iceberg		62 09	70 27
	From	1000	Packed ice west of		62 21	70 21
	to	1200	these positions and about		62 11	70 42
			10 bergs sighted		61 53	70 28
	From	1200	Steaming along edge of ice Co. 287 T. from noon			

ICE REPORT BY MASTER OF C.G.S. MONTCALM

SUMMER 1957

Date		Time	Description of Ice	Position Lat. N.	Long. W.
Aug. 9		1240	Large berg	61 56	70 39
		1900	One large berg	62 24	72 44
Aug. 15			String of ice 10 miles north of Coats Island, extending east-west about 20 miles.		
Aug. 17			String of ice about the same position as above.		
Aug. 22		0220	1 berg	62 40	72 54
		0300	1 berg	62 39	72 40
		0345	1 growler	62 34	72 29
		0425	Many growlers	62 36	72 12
		0530	Many growlers and bergs	62 31	71 43
		1135	4 bergs in vicinity	62 20	70 58
		1300	3 growlers in vicinity	62 08	71 15
Sept. 14			Heavy scattered ice extending south from Prairie Point to Native Point, as far as can be seen.		
		1600	D.R. 63 36 N, 82 56 W. Co. 143 t.		
		1820	D.R. 63 27 N, 82 28 W. Ice clear this position.		
	From	2000 to 2400	Heavy ice extending 80% coverage north this line:	63 25 N, 82 06 W.	
				63 21 N, 81 52 W.	
				63 22 N, 81 32 W.	
				63 14 N, 81 20 W.	
				63 14 N, 81 08 W.	
Sept. 9	From	0000	Off Leyson Point, 70% coverage		
	to	0400	as far as can be seen, from position 6 miles off.		
	From	0400	Ice 80% coverage	63 30	80 12
	to	0800	Heavy packed ice as far as can be seen about 80% coverage		
			From position	63 30	80 12
			to position	63 42	80 01
	From	1200	Heavy packed ice as far as can		
	to	1600	be seen 80 to 90% coverage		
			From position	63 42	80 01
			to position	63 52	79 55
	From	1600	Heavy packed ice 100% coverage		
	to	2000	From position	63 52	79 55
			to position	63 59	80 05
	From	2000	Heavy packed ice as far as can		
	to	2400	be seen 90% coverage		
			From position	63 59	80 05
			to position	64 05	79 55
Sept.16	From	0000	Heavy packed ice as far as can		
	to	0400	be seen 90% coverage, Co.040°t.		
			From position	64 05	79 55
			to position	64 10	79 42
	From	0400	Ice coverage 70%		
	to	0800	From position	64 10	79 42
			to position	64 19	79 28
	From	0800	Heavy packed ice with 70 to		
	to	1200	80% coverage		
			From position	64 19	79 28
			to position	64 27	79 12
	From	2000	Running in scattered ice with		
	to	2400	20 to 40% coverage		
			From position	65 37	79 22
			to position	66 06	79 23

ICE REPORT BY MASTER OF C.G.S. MONTCALM

SUMMER 1957

Date		Time	Description of Ice	Position Lat. N.	Long. W.
Sept.17	From	0800	Few scattered ice pieces		
	to	1115	with about 2% coverage		
			from position	67 24	80 39
			to position	68 03	80 42
	From	1115	Heavy packed ice as far as can		
	to	1200	be seen with 95% coverage		
			from position	68 03	80 42
			to position	68 06	80 42
	From	1200	Heavy packed ice 80% coverage		
	to	1325	from position	68 06	80 42
			to position	68 15	80 45
			thence clear water.		
Sept.30			String of ice	68 12	80 57
Oct. 1			String of ice	66 11	79 35
	From	0800	String of ice 25% coverage		
	to	1200	from position	65 57	79 35
			to position	65 56	79 35
			String of ice 15% coverage		
			from position	65 42	79 34
			to position	65 39	79 34
			String of ice 100% coverage		
			from position	65 39	79 34
			to position	65 37	79 34
			String of ice 100% coverage		
			from position	65 34	79 35
			to position	65 33	79 35
	From	2000	Two ice fields coverage 10%		
	to	2400	from position	64 18	78 43
			to position	63 50	78 11
Oct. 4		0845	Iceberg	61 02	65 39

STATION ICE REPORTS - 1957

RESOLUTION ISLAND

July 19 One medium berg six miles southwest.
20 No ice report. Visibility zero in fog.
21 No ice sighted. Visibility zero.
22 No ice sighted. Visibility two miles.
23 No ice sighted. Visibility one mile.
24 Visibility one quarter of a mile in fog.
25 No ice sighted. Visibility five miles in haze.
26 Few small scattered pieces of ice close to shore south to southwest.
27 One small berg near shore half a mile south.
29 Two large and one medium bergs two and five miles southwest, a few small scattered pieces of drift ice to south.
31 One large berg two miles northeast, one large berg five miles east, and one small berg four miles southwest.

August 1 Two large bergs ten miles to southwest.
2 A few scattered small pieces of drift ice two to four miles south and southwest.
3 One growler and few small pieces of drift ice one to two miles southwest.
8 No ice sighted. Visibility half a mile in fog.
9 No ice sighted. Visibility one quarter of a mile in fog.
10 No ice sighted. Visibility half a mile in fog.
11 One medium berg one mile to northeast; one large berg three miles south. Visibility eight miles.
12 One large berg and one small flat growler south south-east one mile.
13 No ice sighted. Visibility three-quarters of a mile in fog.
14 No ice sighted. Visibility one mile.
15 One small berg six miles to south; one large berg three miles southwest.
16 One large berg four miles to southwest. Visibility six miles.
17 No ice report. Visibility half a mile in fog.
18 No ice sighted. Visibility two miles.
19 No ice sighted. Visibility three miles.
20 Two medium bergs five miles off southwest. Visibility ten miles.
21 No ice sighted. Visibility eight miles.
22 One small berg one mile off shore to east. Visibility ten miles.
23 No ice sighted. Visibility one mile.
24 No ice sighted. Visibility half a mile.
25 One large berg three miles to southeast. Visibility eight miles.
26 One large berg one mile to south; one medium berg four miles southwest.
27 One large berg one mile to south. Visibility ten miles.
28 One medium berg and few small scattered pieces of drift ice two miles to south.
29 One large berg three miles to south. Visibility five miles in fog.
31 No ice sighted. Visibility eight miles.

September

1 No ice in sight. Visibility five miles.
2 No ice in sight. Visibility eight miles.
3 No ice in sight. Visibility ten miles.
4 No ice in sight. Visibility one quarter of a mile in fog.
5 No ice in sight. Visibility ten miles.
6 No ice in sight. Visibility eight miles.
7 No ice in sight. Visibility one mile.
8 No ice in sight. Visibility one-eighth of a mile in fog.
9 No ice in sight. Visibility eight miles.
10 No ice in sight. Visibility ten miles.
11 One small growler southwest two and half miles. No other ice in sight. Visibility eight miles.
12 No ice in sight. Visibility eight miles.
13 No ice in sight. Visibility half a mile in fog.
14 One berg five miles to south. Visibility ten miles.
15 No ice in sight. Visibility half a mile in fog.
16 No ice to limit of visibility ten miles.
17 No ice in sight. Visibility eight miles.
18 No ice in sight. Visibility twelve miles.
19 No ice in sight. Visibility two miles in fog.
20 No ice in sight. Visibility ten miles.
21 No ice in sight. Visibility ten miles.
22 No ice in sight. Visibility eight miles.
23 No ice in sight. Visibility three miles.
24 No ice in sight. Visibility one mile.
25 One large berg six miles to southwest.
26 No ice in sight. Visibility eight miles.
27 No ice to limit of visibility one mile.
28 No ice to limit of visibility two miles.
29 One small berg five miles to southwest.
30 No ice to limit of visibility five miles.

October

1 No ice in sight. Visibility eight miles.
2 No ice in sight. Visibility eight miles.
3 No ice in sight. Visibility ten miles.
4 No ice in sight. Visibility fifteen miles.
5 No ice in sight. Visibility ten miles.
6 No ice in sight. Visibility twelve miles.
7 No ice in sight. Visibility eight miles.
8 No ice in sight. Visibility six miles.
9 No ice in sight. Visibility twelve miles.
10 Large bergs to east; one small berg five miles to south. Visibility ten miles.
11 No ice in sight. Visibility two miles in fog.
12 No ice in sight. Visibility ten miles.
13 No ice in sight. Visibility twelve miles.
14 One small growler two miles to east. Visibility twelve miles.
15 No ice in sight. Visibility ten miles.
16 No ice in sight. Visibility twelve miles.
17 No ice reported. Visibility one mile in fog.
18 One small berg two miles to east. Visibility eight miles.
19 No ice in sight. Visibility ten miles.
20 No ice in sight. Visibility six miles.
21 No ice in sight. Visibility three miles.
22 One medium berg two miles to south. Visibility three miles.

October

23 No ice in sight. Visibility six miles.
24 No ice in sight. Visibility five miles.
25 No ice in sight. Visibility ten miles.
26 No ice in sight. Visibility five miles.
27 One large berg two miles to east. Visibility ten miles.
28 No ice in sight. Visibility two miles in fog.
29 No ice in sight. Visibility two miles in fog.
30 No ice in sight. Visibility one mile in snow.
31 No ice in sight. Visibility ten miles.

November

1 No ice in sight. Visibility ten miles.
2 One very large berg four miles to east; one large berg five miles to south. Visibility eight miles.
3 No ice in sight. Visibility eight miles.
4 No ice in sight. Visibility two miles in fog.
5 Two small bergs approximately two miles to south.
6 No ice in sight. Visibility one mile in snow.
7 No ice in sight. Visibility ten miles.
8 No ice in sight. Visibility ten miles.
9 No ice in sight. Visibility ten miles.
10 No ice in sight. Visibility four miles
11 No ice in sight. Visibility eight miles.
12 No ice in sight. Visibility eight miles.
13 No ice in sight. Visibility ten miles.
14 No ice in sight. Visibility three quarters of a mile in fog.
15 No ice in sight. Visibility six miles.
16 No ice in sight. Visibility five miles in fog.
17 Field of loosely packed ice stretching from east to west and from shore to limit of visibility ten miles.
18 Slob ice east, west and south to limit of visibility ten miles. 50 percent coverage.
19 Scattered slob ice approximately two miles to east and west. 10 percent coverage.
20 No ice in sight. Visibility three quarters of a mile in snow.
21 Field of ice stretching from shore to limit of visibility eight miles to south and west.

CAPE HOPES ADVANCE

July 20 No ice in sight. Visibility one mile.
21 Loose string of ice from one mile off shore extending to horizon, then more closely packed, approximate coverage 70 to 80 percent. Visibility fifteen miles.
22 No ice report. Visibility one quarter of a mile in fog.
23 Scattered pans near shore, ice field three miles off shore extending to horizon. Visibility twenty miles.
25 Widely scattered pans near shore; heavier field of ice to north and east from three miles off shore to limits of visibility eight miles in haze.
26 Heavy string of ice visible at a distance from station near horizon, clear water near shore. Visibility fifteen miles.
27 Visibility almost zero in fog. Ice report not available.
28 Field of ice two to four miles off shore in all directions. Widely scattered pans near shore. Visibility fifteen miles.
29 Widely scattered pans of ice near shore with heavier field of ice near to five miles off shore in all directions. Visibility fifteen miles.

July 30 Very widely scattered pans of ice along shoreline, heavier field of ice five to ten miles off shore in all directions extending to horizon. Visibility fifteen miles.

31 Field of ice three to five miles off shore in all directions. Visibility fifteen miles.

August 1 Heavy drift ice five to seven miles off shore in all directions extending to limits of visibility twenty miles.

2 Strings of heavy drift ice three to five miles off shore becoming more closely packed from five miles off to limits of visibility twenty miles.

6 Dense fog past three days. Visibility zero.

7 Dense fog. Visibility zero. Unable to report ice.

16 Continuous fog past week. No significant change. Unable to observe ice conditions due to poor visibility.

17 Fog patches. No ice in sight. Visibility five to eight miles.

18 Fog. Unable to observe ice conditions. Visibility zero.

19 Fog patches. Occasional bergs and growlers sighted northward. Visibility three to five miles.

21 Fog patches. No ice visible. Visibility one to three miles.

22 Two small bergs north of station about three miles. Visibility ten miles.

24 One small berg three miles northeast of station. Visibility five to eight miles.

25 Fog. Unable to observe ice. Visibility zero.

26 No ice in sight. Visibility fifteen miles.

27 Fog. Unable to observe ice conditions. Visibility zero.

28 Dense fog. Unable to observe ice conditions. Visibility zero.

29 No ice in sight. Visibility ten miles.

30 No ice in sight. Visibility fifteen miles.

31 Misty. No ice in sight. Visibility five to eight miles.

September

1 No ice in sight.

2 Dense fog. Unable to observe ice conditions. Visibility zero.

3 No ice in sight. Visibility five to eight miles.

4 Three bergs five to eight miles north of station. Visibility ten miles.

5 No ice in sight. Visibility ten miles.

6 No ice in sight. Visibility good.

7 No ice in sight. Visibility good.

8 No ice in sight. Visibility good.

9 No ice in sight. Visibility good.

10 No ice in sight. Visibility ten miles.

11 No ice in sight. Visibility ten miles.

12 No ice in sight. Visibility ten miles.

13 Fog. Unable to observe ice conditions. Visibility zero.

16 Rain, fog. No ice in sight. Visibility one to three miles.

17 Unable to observe ice conditions. Visibility zero.

18 No ice in sight. Visibility fifteen miles.

19 No ice in sight. Visibility fifteen miles.

20 No ice in sight. Visibility three miles.

21 No ice in sight. Visibility ten miles.

22 No ice in sight. Visibility ten miles.

23 Unable to observe ice conditions. Visibility half a mile.

24 No ice in sight. Visibility eight miles.

September

25 No ice in sight. Visibility eight miles.
26 No ice in sight. Visibility fifteen miles.
27 No ice in sight. Visibility fifteen miles.
28 No ice in sight. Visibility one mile.
29 No ice in sight. Visibility ten miles.
30 No ice in sight. Visibility eight miles.

October 1 No ice in sight. Visibility fifteen miles.
2 No ice in sight. Visibility ten miles.
3 No ice in sight. Visibility fifteen miles.
4 One large berg about five miles northeast of station.
5 No ice in sight. Visibility eight miles.
6 No ice in sight. Visibility four miles.
7 No ice in sight. Visibility ten miles.
8 No ice in sight. Visibility eight miles.
9 Snow. No ice in sight. Visibility five sixteenth in snow.
10 No ice in sight. Visibility fifteen miles.
11 No ice in sight. Visibility ten miles.
12 No ice in sight. Visibility eight miles.
13 No ice in sight. Visibility fifteen miles.
14 No ice in sight. Visibility fifteen miles.
15 No ice in sight. Visibility fifteen miles.
16 No ice in sight. Visibility eight miles.
17 No ice in sight. Visibility two miles.
18 No ice in sight. Visibility fifteen miles.
19 Unable to observe ice conditions. Visibility zero.
20 No ice in sight. Visibility fifteen miles.
21 Visibility unlimited. Heavy packed ice along shore and scattered ice to the horizon. New ice forming.
22 No ice in sight. Visibility fifteen miles.
23 No ice in sight. Visibility ten miles.
24 No ice in sight. Visibility ten miles.
25 No ice in sight. Visibility eight miles.
27 No ice in sight. Visibility eight miles.
28 No ice in sight. Visibility ten miles.
30 String of loose ice along shore line. Visibility eight miles.

November

1 Strings of loose ice along shore line. Visibility ten miles.
2 Strings of loose ice near shore extending east and west to limit of visibility ten miles.
3 Strings of loose ice about three miles off shore extending east and west to limit of visibility ten miles.

NOTTINGHAM ISLAND

August 2 Very light scattered pan of ice near south shore. Visibility ten miles.
3 No ice in sight. Visibility fifteen miles.
7 Ice conditions heavy closely packed ice exists from shore to limits of visibility along the west side of the Island to as far south as visibility allows and as far off shore as can be seen. Visibility ten to half a mile in fog.
8 Ice within sight of station.
11 No ice in sight. Visibility fifteen miles.
13 No ice in sight. Visibility fifteen miles or better.

August 14 Visibility ten miles. No ice within line of view.
15 Visibility fifteen miles. No ice to limits of visibility.
16 No ice in sight to limits of visibility fifteen miles or between.
17 Visibility fifteen miles. No ice within view of station.
18 Visibility fifteen miles. No ice to limits of visibility.
19 Visibility fifteen miles. No ice in sight.
20 Visibility ten miles. No ice in sight.
21 Visibility fifteen miles. Scattered inshore ice, otherwise clear.
22 No ice report. Dense fog.
23 Visibility three miles in rain and heavy mist over water. No ice can be seen although visibility extends only to shoreline. Ice conditions cannot be observed further out in water than shore line.
24 Visibility half a mile off shore in light fog. No ice in sight in that half mile.
25 Visibility fifteen miles or better. No ice in sight.
26 Visibility ten miles. No ice in sight.
27 Visibility fifteen miles. No ice to limits of that visibility.
28 Visibility ten miles. No ice in sight to limits of visibility.
29 Visibility ten miles. No ice in sight.
31 Dense fog. Visibility one quarter of a mile. Unable to observe ice conditions.

September
1 Visibility ten miles. No ice in sight.
2 Visibility fifteen miles. Ice to limits of visibility south to west of Island.
3 Visibility fifteen miles. Scattered pieces of ice from southwest of station to the northwest as far as limits of visibility.
5 Visibility one quarter of a mile. Unable to observe ice conditions.
6 Visibility fifteen miles. Scattered strings of open pack ice extending five miles off shore south of station to limits of visibility west of station.
8 Visibility twelve miles. Heavy close packed ice in all directions to limits of visibility along west side of the Island.
9 Visibility fifteen miles. No ice in sight.
10 Visibility less than two miles in fog. No ice in sight.
11 No ice in sight.
12 Visibility zero. Unable to observe ice conditions. (ARDGARRY reports no ice in sight from Nottingham Island to Coats Island).
13 Visibility zero. Unable to observe ice conditions.
15 Visibility eight miles. No ice in sight.
16 Visibility fifteen miles. No ice in sight.
17 Visibility fifteen miles. No ice in sight.
18 No ice in sight at present time.
19 Visibility ten miles. No ice in sight.
21 No ice in sight to limits of visibility two to five miles in fog
22 Visibility ten miles. No ice in sight.
23 Visibility fifteen miles. No ice in sight.

September

24 Visibility ten miles. No ice in sight.

25 Visibility fifteen miles. No ice in sight.

26 Visibility fifteen miles. No ice can be seen from station observation post.

27 No ice in sight. (COASTAL CREEK reports heavy ice fifteen miles north of Mansel Island). Visibility fifteen miles.

28 Visibility fifteen miles. No ice in sight.

29 No ice in sight.

30 Visibility zero in fog. Unable to observe ice conditions.

October 1 Visibility three miles in fog. No ice in sight.

2 No ice in sight of visibility ten miles.

3 Visibility ten miles. No ice in sight.

4 Visibility one quarter of a mile. Ice conditions unobservable.

5 Strings of ice off shore about twelve miles.

6 Visibility fifteen miles. Scattered pieces of ice off shore about twelve miles off.

7 Visibility ten miles. Scattered pieces of ice exists along the west side of the station and string of close pack ice exists in the southwest and extends as far around the south side as can be seen.

8 Visibility two miles in snow flurries. Scattered ice to the southeast and extending along the south side to limits of visibility.

9 Visibility fifteen miles. Close packed ice from shore to the limits of visibility in all directions.

10 Visibility ten miles. Close pack ice exists from shore to limits of visibility.

11 Visibility fifteen miles. Broken ice to the south about six-tenths coverage to the west ten-tenths coverage. No open water to be seen.

12 Visibility ten miles. Ice off shore about five miles in all directions and stretching to limits of visibility.

13 Visibility ten miles. Few scattered pieces of ice five miles off shore three-tenths coverage.

14 Visibility unlimited. Ice extending from shore to limits of visibility eight tenths coverage east, south, west.

15 Visibility unlimited. Ice from shore to horizon nine tenths coverage heavy packed ice.

16 Visibility zero.

17 Visibility ten miles. One tenth ice coverage near shore.

18 Visibility unlimited. Heavy packed ice along shore and along the horizon in between clear water. Numerous bergs on horizon.

19 Visibility ten miles. Close packed ice five miles off shore and scattered pieces close to shore.

20 Visibility ten miles. Ice about five miles off shore, no ice inshore.

21 Visibility ten miles. Close pack ice from shore to limits of visibility to eight tenths coverage.

23 Visibility ten miles. Close packed ice in all directions about nine tenths coverage.

24 Visibility half a mile in snow and blowing snow. Unable to observe ice conditions.

25 Visibility ten miles six to eight tenths coverage heavy close pack ice from shore to limits of visibility.

October	26	Heavy pack ice extending from shore line to about five miles off shore. Visibility unlimited.
	27	Visibility unlimited. Ice from shore to about three miles off shore in all directions ice on the horizon.
	29	Heavy pack ice from shore to limits of visibility fifteen miles.
	30	Heavy pack ice to horizon.
November	1	Heavy pack ice extending from shore to horizon.
	2	Visibility fifteen miles ten tenths coverage ice.
	3	Visibility one eighth of a mile in heavy blowing snow. Ice unobservable.
	4	Heavy close packed ice in all directions. Nine tenths coverage.
	5	Ice ten tenths coverage.
	6	Visibility ten miles. Ice to limits of visibility.
	7	Visibility ten miles. Heavy packed ice nine tenths coverage.
	8	Ten tenths coverage.
	9	Total coverage of ice to limits of visibility ten miles.
	10	Visibility ten miles. Ice to the limits of visibility.
	11	Ten tenths coverage. Visibility unlimited.
	12	No ice observed to limits of visibility half a mile in blowing snow.
	13	Visibility fifteen miles. Ice to the limits of visibility.
	14	Ten tenths coverage.
	15	Ice to limits of visibility fifteen miles.
	16	Visibility unlimited. Solid packed ice everywhere. Ten tenths coverage.
	17	Ice ten tenths coverage.
	18	Ice to limits of visibility ten miles.
	19	Visibility ten miles. Ice in all directions ten tenths.
	20	Visibility one quarter of a mile. Ice conditions unknown.
	21	Visibility one quarter of a mile. Ice unobservable in blowing snow.

CHURCHILL

June	18	River ice went out.
July	2	Bay clear of ice
October	17	Ice began forming along shore of river.
	22	Ice began forming along bay shore.
November	4	Bay frozen over.
	6	Bay clear of ice due to high southerly winds.
	7	Bay again covered with young ice.
	20	Bay completely frozen over by fast ice.
	30	River frozen over.

HUDSON BAY ICE SUMMARY

SEASON 1957

The Ice Information Office was established in the Churchill Hotel, Churchill, Manitoba, on the 18th of July, 1957. Captain R. M. Carsell, Ice Information Officer, carried out this Survey using a Canso Aircraft CF-SAT chartered from TransAir Limited, Winnipeg.

Sixteen patrols were made, totalling 156 hours for a distance of 17,160 nautical miles.

The first patrol over Hudson Bay took place on the 19th of July, and much heavy drift ice of medium and large floes was observed on the steamer track. Vessels were advised to favour the north side of track and pass north of position 6050N 8640 W. Isolated strings of broken ice existed between Coats and Mansel Islands with Foxe Channel full as was the northern half of Evans and Fisher Straits.

The second patrol on July 21st, revealed a northerly drift of ice and vessels were advised to keep north of positions 5910N 9300 W, 5955 N 9020 W and 6130 N 8600 W. Drift ice, 7/10 coverage, was now observed between Coats and Mansel Islands, 5/10 coverage between Nottingham and Southampton Islands, Evans Strait 8/10 coverage mainly in large floes. The western entrance to the Strait was clear to a line from Spicer Island to fifteen miles north of Wales Island, then eastward along south side of Strait to Cape Hopes Advance, from which position pack boundary ran northwards to middle Savage Islands. Eastward of this boundary was clear to Resolution Island except for isolated scattered strings and bergs.

The patrol on the 23rd of July, showed a slight southeastward drift in Hudson Bay, but much ice remained on steamer track and vessels were advised to pass north of position 6130 N 8600W. A southeastward drift had also taken place in Hudson Strait with heavy ice taking the south side of Strait at Cape Hopes Advance, with pack boundary extending north from Ungava Bay to thirty miles east of Cape Hopes Advance to Balcom Inlet. The south side of the Strait remained clear of ice. Inbound vessels were advised of this barrier and assisted by the Ice Patrol plane.

Drift ice continued to cover the steamer track in Hudson Bay on July 28th, and a course passing north of positions 6000N 9200 W, 6100N 8800W and 6200N 8300W was recommended. Only strings of heavy drift ice remained between Coats and Mansel Islands while the western Pack Boundary moved eastward and stretched from Chamberlain Island to twenty-five miles northeast of Cape Weggs then eastward to five miles north of Cape Hopes Advance and north to Pritzler Harbour, thus giving vessels a clear route from Resolution Island into Hudson Bay. The greater part of this pack was ice of Foxe Basin origin and much discoloured.

By the end of July vessels were making the passage from Resolution Island using the south side of the Strait and favouring the north side of the steamer track in Hudson Bay and passing north of positions 5930N 9255W and 6200N 8300W. On August 14th, the steamer track was clear for the first time and the south side of Hudson Strait was still advised because numerous bergs, growlers and bergy bits existed between Charles and Resolution Islands.

On patrol of August 15th, heavy close packed ice was observed on Southampton Island from ten miles off Leyson Point running northward to end of visibility at Terror Point.

By August 28th, heavy drift ice, well puddled and discoloured, extended twenty miles east of Seahorse Point, Southampton Island, then south into Evans Strait. The general southeast drift of this ice continued with much lossening in the pack until it extended ten miles south of Nottingham Island and still into Evans Strait.

By September 5th, when the final patrol was made there was no known ice near the steamer track in Hudson Bay but still extreme caution necessary in proceeding in Hudson Strait in darkness and poor visibility and vessels were advised to favour the south side of Strait in proximity of Digges Island.

The bases used this year were Frobisher Bay and Coral Harbour with permanent operating base at Churchill.

Twenty-two vessels were boarded at Churchill and Masters advised on latest ice conditions. Canadian Navigation Charts and Publications were supplied to several new ships. The majority of Masters were very appreciative of the assistance given by the Ice Patrol plane.

The German Motor Vessel Nordmeer docked at Churchill on July 31st, opening the shipping season, followed by the Steamship Warkworth the following day. The Nordmeer was built to Baltic standards and proved to be a very able ship in ice.

In conclusion, the outstanding features this season were the thirty-mile ice belt which extended northeast of Cape Hopes Advance through which vessels had to pass to reach the open water on the south side of Strait, and the large quantity of drift ice on the steamer track in Hudson Bay.

NATIONAL RESEARCH COUNCIL OF CANADA

RADIO AND ELECTRICAL ENGINEERING DIVISION

AN ANALYSIS OF RADAR ICE REPORTS

SUBMITTED BY HUDSON BAY SHIPPING (1953-1957)

A.D. HOOD

OTTAWA, MARCH 1958

ABSTRACT

Reports on radar detection of ice, submitted by Hudson Bay shipping, have been analyzed to determine the value of radar in reducing the navigational hazard in ice-infested waters. The seasonal change in ice conditions has been investigated and the most dangerous sections of Hudson Strait have been located. The limits of the ice hazard have been well defined and the maximum ice concentration is located in a 450-mile section of the Hudson Strait route. Reports on the radar detection of all formations have established the dangerous types of ice and the fact that sea clutter, in excess of 1000 yards, is present most of the time. Radar is a definite asset in ice navigation provided it is operated with an appreciation of its limitations in detecting small targets in sea clutter. Short ranges, under 10,000 yards, are preferred for the detection and tracking of dangerous ice, such as bergy bits and growlers. All formations of berg size were detected at a minimum range of 10,000 yards, and the leading edge of floes and field ice may be detected at ample range for evasive action. A ship will encounter about 50 per cent less ice in Hudson Strait during the latter half of the shipping season.

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AN ANALYSIS OF RADAR ICE REPORTS SUBMITTED BY HUDSON BAY SHIPPING (1953-1957)

- A.D. Hood -

INTRODUCTION

This is the fifth and final analysis of radar ice reports submitted by Hudson Bay shipping*. The information is based on data submitted by masters of vessels using the Hudson Bay route into Port Churchill during the shipping seasons of 1953 to 1957, inclusive. Emphasis is placed on the data of 1956 and 1957 which was collected in somewhat greater detail than in previous years. Certain refinements in the ice report forms and the cooperation of masters in listing detailed information on the various ice formations encountered has been helpful in establishing the navigation hazard and assessing the ability of a commercial marine radar to assist in navigating ice-infested waters.

