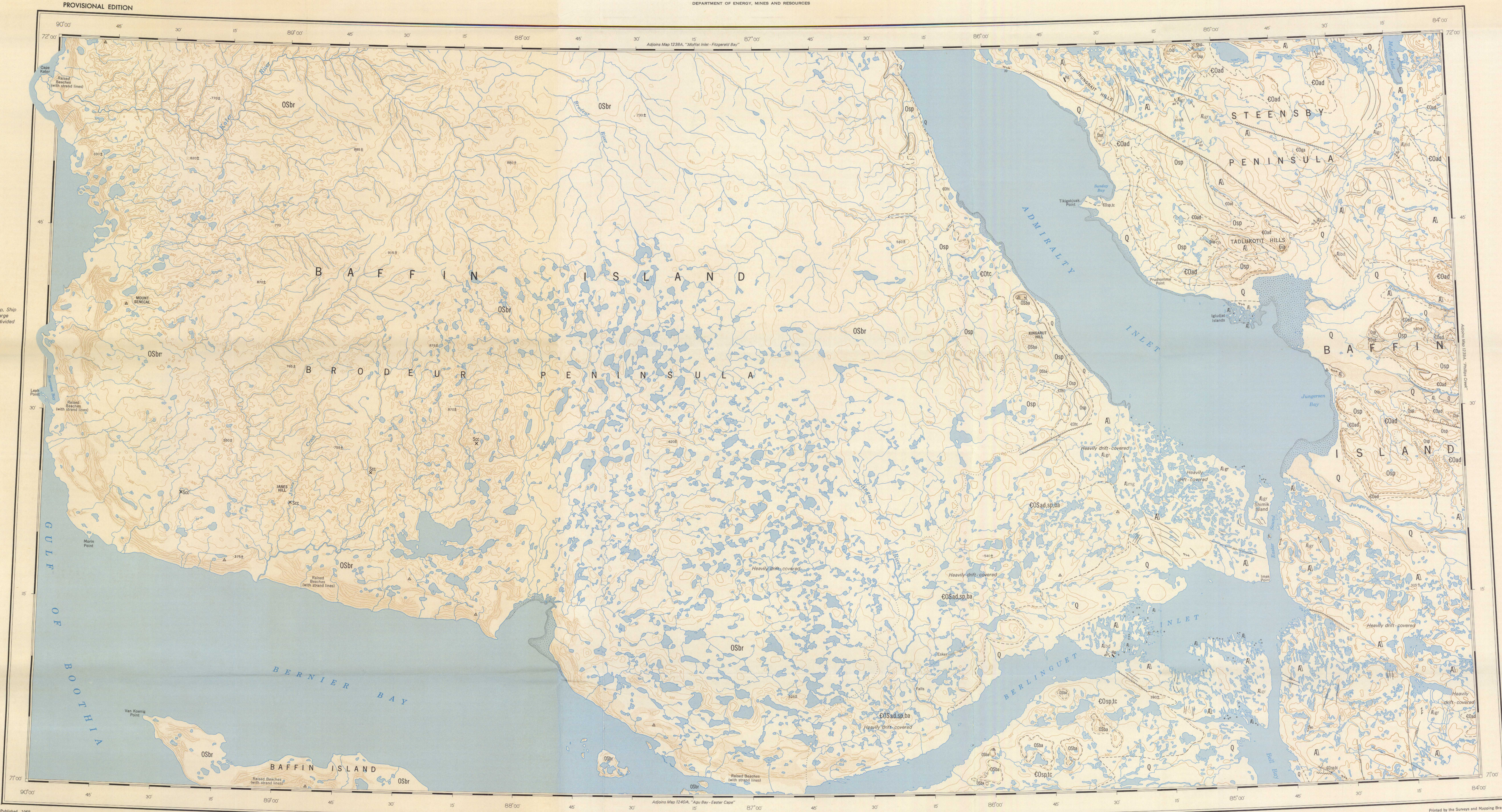


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GEOLOGICAL SURVEY

DESCRIPTIVE NOTES



LEGEND

QUATERNARY	Q	Drift and unconsolidated sediments
SILURIAN	Sc	CAPE CRAUFORD FORMATION: Member A: outcrop of evaporite solution breccia examined
ORDOVICIAN AND SILURIAN	OSbr	BROEUR GROUP BALLARGE AND CAPE CRAUFORD FORMATIONS UNDIVIDED: dolomite, partly brecciated; minor shaly and silty limestone and dolomite, shale
ORDOVICIAN	Osp	MIDDLE AND LOWER ORDOVICIAN SHIP POINT AND TURNER CLIFFS FORMATIONS UNDIVIDED: dolomite, in part shaly, silty, sandy; dolomite intracrystalline conglomerate
CAMBRIAN AND/OR ORDOVICIAN	COad	ADMIRALTY GROUP Gallery and Turner Cliffs Formations undivided
HELVIAN	Hg	Gabbro dykes
APHEBIAN	Al	Granitic and gneissic rocks: Rf, granite, quartz-feldspar gneiss, King, migmatite; Rbd, banded and flysch-like gneiss

Rock outcrop
Geological boundary (defined, approximate, assumed)
Foliation (indicated, vertical, dip unknown)
Fault (defined)
Structural trend (in part from air photographs)
Lineament (from air photographs)

Geology of Precambrian rocks by R. G. Blackadar and W. L. Davison, 1963
Geology of Palaeozoic rocks by H. P. Trettin, 1963
Geological cartography by the Geological Survey of Canada, 1967

Horizontal control point
Intermittent stream
Dry river bed with channel
Foreshore flats
Reef, rock or small island
Contours (interval 100 feet)
Height in feet above mean sea level

Base-map compiled and drawn by the Survey and Mapping Branch, 1964
Magnetic declination 1967 varies from 49° 00' westerly at centre of west edge to 62° 14' westerly at centre of east edge. Mean annual change, decreasing 4.8°.

The centre of the map-area is about 250 miles northwest of Hall Beach, N.W.T. and the same distance southeast of Resolute, N.W.T. Both places are served by commercial airline from Montreal. No permanent settlements lie within the region, but from time to time groups of Eskimos live along the coasts.

