GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF MINES AND TECHNICAL SURVEYS

PRELIMINARY SERIES

SHEETS 36 A AND B (PARTS OF)

LEGEND

PROTEROZOIC

Diabase:
5 observed,
5 inferred from air photographs

ARCHAEAN AND/OR PROTEROZOIC

4 Biotite amphibolite, hornblende schist, biotite schist

3 Amphibolite, hornblende-pyroxene rock, pyroxene granulite, peridotite; minor garnet-plagioclase amphibolite, pyroxenite

2 Crystalline limestone, graphite schist, quartzite, biotite-garnet gneiss, biotite-graphite schist, sillimanite schist

1 Buff quartz-feldspar granulite, hornblende gneiss, biotite gneiss; includes much amphibolite in thin bands and lenses

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A Grey to red granitoid gneiss; biotite granite-gneiss; granitic breccia and crushed rock; probably of several ages

Geological boundary (approximate, assumed)
Limit of geological mapping
Unmapped area — U
Stratiform foliation (inclined, vertical, dip unknown)
Fault (position approximate, assumed)
Glacial striae
Trend lines (from air photographs)
Magnetite occurrence

Geology by W.L. Davison, 1951, 1953

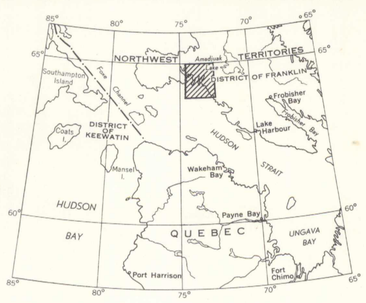
Sand
Height in feet above mean sea-level — 800

Cartography by the Geological Survey of Canada, 1959

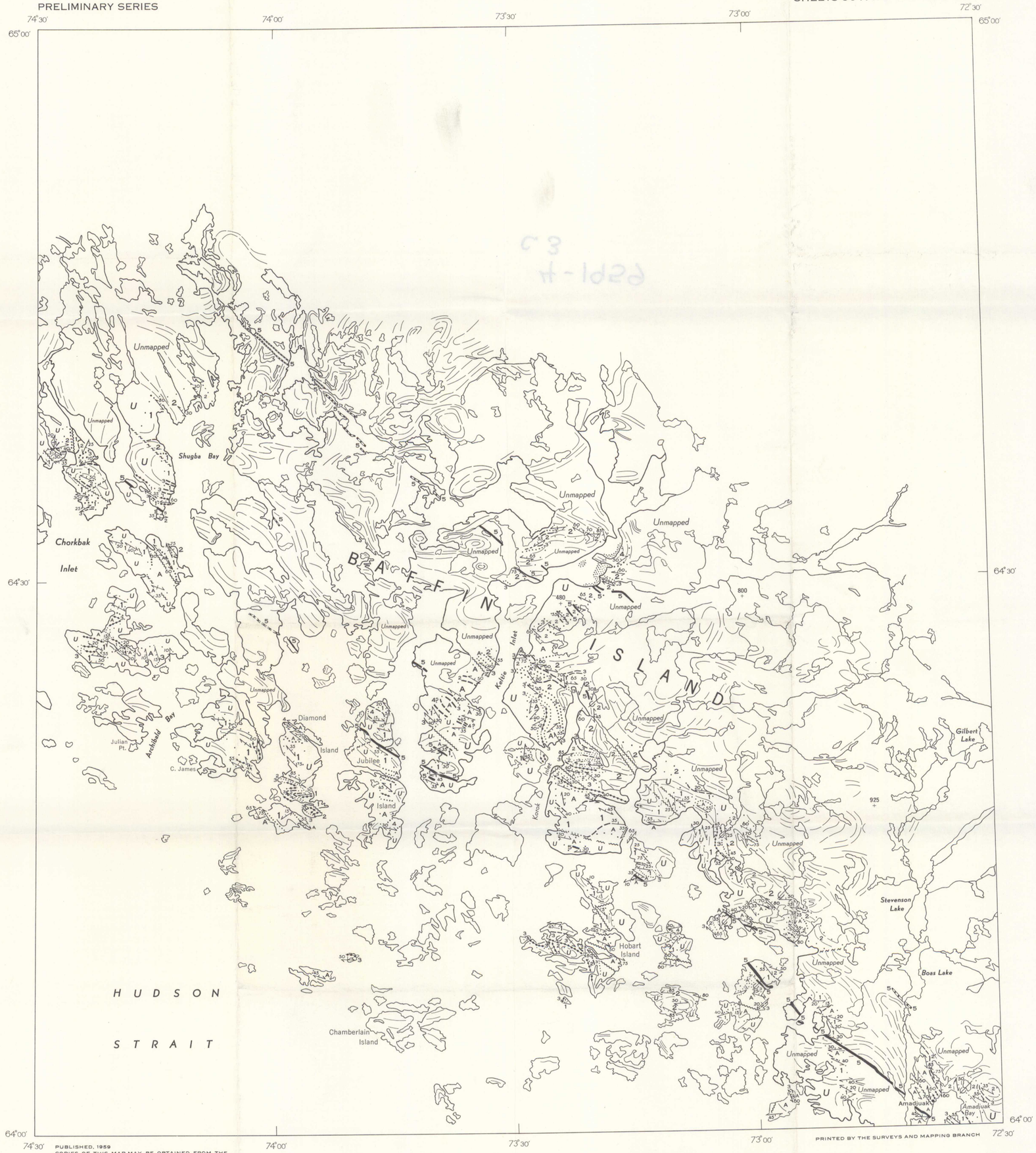
Approximate magnetic declination, 45° 50' West