It has been established, from data submitted during the past five years, that radar is an invaluable aid in navigating Hudson Bay shipping lanes, but it may be dangerous if not wisely employed and its limitations appreciated. Numerous reports have been accumulated on ice formations that could not be detected by radar but were of sufficient size to cause severe damage to a ship. These formations are known as "growlers", and in sea clutter detection is difficult and in many cases impossible. The general appearance is deceptive since about nine-tenths of the volume is submerged and reports show that growlers approaching 100 tons in weight have remained undetected by radar. In the five-year ice survey, the general area of dangerous navigation in Hudson Strait has been well defined. The location of all ice formations reported during the survey period is shown on a copy of Chart 5000 (see Fig. 1). The 1957 reports show the same general concentration as in previous years. Of particular note is the almost complete absence of ice west of longitude 75°, and east of longitude 60°. Several large isolated bergs were reported in the Atlantic as far east as longitude 44°. However, these were all detected at long range, and this type of ice is not considered dangerous to a radar-equipped ship.

The 1957 data was forwarded by ten ships reporting 132 ice formations. Of these, 56 were suitable for radar analysis, and the graph of detection range vs. radar cross-sectional area is shown in Fig. 2. Data from the four previous seasons was included, giving a total of 265 formations, and the same general scatter was apparent in each season. Average detection ranges of all formations larger than bergy bits were reasonably close to theoretical expectations, but sea clutter is a predominant factor in detection of the smaller types of ice at close range. Sea clutter, in excess of 4000 yards, is not

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* The four previous reports: ERB-330, 356, 394, 416

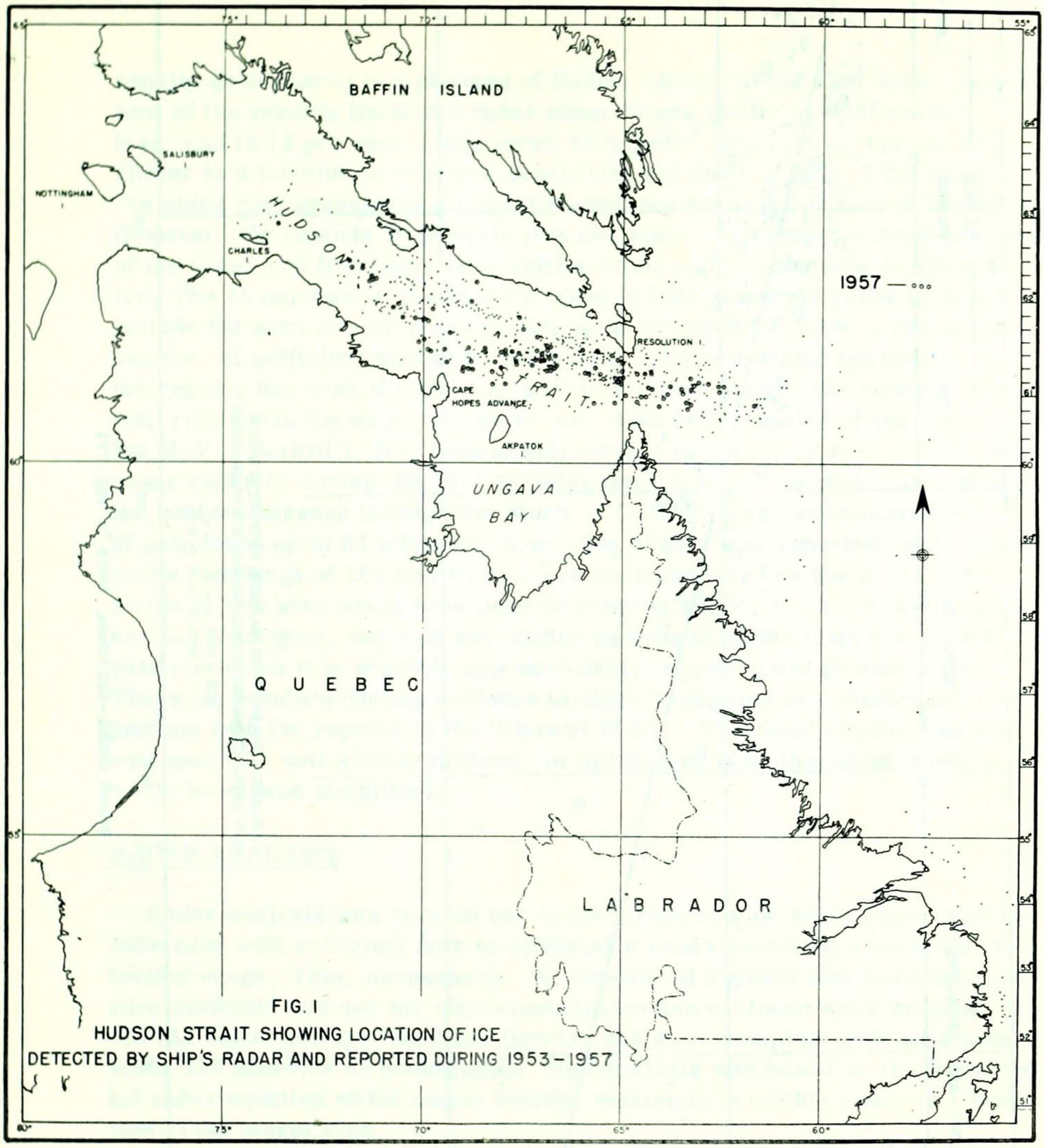

FIG. 1

HUDSON STRAIT SHOWING LOCATION OF ICE DETECTED BY SHIP'S RADAR AND REPORTED DURING 1953 – 1957

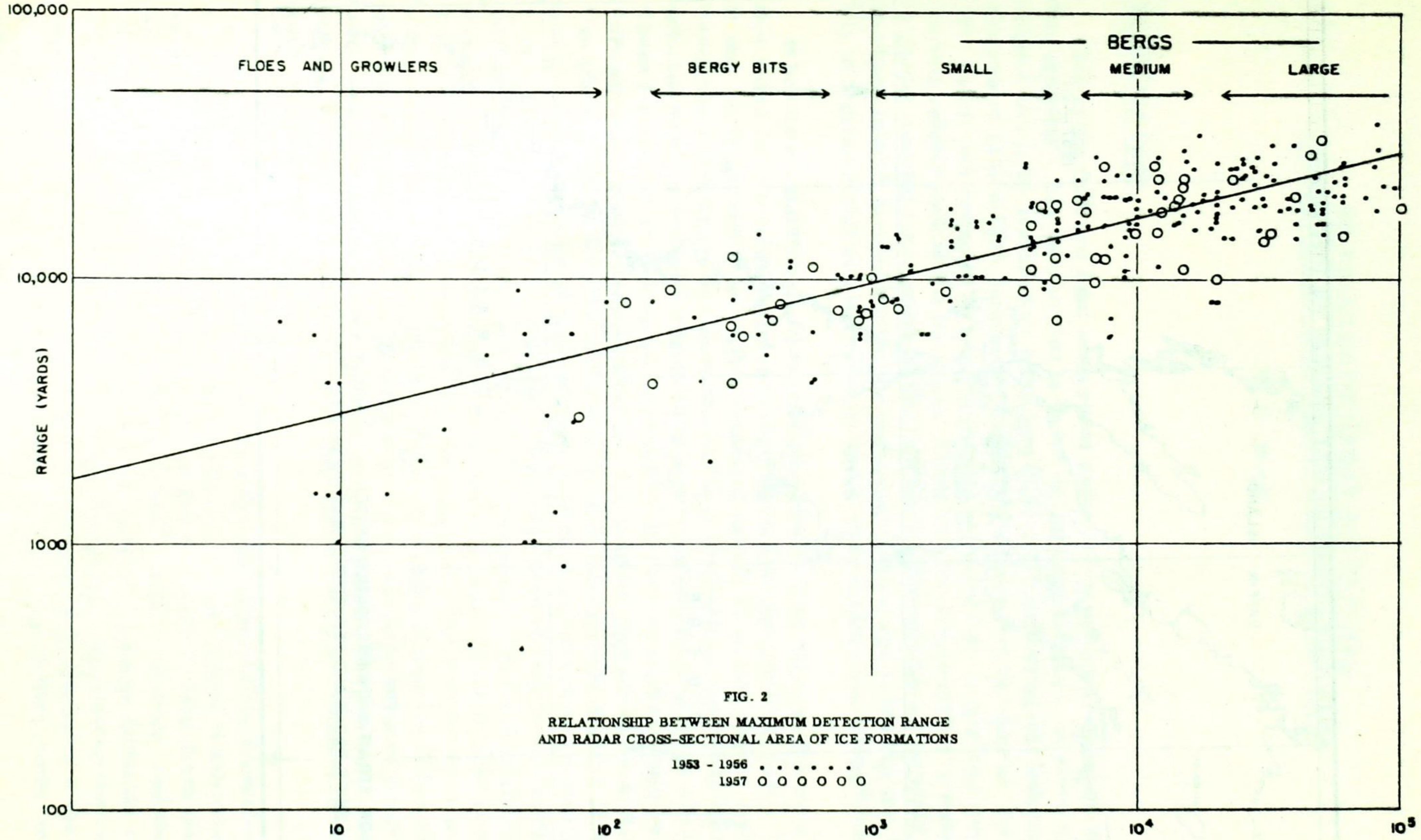

FIG. 2

RELATIONSHIP BETWEEN MAXIMUM DETECTION RANGE
AND RADAR CROSS-SECTIONAL AREA OF ICE FORMATIONS

1953 - 1956 . . . . . .
1957 O O O O O O

usually encountered in a passage of Hudson Strait. In the 1957 data, 91 per cent of the reports listed the radar range of sea clutter at 4000 yards or less, and in 75 per cent it was under 2000 yards. Since the range of sea clutter is a function of receiver sensitivity and antenna gain of the radar, two ships may experience different clutter ranges in the same sea condition. However, the reports do indicate that sea clutter is present a large percentage of the time, and frequently is of sufficient strength to obscure dangerous ice. The 75 per cent of the reports taken in less than 2000 yards of clutter include the zero clutter range or flat calm condition. In 2000 yards of clutter, any ice, of sufficient size to be dangerous, will be detected beyond the clutter region, and even if lost on closing to a lesser range, the location of the ice, relative to the ship, will be known. With the exception of one voyage, by the M.V. "Gerard L.D.", sea-clutter ranges in excess of 4000 yards were never reported during the 1957 shipping season. The "Gerard L.D." made the eastern passage through the Strait on October 9 and encountered winds of gale force up to 50 miles per hour. Sea clutter was reported out to 16,000 yards and bergs of 100 feet by 400 feet were obscured on the radar screen. Bergs of this size would have been detected at 16,000 to 20,000 yards under normal conditions, but with sea clutter at the saturation level for 10,000 yards or more it is possible that such large targets could go undetected. There is no substantiating evidence of other long range sea clutter for comparison with the reports of the "Gerard L.D." . The ship' s radar was not equipped with anti-clutter devices, in which case detection of such bergs would have been simplified.

RADAR ANALYSIS

Radar analysis was carried out on all formations on which reports were submitted with sufficient data to establish a cross-sectional area at the detection range. This, necessarily, eliminated all reports that were taken in poor visibility and any for which dimensions and contours were missing. Of the 752 reports in the five-year period, 265 were complete with all dimensions and sketches or photographs. The analysis was based on the fundamental radar equation which states that the maximum detection range is a function of the target area:

$$R^4 = K \times A,$$

where R is detection range and A is radar cross-sectional area of the target. K is a function of receiver sensitivity, antenna gain, power output, and frequency for a given radar, and the value may vary considerably for different makes and models. For the purposes of analysis, it was assumed that K was a constant for all radars, and that detection range was a direct function of radar cross section of the ice formation. The value of A is not necessarily that of the projected cross section of the ice, but some lesser value depen-

ding on the contours of the formation. For example, the value of A for a berg sloping away from the radar scanner is not equivalent to that of a sheer wall of ice of the same projected dimensions. However, ice formations are of such irregular shape that it is impossible to determine the effect of slope on the detection range. The detection range vs. radar cross-sectional area of each of the 265 formations is shown plotted in Fig. 2. There is considerable scatter but this is to be expected when the value of A must be estimated in many cases and the value of K is considered equal for all radars. The locus is the fourth-power curve from the radar equation, and while not necessarily the best fit it is theoretically of the correct slope. The section of the locus on which the average formation, of each ice category, will fall is also shown in Fig. 2. There is some overlapping in each case, and in view of the few reports no distinction can be made between floes and growlers.

The height of a ship's antenna has little bearing on the short radar ranges used in ice navigation. However, maximum radar range bears a direct relationship to antenna height, and consequently there is some variation between ballast and loaded conditions. From the reports of the 1956 and 1957 shipping seasons, the average antenna height was 56 feet for a loaded ship and 70 feet under ballast. The radar range equation can be used to calculate the difference in maximum range for the two conditions. A simplified equation for the distance to the radar horizon is:

$$0.8684\ R = [2h]^{\frac{1}{2}},$$

where R is range, in nautical miles, and h is antenna height above sea level, in feet. From the above expression, the increase in detection range, for the average ship under ballast, is about 2500 yards. The lowest antenna height recorded, for a merchant ship navigating Hudson Strait, was 42 feet. This height is equivalent to a radar horizon of 18,000 yards and is considered more than ample for navigating ice-infested waters. Large bergs, detected at greater ranges, would not be fully illuminated by the radar beam but this has no bearing on safe navigation.

Anomalous propagation conditions have been found to exist in arctic waters and measurements have been taken in Hudson Strait. However, the changes in the refractive index are not considered sufficient to have any noticeable effect on the radar ranges used in ice navigation. Neither is there evidence to support the theory that pockets of cold air in the lee of an ice field may reduce radar ranges seriously.

GROWLERS IN SEA CLUTTER

The growler is recognized as the most dangerous ice formation that can be encountered in the navigation of ice-infested waters. It is usually of glacial

origin, being broken from large bergs, and is more prevalent in the vicinity of large bergs than elsewhere. The ice report forms require ice from 2 to 6 feet above the water level to be listed as "growlers", without restrictions on length and breadth. However, growlers are not to be confused with formations such as floebergs, that may be 6 feet high and 100 feet long. A typical growler is actually a miniature berg that projects a few feet out of the water or in some cases may be practically awash. To be certain of detection in sea clutter, a growler must have an echo amplitude greater than that of the clutter. The echo from a growler, at a given range, is a direct function of its radar cross section, whereas the echo from the sea clutter, at the same range, consists of the returns from all of the wave fronts in the area illuminated by the radar beam. Thus, the discrimination between growler echo and clutter echo has a direct relationship to the antenna beam width. From the ice reports, the antenna beam widths of the various radars varied from 1.6 to 3 degrees. Theoretically, assuming the radars are equivalent in other respects, the performance of the radar with the 1.6 degree antenna should be approximately four times better than that of the radar with the 3 degree antenna. Owing to variations in target area, radar equipment, and sea conditions it is not possible to say what improvement in growler detection range resulted from the use of radars with the narrower-beam antennas. A growler that is undetected at sea-clutter range normally has a cross-sectional area smaller than the combined areas of the wave fronts, and is obscured at the shorter ranges by the increased amplitude of the clutter. It is at this time that anti-clutter devices are extremely valuable. It is the function of the anti-clutter circuit to reduce the receiver gain immediately after the transmitter pulse and then increase it gradually, arriving at maximum sensitivity at maximum clutter range. At some finite range the growler echo is greater than the sea-clutter echo, and if the receiver is held below saturation level by an anti-clutter device, the growler can be detected. The only disadvantage of anti-clutter devices is that manual controls must be provided for various sea states, and these may be misadjusted to obscure targets that would normally be detected. Details on the detection of ice using anti-clutter devices were requested in the 1957 ice report forms, but only two ships reported that they were so equipped. It is assumed that anti-clutter devices are not standard equipment on the average merchant marine installation.

Analysis of all growlers reported in the five shipping seasons shows that the maximum radar cross section was 150 square feet, and some of the larger growlers could be reclassified as bergy bits. From Fig. 2, maximum detection range for a growler of this size is approximately 6000 yards. Under normal conditions, with sea clutter less than 2000 yards, any growler large enough to cause damage to a ship should be detected beyond the clutter region. However, to ensure safety in 2000 yards of sea clutter, continuous radar watch is a necessity, since a growler entering the clutter region undetected is almost certain to remain undetected. Fig. 3 is a photograph of

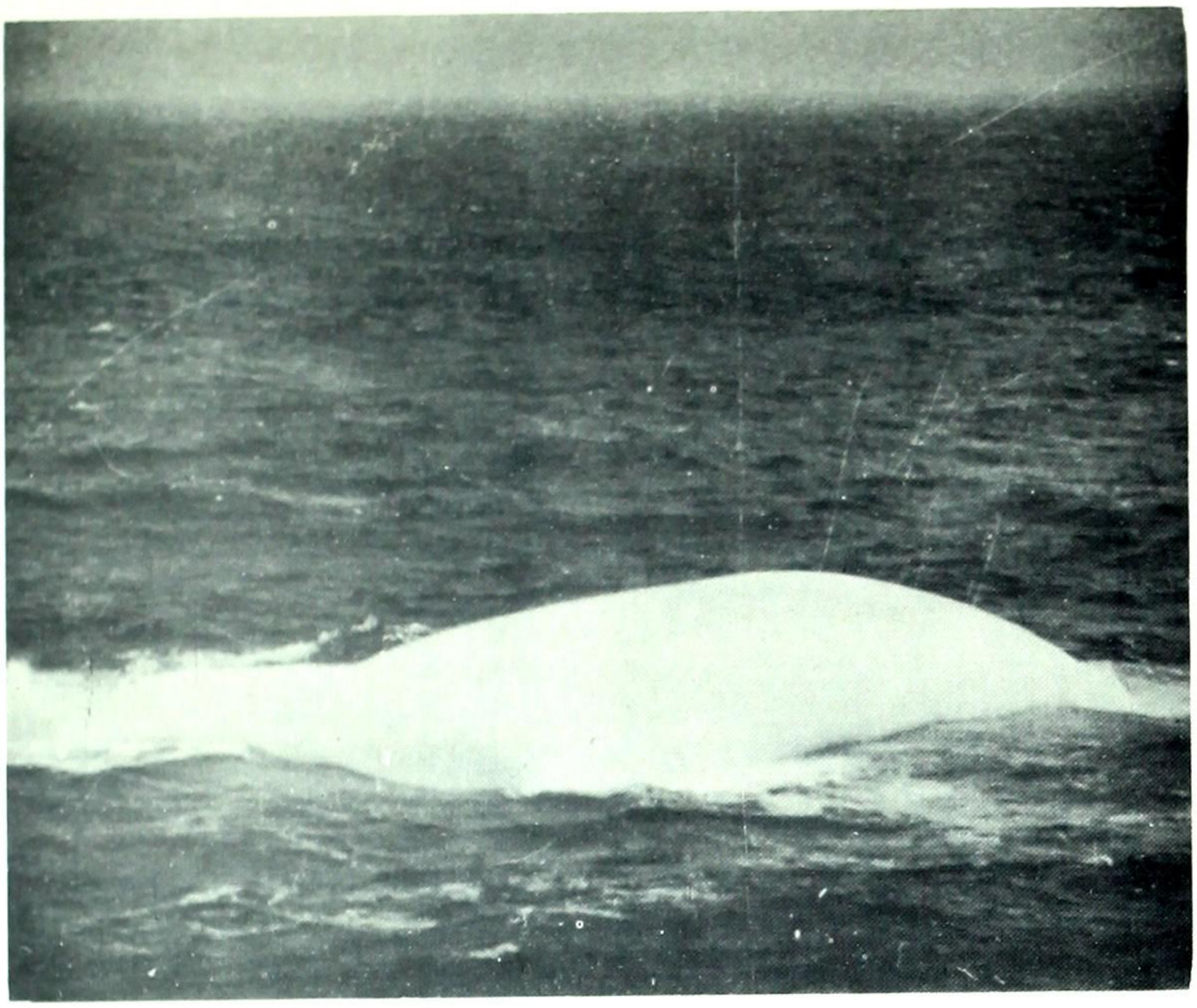

FIG. 3. 20-FOOT GROWLER
UNDETECTED THROUGH SEA CLUTTER

FIG. 6. LOOSE FIELD ICE

a small growler that was not detected in 3000 yards of sea clutter. It projected 3 feet out of the water and was 20 feet long. A typical cross section of such a growler is shown in Fig. 4, assuming glacial ice 85 per cent sub-

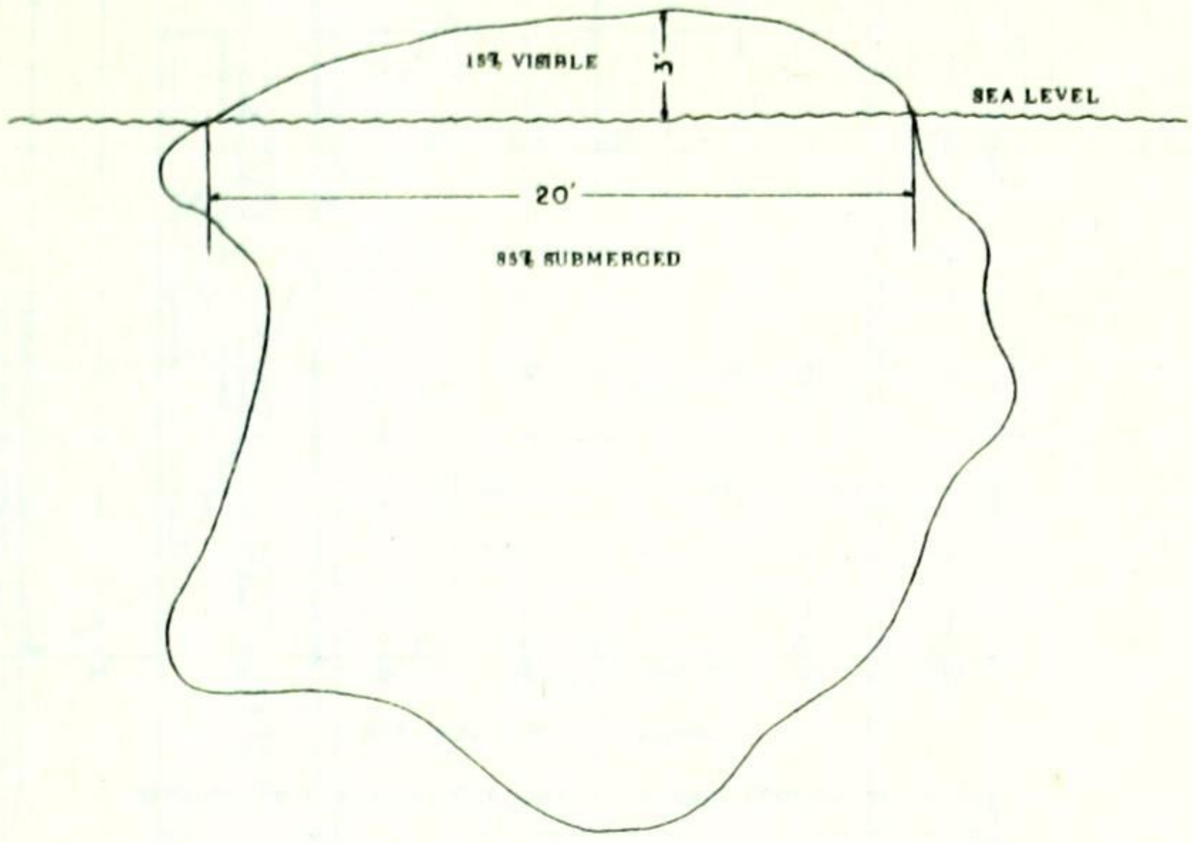

FIG. 4. TYPICAL CROSS SECTION OF A GROWLER

merged. For an average breadth of 15 feet, the volume of ice would be 5000 to 6000 cubic feet and the weight in excess of 100 tons. Growlers of this type are usually smoothly rounded by the action of the waves and consequently have very poor echoing properties. The detection range of this growler, in a calm sea, would be between 2000 and 3000 yards, and for a ship proceeding at ten knots this represents a warning time of 6 to 9 minutes. A growler of 100 tons is quite capable of inflicting severe damage to a ship. Of the 54 growlers reported, only 22 were detected by radar, and all contacts were made outside the clutter region or in calm water. There were no reports of growlers being detected within the clutter region, although several reports stated that contact was lost after the growler had entered the clutter region.

ICE CONCENTRATION IN HUDSON STRAIT

In the 1957 shipping season, the greatest concentration of ice was again located between the eastern approaches to Hudson Strait and Cape Hopes Advance. Fig. 5 is a graph of ice density vs. longitude for the shipping seasons of 1953 to 1957, inclusive. Data for this graph was taken from merchant vessels only. All reports from Canadian Government ships were omitted because they are engaged in coastal station supply and patrol work and are not normally concerned with traversing the Strait. From Fig. 5 hazardous ice conditions are seen to be confined to the area between longitude 74° west and longitude 59° west, a distance of 900 miles. Eightly per cent of the hazard, in this overall area, is centered about longitude 67° west, for approximately

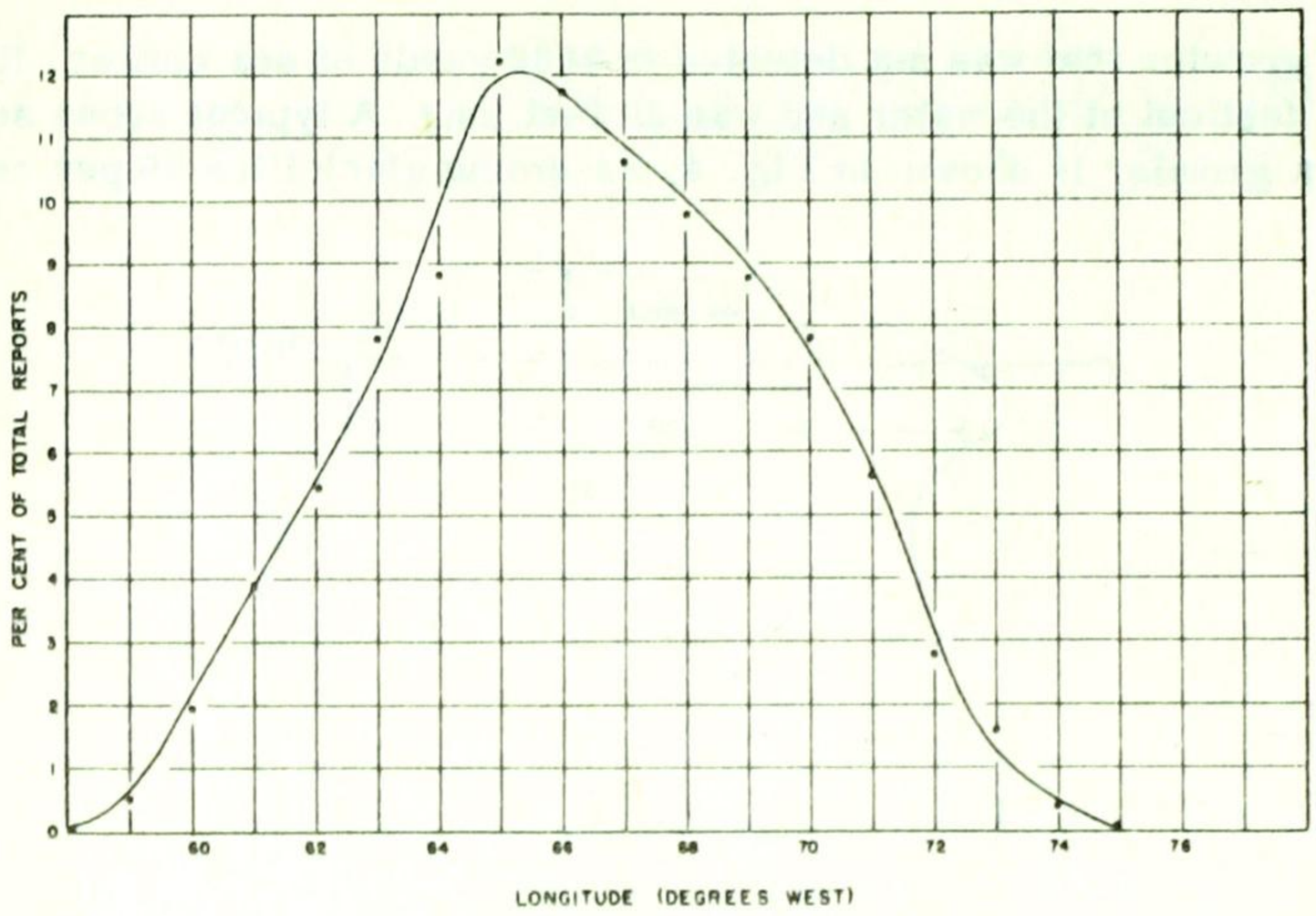

FIG. 5. ICE DENSITY VERSUS LONGITUDE FOR 1953-57 SHIPPING SEASONS

450 miles. This area of high ice concentration has appeared in the same general location for the past five years and may be considered the most dangerous section of the route to Port Churchill. Floes, both large and small, have appeared in the shipping lanes off Charles Island in the early part of the shipping season, but they have never seriously hampered navigation. They consist mostly of local ice, packed by the wind and tide, but sea ice moving out from Fox Channel is a contributing factor. Floes in this vicinity are rather exceptional and all vessels report ice-free shipping lanes from Charles Island to Port Churchill.