Most of the area is part of Boothia-Baffin Lowland (also referred to as Boothia Plains) and is underlain mainly by carbonaceous rocks of Palaeozoic age. Although drift is widespread on the surface of the plain, vegetation is not abundant and much of the surface of the area presents a stark, desolate appearance. Drainage is well developed and rivers such as Berlinguet, Kater, and Broeur extend far inland. Many small- to medium-sized lakes are present below 700 feet elevation but above that level, as the lowland merges with Lancaster Plateau, lakes become scarce. The low, lake-studded terrain developed on crystalline rocks south of Admiralty Inlet is also part of the lowland region. Remnants of Lancaster Plateau, such as Tadduott Hills, are preserved east of Admiralty Inlet and form remarkable buttes and mesas visible for many miles from the south. A westward extension of Baffin Upland is found on Boothia Peninsula. There is, however, rocky terrain developed on gneissic and granitic rocks and elevations exceed 900 feet.

Granitic and gneissic rocks form the Precambrian outcrops in the map-area. Massive to foliated quartz-microcline-feldspar rock containing variable amounts of biotite, hornblende, or pyroxene, is the principal type. Foliation is poorly developed on the whole, but in places, as for example south of Moffet Inlet, banded gneisses (Abd) predominate. The widespread drift cover, characteristic of the lowlands, masks large areas, but here and there gneissic rocks are exposed.

A small basalt dyke at the eastern narrows of Berlinguet Inlet may be comparable to the dyke swarms found north and south of this map-area and on this basis it is mapped as Helvian. A similar dyke occurs in Esungait Hills.

An age determination (K-Ar 234) made on a specimen of gneiss from Yoonan Island (in Admiralty Inlet 20 miles north of the north margin of the map-area) gave an age of 1,590 m. y. Similar dates have been obtained from rocks elsewhere in northwestern Baffin Island indicating an Aphebian (Lower Proterozoic) age for the gneissic complex.

