CANADA
DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

PRELIMINARY SERIES

SHEET 47 (PART OF)

DESCRIPTIVE NOTES

Sea-ice conditions in this area vary greatly from year to year but, in general, navigation except by ice-breakers or small gasoline-powered boats cannot be expected. Areas accessible to ski-equipped aircraft during the winter depend greatly on conditions at the time of freeze-up in early October, but in general smooth ice can be found in widely separated localities. Landings by seaplanes along the coast in summer are also subject to ice conditions. Lakes suitable for landings are present in the northern and western parts of the area and in the eastern part on both sides of Fury and Hecla Strait.

There are no white settlers in the area, but at Igloolik, some miles to the southeast, a Hudson's Bay trading post and a Roman Catholic mission have been established. About 150 Eskimo inhabit the region. They are scattered amongst several camps and tend to move their camp-sites from season to season.

The area embraces lowland and upland regions. The east coast of Melville Peninsula and an area south of Bell Bay and west of Nyeboe Fiord are low, drift covered, and almost totally lacking in outcrops, whereas the remainder of the area reaches elevations in excess of 1,000 feet and, although extensively covered by drift, has abundant outcrops. In general the areas underlain by granitic rocks (2) are rugged with innumerable steep-walled valleys whereas those parts characterized by sandstone and shale (3), although mostly high, tend to exhibit a more rounded topography.

The entire region appears to have been glaciated. The directions of striae and drumlinoid ridges plotted suggest movement from the northeast north of Fury and Hecla Strait and possibly from the southeast on Melville Peninsula. Drift deposits (6, 6a) are extensive and features due to marine submergence are widespread. Raised beaches (6b) were observed as high as 600 feet above present sea-level and marine shells were collected on beaches with elevations of up to 450 feet.

North and southwest of Richards Bay is an assemblage of amphibole schist, biotite schist, and chlorite schist (1) part of which is highly epidotized. Here and there are relics of pillowed flows and some coarse-grained diabasic layers that may be the centres of flows. South of Richards Bay quartzite and minor amounts of graphite schist and crystalline limestone are included. This succession is intruded by surrounding granitic rocks and, north of Richards Bay, small stocks of microcline-biotite granite are common within it. Although in most places the contact is sharp, along the north shore of Quilliam Bay it is less clearly defined and the readily distinguishable assemblage of quartzite and schist gradually passes into mixed granitic and biotite and/or hornblende gneisses. There the contact as shown on the map is arbitrary, especially as regards the westwards projection of the group.

The bulk of the rocks mapped as Precambrian in this map-area are granitic in composition (2). Although it has been established that rocks of this type are intrusive into the sedimentary-volcanic group (1) the relationship of these particular rocks to the granitic and gneissic rocks occupying large areas throughout the map-area is unknown. Along the shores of Nyeboe Fiord in the western part of the area are extensive areas of hybrid gneisses consisting of granitic gneiss and biotite- and/or amphibole-rich gneiss. Similar rocks are found all through the region, separated by widespread stretches of more massive granitic rocks that appear to grade into the hybrid types. Dykes of quartz-feldspar pegmatite are abundant cutting the granite and gneisses and trending in all directions.

The Proterozoic and/or Palaeozoic sedimentary rocks (3) although similar to those mapped at Admiralty Inlet[1] farther to the north cannot be directly correlated with them nor can the rock unit names established there be used. In the Fury and Hecla Strait region these rocks comprise a considerable thickness of reddish brown to yellowish orange sandstone, conglomerate, and grit, overlain in places by an assemblage of black slate, siltstone, dolomite, and limestone.

These rocks are intruded by sills and dykes of gabbro (4) which are most widespread along the shores of Fury and Hecla Strait. Similar rocks intrude the granitic rocks (2) but are much less abundant.

Palaeozoic sedimentary rocks (5), mainly limestone, dolomite and sandstone with minor amounts of shale all presumably of Ordovician and/or Silurian age, outcrop throughout the map-area. For the most part they are unfossiliferous, but a collection of fossils made at Mogg Bay in the southeast part of the area according to G. W. Sinclair proved to be typical of the Arctic Red River fauna of Ordovician age and similar to a fauna collected at Frobisher Bay and in part to material from Cornwallis Island. For the most part the Palaeozoic rocks rest unconformably on the Precambrian granitic rocks, but east of Admiralty Inlet and north of Gifford River, in an area not examined by the writer M. Marsden (Arctic Institute of North America) reports that the Palaeozoic rocks are underlain by dark red sedimentary rocks. These may be similar to unit 3 or they may be a southward extension of the lower part of the Admiralty group[1] as mapped along the shores of Admiralty Inlet some miles to the north.