To assess the seasonal trend in the ice hazard, it is assumed that September 1 is the mid-point in the shipping season. A comparison of reports from ships navigating the Strait before and after September 1, and particularly reports from all ships that made two voyages during the season, indicates that 50 to 60 per cent less ice will be encountered in the latter half of the shipping season. The latest seasonal report of field ice or floes was on August 21, 1954, and the possibility of encountering this type of ice later in the season appears most unlikely.

A total of 752 ice formations were reported by 55 ships during the five seasons under survey. These are shown in Table I, under the seven ice classifications listed in the ice report forms. The large berg class predominated with 237 reports, and bergs of all sizes comprise 83 per cent of the total. This does not include the 148 reports taken in poor visibility and listed as radar targets. However, if classification of these reports were possible, it is assumed that the ratio would be the same. It is reasonable that berg formations should outnumber other types of ice because of their long detection ranges and the ease with which visible statistics can be taken. A berg, reported at 10 miles, may

TABLE I

STATISTICAL DATA OF RADAR ICE DETECTION REPORTS

YEAR	SHIPS REPORTING	BERGS			BERGY BITS	GROWLERS	FLOES		RADAR TARGETS	TOTAL
		LARGE	MEDIUM	SMALL			HEAVY	LIGHT		
1953	13	55	41	24	7	12	2	0	0	141
1954	14	69	46	40	10	24	2	2	77	270
1955	8	47	36	5	4	5	3	2	19	121
1956	10	17	20	7	7	10	1	1	32	95
1957	10	49	39	7	7	3	0	0	20	125
TOTAL	55	237	182	83	35	54	8	5	148	752

be accompanied by bergy bits and growlers that would not be detected unless the ship closed to within a few thousand yards. Fig. 2 shows the detection ranges for all formations that were sufficiently complete for a radar plot, and 75 per cent of the total were reported at a detection range of 10,000 yards or less. This is considered to be the minimum detection range for small bergs.

Thirteen floes were reported, and all were detected at ranges greater than 4000 yards. Even in strong sea clutter the edge of a floe presents a sharp line of demarcation between ice and sea clutter, and consequently a packed floe is not considered a dangerous ice formation. "Field ice" or "pack ice" are terms commonly used to describe large areas of loosely packed ice that may be several miles in diameter. A number of these fields have been reported off Cape Hopes Advance and Resolution Island. They are usually formed early in the season, after the local ice break-up, and the ice is concentrated in huge fields or packs by the wind and tide. If sufficiently loose, the fields can be navigated and frequently lanes will be found that are reasonably clear of ice. Radar detection of field ice is not difficult since the ice has a tendency to dampen any sea clutter that may be present. When a ship is traversing an ice field the radar picture is similar to that for sea clutter but any large area of open water, such as a lane, can be easily distinguished. A photograph of loose ice is shown in Fig. 6. This picture was taken off Cape Hopes Advance by the master of the S.S. "Corcovado". Field ice of this type can be treacherous, particularly in changing weather conditions. Ice conditions can alter by the hour and it would be advisable for the master of a ship to know the extent of an ice field before entering a navigable lane. Since an ice field may extend for many miles, only prior survey by an icebreaker or an aircraft and ideal weather conditions can ensure against a ship being beset.

RADAR EQUIPMENT

In the five shipping seasons under survey, 55 sets of reports were submitted from 40 different ships. The names of the ships that reported in each season and the type of radar installation in use are shown in Table II. Table III is a list of the number of installations of each radar model with the associated power output. The "Akti Hill", in 1954, was the only vessel that submitted ice reports and was not equipped with radar. Twenty-one of the remaining 39 were equipped with Decca radar and the other 18 were divided among 6 manufacturers. The peak power output of all radars varied from 7 to 60 kilowatts, but the higher output is of little advantage in ice navigation where the shorter ranges are preferred. Antenna heights are listed in Table II, but in most cases it was not stated whether the given height was for loaded or ballast conditions. The only advantage of additional antenna height is in long-range detection of large bergs, and these are not considered dangerous to any ship navigating with radar. Several types of antennas were used with the various radar installations, and the beam widths varied from 1.6 to 3 degrees. It has been shown that improved discrimination with a narrow-beam antenna is an asset in detecting growlers in sea clutter, but there is not sufficient data available to determine the improvement in detection range that may be expected.

TABLE II

RADAR INSTALLATIONS

					ANTENNA HEIGHT	
1957	NAME OF SHIP	RADAR	MODEL	BALLAST	NOT STATED	LOADED
1	Cydonia	Decca	45		55	
2	Elstead	Decca	159		80	
3	Hallerwijk	Decca	159	56	-	42
4	Corcovado	RCA	CR-104A		87	
5	Clintonia	Decca	159		-	
6	Gerard L.D.	Sperry	MK2		75	
7	Camellia	Decca	12		50	
8	Gardenia	Decca	159	73	-	61
9	North Anglia	Decca	12	64	-	50
10	Fernglen	Decca	159		70	
1956						
1	North Anglia	Decca	12	64	-	50
2	Ittersum	RCA	CR-103		54	
3	Sylvaplana	RCA	CR-104		62	
4	La Sierra	Decca	159		65	
5	Irish Hazel	Marconi	MK-4		75	
6	Svanaas	Kelvin Hughes	2C		45	
7	Irish Elm	Marconi	MK-4		80	
8	Thistlemuir	Decca	45		56	
9	Fernland	Sperry	MK-2	86	-	75
10	Ranger	CAL-268	B		70	
1955						
1	Warkworth	Kelvin Hughes	1A		52	
2	North Anglia	Decca	12		50	
3	Irish Cedar	Marconi	MK-3		73	
4	Thistlemuir	Decca	159	65	-	56
5	Essex Trader	Decca	159		70	
6	Ranger	CAL-268	B		70	
7	Irish Elm	Marconi	MK-4		80	
8	La Hacienda	Decca	12		80	
1954						
1	Cairnavon	Decca	12		-	
2	C.D. Howe	Decca	12		-	
3	d'Iberville	Decca	12		75	

1954	NAME OF SHIP	RADAR	MODEL	ANTENNA HEIGHT BALLAST	NOT STATED	LOADED
4	La Hacienda	Decca	12		74	
5	St. John	Decca	12		50	
6	Ravenshoe	Decca	12		70	
7	La Estancia	Decca	12		70	
8	Thistlemuir	Decca	159	65	-	56
9	Anna C	Decca	12		85	
10	Akti Hill		No Radar Installed			
11	Begonia	Decca	159		-	
12	N.B. McLean	CAL-268	-		60	
13	Ramillies	Decca	159		65	
14	Arundo	RCA	CR-103		80	
1953						
1	San Guisto	Decca	12		-	
2	C.D. Howe	Decca	12		-	
3	Warkworth	Kelvin Hughes	1A		-	
4	Arundo	RCA	CR-103		80	
5	Ranger	CAL-268	B		70	
6	Marine Fortune	Decca	159		-	
7	Begonia	Decca	159		-	
8	Italsole	Raytheon	EX-1197		-	
9	Irish Hazel	Marconi	MK-4		75	
10	North Anglia	Decca	12	64	-	50
11	Cairnavon	Decca	12		-	
12	Italterra	Kelvin Hughes	2A		-	
13	LaCumbre	CAL-268	B		-	

TABLE III

RADAR	MODEL	NUMBER OF INSTALLATIONS	PEAK POWER OUTPUT (KW)
Decca	12	9	7
Decca	45	2	20
Decca	159	10	7
RCA	CR-103	2	30
RCA	CR-104	2	40
Marconi	MK-3	2	40
Marconi	MK-4	3	50
CAL-268	B	3	30
Sperry	2	2	30
Raytheon	EX-1197	1	20
Kelvin Hughes	2C	3	60
No Radar	–	1	–
	Total	40	

WEATHER SUMMARY

HUDSON BAY ROUTE 1957

Temperatures along the Hudson Bay route averaged four to six degrees above normal in February and March, and normal to two degrees above normal in April. In May mean temperatures were one to five degrees below normal, and in June most stations along the route had nearly normal temperatures, except Coral Harbour and Chesterfield which had deficiencies of four degrees.

In July mean temperatures were about one degree above normal in Hudson Bay. In August there were temperature deficiencies of one or two degrees in the Straits, two to five degrees along the eastern side of the Bay and excesses of one to three degrees along the western side. In September all stations reported mean temperatures normal or higher with excesses ranging to four degrees. This trend held in October at most stations in Hudson Bay, but Coral Harbour and the stations along Hudson Strait reported October mean temperatures one to three degrees below normal.

Precipitation was light in July when deficiencies were reported at all stations along the route except Resolution Island and Port Harrison. There was no precipitation at Nottingham Island, while Cape Hopes Advance received only about one tenth of the normal amount. In August there was still no precipitation reported at Nottingham Island but there was one and a half to two and a half times the normal at Cape Hopes Advance, Port Harrison and Great Whale River. Along the west side of Hudson Bay there were deficiencies of thirty to fifty per cent.

In September precipitation was generally light along the route - deficiencies ranging to forty per cent, except at Coral Harbour and Nottingham Island where there was close to twice the normal fall. Precipitation was also below normal during October at stations on Hudson Bay - deficiencies ranging to eight-five per cent. At Coral Harbour and the stations along Hudson Strait there were excesses of October precipitation ranging to fifty per cent.

RESOLUTION ISLAND METEOROLOGICAL REPORT - 1957

Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
	Mbs.	Mbs.	Max	Min									
1957	0730	1930	F°	F°	0730 am		1930 pm		Total	am	pm	0730	1930
July													
1	991.1	994.6	35	33	NE	30	NNE	12	.11	⅛	4	10	10
2	1001.5	1004.6	45	31	SW	6	SW	8		¼	15	10	0
3	1004.5	1002.1	44	32	Calm	0	NE	24		15	15	0	9
4	1000.8	1003.6	38	34	NE	22	NNE	28		15	1	7	7
5	1008.3	1012.4	37	31	NE	18	NNE	22	T	1/8	1½	10	9
6	1013.5	1017.8	40	32	NNE	24	NNE	32	.01	½	M	10	10
7	1007.4	1007.8	40	35	NNE	28	NNW	32	T	3	6	10	10
8	1008.5	1010.5	40	32	NW	18	WNW	18	.34	10	8	9	10
9	1012.4	1016.0	43	36	NW	12	N	12	T	2½	12	10	10
10	1018.3	1019.0	43	36	N	12	NNE	18		15	3/4	1	10
11	1018.9	1017.3	39	35	NNE	20	NNE	24	T	2½	1	10	10
12	1015.6	1013.7	44	30	NNW	34	N	24		1½	M	10	10
13	1012.8	1013.5	53	32	NNW	24	NNW	22		12	12	0	0
14	1014.9	1015.2	51	35	Calm	0	SW	12		15	15	3	0
15	1015.9	1018.7	39	35	WSW	18	SW	14		15	15	3	7
16	1021.2	1021.6	50	34	W	10	ENE	4		15	M	2	8
17	1019.6	1014.1	46	38	NE	12	ENE	6		M	M	6	6
18	1008.0	1007.1	48	37	S	4	SE	2		M	M	8	10
19	1005.5	993.3	45	37	NE	4	NE	22	1.51	M	M	7	10
20	994.1	1003.6	36	34	NE	4	NE	4	.37	M	½	10	10
21	1009.0	1011.7	35	33	ENE	8	SW	4		1/8	¼	10	10
22	1012.9	1016.4	39	33	E	2	NNE	8		2	M	10	10
23	1019.4	1017.4	37	33	NNW	12	SW	12		1	M	10	4
24	1017.4	1015.0	38	31	SW	8	SW	12		M	M	10	2
25	1013.2	1013.0	50	33	WSW	14	SW	6		M	10	1	0
26	1013.4	1010.8	50	39	SE	4	ENE	12	.02	M	M	0	9
27	1009.0	1014.6	39	34	NE	14	SSW	12		M	M	9	10
28	1012.2	1012.5	40	32	SW	8	SW	6		M	M	10	0
29	1011.6	1011.2	40	33	WSW	6	NNW	18	.01	M	M	10	10
30	1011.8	1012.0	39	35	NW	16	SW	12		M	M	10	3
31	1013.2	1014.3	40	34	WSW	14	SSW	8		6	15	9	0
August													
1	1015.0	1015.4	40	35	SW	12	SW	10		15	M	4	0
2	1015.4	1014.1	51	36	SSW	14	Calm	0		17	10	2	2
3	1011.0	1010.2	40	36	NE	26	NNE	28	T	M	½	4	10
4	1009.0	1007.8	40	34	NNE	22	NNE	32	.02	5/8	M	10	10
5	1009.2	1007.7	40	35	NE	34	NNE	38	.15	¼	½	10	10
6	1013.2	1013.8	41	37	NNE	28	NNW	22	.24	M	M	10	10
7	1011.0	1011.8	40	37	NNW	23	NNW	18	T	1½	M	10	10
8	1009.6	1005.0	40	35	NNE	4	NE	20	T	M	M	10	10
9	1000.2	998.7	41	35	NNE	28	NNE	22	.09	6	M	9	10
10	998.6	1001.8	43	40	NNE	14	NNW	16	.11	½	2	10	10
11	1001.1	1005.7	42	36	WSW	14	Calm	0	T	7	8	10	10
12	1008.3	1010.2	39	34	NE	10	ENE	12	.02	2	¼	10	10
13	1007.8	1004.6	40	35	NNE	25	NNE	12	T	½	1½	10	10
14	998.1	998.4	40	35	NNE	15	NE	5		1½	10	10	2
15	999.8	1000.4	41	35	NNW	6	W	2	T	8	10	10	10
16	998.5	999.8	40	35	SW	1	SW	6	.18	8	M	8	10
17	1000.1	1000.5	36	35	Calm	0	SW	6		¼	¼	10	10
18	997.7	998.3	36	33	SSE	6	ESE	8	.04	½	1	10	10
19	990.0	995.0	35	33	NE	22	SSW	16	T	2½	10	10	6
20	997.6	997.1	39	32	SSW	2	SW	18	.10	10	4	3	10
21	1003.7	1010.0	36	32	SW	14	SW	14		8	¼	8	10
22	1011.6	1006.3	40	32	SW	15	W	14	.06	5	M	10	10

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Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
1957	Mbs. 0730	Mbs. 1930	Max F°	Min F°	0730 am		1930 pm		Total	am	pm	0730	1930
August													
23	997.2	985.7	37	34	NE	26	NE	22	.67	4	1½	10	10
24	992.8	995.5	37	33	SSW	16	SSW	16	.06	½	3	10	10
25	998.8	996.9	38	34	S	10	NNE	16	.12	5	2	10	10
26	1002.9	1010.8	36	32	SW	14	NE	12		8	½	9	10
27	1011.2	1012.5	43	30	Calm	0	SW	6		10	10	9	2
28	1010.7	1010.0	35	29	ENE	8	SW	18		12	8	2	10
29	1007.9	1007.5	36	29	SW	6	SW	6		5	½	9	10
30	M	1007.1	42	34	M		E	4	.03	M	10	-	6
31	1010.7	1013.3	40	34	Calm	0	W	10		8	8	10	0
September													
1	1015.0	1015.5	39	31	Calm	0	E	4		1	10	5	10
2	1015.5	1017.3	44	33	Calm	0	NNW	10		8	10	10	7
3	1017.3	1017.6	35	32	SW	12	WSW	8	.06	10	3/4	10	0
4	1017.1	1016.5	35	30	SSW	10	SSW	12		¼	8	10	7
5	1016.9	1016.7	40	30	SW	8	Calm	0		10	10	0	1
6	1011.5	1008.8	39	33	N	22	NNE	14	.02	10	3	6	10
7	1006.5	1007.4	39	35	N	8	Calm	0	.02	2	3	10	10
8	1009.5	1011.5	36	29	SW	16	SSW	20		1/8	1/6	10	10
9	1013.9	1015.8	39	30	S	2	SW	12		8	10	6	9
10	1012.6	1011.7	42	35	SSE	16	SW	12		10	8	9	10
11	1012.0	1010.9	45	37	SW	12	NNE	16	.02	10	8	9	10
12	1009.7	1008.9	43	37	NNE	10	NNE	24		10	8	9	9
13	1005.3	1001.5	42	36	SSW	24	NE	14	.16	¼	½	10	10
14	1002.9	1004.9	42	35	Calm	0	Calm	0		15	1	3	6
15	1007.8	1010.5	39	32	N	4	SSW	5		½	8	10	7
16	1010.6	1004.7	40	34	ENE	6	NNE	20	.15	8	3/4	10	10
17	1004.5	1012.7	44	36	NNE	18	NW	12	.03	3	10	10	8
18	1015.4	1009.3	42	34	W	8	W	10		15	10	8	9
19	1004.1	1007.9	38	33	SE	4	S	8	T	3/4	10	10	3
20	1005.9	1004.1	36	32	NE	10	NE	8	.08	8	½	8	10
21	1010.0	1014.5	38	32	NNW	20	SE	20	.02	10	8	3	0
22	1015.1	1006.8	40	35	ENE	12	NE	24	.17	7	3	9	10
23	992.8	991.9	36	33	NE	38	Calm	0	.20	28	½	10	10
24	1001.3	1006.6	34	30	SSW	24	SW	18	T	2	1	10	0
25	1005.2	1006.6	37	28	NE	6	W	12	T	8	8	8	8
26	1011.2	1015.7	34	27	SSW	6	Calm	0	T	5	8	8	10
27	1017.6	1010.1	37	32	Calm	0	W	4	.34	½	2	10	10
28	1000.0	996.8	35	30	NW	34	NNW	45	T	1	1	10	10
29	1006.5	1004.7	36	30	W	12	SE	14	.01	10	3	8	10
30	995.1	992.5	40	32	ENE	22	SE	24	.17	4	1/8	10	10
October													
1	999.9	1006.3	36	32	SSE	14	SSE	10		8	10	6	0
2	1000.6	1013.8	38	32	NE	16	NNW	26	T	8	2	10	10
3	1020.9	1023.8	39	22	Calm	0	SW	93		10	12	10	0
4	1022.5	1011.1	37	32	Calm	0	SW	23	.66	15	8	8	7
5	1018.3	1021.3	M	M	W	29	SW	10	M	10	8	9	9
6	1018.3	1005.1	32	26	W	24	NE	24	.23	8	½	10	10
7	1000.6	1014.6	28	23	NW	16	SW	93	.07	½	8	10	6
8	1014.5	1017.6	M	M	WSW	21	M	7	M	4	10	8	8
9	1012.0	1003.8	37	23	SE	10	SSE	12	T	12	8	10	10
10	1002.8	1005.1	M	M	WSW	23	SSW	14		7	10	8	10
11	998.8	993.8	34	26	SSE	14	S	26	.05	7	2	8	10
12	995.3	999.5	30	27	SW	34	SW	31		8	10	8	4

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Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
1957	Mbs. 0730	Mbs. 1930	Max F°	Min F°	0730 am		1930 pm		Total	am	pm	0730	1930
October													
13	1002.0	1009.9	30	24	W	8	W	9		10	12	4	0
14	1010.5	1009.5	30	24	W	12	WSW	14		10	10	6	10
15	1010.0	1012.9	26	22	W	13	Calm	0		10	10	10	2
16	1011.9	1004.1	M	M	SSE	10	SE	7	M	10	5/8	9	10
17	996.6	996.5	36	31	S	16	SW	12	.02	2	3	10	10
18	1006.4	1007.4	33	22	W	19	W	14	M	8	8	8	0
19	1012.8	995.2	32	22	SE	14	E	21	.05	6	½	10	10
20	995.5	1002.9	33	20	SSW	38	S	26	.02	6	7	10	6
21	1000.2	999.4	29	17	SSW	23	SSW	35	.05	1½	1	10	0
22	1001.1	1000.6	25	14	SW	43	WSW	21		3	8	8	0
23	1003.5	996.8	27	17	WSW	33	SW	31	.01	7	7	10	10
24	991.2	999.1	29	21	SW	43	WNW	7	.03	2	8	10	10
25	999.5	1007.8	26	21	W	16	SSW	10		8	10	3	6
26	1004.4	994.1	32	23	SSW	26	SW	31	T	8	3	10	10
27	999.9	997.7	31	25	SW	17	SSW	16		8	8	10	10
28	992.8	986.6	31	22	SW	15	W	5	.07	10	2	10	10
29	986.0	990.4	M	M	W	37	SW	29	.04	4	8	10	7
30	994.8	1006.3	25	12	WSW	31	WNW	7		1/8	8	8	0
31	1012.7	1017.9	23	14	NW	7	SSE	9		8	10	3	9

M - denotes no observation.

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Date	Barometer		Temp.		Wind					Vis.		Cloud Tenths of Sky Cover	
	Mbs.	Mbs.	Max	Min									
1957	0730	1930	F°	F°	0730 am		1930 pm		Total	am	pm	0730	1930
July													
1	989.4	996.7	37	32	Calm	0	NW	16	.43	¼	10	10	8
2	1002.9	1002.6	M	M	NW	7	SW	5	M	15	15	4	5
3	1002.5	995.5	51	38	S	16	SE	20		15	10	8	8
4	996.9	1002.4	41	32	NW	16	NW	7	M	1/16	1/16	10	10
5	1007.2	1009.9	43	30	Calm	0	E	12		1 1/8	1/16	4	10
6	1007.7	M	41	31	E	16	M	M	M	12	M	3	M
7	1006.8	1009.7	40	32	ESE	13	NE	4	M	1/16	½	10	10
8	1011.1	1021.5	47	34	SE	6	WNW	11		9	15	5	9
9	1014.1	1016.3	M	37	NW	4	Calm	0		12	12	6	9
10	1017.9	1018.6	M	M	NE	5	E	6	M	15	15	3	3
11	1017.7	1014.9	M	M	E	15	E	22	M	1/8	3	10	10
12	1014.6	M	M	M	E	13	M	M	M	1/16	M	10	M
13	1014.5	1015.5	47	32	NW	5	NW	5		15	15	5	1
14	1016.1	M	64	38	NW	4	M	M	M	12	M	4	M
15	1017.5	1020.1	M	M	NW	21	NW	16		15	15	6	6
16	1021.6	M	M	M	NW	16	M	M	M	15	M	5	M
17	M	M	M	M	M	M	M	M	M	M	M	M	M
18	1003.6	M	M	M	SW	10	M	M	M	10	M	8	M
19	M	988.2	M	M	M	M	W	10	M	M	2	M	6
20	993.9	1004.7	60	38	NW	32	NW	29	M	1½	10	10	10
21	1010.1	1019.4	M	M	NW	17	NW	17	M	15	15	2	9
22	1009.4	M	M	M	NW	17	M	M	M	15	M	9	M
23	1017.4	M	M	M	Calm	0	M	M	M	6	M	10	M
24	M	M	M	M	M	M	M	M	M	M	M	M	M
25	M	1011.0	65	56	M	M	ESE	17	M	M	15	M	4
26	M	M	M	M	M	M	M	M	M	M	M	M	M
27	1003.8	M	M	M	NW	10	M	M	M	1/8	M	10	M
28	M	M	M	M	M	M	M	M	M	M	M	M	M
29	M	M	M	M	M	M	M	M	M	M	M	M	M
30	M	M	M	M	M	M	M	M	M	M	M	M	M
31	1014.4	1013.7	M	M	SW	10	Calm	0	M	19	19	6	5
August													
1	1015.4	M	58	M	Calm	0	M	M	M	19	M	3	M
2	1015.1	1011.2	72	M	Calm	0	S	13	M	31	31	6	4
3	M	1004.6	51	M	M	M	M	23	M	M	15	M	4
4	M	M	M	M	M	M	M	M	M	M	M	M	M
5	1003.3	1004.0	43	32	SE	26	SE	26		0	0	10	10
6	M	M	M	M	M	M	M	M	M	M	M	M	M
7	1015.2	M	41	M	SE	9	M	M	M	0	M	10	M
8	M	997.9	40	34	M	M	SE	29	M	M	0	M	9
9	997.7	997.0	37	33	SE	30	SE	17	.67	0	0	3	10
10	998.3	1003.2	42	34	SE	17	SE	4		0	0	10	M
11	1004.9	1006.1	43	38	SE	17	NW	13		0	0	9	M
12	1003.5	1007.5	45	33	NW	9	NNW	9		0	0	10	3
13	1004.2	1000.4	40	33	SE	21	SE	17		10	10	10	10
14	M	995.3	47	35	SE	9	SE	17	.18	3/8	0	10	10
15	997.8	1001.2	39	34	SE	9	SE	13		0	10	10	10
16	997.7	M	M	M	NW	10	M	M	M	½	M	10	M
17	1001.2	1001.2	M	M	SW	13	NW	22	M	0	0	10	10
18	992.6	M	46	33	NW	13	M	M	M	19	M	7	M
19	988.9	993.6	M	M	W	26	NW	26	M	0	8	10	10
20	1007.4	1000.8	40	34	NE	9	NW	13	.15	0	744	10	10
21	1006.9	1013.0	42	34	NW	35	NW	10	M	744	10	10	6
22	1023.0	M	M	M	NW	9	M	M	M	10	M	9	M

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Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
	Mbs.	Mbs.	Max	Min									
1957	0730	1930	F°	F°	1730	am	1930	pm	Total	am	pm	0730	1930
August													
23	989.4	987.2	68	40	SE	22	NW	17	.36	0	15	10	8
24	995.0	993.3	50	39	NW	21	W	9	.12	8	15	8	8
25	998.1	999.1	41	32	W	17	N	9	.16	0	0	10	10
26	1006.5	1010.1	M	M	NW	22	Calm	0		10	15	6	0
27	1012.0	1013.5	37	30	W	9	NW	13	M	0	0	10	10
28	1014.4	1010.3	43	31	NW	13	S	4		0	744	10	4
29	1008.1	1004.9	51	36	SW	13	SW	4	.08	19	10	8	10
30	1002.3	1006.8	51	37	W	10	NW	4	M	10	8	6	10
31	1011.4	1015.1	40	33	NW	22	NW	17		10	0	10	10
September													
1	1016.2	1016.3	43	35	NW	23	NW	26		15	15	8	0
2	1016.2	1018.2	38	31	NW	17	NW	4		0	0	10	10
3	1018.4	1036.4	40	32	NW	13	NW	17		10	10	10	3
4	1019.2	1016.2	49	33	NW	24	Calm	0		15	25	3	0
5	1015.3	1013.5	55	35	NW	16	M	16		25	6	3	10
6	1009.5	1008.3	42	34	S	9	E	4		10	10	5	10
7	1007.0	1007.8	43	33	N	4	M	M		10	3/8	10	M
8	1001.3	1010.8	51	30	NW	9	M	M		0	19	10	8
9	1023.8	1014.7	51	42	W	17	SW	13		19	15	8	9
10	1011.1	1010.8	61	45	SW	17	Calm	0		15	6	8	4
11	1008.8	1006.6	59	41	NW	16	S	9		6	10	10	9
12	1007.1	1004.3	57	37	S	4	SE	17		10	8	8	8
13	999.8	M	53	36	SE	33	M	M	M	1/16	M	10	M
14	M	1003.2	54	40	M	M	S	4	M	M	10	M	8
15	1007.0	1009.7	48	36	NW	9	Calm	0		10	15	9	5
16	1007.6	1003.9	44	34	SE	13	E	13	.17	44	0	10	10
17	1007.7	1013.0	38	33	NW	29	NW	17		0	10	10	0
18	1016.3	1007.5	44	31	NW	13	NE	17		15	15	0	4
19	1004.3	1005.6	45	32	WNW	17	SW	9		19	15	0	3
20	1003.2	1003.4	42	32	SW	9	SW	4	.05	10	10	10	0
21	1006.6	1011.3	33	M	M	13	SW	13		10	10	4	9
22	1012.2	1002.5	40	30	SW	4	SE	10	.34	15	8	7	10
23	992.3	993.5	37	31	E	22	M	17	.29	5/8	¼	10	10
24	1003.2	1006.4	37	30	NW	22	SE	11	.10	0	0	10	10
25	1006.0	1008.2	36	30	NE	7	NW	9		10	10	10	8
26	1012.4	1016.8	37	34	NW	26	NW	10		15	10	8	4
27	1017.6	1014.2	37	36	Calm	0	NW	13		19	15	6	4
28	1005.3	1005.1	34	26	NW	39	NW	30		½	10	10	9
29	997.0	1007.2	35	27	NW	16	S	30	.10	15	10	10	10
30	988.3	988.6	49	36	S	17	SW	16		31	10	10	6
October													
1	995.9	1002.7	43	35	SW	9	SW	10		19	15	6	4
2	1010.3	1016.3	40	31	Calm	0	Calm	0	M	15	0	6	10
3	1022.5	1025.7	42	33	Calm	0	Calm	0		8	15	9	9
4	1020.2	1014.5	51	27	SW	17	NW	16		15	15	9	10
5	1023.1	1024.0	47	26	NW	25	NW	13		10	10	10	10
6	1019.9	999.6	35	22	N	4	SE	24	.25	1	1	10	10
7	1007.0	1017.5	29	21	NW	33	NW	26	.05	8	10	10	9
8	1017.7	1017.1	27	19	NW	22	SW	9		10	10	9	9
9	1008.5	1002.3	35	23	SW	10	NW	9		5/16	8	10	10
10	1005.6	1005.2	31	24	NW	17	NW	4		10	15	9	9
11	995.8	995.7	36	21	SW	18	NW	16		½	10	10	10
12	998.4	1008.7	30	20	NW	30	NW	16	.02	10	½	8	10

CAFE HOPES ADVANCE METEOROLOGICAL REPORT - 1957

Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
1957	Mbs. 0730	Mbs. 1930	Max F°	Min F°	1730	am	1930	pm	Total	am	pm	0730	1930
October													
13	1003.3	1013.6	32	23	NW	37	NW	22	.11	8	15	10	10
14	1013.5	1011.4	29	19	NW	13	NW	7		15	15	8	10
15	1012.4	1012.3	30	22	NW	10	S	10		15	15	10	0
16	1007.3	1011.4	44	25	S	14	SW	17	.57	10	6	10	10
17	996.2	1000.3	45	25	NW	5	NW	12	.45	0	10	10	10
18	1010.7	1018.5	29	20	NW	30	NW	8		15	10	8	10
19	1008.4	988.8	33	17	SW	13	S	13	.55	¼	¼	10	10
20	1000.4	1001.3	28	12	NW	39	NW	22	.08	10	3/4	8	10
21	998.7	1001.5	25	10	W	17	NW	39		10	15	8	0
22	1003.8	1004.4	25	9	NW	39	NW	30	.70	15	10	8	10
23	1008.8	1000.1	28	15	W	13	NW	30		15	10	8	10
24	991.4	993.6	29	17	NW	26	NW	35		34	10	10	10
25	1002.5	1009.3	25	17	NW	17	NW	10		15	10	8	0
26	1005.1	998.4	34	15	W	17	NW	17		10	10	10	10
27	1002.1	999.6	29	20	NW	13	NW	9		10	10	10	10
28	991.6	988.8	30	15	W	9	NW	30	.08	½	10	10	10
29	992.4	994.9	M	M	NW	43	NW	30		10	10	10	0
30	997.8	M	19	3	NW	22	M	M		10	M	4	M
31	1011.4	1017.7	23	15	Calm	0	Calm	0	.20	½	15	10	8

M - denotes no observation.