Northwest-trending linear features and fault-line scarps form prominent features on Boothia Peninsula. These reflect a dominant structural trend in northwestern Baffin Island.

The lower Palaeozoic strata rest with pronounced unconformity on Aphebian rocks.

Admiralty Group¹ which forms the basal part of the Palaeozoic succession comprises the predominantly fluvialite Gallery Formation², and the predominantly intertidal Turner Cliffs Formation³. The Gallery is possibly correlative with the late Lower Cambrian Rabbit Point Formation, and the Turner Cliffs with the Middle Cambrian Bear Point and Ouyagait Formations of Dundas Harbour, Devon Island, and with Middle Cambrian strata on Boothia Peninsula and Somerset Island⁴. Diagnostic fossils are, however, lacking. The Gallery Formation consists mainly of quartzose sandstone showing trough- and high angle planar cross-lamination and lesser amounts of siltstone, conglomerate, shale, etc. The lower part of the formation is predominantly red and the upper part predominantly light grey. The Turner Cliffs Formation is composed of two alternating assemblages of rock types: 1) finely microcrystalline dolomite, which is mostly shaly, silty, or sandy, and commonly shows ripple marks, and flat-pegged conglomerates and shales; and 2) dolomite siltstone and shale, and 3) rare and dolomitic quartz sandstones commonly showing cross-lamination like that of the Gallery Formation. The Turner Cliffs Formation generally weathers in light grey, green, and orange. The only fossils known, except for a few worm markings and some stromatolites, are linguloid brachiopods, mainly Lingulella s. s. The Admiralty Group was deposited in an embayment on the western side of that basin, and the thicknesses of both formations decrease to the southwest. Observed thicknesses of the Gallery Formation range between 240 and 130 feet. South of Berlinguet Inlet the Gallery seems to be absent, and the Turner Cliffs, which is present at all, is probably less than 50 feet thick, cannot be distinguished from the Ship Point and has been included with that formation. Crossbedding attitudes indicate that in the present map-area the currents that deposited the Gallery sands came from southerly directions.

The Middle and (?) Lower Ordovician Ship Point Formation⁵ overlies the Turner Cliffs Formation with a paraconformable contact that may represent a major hiatus involving the Upper Cambrian. The formation consists mainly of fine crystalline to predominantly microcrystalline dolomite. Vaguely stratified, thin-bedded units of nearly pure dolomite alternate with well stratified, thin-bedded to laminated, shaly, silty and sandy dolomite partly with worm borings, ripple marks, and flat-pegged conglomerates. The proportion of elastic impurities in the lower part of the formation appears to increase to the south or southwest. The formation weathers in shades of light grey. At the type section on Berlinguet Bay the formation has yielded early Middle Ordovician fossils. Late Lower Ordovician (Armenian) graptolites found by Blackadar⁶ on Jens Munk Island (Fox Basin) are believed to have come from the lower part of the formation. In the northern part of the area the thickness of the formation lies between 400 and 600 feet. It probably decreases towards the south.

The Ship Point Formation is overlain paraconformably by the Broeur Group⁷, which comprises the Ballarge⁸ and Cape Crauford Formations. In Navy Board Inlet map-area a disconformable relationship between the Ship Point and Ballarge has been inferred from anomalously low thicknesses and a rotation zone at the top of the Ship Point. In the present area the only evidence for a disconformity is the abrupt lithological change at the contact.

Member A of the Ballarge Formation, probably late Middle Ordovician in age, is characterized by recessive slopes and dark grey talus. It is composed of thinly stratified mixtures of shale, microcrystalline limestone, and microcrystalline, penecontemporaneous dolomite. The upper member, B, consists of microcrystalline, dark reddish brown limestone, which is partly replaced by microcrystalline to very fine crystalline dolomite. Vaguely stratified, highly resistant units of pure carbonaceous rock are interbedded with thinly stratified, argillaceous units that form ledges and plateaux. South of Berlinguet Inlet, where the Ballarge Formation has been mapped as a separate unit, only the lower part, which contains the Arctic Ordovician fauna, is preserved. The upper part, which ranges up to Niagara (Middle Silurian) is represented on Broeur Peninsula, but in the present area is very poorly exposed.