The rocks of unit 1 are intruded by granite (2) which is overlain unconformably by sandstones (3) which in turn are cut by gabbro dykes and sills presumed, on the basis of similarities with intrusions examined at Admiralty Inlet[1], to be of Early Cambrian or older age. On this basis units 1 and 2 are considered tentatively to be Archaean in age and unit 3 to be Proterozoic and/or Early Cambrian.

The rocks of unit 1 have a southerly to easterly dip, at angles ranging from less than 20 degrees to nearly vertical. The steepest dips appear to be on the south and east of the outcrop area. The sandstones and shales of Proterozoic and/or Palaeozoic age (3) outcrop in what appears to be a syncline, the axis of which lies along Fury and Hecla Strait. For the most part the Palaeozoic rocks (5) are flat-lying and appear to be relatively thin.

No deposits of economic interest were observed.

[1] Blackadar, R. G.: Geological Reconnaissance, Admiralty Inlet, Northwestern Baffin Island; Geol. Surv., Canada, Paper 55-6, 1955.

LEGEND

CENOZOIC
- RECENT
  - 6 — Undivided surficial deposits; 6a, drift in places showing fluted and drumlinoid forms; 6b, predominantly raised beaches

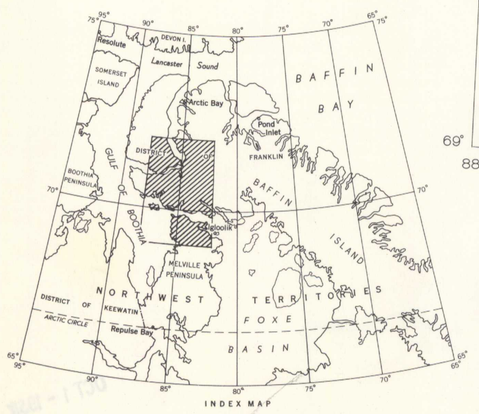
PALAEOZOIC
- ORDOVICIAN AND/OR EARLIER
  - 5 — Undivided; 5a, limestone, dolomite, argillaceous limestone, shale; 5b, sandstone

PROTEROZOIC AND/OR PALAEOZOIC
- CAMBRIAN OR EARLIER
  - 4 — Dykes and sills of gabbro
  - 3 — Undivided; 3a, sandstone, grit, conglomerate; 3b, shale or slate; 3c, siltstone; 3d, limestone, dolomite

ARCHAEAN (?)
- 2 — Undivided granitic rocks; 2a, granite; 2b, granitic gneiss; 2c, hybrid gneiss
- 1 — 1a, quartzite, graphitic schist, crystalline limestone; 1b, greenschists, in part volcanic rocks

- Geological boundary; (approximate, assumed)
- Limit of geological mapping
- Bedding (inclined, vertical)
- Schistosity (inclined, vertical)
- Glacial striae (direction of movement known, unknown)
- Drumlinoid ridges
- Glacial flutings
- Esker
- Fossil locality (F)
- Marine shell locality (S)
- Raised beach (B)

Geology by R. G. Blackadar, 1956 and 1957



INDEX MAP

PUBLISHED, 1958
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Air photographs covering this area may be obtained through the National Air Photographic Library, Topographical Survey, Ottawa, Ontario

In response to public demand for earlier publication, Preliminary Series maps are now being issued in this simplified form, thereby effecting a substantial saving in time. There is no loss of information, but the maps will be clearer to read if all or some of the map-units are hand-coloured.

MAP 3-1958

FURY AND HECLA STRAIT

DISTRICT OF FRANKLIN

NORTHWEST TERRITORIES

Scale: One Inch to Eight Miles = 1/506,880

8 4 0 8 16 24 Miles

LEGEND

- Braided stream
- Tidal flat
- Cliff
- Height in feet above mean sea-level 340

Approximate magnetic declination, 62° 24' West

Cartography by the Geological Cartography Unit, 1958

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MAP 3-1958
FURY AND HECLA STRAIT
N. W. T.

Adjoins Map 4-1958, "Foxe Basin North"

Fury & Hecla Strait, NWT. Map 3-1958

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