NOTTINGHAM ISLAND METEOROLOGICAL REPORT - 1957

Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
	Mbs.	Mbs.	Max	Min									
1957	0730	1930	F°	Fo	0730 am		1930 pm		Total	am	pm	0730	1930
July													
1	997.9	998.9	42	33	W	5	S	10	M	15	12	1	5
2	1001.0	999.7	44	29	S	14	S	13	M	¼	12	10	8
3	995.2	991.4	47	35	E	8	W	6	T	10	12	9	6
4	998.5	1002.5	44	30	SE	12	SE	9	M	6	15	10	5
5	1005.6	1009.0	53	35	E	7	E	16		15	15	8	9
6	1007.5	1006.0	45	37	NE	19	NE	26	M	15	15	10	1
7	1008.1	1009.9	49	37	NE	11	NE	17	M	12	12	10	2
8	1013.6	1025.1	59	38	Calm	0	E	4		15	15	7	5
9	1016.4	1017.9	60	39	Calm	0	Calm	0		15	15	5	0
10	1021.0	1021.0	56	39	Calm	0	S	4	M	15	31	0	0
11	1019.4	1016.8	68	41	Calm	0	NNE	13	M	15	10	3	8
12	1015.3	1014.0	51	40	ENE	20	NE	20	M	10	12	6	5
13	1014.2	1015.4	55	41	ENE	7	W	4		15	10	8	8
14	1016.9	1018.5	54	37	W	3	W	7	M	10	10	10	3
15	1021.0	1022.7	55	33	E	4	E	10		12	19	8	1
16	1021.8	1016.4	53	39	E	6	E	10	.02	15	15	8	10
17	1007.9	999.6	51	40	E	14	S	27	.03	10	0	9	10
18	1005.2	1010.5	57	34	N	7	SW	3	T	12	14	5	0
19	1001.3	999.6	50	40	N	14	NW	26	.07	10	15	8	5
20	1008.2	1012.6	50	35	W	9	S	6	M	15	15	0	6
21	1013.3	1013.9	47	38	SW	9	W	8	.01	15	10	4	8
22	1015.9	1018.5	45	38	W	2	S	2	M	0	10	10	0
23	1020.9	1019.8	49	37	S	4	S	5	M	10	10	4	10
24	1018.4	1014.4	50	38	S	7	S	17	.10	0	10	10	10
25	1010.9	1008.5	55	41	S	16	S	11	M	8	10	10	1
26	1005.6	1008.6	56	45	NE	14	Calm	0	T	10	10	10	10
27	1014.7	1017.4	60	37	N	10	S	10	M	15	15	0	0
28	1018.6	1015.6	51	29	W	10	NW	8	M	10	15	0	0
29	1014.8	1014.8	56	30	Calm	0	E	10	M	15	15	0	0
30	1016.9	1017.0	58	35	N	6	E	6	M	15	15	0	0
31	1014.5	1014.3	54	34	SW	10	W	10	M	19	15	6	0
August													
1	1015.5	1012.5	49	35	S	9	S	5	M	1/16	10	6	7
2	1013.3	1011.5	51	40	W	4	W	4	M	10	10	10	10
3	1003.5	1001.4	60	33	NE	20	NE	12	M	10	15	8	10
4	998.2	998.6	51	39	NW	14	N	20	M	10	10	10	7
5	1003.0	1005.8	53	34	N	8	NW	6		10	10	10	10
6	1011.9	1010.1	52	35	NE	20	NW	18	T	10	15	7	10
7	1011.3	1012.7	52	36	N	8	E	10	M	10	10	10	10
8	1002.7	995.8	48	39	E	20	SW	26	T	15	10	6	10
9	997.3	1001.6	51	35	E	26	NE	17	M	10	10	10	9
10	1003.9	1006.1	61	37	N	12	SW	5	M	15	15	1	0
11	1007.8	1010.6	52	28	N	8	NW	9		15	15	4	1
12	1009.1	1001.7	41	29	S	7	W	8	T	10	15	10	5
13	1002.7	1003.2	50	32	NE	8	NE	15	T	15	10	8	10
14	1002.4	1003.4	50	35	N	8	N	15	T	10	10	10	10
15	1001.3	1005.2	52	38	N	10	N	10		10	15	10	0
16	1006.2	1006.7	58	35	N	7	N	10	T	15	10	6	8
17	1007.6	1001.1	14	31	NW	8	S	9	T	15	15	4	7
18	995.7	988.6	38	27	W	12	S	13	T	10	5	10	10
19	997.1	1001.5	50	29	N	10	N	18	M	15	10	8	8
20	1007.4	1012.3	48	29	N	8	NW	15		15	15	8	6
21	1013.6	1011.9	44	29	W	7	S	7		15	15	0	7
22	1008.0	998.0	48	33	S	10	S	12	.05	15	10	10	10

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Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
	Mbs.	Mbs.	Max	Min									
1957	0730	1930	F°	F°	0730 am		1930 pm		Total	am	pm	0730	1930
August													
23	982.7	982.7	40	33	SW	6	S	15	T	3	6	10	9
24	987.3	994.3	47	33	E	8	N	10		½	15	10	8
25	1001.0	1005.4	51	34	N	15	NW	12		15	15	7	1
26	1008.9	1012.7	45	27	W	14	W	10	M	10	15	7	6
27	1013.9	1015.1	46	25	W	5	W	8	M	10	15	0	10
28	1011.6	1006.4	40	31	S	10	W	8	T	15	0	8	10
29	1006.4	1004.6	43	28	N	3	N	10		10	10	10	9
30	1007.1	1012.3	51	30	N	12	Calm	0		10	15	8	2
31	1016.2	1018.4	44	27	Calm	0	S	2		¼	15	0	2
September													
1	1019.6	1018.7	46	31	Calm	0	W	6		15	10	4	10
2	1019.8	1022.2	50	31	Calm	0	S	1		10	10	4	4
3	1023.7	1022.2	45	28	S	2	W	10	.05	15	15	2	7
4	1019.8	1015.8	40	29	SW	8	SW	10	.20	¼	¼	10	10
5	1011.2	1012.9	40	30	NW	6	N	8	T	10	5	10	10
6	1014.4	1013.9	50	30	N	12	Calm	0	.02	10	15	10	2
7	1012.1	1010.2	41	29	S	2	SW	3		¼	10	10	6
8	1007.6	1006.9	43	26	S	12	S	26		10	15	6	9
9	1007.2	1006.4	46	40	S	39	S	20	T	15	5	8	9
10	1005.0	1006.5	47	39	S	7	S	5	T	5	15	10	7
11	1003.0	1001.8	49	41	E	2	NE	12	T	1	5	10	10
12	1001.5	1001.9	49	42	SE	7	N	1	T	1/16	3	10	10
13	998.7	993.1	48	31	N	8	S	4	.55	¼	1/8	10	10
14	993.6	1000.5	40	34	W	15	SW	6	T	1	0	10	10
15	1006.1	1008.3	41	34	Calm	0	E	6	.02	¼	1/8	10	10
16	1009.0	1011.6	36	29	Calm	0	N	10	T	10	15	8	10
17	1016.2	1018.7	35	23	N	5	Calm	0		10	15	9	8
18	1011.7	1001.2	43	32	Calm	0	SE	20	.25	15	¼	3	10
19	997.3	997.5	41	32	E	10	NE	20	.15	10	15	9	7
20	998.8	997.3	41	33	S	20	SE	18	.16	10	3	10	10
21	995.7	1006.2	36	32	SW	30	SW	10	.21	10	10	10	6
22	1009.5	1006.6	44	33	S	12	SE	6	T	10	10	10	6
23	1004.0	1004.2	37	29	N	14	NW	20		10	5	10	10
24	1004.0	1006.7	35	24	NW	7	E	2		10	10	7	10
25	1009.7	1013.7	37	28	N	4	NW	16		15	15	6	10
26	1015.0	1017.4	32	25	W	10	NW	16	.37	10	10	10	8
27	1021.2	1016.8	30	19	N	4	E	8		15	10	6	10
28	1014.6	1012.0	34	24	NE	9	Calm	0	.20	15	15	0	6
29	998.3	985.6	40	26	SE	15	S	30	.26	3	½	10	10
30	979.2	989.1	37	32	S	15	NW	18	.16	1/8	0	10	10
October													
1	994.4	1002.5	34	30	NW	40	NW	30	.02	3	¼	10	10
2	1011.2	1015.7	36	28	N	15	S	6	T	½	3	10	10
3	1021.5	1020.3	40	31	S	8	SE	14		10	10	10	10
4	1014.8	1026.5	38	33	S	18	N	17	T	9/16	5	10	8
5	1029.6	1026.1	27	23	N	12	W	12		10	15	10	10
6	1019.3	1008.3	25	22	N	4	N	12	.15	15	1	10	10
7	1018.5	1019.7	25	18	W	16	NW	15	T	5	10	8	10
8	1016.0	1004.9	37	13	W	6	S	30	.27	2	1	10	10
9	1001.8	1006.8	30	23	S	10	N	12	.03	10	10	10	10
10	1006.6	1000.2	32	22	NW	14	S	15	.14	10	1/8	10	10
11	995.8	1002.2	26	16	W	18	W	20	T	10	3	2	10
12	1007.1	1010.4	23	14	NW	15	W	18		10	10	7	8

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Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
	Mbs.	Mbs.	Max	Min									
1957	0730	1930	F°	F°	0730 am		1930 pm		Total	am	pm	0730	1930
October													
13	1016.2	1016.8	24	18	W	12	Calm	0	.02	10	15	10	6
14	1012.6	1012.6	30	19	NE	8	NE	10		2	15	10	6
15	1010.7	1006.0	36	20	NE	7	E	12	.10	15	10	3	10
16	997.8	998.2	36	28	S	14	SW	17	.50	0	10	10	10
17	999.9	1009.9	31	23	NW	12	NW	18	T	10	10	10	10
18	1017.0	1014.4	24	16	NW	17	W	5	.21	10	¼	10	10
19	1001.8	1003.9	22	8	N	20	NW	20	.20	½	1	10	10
20	998.8	994.7	13	5	SW	25	NW	4	.05	3	0	10	10
21	1000.8	1010.0	22	2	W	10	W	21		15	10	3	5
22	1011.9	1015.0	19	7	W	22	W	14		10	10	10	10
23	1008.6	1002.5	22	10	W	18	W	26		10	10	10	10
24	998.9	1007.4	25	10	NW	23	W	20	T	10	1	10	10
25	1010.8	1010.6	28	14	N	12	SW	20	T	10	10	10	10
26	998.1	1002.4	28	21	SW	48	W	10		3	15	10	10
27	1001.7	997.8	25	20	SW	11	W	12	T	15	15	10	10
28	997.7	1002.2	20	4	NW	18	NW	22	T	15	10	10	10
29	1003.0	1000.6	11	4	NW	20	NW	16	T	5	5	10	10
30	1002.7	1008.3	11	4	NW	17	W	6		10	15	10	10
31	1013.9	1016.0	20	5	SW	8	S	8	.10	15	3	5	10

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Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
1957	Mbs. 0730	Mbs. 1930	Max F°	Min F°	0730 am		1930 pm		Total	am	pm	0730	1930
July													
1	1006.3	1007.9	56	49	WNW	8	NE	16		M	15	5	3
2	1004.3	997.5	62	39	SW	4	NW	12	.02	15	15	2	8
3	996.3	997.4	53	43	NW	18	WNW	20	T	10	12	9	8
4	998.1	1000.3	52	43	W	15	W	3	T	20	15	7	8
5	999.2	998.9	61	39	S	6	E	12	.02	15	15	8	9
6	1003.2	1007.7	57	45	N	6	ENE	10		15	20	3	2
7	1009.9	1010.1	65	40	S	10	ESE	22		20	20	2	8
8	1013.3	1016.4	55	42	NNE	7	N	4		15	15	9	5
9	1016.8	1018.2	71	44	W	15	ESE	17		15	15	3	2
10	1019.8	1018.8	65	41	SE	17	ESE	14	.15	20	15	3	9
11	1015.7	1014.2	63	45	ESE	17	ESE	18		15	15	8	2
12	1014.3	1016.1	48	39	E	12	NE	12		15	½	9	10
13	1019.7	1022.0	64	44	NW	4	N	2		15	20	1	1
14	1022.9	1019.4	74	48	S	9	E	10	T	15	15	7	9
15	1017.2	1009.3	73	52	SSE	13	SE	20	T	15	15	9	10
16	1000.7	997.3	82	62	S	22	SW	26	.15	12	20	10	7
17	1000.5	1009.8	62	53	WSW	20	NNW	12	.12	12	15	9	7
18	1012.0	1004.7	47	41	ENE	14	NE	22	.90	12	1	9	7
19	1015.7	1017.8	60	42	NW	10	ENE	11		15	15	2	8
20	1012.1	1010.7	64	50	S	14	N	10	T	15	3/4	10	10
21	1015.3	1017.9	71	46	NW	4	ESE	4		15	15	1	0
22	1020.3	1016.6	77	48	S	10	SSE	22	T	20	20	0	2
23	1015.6	1011.3	86	57	SSW	6	S	12		15	15	5	4
24	1009.0	1003.3	85	63	S	9	SW	21	T	15	15	5	8
25	1005.3	1003.5	77	57	SW	15	SW	22	T	20	8	1	9
26	1003.5	1010.8	61	50	W	10	N	15	.07	15	1	7	10
27	1017.1	1017.9	58	46	NNE	12	E	15	T	½	15	10	5
28	1014.9	1007.7	57	44	SE	16	ESE	18	.46	¼	3	10	10
29	1007.3	1014.3	49	44	NE	12	NE	8		3	¼	10	10
30	1016.1	1012.8	75	41	S	5	SSE	12		10	15	8	9
31	1012.6	1013.1	62	54	W	9	NE	6	.07	15	15	8	9
August													
1	1012.2	1012.0	57	48	ENE	9	NE	16	.76	15	10	10	10
2	1011.1	1013.8	51	45	NNE	21	NNE	6	T	15	15	9	3
3	1015.8	1019.1	51	46	N	21	NNW	10	T	15	15	8	3
4	1018.0	1017.0	62	45	WNW	9	ENE	10		20	15	2	4
5	1020.8	1016.5	65	42	WNW	5	SE	20	T	20	15	5	8
6	1008.6	1001.2	74	50	SSE	15	WSW	14	.07	10	15	10	7
7	998.8	996.7	65	55	WNW	5	NW	5	.21	20	10	9	9
8	1007.1	1012.7	56	47	NNW	33	NW	7	.T	8	15	10	8
9	1012.5	1014.4	57	48	NNW	12	N	7	T	15	15	8	8
10	1014.8	1019.4	51	44	NNW	20	NNW	23	.02	15	12	8	9
11	1023.4	1023.2	63	45	NNW	18	WNW	9		20	20	5	1
12	1021.5	1015.1	71	49	W	14	WNW	6		15	20	0	8
13	1011.1	1015.2	53	47	ENE	23	NE	8	T	15	15	9	8
14	1016.2	1016.0	60	45	NW	3	NW	12		15	15	8	7
15	1016.5	1017.0	60	51	NW	18	NW	10		20	15	2	9
16	1018.9	1018.7	58	53	WNW	12	NE	10		15	15	8	8
17	1017.3	1016.9	65	52	Calm	0	WNW	10		15	15	8	9
18	1008.8	1009.3	66	56	W	21	NNE	8	T	15	15	2	9
19	1016.4	1022.1	50	46	NNW	26	Calm	0		12	20	8	2
20	1024.3	1020.1	67	38	WSW	14	SSW	10		20	20	0	1
21	1017.2	1008.7	74	45	SSW	12	SE	12	T	20	20	8	9
22	1001.9	1011.2	64	50	WSW	14	NNW	25	.04	12	15	6	9

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Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
	Mbs.	Mbs.	Max	Min									
1957	0730	1930	F°	F°	0730 am		1930 pm		Total	am	pm	0730	1930
August													
23	1012.9	1010.8	57	49	WNW	24	WNW	14	T	20	15	2	2
24	1007.7	1007.8	48	43	WNW	24	NNW	28	.04	15	8	4	10
25	1013.7	1019.8	47	42	N	30	N	12		15	15	9	9
26	1021.9	1023.8	52	44	W	8	NNW	6	.07	15	20	10	3
27	1025.3	1020.8	64	43	W	9	W	9	T	15	20	9	0
28	1017.8	1011.6	68	45	WSW	17	WSW	15		15	20	9	4
29	1010.3	1011.6	69	50	W	18	W	8		15	20	9	6
30	1013.5	1014.1	75	50	W	15	W	4		20	20	5	5
31	1015.8	1017.3	65	54	W	12	E	9		20	15	1	4
September													
1	1016.8	1014.9	75	44	S	6	ESE	8		12	15	3	1
2	1015.0	1016.1	63	50	SW	4	ESE	21		15	15	4	7
3	1021.0	1020.2	64	46	SE	20	SSE	20	T	15	15	8	9
4	1018.5	1017.6	74	46	SW	18	N	20	.39	15	7	10	10
5	1025.7	1028.4	48	44	N	20	NNW	4		15	20	8	9
6	1025.1	1020.1	60	42	WNW	18	Calm	0		20	15	3	0
7	1015.5	1006.1	72	44	WSW	10	S	12		15	15	0	8
8	995.3	989.0	71	51	SSE	24	SSW	35		15	15	10	8
9	990.2	988.9	63	50	S	25	S	21	.09	20	15	3	9
10	990.1	996.0	55	50	S	18	N	2	.04	10	15	10	9
11	996.8	1000.3	49	47	NW	14	NW	12	.10	1	7	10	10
12	1001.0	1005.2	47	45	NW	20	NW	26	.10	1	4	10	10
13	1008.5	1007.5	45	40	NNW	27	Calm	0	.01	6	15	10	8
14	1004.5	1009.7	46	33	E	9	NE	16		15	15	9	9
15	1012.6	1013.2	42	36	NNE	15	NE	5		15	15	9	7
16	1009.9	1007.9	52	29	S	14	WSW	10	.11	20	20	7	10
17	1003.7	998.2	47	40	SSE	19	W	30	.26	15	15	7	7
18	1002.9	1009.8	42	29	WNW	45	WNW	28	T	1½	15	10	6
19	1006.4	1003.0	38	32	WNW	21	WNW	27	.02	15	3	4	10
20	1004.9	1008.3	39	32	WNW	24	WNW	24		15	15	9	8
21	1010.6	1010.2	39	33	WNW	18	WNW	3		15	15	10	9
22	1009.1	1013.3	41	28	SW	5	N	12	.T	15	15	9	7
23	1014.7	1011.7	40	32	WNW	14	SE	7	.09	15	15	9	10
24	1001.6	1001.0	38	32	WNW	30	NW	43	.15	3/4	1	10	10
25	1016.8	1027.2	34	32	NNW	40	NW	18	T	15	15	10	9
26	1027.2	1018.9	46	24	SW	15	S	18		15	15	3	9
27	1012.5	1010.7	58	36	SW	20	NNE	5		15	15	4	1
28	1009.1	998.3	70	35	SE	15	S	25		15	15	2	8
29	990.6	1000.8	52	40	W	18	NW	16	T	12	15	9	2
30	1005.9	1013.1	44	35	W	18	NNW	28	T	15	6	0	8
October													
1	1018.3	1013.2	45	34	N	5	SSE	24		15	15	9	4
2	1006.8	1015.2	56	39	SSW	18	NNE	15	T	15	12	9	10
3	1013.1	1011.2	66	37	ESE	28	NE	6	T	¼	15	10	5
4	1022.4	1029.5	40	38	NNE	20	NE	28	.02	5	5	10	10
5	1026.6	1017.9	40	37	ENE	22	E	20	.28	½	7	10	10
6	1013.5	1025.6	35	31	N	30	NNE	18	.02	10	10	10	10
7	1027.7	1028.1	31	27	NE	10	NW	5	T	15	15	9	9
8	1021.9	1018.2	37	25	SW	18	WNW	16	.07	15	5	9	10
9	1020.4	1020.3	37	33	NW	18	WNW	15		15	15	9	10
10	1020.1	1013.2	41	30	W	15	SSW	12		15	15	4	3
11	1006.2	1013.9	39	33	WSW	14	NNE	10	T	15	15	10	10
12	1016.4	1017.1	36	32	SE	4	SE	10	T	5	12	10	10

CHURCHILL METEOROLOGICAL REPORT - 1957

Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
	Mbs.	Mbs.	Max	Min									
1957	0730	1930	F°	F°	0730 am		1930 pm		Trace	am	pm	0730	1930
October													
13	1010.7	1002.9	47	33	SSE	18	SSW	18	T	½	15	10	10
14	1001.4	1000.3	53	43	SSE	6	WSW	7	.01	¼	8	10	10
15	999.6	1003.8	48	39	S	3	NW	20	.05	0	10	10	10
16	1008.7	1013.2	33	31	WNW	24	NW	29	.01	15	10	4	10
17	1019.4	1024.5	33	26	NW	24	NW	11		15	15	1	2
18	1021.1	1014.6	46	23	S	12	WNW	25	T	15	15	5	7
19	1025.8	1029.3	26	21	NNW	31	NW	20	T	15	15	10	9
20	1021.8	1015.3	25	18	SW	7	NNE	28	.37	15	1	6	10
21	1021.2	1029.1	23	20	N	22	NNW	24	.02	4	8	10	10
22	1035.2	1035.4	19	12	NW	24	WNW	27	.01	1	15	10	7
23	1030.1	1021.1	25	11	W	20	WNW	35	.13	15	7	1	10
24	1023.8	1026.5	29	16	NW	25	NW	15	T	10	15	10	10
25	1020.8	1019.9	34	24	WNW	22	W	15		20	20	2	2
26	1016.4	1013.3	39	26	WSW	18	WSW	14		15	20	0	0
27	1005.7	1012.9	30	24	WSW	15	NNW	30	T	15	10	1	10
28	1023.5	1023.1	21	17	WNW	30	NW	10	.05	12	10	10	9
29	1009.8	997.8	28	15	SE	18	ENE	10	.12	2	5	10	10
30	1008.7	1010.1	28	20	NNE	16	SSE	12	T	6	15	10	7
31	1003.6	1005.5	33	19	SE	18	NE	16	T	15	15	10	10

CHESTERFIELD INLET METEOROLOGICAL REPORT - 1957

Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
1957	Mbs. 0730	Mbs. 1930	Max F°	Min F°	0730 am		1930 pm		Total	am	pm	0730	1930
July													
1	1000.8	999.3	48	38	NNW	15	N	-	T	10	15	10	6
2	992.7	982.7	48	37	NW	24	NW	-	.01	10	31	10	6
3	982.4	984.5	47	35	NNW	18	NE	-	.07	10	15	10	9
4	984.1	986.5	44	34	WNW	10	N	-	.10	5	10	10	9
5	992.6	1000.8	40	35	SW	12	S	-	.05	15	M	10	9
6	1004.5	1007.1	39	33	SE	9	E	-		15	M	9	10
7	1009.8	1011.8	47	31	NE	3	SW	-		1/16	15	10	3
8	1013.3	1015.5	51	35	N	3	SE	-		15	10	2	9
9	1017.5	1020.3	40	36	SE	3	S	-		1/8	15	10	1
10	1022.2	1022.0	40	32	S	8	S	-		½	9	8	1
11	1020.3	1018.4	48	33	S	8	S	-		¼	4	10	4
12	1016.9	1016.0	55	38	N	10	S	-	T	15	M	4	2
13	1015.6	1015.8	65	38	W	4	N	-		15	15	8	1
14	1018.2	1021.0	49	37	NW	10	SE	-		15	3	0	4
15	1020.6	1015.0	42	33	S	6	S	-	.26	15	3	0	10
16	1005.6	997.5	40	35	S	18	S	-	.08	8	M	10	10
17	996.2	1005.9	50	33	NE	10	N	-	.01	¼	15	10	7
18	1014.3	1010.5	50	38	N	8	S	-		M	M	0	8
19	1009.5	1009.7	60	40	N	12	NW	-		15	M	1	4
20	1008.5	1008.3	68	46	W	16	SW	-		15	15	8	6
21	1009.6	1011.5	70	44	NW	4	N	-		15	10	7	10
22	1014.3	1013.6	79	43	W	8	SW	-	.03	5	12	10	0
23	1011.6	1010.1	52	39	S	14	SW	-	.19	10	M	10	9
24	1007.7	1007.4	60	39	S	2	NE	-		M	M	3	6
25	1005.4	1005.7	39	35	ESE	10	E	-	.27	M	3	10	10
26	1008.4	1014.6	47	36	E	11	E	-		2	15	10	0
27	1020.0	1019.3	52	37	Calm	0	S	-		15	15	0	2
28	1019.5	1016.4	48	40	SW	3	SSE	-		15	M	7	1
29	1015.1	1015.3	50	35	Calm	0	S	-		15	M	2	2
30	1016.5	1014.0	45	37	Calm	0	S	-	.01	M	10	5	3
31	1011.9	1011.1	61	38	SW	12	S	-		10	15	9	8
August													
1	1013.0	1012.4	37	44	NW	12	SW	6		15	15	3	5
2	1011.5	1009.7	65	43	NW	8	NW	18	T	15	15	9	10
3	1011.0	1012.7	56	43	NNE	18	NNE	18		15	15	9	2
4	1014.2	1014.6	55	41	N	12	N	18		15	M	1	1
5	1016.9	1015.5	58	40	N	13	SSW	10		15	15	0	4
6	1012.2	1004.8	40	38	S	15	S	18	.28	M	1	9	10
7	1000.6	1000.7	45	37	SE	12	NE	7	.05	3	M	10	10
8	1000.5	1003.1	53	38	N	15	NE	12	.11	M	5	10	10
9	1004.2	1008.1	51	43	N	16	N	7	.05	3	7	10	10
10	1011.1	1015.9	55	41	NE	10	E	6	T	10	15	8	2
11	1017.9	1013.3	64	41	NW	14	N	6	T	15	15	10	8
12	1009.1	1012.7	52	48	NNW	18	N	16		15	15	2	1
13	1013.7	1014.0	56	39	N	12	N	4		15	15	8	5
14	1013.1	1012.0	59	43	N	10	Calm	0		15	15	4	3
15	1010.8	1011.6	64	44	N	12	NE	6		15	15	2	6
16	1014.5	1014.9	57	47	N	11	NE	8		15	15	8	9
17	1011.4	1007.5	56	45	NW	12	N	16	.10	15	15	5	9
18	1004.9	1005.7	49	38	NE	6	NNE	20		15	15	8	2
19	1010.8	1015.7	56	39	N	22	N	15		15	15	8	0
20	1019.7	1016.3	55	39	NW	12	S	9	T	15	15	3	8
21	1010.9	1005.8	73	39	S	6	SW	8		10	M	8	1
22	1001.4	1002.2	58	45	WSW	6	N	26	T	10	M	7	3