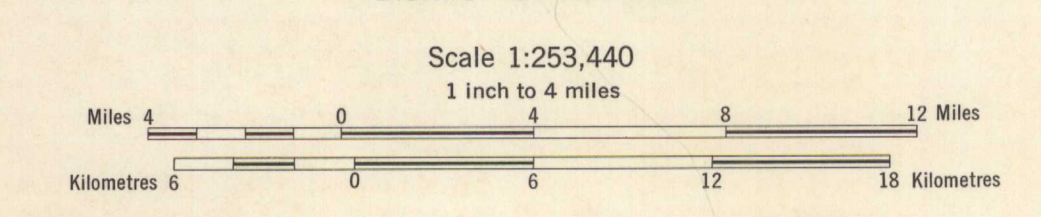
The conformably overlying Niagara (Middle Silurian) Cape Crauford Formation consists of three assemblages of rock-types: 1) microcrystalline limestone similar to the predominant rock type of the Ballarge; 2) thinly interstratified microcrystalline limestone and microcrystalline penecontemporaneous dolomite; 3) strata of type 2, distorted and brecciated by solution of thinly interstratified argillaceous, and associated stromatolite beds. Assemblages 1 and 2 are partly very resistant to erosion. The Cape Crauford Formation is well exposed only on northern Broeur Peninsula, where it has been studied in detail⁹. In the present area exposure is very poor, but a few outcrops of solution breccias examined are shown on the map. The contact between the Cape Crauford and the Ballarge Formations, which passes through the drift-covered interior of the peninsula, has not been located.

In the eastern part of the map-area the Palaeozoic strata are nearly horizontal and disturbed only by a few southeasterly trending normal faults with relative downward movement of the southwestern block. On Broeur Peninsula they form part of the extensive, arcuate Broeur basins, which in the present area dip gently in a westerly to southwesterly direction.

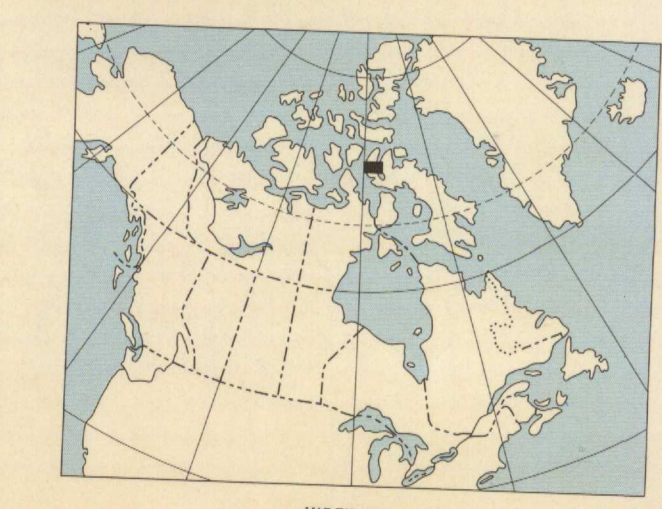
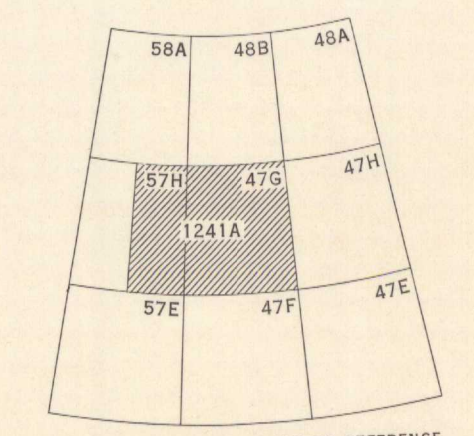
N.W.T. Berlinguet Inlet - Bourassa Bay
1:253,440 or 1 inch to 4 miles
Map 1241 A

This map has been produced from a scanned version of the original map
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MAP 1241A
GEOLOGY
BERLINGUET INLET - BOURASSA BAY
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