PRELIMINARY SERIES

GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF MINES AND TECHNICAL SURVEYS

SHEETS 39, 49, 59, 69 (PARTS OF)

LEGEND

CENOZOIC

PLEISTOCENE AND RECENT

23 Glaciers, snowfields

22 Emerged beach deposits

CRETACEOUS (?) AND TERTIARY
UPPER CRETACEOUS (?) AND LATER

20 EUREKA SOUND FORMATION: shale, clay, sandstone, limestone, pebbly sandstone; peaty and lignitic coal (non-marine) (770+)

21 Undifferentiated units 2-9, 20

MESOZOIC

CRETACEOUS
UPPER CRETACEOUS

18 KANGUK FORMATION: shale; minor bentonitic ? shale (mainly marine) (1,000±)

LOWER OR UPPER CRETACEOUS ?

17 HASSEL (?) FORMATION: sandstone, sand; some shale; coal (non-marine) (500+)

TRIASSIC AND (?) JURASSIC
UPPER TRIASSIC AND (?) LOWER JURASSIC

16 HEIBERG FORMATION: sandstone; coal (non-marine, marine band in lower part) (2,500+)

19 Undifferentiated units 15 and 16, and probably younger rocks

TRIASSIC

15 15a, BLAA MOUNTAIN FORMATION: calcareous siltstone, shale (marine) (1,500+); 15b, SCHEI POINT FORMATION: calcareous, siltstone, limestone, shale (marine) (800); 15c, BLIND FIORD FORMATION: siltstone (marine) (3,700±); 15d, BJORNE SANDSTONE: sandstone (marine) (1,700)

PERMIAN OR TRIASSIC

14 Sandstone (mainly non-marine) (1,200+)

PERMIAN

12 12a, 'Dark beds'; chert, cherty limestone, black shale; glauconitic beds (marine) (300 - 700); 12b, 'Grey beds'; limestone, chert, cherty limestone (marine) (350+ - 1,380+); 12c, ASSISTANCE FORMATION: glauconitic sandstone, limestone (marine) (70)

13 Undifferentiated units 11 and 12

PENNSYLVANIAN

11 CANYON FIORD FORMATION: sandstone, limestone, conglomerate, pebble beds, calcareous sandstone (marine) (1,800+)

PALAEOZOIC

DEVONIAN
UPPER DEVONIAN

9 OKSE BAY FORMATION (non-marine) (10,000+): 9a, Upper sandstone and shale member; largely non-marine, coal; 9b, upper sandstone member; non-marine; coal at base; 9c, lower sandstone and shale member; non-marine; coal; 9d, lower sandstone member; non-marine; coal at base; 9e, undifferentiated; 9f, OKSE BAY (?) FORMATION: sandstone (non-marine) (5,700+)

MIDDLE DEVONIAN

8 8a, BIRD FIORD FORMATION: limestone, sandy limestone and shale, sandstone (marine) (1,750-2,950); 8b-8d, BLUE FIORD FORMATION (marine) (1,900-3,800): 8b, brown limestone member; bioclastic and variably dolomitic; 8c, limestone and shale member; variably biostromal and reefoid; 8d, undifferentiated

LOWER OR MIDDLE DEVONIAN

7 EIDS FORMATION: calcareous shale and siltstone (marine) (1,000+)

SILURIAN OR DEVONIAN

6 6a, shale, siltstone; minor limestone (3,000); 6b, STARFISH BAY FORMATION: limestone, silty limestone (3,700); unassigned calcareous shale, siltstone and sandstone (1,300); 6c, GOOSE FIORD FORMATION: dolomitic siltstone and silty dolomite; 6d, argillaceous limestone, limestone, silty limestone (marine) (1,000)

10 Undifferentiated units 2-6, 8

SILURIAN

5 5a, DOURO FORMATION: limestone, dolomite, dolomitic limestone, argillaceous limestone (marine) (1,340); 5b, DEVON ISLAND FORMATION: graptolitic shale, calcareous shale (marine) (170-280); 5c, limestone, silty limestone; cherty limestone, silty dolomitic limestone, sandstone, shale, siltstone; may include Devonian and Ordovician beds in Vendom Fiord (marine) (3,600+)