CHESTERFIELD INLET METEOROLOGICAL REPORT - 1957

Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
1957	Mbs. 0730	Mbs. 1930	Max F°	Min F°	0730 am		1930 pm		Total	am	pm	0730	1930
August													
23	996.3	994.2	47	36	NW	30	NNW	40	.24	15	10	9	10
24	995.9	1006.0	44	37	NNE	30	NE	24	.02	6	15	10	9
25	1012.6	1014.1	49	37	N	14	NNW	12		15	15	2	6
26	1016.2	1018.2	49	36	N	12	NNW	14		15	15	0	9
27	1016.2	1012.5	61	43	SW	10	NNW	14		15	15	3	9
28	1010.4	1005.8	47	39	W	5	SSW	5		15	½	5	8
29	1007.7	1010.2	52	35	N	11	SSW	8	.02	15	½	0	5
30	1009.5	1006.6	57	39	SW	6	Calm	0	.06	5	15	10	2
31	1013.5	1016.9	54	42	N	12	S	12		15	15	10	4
September													
1	1016.5	1017.5	41	36	SW	15	SE	12	.05	2	8	6	10
2	1021.3	1023.7	40	36	SE	10	S	10	T	5	0	10	10
3	1023.3	1020.5	45	34	S	6	SW	12		15	10	8	10
4	1017.5	1019.4	48	37	Calm	0	Calm	0	.03	15	15	9	9
5	1024.0	1021.5	48	35	N	18	N	6		15	15	3	2
6	1018.8	1014.9	59	41	N	6	N	6		15	M	8	0
7	1012.7	1004.7	44	37	Calm	0	S	20		¼	¼	7	10
8	996.9	991.8	43	37	S	6	S	10		15	12	9	10
9	993.1	995.8	44	38	S	10	SE	10	.18	15	6	6	10
10	995.1	994.9	39	37	E	14	E	10	.28	0	1	10	10
11	995.1	999.0	40	37	ENE	12	ENE	12	.08	0	¼	10	10
12	1000.3	1001.5	44	37	NE	12	NE	8	.10	¼	M	10	10
13	1000.9	1001.1	40	37	N	16	N	18	T	8	15	10	9
14	1002.8	1007.5	38	31	N	19	N	16		15	15	9	1
15	1010.7	1012.2	36	30	NE	5	S	8	T	15	15	9	6
16	1009.1	1007.9	37	33	S	15	S	10	.05	6	6	10	10
17	1007.1	1002.4	38	34	NNW	10	E	12	.35	3	5	9	10
18	993.2	996.4	39	36	SE	18	S	10	.01	1	10	10	9
19	998.0	996.4	38	34	NE	8	N	12	.02	½	10	10	10
20	995.3	999.9	39	32	NE	14	N	6	.04	15	15	4	2
21	1004.2	1004.6	37	31	Calm	0	Calm	0	T	6	15	8	7
22	1005.4	1007.3	37	32	NW	12	N	10		15	15	9	10
23	1010.0	1008.2	32	30	N	14	Calm	0	T	15	M	10	10
24	1005.0	1008.2	34	27	Calm	0	NE	12	T	15	15	8	8
25	1016.0	1018.3	36	25	N	20	NW	18	T	10	15	6	8
26	1019.2	1017.4	36	25	NW	8	S	10		15	15	8	9
27	1009.5	1010.7	40	33	S	18	NE	12	T	15	15	10	10
28	1011.4	998.2	38	35	E	8	S	24	.15	15	2	10	10
29	985.1	990.3	38	33	N	10	N	36		1/8	15	10	8
30	994.2	1010.1	34	27	N	16	NE	18	T	15	15	8	0
October													
1	1014.1	1010.7	37	23	N	9	S	10	T	15	15	4	8
2	M	1012.2	45	33	M	M	N	21		M	15	M	8
3	1012.7	1012.6	34	27	E	21	E	16	T	15	¼	10	10
4	1023.3	1034.7	31	28	NE	10	NE	17		10	15	10	8
5	1034.2	1028.7	26	23	N	9	N	5	.02	15	15	10	9
6	1020.4	1020.7	24	15	NE	16	N	17	T	15	15	10	8
7	1023.7	1019.3	31	17	NW	16	W	9	T	15	15	9	9
8	1005.0	1007.9	34	21	W	21	N	26	T	2	15	10	10
9	1013.2	1011.0	33	21	N	5	NW	12	T	15	15	8	10
10	1009.4	1003.1	33	29	NW	5	NW	13	T	8	10	10	10
11	1004.1	1009.3	33	29	N	9	N	9	T	15	15	9	7
12	1013.3	1017.9	30	25	N	17	Calm	0		15	15	9	1

CHESTERFIELD INLET METEOROLOGICAL REPORT - 1957

Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
	Mbs.	Mbs.	Max	Min									
1957	0730	1930	F°	F°	0730 am		1930 pm		Total	am	pm	0730	1930
October													
13	1013.8	1005.3	34	21	S	21	S	16	T	15	½	10	10
14	1003.0	1002.8	35	33	S	9	S	10	T	5/8	¼	10	10
15	999.4	M	36	34	S	7	N	9	.03	½	¼	10	10
16	997.8	1004.3	33	29	NW	14	N	21	T	10	10	10	10
17	1012.7	1018.1	27	19	N	21	N	17	.T	12	10	10	10
18	1018.6	1012.8	24	17	NW	5	NE	17	.10	12	10	10	10
19	1016.0	1015.6	14	6	N	24	NE	28	T	2	4	8	9
20	M	1009.5	15	6	M	M	NNW	31		M	15	M	3
21	1014.1	1024.4	18	6	NNW	29	N	24	T	15	15	1	3
22	1023.3	1023.2	19	6	NW	23	NW	21	T	10	15	9	5
23	1013.2	1013.3	23	11	NW	14	N	13	.01	15	15	10	3
24	1017.2	1017.8	24	11	N	24	NW	9	T	15	15	4	10
25	1014.6	1008.3	25	15	Calm	0	W	7		15	2½	3	0
26	1005.8	1007.7	24	19	NW	16	N	12		15	15	3	10
27	1005.2	1009.4	25	13	N	7	N	29		15	15	9	10
28	1014.0	1017.1	10	5	N	29	N	23		15	15	5	3
29	1011.9	1003.9	7	0	NW	14	N	17	T	15	15	9	2
30	1008.7	1009.0	21	5	N	14	NW	5	.02	15	15	0	6
31	1007.1	1008.3	27	2	S	12	S	7	.06	7	10	10	10

PORT HARRISON METEOROLOGICAL REPORT - 1957

Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
1957	Mbs. 0730	Mbs. 1930	Max F°	Min F°	0730 am		1930 pm		Total	am	pm	0730	1930
July													
1	1002.0	1005.5	52	36	N	24	S	10		15	15	2	9
2	1007.4	999.5	49	32	SW	7	S	14	.67	15	6	7	10
3	991.6	998.5	49	37	N	6	SW	13		0	15	10	1
4	1002.6	1003.8	52	31	S	7	S	8		½	15	10	1
5	1002.0	1001.1	69	39	NE	10	E	13	.07	15	15	6	8
6	996.9	999.0	55	47	NE	18	NE	12	.13	10	M	10	10
7	1000.9	1006.8	54	41	NE	13	S	12		15	8	10	10
8	1010.9	1011.2	56	39	SE	5	N	12		15	15	10	1
9	1013.1	1013.3	68	41	E	16	N	21		15	15	0	6
10	1016.3	1014.4	67	48	ENE	17	E	26	T	15	15	5	10
11	1012.2	1009.2	57	45	E	21	E	17	.49	7	4	10	10
12	1007.5	1008.8	62	47	E	16	E	12		10	M	10	5
13	1010.7	1014.1	55	51	E	8	W	8		15	10	10	10
14	1016.9	1018.5	70	46	N	14	N	20		15	15	3	0
15	1021.7	1021.5	61	45	N	11	N	13		15	15	7	0
16	1023.1	1019.5	58	38	Calm	0	S	8	T	½	M	2	8
17	1013.6	1009.6	56	46	S	20	S	16	.23	15	M	0	10
18	1009.9	1009.2	57	43	W	14	SW	4	T	3	M	10	9
19	993.8	1004.9	47	38	S	12	NW	40	T	1/8	15	10	0
20	1016.1	1018.4	51	40	W	18	W	11		15	15	0	2
21	1018.4	1016.2	61	39	Calm	0	N	16		15	15	7	8
22	1019.3	1019.6	57	41	NNE	12	W	10		15	15	9	0
23	1022.0	1021.4	64	37	N	10	NW	12		15	M	0	0
24	1021.6	1018.7	61	42	Calm	0	S	7		M	M	0	4
25	1014.4	1009.9	59	50	SW	16	S	14	T	M	5	9	10
26	1009.6	1012.1	59	46	SW	5	W	8		3	M	10	7
27	1011.9	1013.7	70	48	E	12	N	21		12	15	8	2
28	1017.9	1015.4	69	48	E	21	N	18		15	M	3	6
29	1012.1	1008.5	72	45	E	7	E	12		15	M	9	5
30	1011.0	1013.1	69	42	E	14	E	15		M	15	1	0
31	1014.7	1014.0	66	44	E	9	E	8		15	15	0	0
August													
1	1015.8	1014.3	69	47	N	7	W	12		15	15	0	5
2	1012.3	1006.3	69	49	SW	10	Calm	0		15	15	4	6
3	997.9	993.7	73	57	E	8	N	16	.21	15	M	10	10
4	990.4	990.5	62	54	N	8	N	12	.56	3	M	9	10
5	997.7	1003.9	51	41	S	11	N	20	T	3	2	10	10
6	1007.6	1011.7	51	42	W	7	S	11	T	M	1	10	10
7	1013.2	1008.8	55	43	S	14	S	22	.57	¼	M	10	10
8	995.2	994.8	55	41	S	35	W	21	.64	M	½	10	10
9	990.7	997.0	44	41	W	30	W	19	.30	3	1½	10	10
10	1000.5	1003.4	44	42	W	11	W	11	.11	2	½	10	10
11	1008.2	1011.5	60	39	Calm	0	NNW	21		3	15	10	10
12	1013.8	1011.0	49	41	NW	12	SW	17	T	15	5	2	8
13	1008.9	1004.2	47	40	W	12	W	17	T	15	3	3	9
14	1002.6	1002.7	47	39	W	10	NW	17	.11	2	3/4	10	10
15	1001.3	1000.7	45	41	NW	16	W	16	.27	5	3	10	10
16	1002.8	1007.6	54	40	N	13	N	16	T	15	M	4	10
17	1007.3	1010.2	67	43	N	10	N	16	.04	8	15	9	9
18	1003.8	998.0	45	39	W	13	N	22	.39	5	15	10	6
19	995.5	999.0	43	35	W	18	N	19	.16	5	10	10	5
20	1009.1	1015.4	50	38	N	24	N	17	T	M	15	10	2
21	1020.4	1022.4	45	37	W	12	W	11	T	4	M	10	4
22	1016.4	1003.9	50	41	S	18	S	20	.12	M	M	0	10

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Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
1957	Mbs. 0730	Mbs. 1930	Max F°	Min F°	0730 am		1930 pm		Total	am	pm	0730	1930
August													
23	994.8	1000.5	48	43	W	19	W	23	T	3/4	10	10	10
24	999.6	999.8	46	41	W	25	W	25	.43	10	4	8	10
25	998.0	1009.0	45	35	W	9	SW	12	.17	5	15	10	10
26	1014.1	1015.0	48	40	W	6	SW	13	T	10	11	10	4
27	1017.3	1020.7	46	38	NW	10	NW	14	.07	7	15	10	10
28	1020.5	1015.6	45	40	WSW	9	SW	18	T	12	8	9	7
29	1011.4	1005.2	49	42	SW	19	SW	21	.10	15	3	10	10
30	1008.9	1014.7	46	37	W	22	NW	24		1	10	10	8
31	1018.6	1016.6	43	37	W	4	SE	19	.20	15	15	10	10
September													
1	1017.6	1017.0	55	41	E	10	NE	9		15	15	8	10
2	1017.2	1017.5	59	40	N	9	N	10		15	15	8	6
3	1020.7	1023.0	57	35	N	8	NE	6		15	15	8	3
4	1024.3	1022.7	53	38	Calm	0	W	7		15	15	3	9
5	1016.6	1010.6	51	38	S	16	NW	9	T	15	4	3	10
6	1008.6	1009.6	44	36	NW	10	W	10	.10	8	15	8	4
7	1009.6	1011.3	57	36	N	10	NW	12	.02	15	15	8	1
8	1014.2	1015.7	45	38	Calm	0	S	11		15	15	8	0
9	1016.0	1013.2	51	41	S	19	SE	23		15	15	1	6
10	1011.7	1010.1	53	48	S	17	S	13	.06	10	6	6	9
11	1003.9	1004.1	50	46	SE	14	S	15	.17	3	1/8	10	10
12	1003.2	1001.7	52	44	S	10	S	7	.15	0	¼	10	10
13	1001.6	1001.2	45	42	SW	13	SW	13	.11	½	3/8	10	10
14	1003.0	1008.7	46	41	W	11	W	10		1	12	10	10
15	1010.6	1009.5	48	39	Calm	0	N	9		15	15	9	10
16	1005.0	1009.3	48	39	N	17	N	19		15	15	10	2
17	1017.8	M	47	35	Calm	0	M	M		15	M	0	M
18	1009.3	1009.1	46	33	S	25	W	19	.29	8	10	10	6
19	1008.1	1005.0	44	37	NE	7	SSW	16		½	15	8	10
20	1001.1	1006.8	44	35	SW	19	SW	20	.20	5	15	10	10
21	1009.6	1012.3	43	33	SW	18	SW	5	.05	10	15	7	4
22	1005.9	1001.2	48	34	N	9	-	14	.08	15	6	10	10
23	1004.7	1008.4	42	34	NW	11	NW	9	.04	10	15	10	4
24	1007.8	1007.0	42	29	Calm	0	Calm	0	T	8	12	8	6
25	1005.0	1012.2	M	M	NE	6	N	10	M	10	15	10	10
26	1017.7	1023.0	42	33	NNE	10	NW	10		15/16	8	8	10
27	1022.6	1017.7	41	31	NNW	6	S	10		15	15	5	10
28	1010.5	1013.2	45	33	SE	7	Calm	0		15	15	8	4
29	1004.7	994.4	45	38	S	22	S	17		8	4	10	10
30	990.4	1000.3	41	35	W	16	W	12	.08	10	10	10	5
October													
1	1002.8	1007.6	39	32	W	9	NW	10	.09	3	12	8	9
2	1014.2	1020.2	43	34	N	10	W	4	T	3	15	10	5
3	1025.6	1027.6	44	37	S	10	S	14		10	10	8	1
4	1027.1	1024.6	48	38	S	10	S	11		15	10	0	10
5	1027.3	1023.9	44	38	NE	8	Calm	0		8	2	10	10
6	1013.3	1006.4	48	33	E	4	SW	39		5/16	5	10	10
7	1023.9	1025.1	34	26	SW	12	N	9	T	15	8	10	10
8	1025.2	1019.5	36	27	N	5	SW	10		12	10	10	10
9	1011.4	1012.8	40	29	SW	13	SW	11		5	10	10	3
10	1014.2	1013.0	40	31	W	7	W	14	.09	5	10	10	10
11	1007.2	1003.7	40	30	W	19	W	10	.10	8	6	10	10
12	1010.8	1014.5	37	29	N	6	WNW	9		12	10	8	6

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Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
1957	Mbs. 0730	Mbs. 1930	Max F°	Min F°	0730 am		1930 pm		Total	am	pm	0730	1930
October													
13	1020.3	1020.5	41	34	NW	8	S	7	M	12	8	10	10
14	1012.4	1003.7	41	34	SE	16	W	10	.15	2½	6	10	10
15	1008.6	1007.6	44	40	SSE	10	S	13	.02	2	½	10	10
16	1006.8	1002.6	44	40	S	10	S	16	.63	5	1	10	10
17	1002.7	1010.6	38	32	N	13	NW	11	.11	8	2	10	10
18	1019.4	1019.8	36	32	N	7	S	7		12	10	10	10
19	1000.6	1010.3	39	20	S	27	NW	20	.13	3	8	10	4
20	1013.0	1009.5	31	22	W	17	W	23	.08	7	1	8	10
21	1006.8	1016.3	33	15	WNW	4	NW	12	.05	10	7	10	10
22	1021.8	1018.8	31	8	Calm	0	NW	15	.02	15	15	3	10
23	1019.7	1014.8	33	19	NW	5	W	17	.03	3	12	10	10
24	1005.7	1009.8	33	19	W	23	N	5	.06	1	1½	10	10
25	1013.2	1018.0	29	19	NW	10	Calm	0	.06	1½	15	10	10
26	1014.9	1010.4	35	29	SW	21	SW	16	T	12	10	10	10
27	1007.9	1007.4	36	32	SW	11	SW	15		10	10	10	10
28	996.8	M	36	19	N	20	NW	23	.04	3	7	10	8
29	1008.7	1006.1	M	M	NW	16	NW	10	.03	6	7	9	10
30	1001.8	1006.3	24	5	E	12	NE	23	.06	1	10	10	1
31	1016.0	1015.9	25	2	NE	5	E	10		15	15	1	10

M - denotes no observation

CORAL HARBOUR METEOROLOGICAL REPORT - 1957

Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
1957	Mbs. 0730	Mbs. 1930	Max Fº	Min Fº	0730 am		1930 pm		Total	am	pm	0730	1930
July													
1	998.8	994.7	44	34	Calm	0	WSW	7	.05	15	12	9	10
2	993.4	993.0	36	32	SSW	16	SSE	23	.23	15	M	10	10
3	990.2	989.0	34	32	SE	22	S	13	.20	10	¼	10	10
4	990.3	997.5	38	30	SE	22	SE	26	T	10	3	10	10
5	1002.5	1010.0	45	31	SE	17	SSE	13	.26	15	15	9	6
6	1008.9	1008.7	51	37	E	25	ENE	16		15	M	9	9
7	1010.7	1012.4	55	37	E	17	NE	12		15	M	4	10
8	1014.6	1016.4	56	42	E	8	SE	8		15	15	9	9
9	1018.7	1021.1	63	43	NW	8	E	4		15	15	9	9
10	1023.1	1023.0	64	44	NNW	8	Calm	0		15	5/8	9	5
11	1022.0	1019.0	64	41	NNW	11	NE	14		15	15	0	4
12	1017.7	1016.7	58	42	NNE	6	ESE	8	.08	15	M	9	9
13	1015.0	1016.1	55	44	N	12	Calm	0	T	15	15	9	8
14	1018.1	1020.8	59	45	Calm	0	S	8	T	15	15	9	8
15	1023.5	1022.0	52	43	N	8	SSE	12	.02	15	15	10	8
16	1020.2	1012.1	46	37	E	4	SE	17	.20	8	M	10	10
17	1002.6	999.4	47	37	ESE	17	N	14	.13	½	15	10	9
18	1010.8	1011.0	58	37	NNW	12	SW	16		15	M	0	4
19	1005.4	1004.2	56	39	N	10	NNW	27		15	15	9	8
20	1009.5	1009.5	62	38	SE	6	W	15	T	15	15	3	8
21	1011.3	1011.0	57	37	Calm	0	SE	10	.01	15	15	7	8
22	1015.7	1016.7	56	40	Calm	0	Calm	0		15	15	9	7
23	1019.1	1017.5	53	42	Calm	0	SSE	6	.03	8	25	2	10
24	1014.0	1009.9	44	39	S	6	Calm	0	.09	12	M	10	2
25	1009.4	1007.7	58	38	Calm	0	SSE	17	T	1	15	10	1
26	1008.6	1012.5	58	45	E	18	NE	10		15	15	8	4
27	1017.2	1019.2	59	38	N	6	S	5		15	15	1	2
28	1019.2	1015.9	64	39	Calm	0	S	10		15	M	1	2
29	1016.3	1017.2	61	41	Calm	0	S	11		15	M	0	1
30	1018.7	1016.0	56	41	Calm	0	S	16		M	15	0	2
31	1014.5	1012.7	64	41	NW	8	W	10		15	15	2	5
August													
1	1013.0	1011.8	65	45	SW	6	WNW	10		15	15	10	9
2	1012.2	1009.1	60	41	Calm	0	S	9		15	15	3	10
3	1006.6	1006.9	61	46	N	7	N	22		15	15	4	5
4	1005.8	1007.5	48	41	N	20	N	32		15	M	9	8
5	1010.1	1013.0	52	38	NNW	30	N	20		15	15	9	1
6	1015.0	1011.6	52	35	NE	6	ESE	14	.11	M	15	3	10
7	1006.9	1004.8	49	38	E	10	ESE	18	.20	2	15	10	9
8	1001.8	999.9	50	42	E	16	NE	16	.01	3/4	9/16	10	10
9	1002.0	1006.2	52	42	E	27	N	12	T	15	15	5	10
10	1008.3	1011.0	59	43	N	22	N	30		15	15	10	4
11	1013.8	1012.4	52	35	NNW	16	NNW	6	.15	15	15	2	9
12	1003.1	999.7	46	36	SW	10	NNW	23	T	3	15	10	9
13	1007.6	1010.7	51	34	N	22	N	23		15	15	7	8
14	1008.8	1008.5	52	40	N	16	N	24		15	15	5	4
15	1006.7	1008.8	60	36	NW	11	S	14		15	15	2	6
16	1009.0	1012.0	52	36	NNW	7	N	12	T	15	M	9	10
17	1007.8	1002.2	51	37	W	7	NNW	19		15	15	9	6
18	997.9	994.4	42	30	WNW	20	NNW	35	.12	15	15	6	9
19	1004.1	1009.5	47	30	N	24	NNW	22		15	15	3	8
20	1014.1	1014.0	51	34	WNW	10	NW	10		15	15	7	9
21	1014.2	1009.0	55	40	Calm	0	S	10		15	15	8	6
22	1004.9	995.8	51	37	SE	6	E	6	T	0	12	10	10

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Date	Barometer		Temp.		Wind				Precip.	Vis.		Cloud Tenths of Sky Cover	
	Mbs.	Mbs.	Max	Min									
1957	0730	1930	F°	F°	0730 am		1930 pm		Total	am	pm	0730	1930
August													
23	988.4	982.4	52	39	WNW	17	NW	25	.12	15	15	9	9
24	987.2	1001.6	46	31	NE	29	N	20		15	15	10	9
25	1007.0	1010.3	52	33	NW	14	NW	16		15	15	1	8
26	1012.4	1013.7	55	33	NW	9	NW	17		15	15	3	3
27	1014.7	1012.8	56	38	NW	12	SW	16	T	15	15	10	9
28	1009.1	1007.5	49	40	NW	10	W	12	T	12	15	10	10
29	1007.3	1009.1	48	38	N	3	N	10		15	15	10	9
30	1012.4	1012.5	45	35	NW	4	S	8	.26	10	15	10	9
31	1013.1	1018.5	44	39	SE	8	SE	7	T	1½	15	10	9
September													
1	1020.0	1019.9	51	40	SW	2	NW	6	T	15	15	10	10
2	1023.6	1024.5	48	39	NE	6	S	3	T	15	15	8	1
3	1024.7	1022.3	49	37	NW	2	W	14	T	¼	15	8	10
4	1019.4	1015.9	42	36	SW	5	N	12	.29	15	12	9	10
5	1018.1	1018.3	42	32	NW	13	NW	12		15	15	9	2
6	1019.1	1016.0	43	30	N	6	S	4		15	12	8	8
7	1013.1	1009.6	45	39	NE	7	S	3		15	15	10	9
8	1004.3	1003.2	43	33	SE	8	SE	10		0	15	10	10
9	1002.4	1001.3	45	37	E	11	SE	13	.12	15	6	9	10
10	1001.8	1001.6	45	38	E	10	E	13	.07	0	10	10	10
11	1001.2	1001.6	47	39	E	14	E	9	.25	½	0	10	10
12	1000.0	1001.0	47	41	NE	14	E	12	.14	8	0	10	10
13	999.3	996.8	45	40	E	8	SW	4	T	0	0	10	10
14	995.1	1000.3	46	38	NW	14	NW	10		15	15	9	10
15	1008.3	1011.6	36	26	NW	14	NW	13		15	15	2	9
16	1011.9	1013.5	35	26	NW	11	S	2	T	15	15	9	1
17	1016.4	1015.1	35	26	ESE	11	E	24	.01	15	10	9	10
18	1006.7	1000.4	37	33	E	22	E	25	.52	15	3	10	10
19	998.3	994.6	37	32	E	10	N	10	.15	2	6	10	10
20	995.7	998.8	36	30	E	12	NE	14	.05	1	15	10	8
21	1000.4	1005.0	38	28	NW	11	WSW	2	T	15	15	4	3
22	1006.9	1007.0	35	29	SW	5	Calm	0	T	8	15	10	5
23	1007.5	1006.4	36	28	NW	6	N	3	.02	15	15	10	10
24	1004.5	1007.2	32	29	W	7	Calm	0	T	15	15	10	10
25	1012.5	1015.5	32	22	NW	8	W	11	T	15	15	8	4
26	1015.1	1019.4	29	26	W	12	W	11		15	15	9	10
27	1018.3	1015.3	31	24	S	14	E	14	.07	15	15	10	10
28	1015.5	1009.5	34	27	E	6	SE	14	.37	15	15	10	10
29	991.6	983.2	35	31	E	24	ENE	3	.33	½	12	10	10
30	985.6	1000.2	33	28	N	28	N	23	T	15	15	10	5
October													
1	1005.4	1010.1	32	24	NW	34	NW	16		15	15	1	0
2	1012.6	1010.5	35	18	NE	6	S	6	.03	15	15	4	10
3	1021.5	1018.5	33	26	N	31	NE	24	T	M	8	9	10
4	1017.1	1031.8	34	23	NW	18	NW	18		15	15	10	2
5	1033.1	1028.4	26	18	W	11	W	12	T	15	15	9	10
6	1021.1	1016.0	17	11	NE	8	NNW	8	T	15	15	10	4
7	1020.6	1021.0	27	11	NW	22	NW	11	.05	15	15	7	10
8	1010.3	1000.3	32	17	S	18	SW	22	.11	1	15	10	10
9	1007.0	1007.1	27	15	NW	16	W	20		15	15	1	10
10	1008.3	998.1	31	10	Calm	0	WSW	21	.06	15	4	4	9
11	1000.6	1006.0	18	10	NW	20	NW	15		15	15	1	5
12	1009.8	1015.1	17	13	NW	16	NW	22		15	15	9	0

CORAL HARBOUR METEOROLOGICAL REPORT - 1957

Date	Barometer		Temp.		Wind			Precip.	Vis.		Cloud Tenths of Sky Cover	
1957	Mbs. 0730	Mbs. 1930	Max F°	Min F°	0730 am		1930 pm	Total	am	pm	0730	1930
October												
13	1018.4	1015.7	24	7	NW	14 E	4	.10	15	15	5	10
14	1010.7	1010.4	31	18	E	20 E	16	.03	4	3/4	10	10
15	1008.7	1002.6	33	29	E	16 E	18	.68	3	M	10	10
16	994.0	997.8	34	32	Calm	0 NW	12		0	15	10	9
17	1005.1	1014.2	25	19	NNW	24 NW	22		15	15	2	9
18	1019.1	1014.6	15	5	NNW	14 E	6	.05	15	6	2	10
19	1008.0	1007.3	12	4	NW	21 W	16	.02	M	15	7	8
20	1002.9	999.7	12	-1	NW	22 NW	24	.04	15	15	1	2
21	1003.0	1015.5	21	-2	NNE	14 NW	28		M	M	9	3
22	1016.3	1016.3	16	1	W	16 W	9		15	15	1	8
23	1010.1	1005.8	18	9	NW	16 NW	19		15	15	9	1
24	1008.0	1012.8	21	8	NW	18 NW	18		15	15	0	8
25	1013.2	1008.0	27	11	NW	15 WNW	13	T	15	12	8	10
26	999.1	1004.4	23	16	NNW	30 NNW	8		15	15	1	1
27	1001.2	1001.2	23	9	NW	16 N	18	T	15	15	10	1
28	1004.2	1009.8	7	-3	N	20 N	23		15	15	1	0
29	1006.2	1003.9	5	-4	NNW	16 N	17		15	15	9	1
30	1006.2	1009.5	2	-8	N	8 N	12	T	15	15	0	0
31	1012.4	1015.4	16	-7	Calm	0 NE	8	.08	M	15	10	6

METEOROLOGICAL REPORT C.G.S. -N.B. McLEAN

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Sea	Fog Hrs.	Vis. Mi.	Remarks
July											
10	0400	Montreal		W	1	2976	66			15	Cloudy and clear
	1200	Three Rivers		NW	3	2984	65			15	Overcast and clear
	2000	Quebec		W	4	2979	66			15	Cloudy and clear
11	0400	Cape Eagle		NNE	2	2972	57			15	Overcast and clear
	1200	Father Point		W	6	2966	53			15	Cloudy and clear
	2000	Pointe des Monts		NNW	3	2967	55			15	Overcast and clear
12	0400	49 47	65 18	ESE	2	2968	53			15	Cloudy and clear
	1200	49 59	63 115	SSW	3	2970	58			15	Cloudy and clear
	2000	49 58	61 01	S	3	2978	54	52		10	Overcast and clear
13	0400	50 195	59 005	S	5	2978	53	51		5-6	Overcast and rain
	1200	51 095	57 165	SW	4	2982	54	50	16	3-7	Cloudy with haze
	2000	51 39	56 16	SW	2	2984	46	47	8	0	Dense fog
14	0400	53 19	55 12	N	3	2988	39	38		1-8	Overcast and clear
	1200	54 15	54 35	NW	4	2993	40	39	7	15	Overcast and clear
	2000	55 27	55 05	NW	4	2996	36	40	4	0	Dense fog
15	0400	56 27	56 21	N	4	2998	41	40	3	3-10	Overcast with fog patches
	1200	57 35	57 29	NNE	3	3012	42	42		12	Overcast and clear
	2000	58 467	58 17	NW	2	3017	34	39	6½	0	Dense fog
16	0400	59 54	61 01	Calm	0	3022	40	40		15	Fine and clear
	1200	60 385	62 10	Calm	0	3022	39	35		15	Fine and clear
	2000	Acadia Cove		Calm	0	3020	41	35		15	Cloudy and clear
17	0400	Resolution Island		S	2	3018	42	37		15	Cloudy and clear
	1200	Resolution Island		S	2	3010	47	36		15	Cloudy and clear
	2000	Resolution Island		S	1	3003	53	35		15	Cloudy and clear
18	0400	Resolution Island		S	2	2985	49	35		15	Cloudy and clear
	1200	Resolution Island		S	2	2983	45	35		15	Cloudy and clear
	2000	Resolution Island		SW	1	2982	45	35	6.15	0	Dense fog
19	0400	Resolution Island		Calm	0	2980	46	35	2.15	15	Cloudy and clear
	1200	61 18	64 58	SSE	4	2963	45	34	1	0	Dense fog
	2000	61 13	68 52	S	3	2930	43	33	9	0	Dense fog
20	0400	Cape Hopes Advance		NW	7	2940	39	33		2	Overcast and foggy
	1200	61 10	69 38	NW	9	2960	40	38		5	Overcast and clear
	2000	Off Hearn Island		NNW	5	2980	36	34	11	10	Cloudy and clear

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Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Temperature Sea	Fog Hrs.	Vis. Mi.	Remarks
July											
21	0400	Off Hearn Island		NW	6	2984	39	33		2	Overcast and foggy
	1200	Cape Hopes Advance		WNW	2	2994	39	34		15	Cloudy and clear
	2000	Cape Hopes Advance		WNW	3	2991	38	34		15	Overcast and clear
22	0400	Cape Hopes Advance		NW	3	2997	39	34		15	Cloudy and clear
	1200	Cape Hopes Advance		W	3	3001	38	32	6	0	Overcast and dense fog
	2000	Cape Hopes Advance		W	1	3009	39	32	8	0	Overcast and fog
23	0400	Cape Hopes Advance		SSE	1	3014	36	32	8	1-2	Overcast and fog
	1200	Cape Hopes Advance		NW	1	3020	39	36	8	5	Dense fog
	2000	61 22	70 24	NNW	3	3013	37	35	3.15	10	Fine and clear
24	0400	61 59	71 20	NNW	4	3010	39	34		15	Overcast and clear
	1200	62 32	73 24	Calm	0	3010	48	42		15	Fine and clear
	2000	Charles Island		SE	1	3002	50	42		15	Cloudy and clear
25	0400	62 36	75 04	WNW	3	2997	51	44		15	Overcast and clear
	1200	Erik Cove		SW	6	2984	57	38		15	Cloudy and clear
	2000	Erik Cove		ENE	2	2983	50	39		15	Fine and clear
26	0400	Erik Cove		Calm	0	2980	46	39		15	Cloudy and clear
	1200	Nottingham Island		SSE	1	2977	44	40		15	Cloudy and clear
	2000	Nottingham Island		NW	1	2983	43	34	5		Overcast and haze
27	0400	Nottingham Island		NE	2	2985	44	35		15	Fine and clear
	1200	Nottingham Island		NW	3	3002	39	35		15	Fine and clear
	2000	Nottingham Island		NNW	3	3007	40	35		15	Fine and clear
28	0400	62 41	77 38	WNW	3	3010	40	40		15	Fine and clear
	1200	Erik Cove		WNW	3	3008	54	38		15	Fine and clear
	2000	62 39	75 42	NNW	3	3002	52	41		15	Fine and clear
29	0400	62 31	73 14	NW	3	2998	41	35		15	Cloudy and clear
	1200	62 21	71 15	NNW	4	3007	36	35		15	Fine and clear
	2000	62 04	71 30	S	1	2997	41	33		15	Cloudy and clear
30	0400	Wakeham Bay		S	1	3002	40	38		12	Cloudy and clear
	1200	Wakeham Bay		NNE	3	3004	44	41		15	Fine and clear
	2000	Wakeham Bay		S	2	3004	47	36		15	Cloudy and clear
31	0400	Wakeham Bay		WNW	2	3001	42	38		15	Cloudy and clear
	1200	Wakeham Bay		S	1	3001	49	41		15	Cloudy and clear
	2000	Wakeham Bay		SE	1	2999	55	43		15	Cloudy and clear

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Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Sea	Fog Hrs.	Vis. Mi.	Remarks
August											
1	0400	Wakeham Bay		WNW	1	3002	42	40		15	Cloudy and clear
	1200	Wakeham Bay		SSE	2	3001	52	42		15	Cloudy and clear
	2000	Wakeham Bay		Calm	0	3003	53	41		15	Cloudy and clear
2	0400	Wakeham Bay		WNW	2	3001	45	42		15	Cloudy and clear
	1200	Wakeham Bay		Calm	0	2994	58	41		15	Cloudy and clear
	2000	Wakeham Bay		Calm	0	2986	56	42		15	Cloudy and clear
3	0400	Wakeham Bay		Calm	0	2984	51	41		15	Cloudy and clear
	1200	Wakeham Bay		SSE	4	2976	54	43		15	Cloudy and clear
	2000	Wakeham Bay		E	3	2972	54	43		15	Cloudy and clear
4	0400	Wakeham Bay		SE	2	2966	42	40	7	2-6	Overcast and fog
	1200	Wakeham Bay		SE	3	2966	50	43	8	5-6	Cloudy and fog at distance
	2000	Wakeham Bay		SE	2	2967	41	40	8	5	Cloudy and fog at distance
5	0400	Wakeham Bay		SSE	1	2967	39	41	8	1-3	Overcast and fog
	1200	61 46	71 43	S	4	2974	39	38	8	1-3	Overcast and fog
	2000	61 16	69 19	SE	6	2972	37	38	8	4	Overcast and fog at distance
6	0400	61 21	68 54	SE	7	2975	36	36	8	6	Overcast and foggy
	1200	61 33	70 38	ESE	4	2990	38	37	8	1	Rain and fog
	2000	Wakeham Bay		S	4	3003	40	37	8	0	Overcast and dense fog
7	0400	61 46	71 36	SE	3	3006	39	38	8	0	Dense fog
	1200	61 05	69 22	NNE	4	3001	39	36	8	3	Overcast and foggy
	2000	61 11	66 19	E	3	2996	36	35	8	1-3	Overcast and foggy
8	0400	61 36	63 58	ENE	4	2984	34	31	4	1	Overcast and fog
	1200	61 54	62 34	E	3	2986	40	36	8	0	Dense fog
	2000	63 33	60 28	NE	5	2985	42	42	8	0	Dense fog
9	0400	64 45	58 44	E	3	2986	42	41	7	½	Overcast and fog
	1200	66 02	58 19	NNE	1	2988	44	42	5	1-5	Cloudy and haze
	2000	67 23	58 16	SW	2	2987	41	41	6	½-5	Cloudy with fog patches
10	0400	68 48	57 55	SE	3	2987	40	41	3	6	Overcast and fog at distance
	1200	70 03	57 05	N	1	2984	40	40	3½	15	Cloudy and clear
	2000	71 27	57 25	NNW	3	2977	46	45	0	15	Fine and clear
11	0400	72 52	58 15	Calm	0	2977	44	42	0	15	Fine and clear
	1200	74 09	59 49	W	2	2981	37	40	11	0	Dense fog
	2000	74 49	59 49	W	2	2983	33	37	8	0	Dense fog

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Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Temperature Sea	Fog Hrs.	Vis. Mi.	Remarks
August											
12	0400	75 30	67 13	NW	3	2988	38	35	3½	15	Fine and clear
	1200	Thule		W	1	2997	46	41		15	Fine and clear
	2000	Thule		W	1	3000	51	42		15	Fine and clear
13	0400	Thule		Calm	0	3002	44	42		15	Fine and clear
	1200	76 09	71 15	SSW	3	3002	42	41		15	Fine and clear
	2000	75 20	76 10	W	4	3003	42	40		15	Cloudy and clear
14	0400	74 20	80 51	SW	1	3005	40	40		15	Cloudy and clear
	1200	74 22	85 34	W	3	3002	41	40		15	Cloudy and clear
	2000	74 28	90 14	W	5	2992	40	36		15	Cloudy and clear
15	0400	74 33	92 34	W	3	2985	36	33	1¼	10	Overcast and clear
	1200	Resolute Bay		WSW	5	2992	32	33		1	Overcast and heavy snow
	2000	Resolute Bay		W	5	2984	33	32		15	Overcast and clear
16	0400	Resolute Bay		W	4	2981	31	32		1-10	Overcast and snow flurries
	1200	Resolute Bay		WSW	3	2978	32	32		3-10	Overcast and clear
	2000	Resolute Bay		N	4	2979	33	32		0-8	Overcast and snow flurries
17	0400	Resolute Bay		N	4	2982	31	32		10	Overcast and snow flurries
	1200	Resolute Bay		WNW	4	2983	32	33		15	Overcast and clear
	2000	Resolute Bay		WSW	1	2984	32	32		8-10	Cloudy and clear
18	0400	Resolute Bay		SSE	1	2985	30	32		15	Cloudy and clear
	1200	Resolute Bay		W	1	2993	34	33	4	15	Cloudy and clear
	2000	Resolute Bay		W	3	2999	35	33		15	Cloudy and clear
19	0400	Resolute Bay		W	3	3002	34	33	1	15	Overcast and clear
	1200	Resolute Bay		W	4	3004	36	33	3 3/4	15	Overcast and clear
	2000	Resolute Bay		NW	3	3005	33	34	4	1-8	Overcast and fog patches
20	0400	Resolute Bay		Calm	0	3003	32	33		15	Overcast and clear
	1200	Resolute Bay		S	1	2998	35	34	3	15	Overcast and clear
	2000	Resolute Bay		SE	3	2993	36	33		15	Overcast and clear
21	0400	Resolute Bay		E	3	2983	35	33		15	Cloudy and clear
	1200	Resolute Bay		E	3	2978	39	33		15	Cloudy and clear
	2000	Resolute Bay		NE	5	2976	38	34		15	Cloudy and clear
22	0400	Resolute Bay		NW	1	2978	35	34		15	Cloudy and clear
	1200	Resolute Bay		N	2	2983	42	34		15	Cloudy and clear
	2000	Resolute Bay		NNE	4	2983	41	33		15	Cloudy and clear

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Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Temperature Sea	Fog Hrs.	Vis. Mi.	Remarks
August											
23	0400	Resolute Bay		NE	4	2984	32	33		15	Cloudy and clear
	1200	Resolute Bay		NNE	5	2990	41	33		15	Cloudy and clear
	2000	Resolute Bay		N	5	3003	40	34	1 3/4	15	Fine and clear
24	0400	74 36	94 32	NNW	5	3006	31	33	3	15	Cloudy and clear
	1200	74 36	89 44	NW	2	3002	50	39		15	Fine and clear
	2000	74 21	84 38	NNE	3	2991	42	39		15	Cloudy and clear
25	0400	74 17.5	80 08	SW	3	2988	36	35		15	Fine and clear
	1200	74 23	74 41	NE	3	2988	39	39		15	Fine and clear
	2000	74 23.5	69 40	WSW	1	2987	39	42	1	15	Overcast and clear
26	0400	74 04	65 06	S	3	2988	34	40		10	Overcast and clear
	1200	73 52	62 15	WNW	2	2984	34	34	1½	15	Overcast and clear
	2000	72 26	58 19	N	3	2976	36	32	½	10	Overcast and clear
27	0400	71 48	57 44	NW	5	2969	38	44		15	Overcast and clear
	1200	70 21	57 25	NNW	3	2978	40	40	5	15	Overcast and clear
	2000	68 57.5	57 37	NNW	3	2991	40	40	1	3	Overcast and drizzle
28	0400	67 37	58 35	SW	2	2994	35	37		10	Overcast and clear
	1200	66 07	59 27	SE	1	2998	38	39		15	Overcast and clear
	2000	64 45	59 27	N	2	2971	37	37	7	4-7	Overcast and foggy
29	0400	63 32	61 40	NW	3	2978	32	36		0-1	Overcast and fog
	1200	62 19	63 15	SSW	3	2978	40	37	8	15	Cloudy and clear
	2000	Resolution Island		WNW	2	2980	35	32	1	0-2	Overcast and fog
30	0400	61 21	65 04	SE	2	2976	38	32	1½	10	Cloudy and clear
	1200	Acadia Cove		WNW	1	2974	48	34		15	Overcast and clear
	2000	Resolution Island		Calm	0	2981	41	32	2½	15	Cloudy and clear
31	0400	61 19	67 52	Calm	0	2988	35	36	6	0	Dense fog
	1200	Diana Bay		NW	4	2997	41	36	4	10	Cloudy and clear
	2000	Diana Bay		NW	4	3005	44	39	1½	15	Cloudy and clear
September											
1	0400	Diana Bay		ENE	4	3006	43	38		10	Overcast and clear
	1200	Diana Bay		N	3	3007	45	39		15	Cloudy and clear
	2000	Cape Hopes Advance		NW	5	3007	42	38		15	Cloudy and clear
2	0400	Diana Bay		NW	3	3004	40	38		15	Cloudy and clear

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Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Temperature Sea	Fog Hrs.	Vis. Mi.	Remarks
September											
2	1200	Diana Bay		N	4	3007	41	38	8	5	Cloudy with fog patches
	2000	Diana Bay		E	2	3012	38	37	2¼	15	Fine and clear
3	0400	Diana Bay		NW	4	3013	39	38		15	Overcast and clear
	1200	Diana Bay		NW	4	3015	42	39		15	Cloudy and clear
	2000	Diana Bay		NW	5	3016	41	38		15	Cloudy and clear
4	0400	Diana Bay		NW	2	3016	42	39		15	Cloudy and clear
	1200	Diana Bay		E	3	3016	39	39	3/4	0	Dense fog
	2000	Diana Bay		NNW	2	3010	41	38		15	Cloudy and clear
5	0400	Diana Bay		Calm	0	3006	47	38		15	Cloudy and clear
	1200	Diana Bay		WSW	4	3002	49	38		15	Cloudy and clear
	2000	Diana Bay		SSW	3	2995	46	40		15	Cloudy and clear
6	0400	Diana Bay		Calm	0	2988	43	39		15	Cloudy and clear
	1200	61 31	70 49	E	3	2987	41	38		15	Overcast and clear
	2000	Off Weggs Island		NNW	4	2988	38	37		15	Cloudy and clear
7	0400	Charles Island		NNE	3	2981	38	37	1	15	Cloudy and clear
	1200	62 32	73 36	N	3	2988	44	38		10	Overcast and clear
	2000	61 39	70 59	N	5	2982	38	37	8	1-5	Overcast and fog
8	0400	Cape Hopes Advance		NNW	4	2986	34	36	6 3/4	0	Overcast and fog
	1200	Diana Bay		S	2	2989	44	41		15	Cloudy and clear
	2000	Diana Bay		Calm	0	2991	49	41		15	Cloudy and clear
9	0400	Diana Bay		NW	7	2994	48	40		15	Cloudy and clear
	1200	Diana Bay		WNW	7	2998	53	39		15	Cloudy and clear
	2000	Diana Bay		SW	2	3001	56	41		15	Cloudy and clear
10	0400	Diana Bay		W	5	2994	54	40		15	Cloudy and clear
	1200	Diana Bay		WNW	3/5	2987	57	39		15	Cloudy and clear
	2000	Diana Bay		SW	3	2980	61	40		15	Cloudy and clear
11	0400	Diana Bay		SW	3	2988	42	39		10	Overcast and clear
	1200	Diana Bay		SW	1	2980	56	40		15	Cloudy and clear
	2000	Diana Bay		S	4	2978	42	40		15	Cloudy and clear
12	0400	Diana Bay		SSW	3	2979	45	38		15	Overcast and clear
	1200	Diana Bay		SW	5	2974	52	40		10	Cloudy and clear
	2000	Diana Bay		SW	3	2974	46	39		12	Cloudy and clear

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Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Sea	Fog Hrs.	Vis. Mi.	Remarks
September											
13	0400	Diana Bay		SW	3	2968	43	39		10	Overcast and clear
	1200	Diana Bay		S	3	2954	42	39	7	0	Fog and rain
	2000	Diana Bay		SW	4	2954	50	40		15	Cloudy and clear
14	0400	Diana Bay		SW	3	2957	46	39		15	Cloudy and clear
	1200	61 02	70 01	WSW	3	2961	50	39		15	Cloudy and clear
	2000	Diana Bay		W	1	2972	50	39		15	Cloudy and clear
15	0400	Diana Bay		Calm	0	2977	48	39		10	Overcast and clear
	1200	Off Cape Hopes		NNW	1	2983	44	38		15	Cloudy and clear
	2000	Diana Bay		Calm	0	2989	43	38		15	Cloudy and clear
16	0400	Diana Bay		SE	1	2987	44	38		15	Cloudy and clear
	1200	Diana Bay		SE	5	2975	42	39		5-8	Overcast and rain
	2000	Diana Bay		E	4	2974	39	38	1½	0-3	Overcast and fog
17	0400	Diana Bay		NW	6	2976	39	37		10	Overcast and clear
	1200	Diana Bay		N	6	2999	37	38	8	3-5	Overcast and fog in distance
	2000	Diana Bay		NW	5	3010	38	38		15	Cloudy and clear
18	0400	61 03	70 00	NNW	3	3008	37	38		15	Fine and clear
	1200	61 58	70 24	NNW	3	3010	40	38		15	Fine and clear
	2000	62 31	70 58	S	5	2984	38	38		15	Cloudy and clear
19	0400	63 07	73 38	W	2	2968	37	37	1	2-5	Overcast and snow
	1200	63 45	76 14	SE	5	2986	40	35		15	Cloudy and clear
	2000	64 14.5	78 19	S	4	2952	34	32	4	1-5	Overcast and fog
20	0400	64 46	78 58	SW	4	2954	32	31		10	Cloudy and clear
	1200	65 54.4	79 03.1	SE	4	2958	36	33		15	Fine and clear
	2000	67 08	80 21	SE	4	2971	32	31	1	15	Cloudy and clear
21	0400	67 58	80 37.5	N	5	2963	32	31	2 3-4	5-8	Overcast and snow flurries
	1200	Hall Lake		NW	4	2958	32	31		15	Overcast and clear
	2000	68 09	80 41	W	6	2954	32	31		15	Cloudy and clear
22	0400	66 54	79 50	WSW	5	2969	31	31		15	Cloudy and clear
	1200	65 34.4	79 10	S	5	2977	29	31	3	15	Cloudy and clear
	2000	64 10	78 16	Calm	0	2980	32	30	4	15	Cloudy and clear
23	0400	63 38	76 08	E	4	2973	32	32		3-10	Overcast and clear
	1200	62 14	75 36	SE	4	2971	35	33		5-8	Overcast with rain
	2000	Anchor Sugluk		N	3	2968	35	37		15	Cloudy and clear

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Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Temperature Sea	Fog Hrs.	Vis. Mi.	Remarks
September											
24	0400	62 50	77 20	NNW	3	2968	32	32		5-8	Overcast and snow flurries
	1200	63 06	78 59	WNW	2	2971	34	33		10	Overcast and clear
	2000	63 08	81 46	NW	1	2979	30	31		15	Cloudy and clear
25	0400	64 05	83 15.5	NE	4	2984	28	31		10	Overcast with snow flurries
	1200	63 46	83 26	WNW	1	2996	35	34		15	Cloudy and clear
	2000	62 40	85 27	NW	3	3004	31	34		10	Cloudy and clear
26	0400	61 38	87 56	WNW	6	3011	33	35		3-8	Cloudy with snow flurries
	1200	60 47	89 55	W	4	3020	36	40		15	Cloudy and clear
	2000	59 52	90 58	SW	6	3006	40	39		10	Overcast and clear
27	0400	58 51	94 03	SW	6	2993	44	40		15	Cloudy and clear
	1200	Off Churchill		SW	3	2988	45	40		15	Cloudy and clear
	2000	Off Churchill		SW	1	2989	52	43		15	Cloudy and clear
28	0400	Churchill, Man.		SE	1	2988	40	42		15	Fine and clear
	1200	Churchill, Man.		SE	4	2972	52	44		15	Cloudy and clear
	2000	Churchill, Man.		S	4	2951	58	47		15	Overcast and clear
29	0400	Churchill, Man.		SSW	1	2932	43	52		10	Overcast and clear
	1200	Churchill, Man.		NW	6	2948	41	42		5-6	Overcast and rain
	2000	Churchill, Man.		NW	5	2976	43	42		10	Fine and clear
30	0400	Churchill, Man.		NW	4	2976	39	52		10	Fine and clear
	1200	Churchill, Man.		W	4	2979	42	42		15	Cloudy and clear
	2000	Churchill, Man.		NW	3	2998	39	42		15	Overcast and clear
October											
1	0400	Churchill, Man.		NW	3	3008	38	40		10	Cloudy and clear
	1200	Churchill, Man.		SW	3	3007	39	43		15	Cloudy and clear
	2000	Churchill, Man.		SSE	4	2992	44	42		15	Cloudy and clear
2	0400	Churchill, Man.		S	4	2979	43	42		15	Cloudy and clear
	1200	Churchill, Man.		NW	3	2983	50	43		15	Cloudy and clear
	2000	Churchill, Man.		NNW	3	3003	41	44		15	Overcast and clear
3	0400	Churchill, Man.		NE	1	3000	49	44	4	½	Dense fog
	1200	Churchill, Man.		NNE	4	2992	40	38		15	Cloudy and clear
	2000	59 32	92 36	NW	6	2992	39	38	4	15	Fine and clear
4	0400	60 22	90 40	NNE	4	3010	39	38	2	8	Overcast and clear

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Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Temperature Sea	Fog Hrs.	Vis. Mi.	Remarks
October											
4	1200	61 14	88 44	N	6	3027	38	38		10	Overcast and clear
	2000	61 37	87 42	NNE	6	3045	33	27		10	Overcast and clear
5	0400	62 22	86 21	NE	5	3049	29	36		10	Overcast and clear
	1200	63 21	83 53	NW	4	3044	28	32		15	Overcast and clear
	2000	63 57	83 19	NNW	5	3035	24	30		10	Overcast and clear
6	0400	Coral Harbour		NNE	3	3022	19	29		15	Cloudy and clear
	1200	Coral Harbour		ENE	3	3001	18	30		15	Cloudy and clear
	2000	Coral Harbour		N	4	2998	14	29		15	Cloudy and clear
7	0400	Coral Harbour		NNW	5	3012	17	29		10	Overcast and clear
	1200	Off Coral Harbour		NNW	4	3007	17	30		15	Overcast and clear
	2000	63 00	84 57	NNW	6	3015	25	30		10	Overcast with snow flurries
8	0400	63 04	87 41	W	7	2983	30	30	2¼	4-8	Overcast with snow flurries
	1200	62 56	88 22	NW	8	2973	32	34		3-10	Overcast with snow flurries
	2000	Off Fairway Island		NW	7	2984	29	32		15	Cloudy and clear
9	0400	Chesterfield Inlet		N	3	2995	25	33		15	Cloudy and clear
	1200	Chesterfield Inlet		W	4	2995	30	33		4-8	Cloudy and snow flurries
	2000	Chesterfield Inlet		NW	5	2990	32	34		10	Overcast and clear
10	0400	Chesterfield Inlet		NW	3	2988	32	33		15	Overcast and clear
	1200	Chesterfield Inlet		NNW	5	2977	32	33		5-10	Overcast and snowflurries
	2000	Chesterfield Inlet		NW	4	2968	32	33		10	Overcast and clear
11	0400	Chesterfield Inlet		NNW	3	2969	31	33		10	Cloudy and clear
	1200	Chesterfield Inlet		NW	4	2976	32	34		15	Cloudy and clear
	2000	63 14	90 07	NNW	5	2988	31	34		15	Overcast and clear
12	0400	63 03	87 14	N	4	2987	30	32		15	Overcast and clear
	1200	63 01	84 18	NNW	6	2995	26	31		15	Cloudy and clear
	2000	Cape Pembroke		NW	3	3000	24	29		15	Fine and clear
13	0400	63 03	81 56	NW	3	3003	23	29		15	Fine and clear
	1200	62 56	80 10	Calm	0	2999	23	28		15	Cloudy and clear
	2000	62 50	78 14	Calm	0	3006	21	29		15	Cloudy and clear
14	0400	62 45	78 01	SSW	3	3000	30	29		10	Overcast and clear
	1200	62 34	76 42	SSE	2	2993	32	31		15	Cloudy and clear
	2000	63 53	76 08	E	3	2993	27	30		15	Cloudy and clear
15	0400	64 10	76 18	ESE	2	2994	28	29		10	Overcast and clear