ORDOVICIAN AND SILURIAN

4 4a, CAPE PHILLIPS FORMATION: black shale, argillaceous limestone (marine) (2,200); 4b, ALLEN BAY FORMATION: dolomite, dolomitic limestone (marine) (1,700+)

ORDOVICIAN

3 3a, CORNWALLIS FORMATION: limestone, gypsum; minor silty limestone (marine) (4,400+); 3b, Cornwallis formation includes at base at least 350 feet of marine limestone of the ELEANOR RIVER formation

CAMBRIAN AND/OR ORDOVICIAN

2 2a, Limestone, limestone conglomerate (1,060+); may include some Proterozoic; 2b, COPES BAY (?) FORMATION: limestone; some dolomite (3,300)

ARCHAEAN OR PROTEROZOIC

1 In part gneisses and granitoid rocks

Geological boundary in area investigated in detail

Geological boundary established from the air or from air photographs

Limit of geological mapping, unmapped area

Bedding (horizontal, inclined, vertical)

Bedding trend with indicated direction of dip

Apparent dip of bedding

Lineament

Fault (defined, approximate)

Anticline (defined, approximate; arrow indicates direction of plunge)

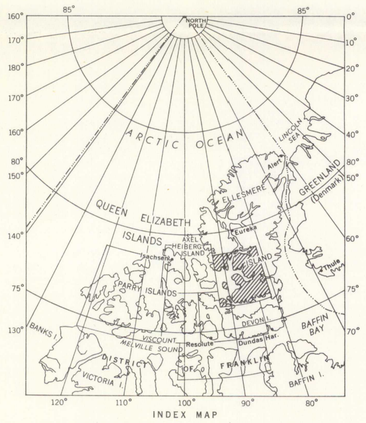
Syncline (defined, approximate; arrow indicates direction of plunge)

Geology by personnel of Operation Franklin, 1955

Braided stream

Height in feet above mean sea-level (approximate) +5400

Cartography by the Geological Survey of Canada, 1959



Adjoins Map 19-1959, "Eliel Ringnes, Amund Ringnes, Cornwall and Lougheed Islands"

Adjoins Map 20-1959, "Devon Island"

PUBLISHED, 1959
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NOTES

At Eids Fiord and Trold Fiord, Pennsylvanian rocks rest on older formations with angular unconformity. At Trold Fiord there is also an unconformity between Permian and Pennsylvanian rocks. East of Vendom Fiord, Upper Cretaceous (?) and Tertiary rocks are in fault contact with lower Palaeozoic rocks and similarly folded; R. Thorsteinsson and E.T. Tozer (Geological Investigations in Ellesmere and Axel Heiberg Islands, 1956; Arctic, vol. 10, no. 1, pp. 2-31, 1957) found the younger and older rocks conformably folded in the eastern part of Bay Fiord, north of Vendom Fiord.

The Cape Phillips formation is correlative with the Allen Bay, Douro, and Devon Island formations. Map unit 5c is in part equivalent to the Douro formation.

The Bjorne sandstone is correlative with the Blind Fiord formation and the Schei Point formation with the Blaa Mountain formation.

Gabbro dykes on Bjorne Peninsula, Raanes Peninsula, and south of Starfish Bay are not shown.

A summary description of the geology of the area is included in Fortier, Y.O., 1957: The Arctic Archipelago; Geol. Surv., Canada, Econ. Geol. Series No. 1 (4th Ed.) pp. 393-442.

MAP 21-1959
GEOLOGY

SOUTHERN ELLESMERE, GRAHAM AND NORTH KENT ISLANDS

DISTRICT OF FRANKLIN
NORTHWEST TERRITORIES

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

Miles: 8 4 0 8 16 24

Geographical names subject to revision.

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 21-1959
SOUTHERN ELLESMERE, GRAHAM AND NORTH KENT ISLANDS
NORTHWEST TERRITORIES