METEOROLOGICAL REPORT C.G.S. N.B. McLEAN

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Sea	Fog Hrs.	Vis. Mi.	Remarks
October											
15	1200	62 52	76 49	SE	4	2990	30	31		10	Cloudy and clear
	2000	Ivugivik		SE	7	2973	38	37		10	Cloudy and clear
16	0400	Erik Cove		SSE	7-8	2953	38	35	5	7-8	Overcast and rain
	1200	Erik Cove		S	7	2951	39	33	3	10	Overcast and clear
	2000	Erik Cove		S	3	2957	38	36		10	Overcast and clear
17	0400	Erik Cove		SW	2	2956	36	37	3	2-3	Overcast and rain
	1200	63 05	77 59	NW	4	2968	28	30		8-10	Overcast and clear
	2000	Digges Island		NW	5	2988	28	30		5-10	Overcast and clear
18	0400	Digges Island		NW	4	2998	25	31		10	Overcast and clear
	1200	Digges Island		W	3	3010	25	31		15	Overcast and clear
	2000	Digges Island		S	4	2997	27	32		3-4	Overcast with snow flurries
19	0400	Digges Island		SSW	5	2968	32	32		1-2	Overcast and snow flurries
	1200	Digges Island		NNW	7	2960	22	35		1	Overcast and snow
	2000	62 54	78 18	NW	7	2970	12	32		10	Overcast and clear
20	0400	63 00	76 46	WNW	4	2965	14	28		5-10	Overcast and snow flurries
	1200	62 42	77 18	W	6	2961	12	28		10	Cloudy and clear
	2000	Cape Wolstenholm		SSW	6	2945	18	29		2-5	Overcast and snow flurries
21	0400	62 43	76 12	W	4	2950	13	29		½	Overcast and snow
	1200	Sugluk		WSW	4	2969	15	32		15	Cloudy and clear
	2000	Sugluk		WSW	5	2984	22	32		5	Overcast and snow flurries
22	0400	Sugluk		WSW	5	2990	18	31		15	Fine and clear
	1200	Sugluk		WSW	5	2994	14	32		10	Cloudy and clear
	2000	Sugluk		WSW	5	3000	15	31		15	Cloudy and clear
23	0400	62 16	75 32	SW	8	2994	18	30		10	Cloudy and clear
	1200	62 45	75 33	W	6	2959	25	30		15	Cloudy and clear
	2000	62 21	72 45	W	8	2959	28	30		10	Overcast and clear
24	0400	Wakeham Bay		W	5	2947	25	30		15	Cloudy and clear
	1200	Wakeham Bay		NW	6	2943	23	31		1-5	Cloudy and snow flurries
	2000	Wakeham Bay		WNW	7	2959	26	30		10	Cloudy and clear
25	0400	Wakeham Bay		WNW	5	2974	24	30		5-10	Overcast with snow flurries
	1200	61 40	71 02	NNE	4	2978	23	31		3-8	Cloudy with snow flurries
	2000	Diana Bay		WNW	6	2988	24	30		10	Overcast and clear
26	0400	Diana Bay		WNW	6	2984	22	30		10	Cloudy and clear

METEOROLOGICAL REPORT C.G.S. N.B. McLEAN

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Temperature Sea	Fog Hrs.	Vis. Mi.	Remarks
October											
26	1200	Diana Bay		W	7	2956	33	30		10	Cloudy and clear
	2000	Cape Hopes Advance		NW	6	2956	31	30		15	Overcast and clear
27	0400	61 22	69 20	NW	6	2965	28	29		10	Overcast and clear
	1200	61 23	66 40	NW	5	2964	29	33		5-10	Overcast with light snow
	2000	61 27	65 29	WSW	4	2952	29	32		10	Overcast and clear
28	0400	61 19	65 05	W	4	2942	29	31		10	Overcast and clear
	1200	Acadia Cove		Calm	0	2929	29	31		3-5	Overcast and haze
	2000	Port Burwell		NW	3	2925	29	34		0-1	Overcast and snow
29	0400	Port Burwell		WNW	6	2924	25	32		10	Overcast and clear
	1200	60 29	65 28	NW	8	2929	21	30		2-4	Overcast and snow flurries
	2000	60 49	66 18	NW	8	2938	17	29		10	Cloudy and clear
30	0400	61 06	67 12	NW	4	2948	19	29		½-8	Cloudy and snow flurries
	1200	61 02	66 26	WNW	6	2963	22	29		10	Cloudy and clear
	2000	Off Good Wind Is.		WNW	4	2981	24	29		15	Cloudy and clear
31	0400	59 48	62 44	SE	3	2984	28	30		1-5	Overcast and snow flurries
	1200	58 37	61 06	SE	1	2990	30	33		5-8	Overcast and snow flurries
	2000	57 25	59 30	N	4	3002	32	33		10	Overcast and clear
November											
1	0400	56 12	57 50	SE	1	3014	33	32		15	Cloudy and clear
	1200	54 54	56 20	SW	5	3012	38	35		10	Cloudy and clear
	2000	53 32	55 20	SW	5	3020	38	35		10	Cloudy and clear
2	0400	52 03	55 29	SW	5	3018	36	36	8	0-3	Cloudy with fog patches
	1200	51 11.5	57 18	SW	4	3014	35	36	2	Nil	Cloudy with fog patches
	2000	50 15.5	59 16	WSW	1	3021	42	38		5-8	Cloudy and clear
3	0400	49 18.5	61 12.5	NNE	5	3024	42	42		10	Overcast and clear
	1200	49 03	62 28.5	NNE	8	3020	41	42		10	Overcast and clear
	2000	Off Fame Point		NE	6	3016	40	40		8-10	Overcast and clear

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Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature	Vis. Mi.	Remarks
July									
1	0400	Quebec		SW	2	29.25	58	8	Overcast and clear
	1200	Quebec		SW	1	29.40	60	10	Cloudy and clear
	2000	Quebec		SW	2	29.55	58	8	Overcast and rain
2	0400	Quebec		SW	1	29.60	56	8	Overcast and clear
	1200	Lauzon		SW	1	29.70	72	10	Cloudy and clear
	2000	Red Island		NW	3	29.69	58	15	Cloudy and clear
3	0400	Matane		W	1	29.69	54	15	Fine and clear
	1200	49 39	65 48	SW	3	29.64	54	15	Fine and clear
	2000	50 01	63 36	SE	2	29.59	56	12	Cloudy and clear
4	0400	50 00	61 20	SE	4	29.57	52	15	Fine and clear
	1200	50 19	59 15	SE	5	29.58	56	12	Cloudy
	2000	51 10	57 17	Calm	0	29.62	54	8	Overcast and clear
5	0400	51 39	56 15	NE	1	29.60	42	1	Overcast and fog
	1200	51 58	55 42	NW	1	29.65	52	½	Overcast and fog
	2000	52 30	54 55	NW	1	29.69	45	Nil	Overcast and fog
6	0400	53 52	54 10	NE	1	29.70	40	Nil	Overcast and fog
	1200	54 22	52 50	Calm	0	29.65	40	Nil	Overcast and fog
	2000	55 26	53 20	S	2	29.60	41	Nil	Overcast and fog
7	0400	56 44	55 09	SE	2	29.49	43	3	Overcast and drizzle
	1200	57 53	56 25	WNW	1	29.45	50	½	Overcast and fog
	2000	59 08	57 55	N	3	29.46	42	Nil	Overcast and fog
8	0400	60 19	59 22	NE	2	29.52	40	1-3	Overcast and fog patches
	1200	60 55	61 50	N	4	29.60	34	0	Overcast and fog patches
	2000	61 11	64 36	N	5	29.77	36	2	Overcast and fog patches
9	0400	61 54	67 10	N	2	29.84	36	10	Overcast and clear
	1200	62 04	68 24	Calm	0	29.90	42	5	Cloudy, occ. fog
	2000	62 14	69 10	Calm	0	29.95	45	15	Cloudy and clear
10	0400	62 17	69 10	Calm	0	30.02	42	½	Cloudy and fog
	1200	62 14	69 16	W	1	30.04	52	12	Fine and clear
	2000	62 13	69 12	Calm	0	30.05	47	12	Fine and clear
11	0400	62 13	69 12	Calm	0	30.05	36	1-4	Fog patches
	1200	62 13	69 12	Calm	0	30.05	38	10	Fine and clear
	2000	62 13	69 04	E	2	30.00	52	12	Cloudy and clear
12	0400	62 13	69 04	E	1	29.98	40	12	Fine and clear

METEOROLOGICAL REPORT C.G.S. C.D. HOWE

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature	Vis. Mi.	Remarks
July									
12	1200	62 13	69 04	Calm	0	29.95	43	12	Fine and clear
	2000	62 00	68 22	W	1	29.91	50	8	Fine and clear
13	0400	61 30	68 19	Calm	0	29.91	36	10	Fine and clear
	1200	Koartak		WNW	4	29.91	40	15	Fine and clear
	2000	Koartak		NNW	1	29.94	48	12	Fine and clear
14	0400	Koartak		Calm	0	29.96	43	10	Fine and clear
	1200	Koartak		Calm	0	29.95	50	15	Fine and clear
	2000	Koartak		SSW	5	29.95	72	12	Cloudy and clear
15	0400	61 44	71 06	NW	4	29.99	44	10	Fine and clear
	1200	62 31	73 20	W	7	30.03	40	¼	Fog. Sunny period
	2000	Sugluk		NE	3	30.11	49	12	Fine and clear
16	0400	Sugluk		Calm	0	30.12	40	10	Fine and clear
	1200	Sugluk		N	2	30.05	61	15	Fine and clear
	2000	63 18	75 36	ENE	4	29.97	43	10	Fine and clear
17	0400	Cape Dorset		Calm	0	29.81	36	10	Overcast and clear
	1200	Cape Dorset		SSE	3	29.60	46	5	Overcast and rain
	2000	Cape Dorset		N	1	29.43	45	11	Overcast and clear
18	0400	Cape Dorset		NW	2	29.50	42	11	Overcast and clear
	1200	Cape Dorset		NW	3	29.70	62	15	Clear and sunny
	2000	Cape Dorset		NW	1	29.76	53	15	Fine and clear
19	0400	63 23	75 43	SE	3	29.60	42	15	Overcast and clear
	1200	63 08	78 02	NW	3	29.40	40	8	Overcast and rain
	2000	Ivugivik		NNE	3	29.51	43	10	Cloudy and clear
20	0400	Ivugivik		NW	2	29.66	40	10	Cloudy and clear
	1200	61 37	78 46	SSW	3	29.83	42	15	Clear and sunny
	2000	60 10	79 02	WSW	4	29.92	40	15	Clear and cloudy
21	0400	58 42	79 08	S	2	29.95	42	15	Fine and clear
	1200	Port Harrison		SSW	2	29.95	58	15	Fine and clear
	2000	Port Harrison		N	6	29.90	56	15	Overcast and clear
22	0400	Port Harrison		N	5	29.95	47	15	Cloudy and clear
	1200	Port Harrison		N	2	30.00	60	10	Overcast and clear
	2000	Port Harrison		WNW	3	30.01	50	15	Fine and clear
23	0400	Port Harrison		N	2	30.07	44	1-3	Fog patches
	1200	57 25	78 15	SW	5	30.02	52	15	Fine and clear

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Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature	Vis. Mi.	Remarks
July									
23	2000	58 32	81 10	Calm	0	30.09	42	10	Cloudy and clear
24	0400	58 44	84 05	SW	1	29.99	42	12	Cloudy and clear
	1200	58 54	86 40	S	3	30.04	48	12	Cloudy and clear
	2000	58 58	88 06	S	3	29.66	46	8	Cloudy and clear
25	0400	59 05	90 04	SW	1	29.60	46	Nil	Fog
	1200	59 08	90 50	SW	2	29.63	52	12	Cloudy and clear
	2000	59 20	92 12	SW	6	29.54	55	8	Cloudy and rain
26	0400	Churchill		SW	2	29.53	57	15	Cloudy and clear
	1200	Churchill		NW	3	29.64	64	10	Overcast and clear
	2000	Churchill		NE	3	29.68	52	0	Fog
27	0400	Churchill		E	1	29.90	52	0	Fog
	1200	Churchill		NE	3	29.98	57	8	Fog patches
	2000	Churchill		SE	1	29.94	63	15	Overcast and clear
28	0400	Churchill		Calm	0	29.92	51	0	Fog
	1200	Churchill		Calm	0	29.75	60	8	Overcast and rain
	2000	Churchill		ESE	1	29.60	55	4	Overcast and rain
29	0400	Churchill		ENE	3	29.62	51	1	Rain and fog
	1200	Churchill		NE	2	29.78	58	5	Overcast and fog
	2000	Churchill		ENE	3	29.85	55	15	Cloudy and clear
30	0400	Churchill		Calm	0	29.90	50	0	Fog
	1200	Churchill		S	3	29.87	66	12	Cloudy and clear
	2000	Churchill		SE	3	29.80	70	10	Overcast and clear
31	0400	Churchill		SW	2	29.80	60	12	Overcast and clear
	1200	Churchill		E	2	29.80	60	12	Cloudy and clear
	2000	Churchill		ENE	3	29.82	61	10	Cloudy and clear
August									
1	0400	Churchill		E	2	29.90	58	8	Overcast and clear
	1200	Churchill		NE	1	29.78	60	3	Overcast and rain
	2000	Churchill		NE	2	29.79	52	7	Overcast and rain
2	0400	Churchill		N	6	29.79	52	10	Overcast and clear
	1200	58 54	93 56	N	6	29.78	52	12	Cloudy and clear
	2000	59 52	91 50	N	4	29.80	45	8	Cloudy and fog
3	0400	60 42	89 55	N	6	29.70	48	15	Cloudy and clear
	1200	61 40	87 43	N	9	29.69	48	10	Cloudy and clear

METEOROLOGICAL REPORT C.G.S. C.D. HOWE

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature	Vis. Mi.	Remarks
August									
3	2000	62 34	85 31	N	6	29.62	46	10	Cloudy and clear
4	0400	63 35	83 25	NNW	5	29.60	42	10	Cloudy and clear
	1200	Coral Harbour		NNW	8	29.60	44	12	Cloudy and clear
	2000	Coral Harbour		N	8	29.63	49	10	Cloudy and clear
5	0400	Coral Harbour		NNW	3	29.70	40	10	Cloudy and clear
	1200	63 52	83 24	NW	4	29.77	42	13	Cloudy and clear
	2000	63 09	81 05	NE	6	29.77	42	8	Overcast and rain
6	0400	Nottingham Island		ENE	7	29.74	42	8	Cloudy and clear
	1200	62 33	75 09	E	7	29.77	46	10	Cloudy and clear
	2000	62 10	72 16	ESE	6	29.88	38	3	Overcast and fog
7	0400	Wakeham Bay		SE	2	29.90	42	½	Overcast and fog
	1200	62 07	70 43	Calm	0	29.90	46	15	Cloudy and clear
	2000	62 10	68 48	Calm	0	29.86	41	2	Overcast and fog
8	0400	61 29	65 50	ENE	4	29.76	48	0	Overcast and fog
	1200	61 47	63 18	NE	3	29.72	44	0	Overcast and fog
	2000	62 51	61 00	ENE	6	29.68	45	0	Overcast and fog
9	0400	63 52	58 50	NE	5	29.70	46	1	Overcast and fog
	1200	65 30	58 14	NE	5	29.74	44	½	Overcast and fog
	2000	67 03	58 13	ENE	1	29.74	44	0	Overcast and fog
10	0400	68 26	58 30	Calm	0	29.74	42	0	Overcast and fog
	1200	69 22	58 14	Calm	0	29.70	42	0	Overcast and fog
	2000	69 47	57 05	NW	4	29.63	40	15	Fine and clear
11	0400	71 13	57 46	NNW	2	29.63	50	15	Fine and clear
	1200	72 04	59 25	NNE	4	29.67	46	15	Fine and clear
	2000	72 56	60 40	NNW	3	29.72	46	0	Overcast and fog
12	0400	73 54	60 40	Calm	0	29.68	36	0	Overcast and fog
	1200	74 04	62 50	Calm	0	29.86	36	0	Overcast and fog
	2000	74 22	67 18	N	4	29.93	39	0	Overcast and fog
13	0400	74 29	73 05	WNW	3	29.94	44	10	Cloudy and clear
	1200	73 57	78 03	W	6	29.76	42	15	Cloudy and clear
	2000	73 59	82 50	W	7	29.92	41	15	Fine and clear
14	0400	74 15	87 50	W	7	29.91	42	10	Cloudy and clear
	1200	74 32	93 04	SW	6	29.94	38	15	Fine and clear
	2000	Resolute Bay		SW	2	29.79	49	15	Cloudy and clear

METEOROLOGICAL REPORT C.G.S. C.D. HOWE

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature	Vis. Mi.	Remarks
August									
15	0400	Resolute Bay		NW	6	29.76	38	1-3	Cloudy and fog
	1200	Resolute Bay		WSW	5	29.79	36	½	Overcast and fog
	2000	Resolute Bay		W	5	29.66	35	4	Overcast and snow
16	0400	Resolute Bay		WNW	3	29.67	34	8	Overcast and clear
	1200	Resolute Bay		W	3	29.65	37	10	Overcast and clear
	2000	Resolute Bay		N	2	29.69	35	10	Snow flurries
17	0400	Resolute Bay		NW	4	29.72	33	10	Cloudy and clear
	1200	Resolute Bay		W	4	29.71	36	15	Overcast and clear
	2000	Resolute Bay		W	2	29.70	30	5	Fog patches
18	0400	Resolute Bay		W	1	29.71	34	10	Overcast and clear
	1200	Resolute Bay		W	3	29.81	38	10	Overcast and clear
	2000	Resolute Bay		NW	1	29.87	36	½-5	Fog patches
19	0400	Resolute Bay		NW	2	29.81	38	5-8	Overcast and fog
	1200	Resolute Bay		W	5	29.92	38	12	Cloudy and clear
	2000	Resolute Bay		WNW	3	29.93	36	10	Overcast and fog
20	0400	Resolute Bay		Calm	0	29.92	38	10	Overcast and clear
	1200	Resolute Bay		S	1	29.86	40	12	Cloudy and clear
	2000	Resolute Bay		E	2	29.79	40	8	Overcast and clear
21	0400	Resolute Bay		ENE	2	29.70	38	15	Clear and sunny
	1200	Resolute Bay		SE	4	29.64	40	15	Clear and sunny
	2000	Resolute Bay		NE	4	29.62	42	15	Cloudy and clear
22	0400	Resolute Bay		Calm	0	29.67	37	15	Fine and clear
	1200	Resolute Bay		NNW	2	29.70	48	15	Cloudy and clear
	2000	Resolute Bay		N	4	29.70	42	12	Overcast and clear
23	0400	Resolute Bay		NNE	5	29.71	36	15	Sunny and clear
	1200	Resolute Bay		N	6	29.83	46	15	Sunny and clear
	2000	Resolute Bay		N	6	29.72	40	15	Sunny and clear
24	0400	74 36	94 07	N	5	29.95	34	15	Sunny and clear
	1200	74 10	89 11	N	3	29.85	52	15	Sunny and clear
	2000	73 35	84 49	WSW	3	29.78	45	15	Sunny and clear
25	0400	Arctic Bay		N	1	29.80	40	15	Fine and clear
	1200	Arctic Bay		NNW	3	29.78	46	15	Sunny and clear
	2000	Arctic Bay		NW	3	29.78	45	15	Cloudy and clear
26	0400	74 02	83 41	WNW	7	29.76	40	1-3	Overcast and fog

METEOROLOGICAL REPORT C.G.S. C.D. HOWE

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature	Vis. Mi.	Remarks
August									
26	1200	Dundas Harbour		Calm	0	29.69	44	0	Dense fog
	2000	74 24	82 00	ESE	3	29.67	37	4	Overcast and fog
27	0400	75 05	78 03	NNW	4	29.66	38	15	Cloudy and clear
	1200	76 04	82 19	WNW	8	29.70	34	15	Cloudy and clear
	2000	Grise Fjord		E	1	29.74	45	15	Cloudy and clear
28	0400	75 59	81 34	SE	2	29.76	32	½-3	Fog patches
	1200	74 42	78 23	Calm	0	29.78	42	½	Overcast and fog
	2000	73 31	81 05	SW	3	29.77	38	0	Overcast and fog
29	0400	73 02	80 35	Calm	0	29.72	42	8	Overcast and clear
	1200	72 41	80 04	ESE	4	29.69	42	8	Overcast and clear
	2000	Pond Inlet		Calm	0	29.68	48	10	Cloudy and clear
30	0400	Pond Inlet		Calm	0	29.65	46	10	Overcast and clear
	1200	72 38	74 51	W	3	29.62	48	15	Cloudy and clear
	2000	71 35	71 05	Calm	0	29.64	43	10	Overcast and clear
31	0400	71 06	70 22	Calm	0	29.74	44	10	Overcast and clear
	1200	71 04	69 13	SE	1	29.80	46	13	Cloudy and clear
	2000	Cape Christian		Calm	0	29.85	45	10	Cloudy and clear
September									
1	0400	Cape Christian		Calm	0	29.86	42	10	Overcast and clear
	1200	Clyde River		NNE	2	29.93	58	15	Cloudy and clear
	2000	Clyde River		NW	3	29.97	44	15	Cloudy and clear
2	0400	Clyde River		NW	2	29.98	42	8	Cloudy and clear
	1200	Clyde River		NW	6	30.02	44	12	Cloudy and clear
	2000	Clyde River		Calm	0	30.00	43	8	Cloudy and clear
3	0400	70 16	67 20	S	5	29.88	36	10	Fine and clear
	1200	69 07	65 15	SSE	6	29.80	38	2	Fog and sunny
	2000	68 53	65 57	SW	7	29.70	45	15	Cloudy and clear
4	0400	68 03	64 15	Calm	0	29.70	42	12	Overcast and clear
	1200	Kivitoo		NNE	3	29.70	42	12	Overcast and clear
	2000	Broughton Island		N	3	29.75	42	2	Overcast and rain
5	0400	Broughton Island		N	1	29.76	42	5	Overcast and fog
	1200	Padloping		E	3	29.82	42	1	Overcast and fog
	2000	Padloping		E	2	29.89	39	5	Overcast and rain

METEOROLOGICAL REPORT C.G.S. C.D. HOWE

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature	Vis. Mi.	Remarks
September									
6	0400	65 54	61 36	Calm	0	29.89	40	¼	Overcast and fog
	1200	64 47	63 42	NE	3	29.88	40	15	Cloudy and sunny
	2000	65 48	66 14	Calm	0	29.81	41	0	Fog
7	0400	Pangnirtung		Calm	0	29.71	42	0	Fog
	1200	Pangnirtung		SW	3	29.63	42	0	Fog
	2000	Pangnirtung		SW	5	29.57	42	3	Overcast and fog
8	0400	Pangnirtung		SW	6	29.55	42	10	Overcast and clear
	1200	Pangnirtung		SW	5	29.60	42	10	Overcast and rain
	2000	Pangnirtung		ESE	5	29.61	38	3	Overcast and rain
9	0400	64 27	63 49	Calm	0	29.64	40	5	Overcast and rain
	1200	63 02	63 11	SW	3	29.75	42	12	Overcast and rain
	2000	62 21	65 31	SW	6	29.84	43	15	Cloudy and clear
10	0400	Allen Island		Calm	0	29.76	50	10	Overcast and clear
	1200	Frobisher Bay		S	2	29.65	50	15	Cloudy and sunny
	2000	Frobisher Bay		SE	3	29.70	52	10	Overcast and clear
11	0400	Frobisher Bay		Calm	0	29.75	50	10	Overcast and clear
	1200	Frobisher Bay		SE	7	29.78	40	12	Cloudy and clear
	2000	Frobisher Bay		SE	5	29.77	41	5	Overcast and rain
12	0400	Frobisher Bay		SE	3	29.95	41	10	Overcast and clear
	1200	Frobisher Bay		SE	6	29.74	40	5	Overcast and fog
	2000	Frobisher Bay		SE	4	29.71	43	8	Overcast and rain
13	0400	Monument Island		SE	3	29.67	42	10	Overcast and snow
	1200	62 36	66 23	SSE	6	29.62	40	Nil	Overcast and fog
	2000	61 52	67 13	SSE	4	29.46	42	Nil	Overcast and fog
14	0400	Lake Harbour		SSE	4	29.37	40	10	Overcast and clear
	1200	Lake Harbour		S	4	29.44	42	1	Overcast and rain
	2000	62 11	70 46	SE	3	29.54	44	10	Overcast and rain
15	0400	Wakeham Bay		Calm	0	29.64	48	10	Cloudy and clear
	1200	61 46	71 26	Calm	0	29.70	52	15	Cloudy and sunny
	2000	61 01	68 45	E	2	29.76	47	15	Cloudy and clear
16	0400	60 33	65 13	SE	2	29.77	40	12	Fine and clear
	1200	59 44	62 24	SE	6	29.70	40	8	Overcast and haze
	2000	58 20	60 17	SE	9	29.55	42	7	Overcast and rain

METEOROLOGICAL REPORT C.G.S. C.D. HOWE

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature	Vis. Mi.	Remarks
September									
17	0400	57 08	59 12	S	5	29.36	42	Nil	Overcast and fog
	1200	55 53	57 33	SW	5	29.38	46	12	Cloudy and sunny
	2000	54 15	56 15	WNW	2	29.56	51	1	Overcast and rain
18	0400	52 34	55 26	WSW	3	29.65	46	10	Overcast and clear
	1200	51 18	57 07	W	5	29.90	50	15	Cloudy and clear
	2000	50 16	59 22	SW	4	29.97	58	12	Fine and clear
19	0400	Natashquan		W	5	29.90	51	10	Cloudy and clear
	1200	50 00	64 30	WSW	6	29.88	54	10	Cloudy and sunny
	2000	49 27	66 57	SW	5	29.76	57	10	Cloudy and clear
20	0400	Bic Island		SW	5	29.62	55	8	Overcast and rain

METEOROLOGICAL REPORT C.G.S. EDWARD CORNWALLIS

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Sea	Vis. Mi.	Remarks
July										
11	2000	49 20	56 55	W	6	2970	58	54	10	Strong wind and cloudy
12	0400	49 46	65 14	ESE	4	2969	56	50	12	Moderate breeze, cloudy and clear
	1200	50 00	63 06	SE	3	2972	59	52	15	Gentle breeze, cloudy and clear
	2000	49 59	61 15	SSE	6	2976	58	50	5	Strong wind and hazy
13	0400	50 19	59 02	S	5	2981	54	48	5	Fresh breeze, overcast and hazy
	1200	51 05	57 30	S	5	2985	56	50	5	Fresh breeze, overcast and hazy
	2000	52 04	55 27	SW	2	2990	56	34	0	Dense fog, num. bergs and growlers
14	0400	52 13	55 31	NNW	2	2990	40	40	10	Lt. wind, clear, bergs and growlers
	1200	54 24	56 25	NNW	4	2998	40	46	12	Moderate breeze, fine and clear
	2000	54 51	57 04	NNW	2	3005	35	32	0	Dense fog, heavy drift ice 100pc
15	0400	54 50	57 12	NNW	2	3009	37	32	8	Lt. wind, hazy, numerous bergs and heavy drift ice 50 pc coverage
	1200	At Cape Harrison		NNW	2	3015	51	32	15	Lt. wind, cloudy, clear, drift ice in vicinity
	2000	55 28	57 28	Calm	0	3030	48	32	1	Calm, fog, drift ice in sight
16	0400	55 22	57 18	Calm	0	3024	37	-	0	Calm, dense fog, drift ice
	1200	55 36	56 53	Calm	0	3026	44	30	0	Calm, dense fog, heavy drift ice
	2000	56 38	57 00	NE	2	3027	46	44	12	Light wind, cloudy and clear
17	0400	57 44	58 19	NE	2	3030	41	40	2	Light wind, overcast, foggy
	1200	58 59	59 50	NW	2	3028	40	37	15	Light wind, overcast, clear
	2000	60 07	61 14	S	2	3020	38	36	15	Light wind, clear, icebergs
18	0400	61 14	62 34	SE	4	2994	37	36	15	Moderate wind, clear, scattered drift ice and numerous bergs.
	1200	61 11	65 46	SW	4	2980	40	34	10	Moderate wind, cloudy/clear, numerous ice strings
	2000	61 13	68 22	NW	5	2950	35	39	10	Fresh wind, overcast, ice.
19	0400	Hearn Island		Calm	0	2982	42	40	0	Calm, dense fog
	1200	Hearn Island		SSE	2	2950	43	40	6	Light wind, overcast/misty
	2000	Hearn Island		S	2	2923	48	40	0	Light wind, dense fog
20	0400	Hearn Island		NW	6/7	2941	39	39	1	Strong breeze, moderate gale, overcast with fog
	1200	61 07	70 01	NW	10/8	2964	39	38	6	Overcast, rain, rough sea
	2000	Hannah Island		NW	8	2981	42	37	15	Moderate gale, cloudy and clear

METEOROLOGICAL REPORT C.G.S. EDWARD CORNWALLIS

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Temperature Sea	Vis. Mi.	Remarks
July										
21	0400	Hannah Island		NW	5	2989	49	37	15	Fresh breeze, cloudy and clear
	1200	Cape Hopes Advance		WNW	2	2997	49	37	15	Light wind, fine and clear
	2000	Cape Hopes Advance		W	1	2998	39	34	15	Light wind, cloudy and clear, 100 percent ice coverage 1 mile
22	0400	61 20	70 08	NW	2	3001	38	37	10	Light wind, cloudy and clear, 100 percent packed drift ice
	1200	61 36	70 46	W	3	3008	49	31	1	Gentle wind, overcast, hazy
	2000	61 52	71 30	NW	1	3015	48	33	10	Light air, fine and clear, steaming through loose ice
23	0400	62 30	73 06	NW	2	3021	35	39	0	Light wind, dense fog
	1200	Anchored Sugluk		Calm	0	3022	58	40	20	Calm, fine and clear
	2000	Anchored Sugluk		NE	2	3022	57	38	20	Light wind, fine and clear
24	0400	Anchored Sugluk		SW	2	3018	48	38	15	Light wind, fine and clear
	1200	Anchored Sugluk		SW	3	3015	66	38	15	Gentle wind, fine and clear
	2000	Anchored Sugluk		WSW	4	3010	65	39	15	Moderate wind, fine and clear
25	0400	Anchored Sugluk		WSW	5/6	3001	58	40	15	Fresh to strong wind, cloudy
	1200	Anchored Sugluk		WSW	5	2997	66	40	15	Fresh breeze, cloudy and clear
	2000	Anchored Sugluk		NE	2	2990	59	40	10	Light wind, cloudy and clear
26	0400	Anchored Sugluk		W	2	2980	56	40	15	Light wind, cloudy and clear
	1200	Anchored Sugluk		WSW	2	2977	60	40	5	Light wind, misty and overcast
	2000	Anchored Sugluk		NE	2	2982	48	40	2	Light wind, rain and fog
27	0400	Anchored Sugluk		NE	2	2996	43	40	10	Light wind, cloudy and clear
	1200	62 28	76 06	WNW	4	3005	48	42	12	Moderate breeze, fine and clear
	2000	Erik Cove		NNW	2	3012	46	50	15	Light wind, fine and clear
28	0400	Erik Cove		SE	2	2018	42	37	15	Light wind, fine and clear
	1200	Erik Cove		W	3	3015	62	36	15	Gentle wind, fine and clear
	2000	61 26	77 58	W	1	3010	51	36	15	Gentle wind, fine and clear
29	0400	61 26	78 50	SSW	1	3003	46	45	15	Light wind, cloudy and clear
	1200	59 59	78 18	SE	2	3000	60	44	15	Light wind, fine and clear
	2000	Povungnituk		N	5	2993	54	52	15	Moderate wind, fine and clear
30	0400	Povungnituk		E	2	2994	57	47	15	Light breeze, fine and clear
	1200	Povungnituk		E	4	3000	66	46	15	Moderate breeze, fine and clear
	2000	60 03	78 48	NNW	2	3003	49	53	15	Light wind, fine and clear
31	0400	60 01	81 35	NW	2	3002	44	45	15	Light wind, fine and clear

METEOROLOGICAL REPORT C.G.S. EDWARD CORNWALLIS

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Sea	Vis. Mi.	Remarks
July										
31	1200	59 46	84 42	NW	1	3007	56	40	12	Light wind, fine, clear
	2000	59 36	87 21	Calm	0	3009	44	38	15	Fine and clear, smooth sea
August										
1	0400	59 28	88 40	Calm	0	3006	36	36	10	Fine and clear, drift ice 40 pc
	1200	59 31	90 56	Calm	0	3003	42	32	10	Fine and clear, close pack ice 85 pc
	2000	59 31	91 32	Calm	0	2999	36	33	10	Calm, cloudy and clear
2	0400	59 24	92 06	NNE	2	2990	34	33	3	Light wind, rain, pack drift ice 85 per cent
	1200	59 06	93 28	NNE	4	2992	51	49	10	Moderate wind, cloudy and clear
	2000	Churchill		N	4	3002	52	50	12	Moderate wind, cloudy and clear
3	0400	Churchill		N	6	3001	50	48	10	Strong wind, overcast, clear
	1200	Churchill		NE	6	3012	48	50	10	Strong wind, cloudy, clear
	2000	Churchill		NNW	4	3016	59	50	12	Moderate wind, fine and clear
4	0400	Churchill		W	2	3014	48	50	12	Light wind, fine and clear
	1200	Churchill		SE	2	3011	60	50	15	Light wind, fine and clear
	2000	Churchill		SE	5	3010	53	50	12	Fresh breeze, cloudy and clear
5	0400	Churchill		SE	2	3015	48	50	10	Light wind, overcast, clear
	1200	Churchill		S	2	3020	58	50	12	Light wind, fine and clear
	2000	Churchill		SE	5	3007	55	50	12	Light wind, fine and clear
6	0400	Churchill		SSE	6	2990	52	50	10	Strong wind, cloudy and clear
	1200	Churchill		SE	4	2968	59	50	10	Moderate breeze, overcast and rain
	2000	59 15	93 22	SE	2	2962	63	46	12	Light wind, fine and clear
7	0400	60 19	91 27	ENE	2	2956	42	42	0	Light wind, fog, east swell
	1200	61 04	89 06	ESE	3	2956	46	46	0	Gentle wind, dense fog
	2000	61 28	86 22	ENE	2	2956	41	41	12	Light wind, overcast and clear
8	0400	61 48	83 42	E	6	2942	40	40	1/4	Strong wind, rain/fog, moderate sea
	1200	62 16	81 07	ENE	7	2934	45	40	3	Moderate gale, rain/fog, rough sea
	2000	78 36	78 36	ENE	7	2937	40	40	3	Moderate gale, overcast, rain, vis.3
9	0400	62 36	76 39	EXS	6	2948	38	36	5	Strong wind, overcast, clear
	1200	Anchored Sugluk		NE	5	2957	49	41	10	Fresh breeze, cloudy and clear
	2000	Anchored Sugluk		NE	5	2948	46	42	10	Fresh wind, cloudy and clear
10	0400	Anchored Sugluk		NE	2	2964	40	40	15	Moderate wind, cloudy and clear
	1200	Anchored Sugluk		ENE	4	2967	47	42	12	Moderate wind, cloudy and clear
	2000	62 22	75 20	NW	2	2974	38	36	15	Light wind, cloudy and clear

METEOROLOGICAL REPORT C.G.S. EDWARD CORNWALLIS

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Sea	Vis. Mi.	Remarks
August										
11	0400	62 29	72 20	NW	2	2974	38	36	15	Light wind, cloudy and clear
	1200	62 28	72 28	NW	2	2978	39	33	3	Light wind, cloudy and foggy
	2000	Lake Harbour		SSW	1	2978	51	34	8	Light air, overcast, rain showers
12	0400	Lake Harbour		Calm	0	2978	44	33	0	Calm dense fog
	1200	Lake Harbour		SE	3	2982	44	34	12	Gentle breeze, fine and clear
	2000	Lake Harbour		SE	3	2986	38	34	8	Gentle wind, overcast and clear
13	0400	Lake Harbour		SE	4	2981	34	41	12	Moderate wind, cloudy and clear
	1200	62 27	71 09	SE	5	2970	34	34	5	Fresh wind, rain/fog
	2000	62 32	73 56	SE	5	2956	39	37	0	Moderate wind, dense fog
14	0400	62 40	76 54	WNW	2	2965	39	35	1/2	Light wind, rain/fog, smooth sea
	1200	62 33	79 36	NNW	5	2967	45	42	8	Fresh wind, clear, overcast
	2000	61 58	82 12	NW	4	2976	42	40	15	Moderate wind, cloudy and clear
15	0400	61 22	84 49	WNW	4	2978	42	40	12	Moderate wind, cloudy and clear
	1200	60 37	87 50	NW	4	2983	48	42	12	Moderate wind, fine and clear
	2000	59 10	90 20	NW	4	2996	45	42	15	Moderate wind, fine and clear
16	0400	59 21	92 32	NW	4	3007	48	48	12	Moderate wind, cloudy and clear
	1200	58 50	94 06	NNW	2	3012	66	50	15	Light wind, fine and clear
	2000	Churchill		SE	2	3015	54	51	12	Light wind, cloudy and clear
17	0400	Churchill		Calm	0	3010	56	52	10	Calm, fine and clear
	1200	Churchill		NNW	2	3011	70	50	12	Light wind, fine and clear
	2000	Churchill		W	4	3010	64	53	12	Moderate wind, cloudy and clear
18	0400	Churchill		W	5	2994	56	48	12	Fresh wind, cloudy and clear
	1200	Churchill		N	4	2984	67	50	12	Moderate wind, fine and clear
	2000	Churchill		N	5	2992	58	63	15	Fresh wind, cloudy and clear
19	0400	59 05	92 28	N	6	2997	49	51	15	Strong wind, fine and clear
	1200	58 22	90 20	NNW	6	3010	44	44	12	Strong wind, cloudy and clear
	2000	58 38	89 32	NNW	4	3019	41	42	12	Moderate wind, fine and clear
20	0400	57 50	88 16	NW	2	3023	39	39	12	Light wind, moderate sea, heavy swell
	1200	56 45	86 34	W	4	3030	61	39	15	Moderate wind, heavy swell, fine
	2000	55 54	84 58	WSW	4	3033	43	40	15	Moderate wind, fine and clear
21	0400	Winisk Anchorage		WSW	2	3034	45	46	15	Light wind, fine and clear
	1200	55 57	83 32	SE	2	3034	55	44	15	Light wind, fine and clear
	2000	55 23	81 23	SE	5	3025	48	40	15	Fresh wind, partly cloudy
22	0400	55 15	79 09	S	4	3018	47	38	15	Moderate wind, fine and clear

METEOROLOGICAL REPORT C.G.S. EDWARD CORNWALLIS

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Sea	Vis. Mi.	Remarks
August										
22	1200	Great Whale River		SXW	7	3009	58	44	8	Mod. gale, overcast, rain squalls
	2000	Great Whale River		SSW	6/7	2983	60	43	3/10	Strong wind, heavy rain
23	0400	Great Whale River		SSW	6/7	2955	62	44	5	Moderate gale, heavy rain squalls
	1200	Great Whale River		WSW	6	2970	44	46	1	Strong wind, fog and rain
	2000	Laverock Bay		WSW	7	2986	42	45	2	Moderate gale, cloudy and hazy
24	0400	Laverock Bay		WSW	4	2987	45	45	10	Moderate wind, cloudy and clear
	1200	55 14	78 20	WSW	3	2987	51	44	12	Gentle wind, fine and clear
	2000	54 53	79 51	S	5	2977	50	45	12	Fresh wind, fine and clear
25	0400	55 06	80 14	NW	5/6	2960	43	43	1/2	Strong wind, rain squalls
	1200	54 40	79 49	WSW	4	2977	50	42	12	Moderate wind, cloudy and clear
	2000	55 10	78 20	NW	5	2977	38	42	3/8	Fresh wind, fog patches
26	0400	Great Whale River		NW	2	3004	40	45	5	Light wind, overcast and clear
	1200	Great Whale River		NE	4	2995	43	45	12	Moderate wind, overcast and clear
	2000	Great Whale River		N	6	2996	43	45	6	Strong wind, overcast and clear
27	0400	Great Whale River		NNW	6/7	3011	40	45	5	Strong wind, overcast and clear
	1200	Laverock Bay		NW	3	3021	44	45	10	Fresh breeze, fog and mist
	2000	Laverock Bay		WNW	5	3032	42	45	4	Fresh breeze, fog and mist
28	0400	Laverock Bay		W	4	3031	38	45	2	Moderate wind, fog and mist
	1200	Laverock Bay		SW	1	3030	48	45	15	Light wind, cloudy and clear
	2000	Laverock Bay		S	2	3018	50	45	10	Light wind, cloudy and clear
29	0400	Laverock Bay		S	2	3020	50	43	15	Light wind, fine and clear
	1200	Laverock Bay		S	4	3010	54	46	10	Moderate overcast, light rain
	2000	Laverock Bay		SW	2	3002	52	45	12	Light wind, cloudy and clear
30	0400	Laverock Bay		W	4	2998	41	45	3	Moderate wind, light rain
	1200	Laverock Bay		WSW	4	3007	46	45	10	Moderate wind, cloudy and clear
	2000	Laverock Bay		W	2	3010	46	46	12	Light wind, fine and clear
31	0400	Laverock Bay		N	2	3014	40	46	1/2	Light wind, overcast and fog
	1200	55 15	79 10	WSW	2	3019	46	44	12	Light wind, cloudy and clear
	2000	56 02	81 18	SW	4	3009	46	44	12	Moderate wind, fine and clear
September										
1	0400	57 48	81 23	N	5	3006	42	42	0	Fresh wind, fog dense
	1200	59 27	81 23	NE	3	3015	48	42	12	Gentle wind, cloudy and clear
	2000	60 55	79 56	NNE	2	3016	42	43	15	Moderate wind, overcast and fog

METEOROLOGICAL REPORT C.G.S. EDWARD CORNWALLIS

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Air	Temperature Sea	Vis. Mi.	Remarks
September										
2	0400	62 32	78 46	NNE	4	3015	42	42	0	Moderate wind, fog and overcast
	1200	62 35	76 19	ESE	2	3020	42	38	0	Light wind, dense fog
	2000	61 39	75 33	NW	2	3024	43	39	12	Light wind, fine and clear
3	0400	63 49	76 14	NW	2	3028	36	36	12	Light wind, fine and clear
	1200	64 05	76 05	S	3	3027	36	34	12	Gentle wind, fine and clear
	2000	52 52	73 28	S	2	3024	40	38	15	Light wind, fine and clear
4	0400	61 35	70 38	S	2	3019	42	39	12	Light wind, clear
	1200	Anchored Hearn Is.		NNW	2	3020	48	39	12	Light wind, cloudy and clear
	2000	60 55	66 53	S	2	3017	42	--	12	Light wind, partly cloudy
5	0400	60 14	63 28	S	4	3011	40	38	12	Moderate wind, fine and clear
	1200	58 50	61 40	S	3	3020	45	39	15	Gentle wind, clear
	2000	57 27	59 57	SSE	5	3022	42	36	15	Fresh wind, fine and clear
6	0400	56 05	58 10	SE	7/8	3008	39	39	8	Moderate gale, overcast and clear
	1200	55 02	55 50	SE	7/8	2975	40	40	3	Moderate gale, overcast, fog/rain
	2000	54 18	56 06	S	4	2962	44	40	10	Moderate wind, overcast and clear
7	0400	53 00	55 29	SSW	4	2968	48	42	10	Moderate wind, clear and cloudy
	1200	51 34	56 26	SW	4	2985	52	40	15	Moderate wind, fine and clear
	2000	50 38	58 28	S	4	2994	51	43	15	Moderate wind, fine and clear
8	0400	49 59	60 52	SW	2	2988	49	49	0	Light wind, dense fog
	1200	50 01	63 37	W	4	2992	47	52	15	Moderate wind, fine and clear
	2000	49 33	65 65	WSW	5	2997	48	50	15	Fresh wind, partly cloudy, clear
9	0400	48 46	68 17	WSW	2	3010	48	49	15	Light wind, cloudy and clear
	1200	47 46	69 44	WSW	2	3022	52	46	15	Light wind, cloudy and clear
	2000	Richelieu		WSW	4	3040	58	49	15	Light wind, fine and clear
10	0400	Lanoraie, above Sorel		Calm	0	3051	50	68	0	Calm, dense fog
	1200	Section 22, Montreal		SW	2	3044	70	67	10	Light breeze, overcast and clear

METEOROLOGICAL REPORT C.G.S. d'IBERVILLE

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Max	Min	Sea	Vis. Mi.	Remarks
August											
1	0400	Quebec		W	1	2940	78	50		15	Overcast
	1200	St Jean, I.O.		W	2	2972	78	50		15	Overcast
	2400	Father Point		E	4	2973	78	50		0	Foggy
2	0400	49 01	67 43	N	6	2973	64	58		15	Overcast
	1200	49 31	66 15	NE	4	2971	64	58		5	Overcast and rain
	2400	50 00	63 04	E	4	2970	64	58	57	15	Overcast
3	0400	50 00	61 02	NE	2	2967	55	51	57	5	Overcast
	1200	50 02	59 59	NE	4	2964	55	51	57	10	Overcast
	2400	51 05	57 28	NE	4	2967	55	51	54	4	Overcast and rain
4	0400	51 28	56 39	NE	5	2971	52	46	46	0	Overcast and rain
	1200	52 24	55 28	NE	3	2983	52	46	47	0	Overcast and fog
	2400	54 24	55 27	E	4	2987	52	46	48	0	Overcast and fog
5	0400	55 05	55 28	E	3	2987	47	43	40	0	Overcast and fog
	1200	56 07	56 58	SE	6	2985	47	43	42	0	Overcast and fog
	2400	57 38	59 09	SE	5	2975	47	43	42	0	Overcast and fog
6	0400	58 08	59 55	NE	2	2973	42	37	38	0	Overcast and fog
	1200	51 10	61 37	N	3	2983	42	37	40	0	Overcast and fog
	2400	59 31	63 53	N	4	2991	42	37	37	0	Overcast and fog
7	0400	Port Burwell		N	2	2988	42	37	33	0	Overcast and fog
	1200	61 02	64 09	NNE	4	2992	42	37	33	0	Overcast and fog
	2400	63 29	62 10	NNE	4	2997	42	37	36	0	Overcast and fog
8	0400	64 14	61 28	NE	3	2996	47	40	40	15	Overcast and cloudy
	1200	65 28	60 25	N	1	2997	47	40	35	0	Thick fog
	2400	66 00	59 00	Calm	0	2991	47	40	32	15	Overcast
9	0400	66 30	58 35	Calm	0	2991	47	36	38	0	Overcast and fog
	1200	67 20	58 30	SW	4	2987	47	36	36	0	Overcast and fog
	2400	69 20	58 16	SE	4	2987	47	36	36	0	Overcast and fog
10	0400	69 28	58 18	SE	4	2987	52	33	33	0	Overcast and fog
	1200	69 28	58 18	Calm	0	2983	52	33	33	0.5	Cloudy and foggy
	2400	69 35	57 20	N	2	2979	52	33	33	0	Fog
11	0400	69 43	57 25	W	2	2979	51	30	37	0	Overcast and fog
	1200	70 19	56 37	Calm	0	2981	51	30	37	0	Overcast and fog
	2400	72 08	57 50	NW	2	2983	51	30	40	15	Clear
12	0400	72 45	58 50	N	4	2987	44	35	43	0	Low fog

METEOROLOGICAL REPORT C.G.S. d'IBERVILLE

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Max	Min	Sea	Vis. Mi.	Remarks
August											
12	1200	73 43	60 15	N	3	2997	44	35	42	0	Cloudy and fog
	2400	74 51	63 55	WNW	4	3003	44	35		15	Clear
13	0400	79 49	64 25	WNW	4	3005	50	36	34	0	Overcast and fog
	1200	74 45	67 00	WNW	3	3008	50	36	38	0	Overcast and fog
	2400	74 43	75 00	NW	4	3005	50	36	39	15	Cloudy
14	0400	74 34	77 34	W	4	3005	48	38	40	15	Cloudy
	1200	74 22	82 38	WSW	3	3000	48	38	40	15	Cloudy
	2400	74 24	90 07	W	4	2989	48	38	38	15	Cloudy
15	0400	74 32	91 58	W	4	2983	36	32	31	3	Overcast and fog
	1200	Resolute Bay		W	4	2994	36	32	30	15	Cloudy
	2400	Resolute Bay		W	6	2980	36	32	30	15	Cloudy
16	0400	Resolute Bay		W	4	2983	34	31	30	15	Overcast
	1200	Resolute Bay		NW	4	2980	34	31	30	4	Overcast and snow
	2400	Resolute Bay		NW	5	2996	36	31	30	15	Overcast
17	0400	Resolute Bay		NW	4	2989	37	30	30	10	Cloudy
	1200	Resolute Bay		NW	4	2985	37	30	30	15	Cloudy and clear
	2400	Resolute Bay		NW	2	2986	37	30	30	3	Overcast and fog
18	0400	Resolute Bay		SE	2	2989	42	29	29	15	Cloudy and clear
	1200	Resolute Bay		Calm	0	2995	42	29	30	15	Overcast
	2400	74 22	85 40	E	3	2991	42	29	35	15	Clear
19	0400	74 22	82 36	E	2	2992	46	31	36	5	Fog
	1200	75 15	78 48	NW	5	2988	46	31	34	15	Clear
	2400	76 15	86 55	NW	8	2994	46	31	33	15	Cloudy
20	0400	76 29	89 48	NW	5	3003	36	30	29	10	Overcast
	1200	77 37	89 16	NW	2	3000	36	30	30	0	Overcast and fog
	2400	78 12	88 00	Calm	0	2995	36	30	30	15	Overcast
21	0400	78 53	85 36	NE	2	2994	38	34	32	15	Overcast
	1200	79 38	85 27	NNW	4	2987	38	34	31	15	Overcast
	2400	Eureka		W	4	2992	38	34	31	15	Clear
22	0400	Eureka		W	6	2983	37	30	32	10	Clear
	1200	Eureka		W	5	2984	37	30	30	10	Clear
	2400	79 40	85 39	W	2	2991	32	30	30	10	Clear
23	0400	78 52	85 50	Calm	0	2996	42	38	30	15	Clear
	1200	77 29	89 30	NW	1	3005	42	38	32	15	Clear

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Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Max	Min	Sea	Vis. Mi.	Remarks
August											
23	2400	76 55	89 45	NW	2	3009	42	38	30	5	Cloudy and foggy
24	0400	76 22	89 06	NW	4	3007	30	32	30	3	Overcast and fog
	1200	76 02	83 16	SW	3	3000	46	28	32	15	Clear
	2400	74 16	77 44	SSE	2	2990	46	28	32	15	Clear
25	0400	73 25	76 15	SW	3	2988	50	35	37	15	Clear
	1200	72 42	78 02	Calm	0	2990	50	35	35	0	Fog
	2400	73 58	81 26	NNW	5	2990	50	35	35	0	Fog
26	0400	74 17	82 05	W	2	2989	43	31	34	0	Overcast and fog
	1200	Dundas Harbour		Calm	0	2983	43	31	34	0	Overcast and fog
	2400	74 10	81 00	SW	1	2981	43	31	30	15	Cloudy
27	0400	73 47	78 12	SW	2	2981	44	32	34	5	Cloudy, fog patches
	1200	72 44	73 57	N	3	2985	44	32	34	15	Cloudy
	2400	71 11	68 45	SE	3	2990	44	32	38	1/2	Overcast and fog
28	0400	70 27	66 58	SE	5	2991	44	33	32	15	Cloudy
	1200	68 57	64 10	SW	3	2996	44	33	32	15	Cloudy
	2400	66 48	60 59	E	3	2980	44	33	32	15	Overcast
29	0400	65 56	61 22	SW	2	2980	37	31	34	1	Overcast and fog
	1200	64 17	62 26	E	3	2980	37	31	32	3	Overcast and fog patches
	2400	62 00	63 54	SE	2	2979	37	31	36	15	Cloudy
30	0400	61 16	64 35	SW	2	2977	52	34	31	1-5	Overcast and fog patches
	1200	61 11	67 49	S	2	2969	52	34	33	15	Cloudy
	2400	Diana Bay		NW	3	2989	52	34	34	15	Overcast
31	0400	Diana Bay		SW	2	2997	55	42	39	15	Overcast
	1200	Diana Bay		NW	5	2999	55	42	40	12	Cloudy
	2400	Diana Bay		NW	4	3010	55	42	38	15	Clear
September											
1	0400	Diana Bay		NW	4	3010	54	34	38	15	Overcast
	1200	60 54	70 01	NNW	5	3009	54	34	36	15	Clear
	2400	60 53	65 50	E	2	3005	54	34	34	15	Cloudy
2	0400	60 34	64 00	E	2	3003	40	35	33	10	Overcast
	1200	59 21	62 06	NNW	4	3000	40	35	33	10	Cloudy
	2400	57 14	59 00	W	4	3002	40	35	35	1	Overcast and fog
3	0400	56 28	57 52	SW	2	3005	43	34	34	0	Overcast and fog
	1200	55 08	56 17	SSE	3	3016	43	34	34	5	Cloudy and foggy

METEOROLOGICAL REPORT C.G.S. d'IBERVILLE

Date	Time	Lat. N. ° '	Long. W. ° '	Wind True	Force	Barometer	Temperature Max	Min	Sea	Vis. Mi.	Remarks
September											
3	2400	52 56	55 20	E	5	3005	43	34	40	10	Overcast
4	0400	52 07	55 28	NE	3	2996	52	42	38	1-2	Overcast and fog
	1200	51 01	57 37	NE	6	3006	52	42	43	10	Cloudy
	2400	49 55	60 42	ENE	6	3013	52	42	42	10	Overcast
5	0400	50 05	62 07	NE	7	3010	50	43	42	5	Overcast and rain
	1200	49 58	64 38	NE	7	2985	50	43	44	0	Overcast, rain and fog
	2400	48 56	67 56	NW	6	2974	50	43	45	0	Overcast, rain and fog
6	0400	48 30	68 50	NW	8	2974	70	44	49	10	Cloudy and clear
	1200	Cape Martin		SW	3	2996	44	44	44	15	Cloudy and clear
	2400	Quebec									

CANADIAN GOVERNMENT ICEBREAKERS AND SUPPLY SHIPS

C.G.S. N.B. McLEAN

Twin screw steamship, steel icebreaker, built in 1930, by Halifax Shipyards Ltd., Halifax, N.S. Registered dimensions: 260.0 ft. length, 60.3 ft. beam, 28.8 ft. depth. Tonnage: gross, 3,254, net register, 1,171. The twin screws are driven by reciprocating engines having a total of 6,500 IHP. Vessel keeps continuous radio telegraph watch on 500 k.c. (international distress frequency) and is equipped for communication by radio telephone on 2,182 k.c. (distress and calling frequency), and 2,738 k.c. (ship to ship frequency). Diving equipment and salvage gear are carried on board.

C.G.S. C.D. HOWE

Steel twin screw steamship, strengthened for ice, cargo and passengers, built in 1950, by Davie Shipbuilding and Repairing Company, Ltd., Lauzon, P.Q. Registered dimensions: 280.5 ft. length, 50.2 ft. beam, 23.5 ft. depth. Tonnage: gross, 3,628, net register, 1,871. The twin screws are driven by reciprocating engines having a total of 4,000 IHP. Vessel keeps continuous radio telegraph watch on 500 k.c. (international distress frequency) and is equipped for communication by radio telephone on 2,132 k.c. (distress and calling frequency), and 2,738 k.c. (ship to ship frequency).

C.G.S. EDWARD CORNWALLIS

Steel twin screw steamship, strengthened for ice, cargo and passengers, built in 1949, by Canadian Vickers Ltd. Montreal, P.Q. Registered dimensions: 245.0 ft. length, 43.6 ft. beam, 18.1 depth. Tonnage: gross, 1,965, net register, 916. Engine type: 3 cyl. Skinner Uniflow Steam. IHP 1400 @ 130 RPM. 3 boilers. Equipped with all Marconi radio equipment. Telegraph transmitter LTT 4; Emergency transmitter ME 100. Radiophone equipment CM16 (in wheelhouse). Two receivers in radio room: SMR3A and MFL 5. Marconi Direction Finder MDF 5. Also Kelvin Hughes radar, Henry Hughes Echo sounding equipment, and Henry Hughes Recording Receiver Type 3 -110 volts.

C.G.S. d'IBERVILLE

Twin screw steamship, steel icebreaker, built in 1952, by Davie Shipbuilding and Repairing Co. Ltd., Lauzon, P.Q. Registered dimensions: 290.8 ft. length, 66.8 ft. beam, 37.1 ft. depth. Tonnage: gross, 5,678, net register, 2,038. The twin screws are driven by Skinner Uniflow Steam reciprocating engines having a total of 10,800 IHP. Vessel keeps continuous radio telegraph watch on 500 k.c. (international distress frequency) and is equipped for communication by radio telephone on 2,182 k.c., 2,134 k.c., and 2,738 k.c. Transmitters being RCA model ET 8051, ET 8052 and 8043, output 250 watts, 300 watts, and 40 watts respectively with a Canadian Marconi, CM36 radio telephone unit. Pye TTC 351, VHF 121.5 and 121.9 megs.

C.G.S. MONTCALM

Twin screw steamship, steel icebreaker, built in 1957, by Davie Shipbuilding and Repairing Co. Ltd., Lauzon, P.Q. Registered dimensions: 208 ft. length, 48.ft. beam, and 18 ft. depth. Tonnage: gross, 2,017, net register, 768. The twin screws are driven by Skinner Uniflow steam reciprocating engines having a total of 4,000 IHP. Vessel keeps continuous radio telegraph watch on 500 k.c. (international distress frequency) and is equipped for communication by radio telephone on 2,182 k.c.,2,134 k.c. and 2,738 k.c. Transmitters being RCA model ET 8051, ET 8052 and 8043, output 250 watts, 300 watts and 40 watts respectively with Canadian Marconi CM36 radio telephone unit. Pye TTC 351, VHF 121.5 and 121.9 megs.

Each vessel is equipped with the most modern navigational equipment.