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.



INDEX MAP



PUBLISHED, 1959
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MAP 4-1959
GEOLOGY
FOXE PENINSULA
(EASTERN PART)
BAFFIN ISLAND
DISTRICT OF FRANKLIN
NORTHWEST TERRITORIES

Scale: One Inch to Four Miles = 1/253,440
Miles
4 2 0 4 8 12

DESCRIPTIVE NOTES

Throughout the islands and west of Keltie Inlet relief is low, with elevations rarely reaching 400 feet. The coast to the southeast is bolder and elevations exceed 600 feet in places. Inland, higher ground lies to the northeast. Bare rock slopes predominate at low levels but numerous boulders litter slopes higher than about 360 feet above the present high-water line. The highest observed raised beaches are a few feet below the lowest perched boulders and probably mark the upper limit of post-glacial marine overlap.

Granitoid gneiss, biotite granite-gneiss, and associated rocks (A) are quartz-feldspar rocks of medium to coarse grain; they range from finely banded to nearly massive, and from white to red in colour, but a locally uniform appearance is characteristic. The main types alternate in broad zones or, less commonly, in thin bands. Dull grey, brown, or reddish brown granitoid gneiss has an inconspicuous banding that results from slight differences in mineral composition and texture of adjacent layers. Essential minerals include perthitic feldspars and plagioclase, and the gneiss may carry much hypersthene or hornblende. Biotite granite-gneiss is distinguished by gneissic foliation, due to the distribution and parallel arrangement of flakes, streaks, and films of biotite, and of tongues and lenticles of quartz. Microcline is a common constituent. Reddened feldspar and altered dark minerals characterize belts of slightly crushed, generally granitoid, gneiss. Locally, epidote-rich gneiss is present and has an overall green colour. More strongly sheared and brecciated rocks are typically brick-red and granitic, and commonly contain streaks of green to black alteration products. Grey-weathering, dark mylonite consists of finely comminuted, nearly opaque, material and closely resembles basic intrusive rock.

Granulite and gneisses of map-unit 1 are fairly well stratified. Mineral compositions range from granitic to dioritic and noritic, and layers of contrasting mineralogy are common. Typical buff or brown granulite is medium grained, and consists of essential quartz, perthite, andesine, and hypersthene. Hornblende is a common constituent and, with increasing hornblende, granulite grades into hornblende gneiss. Heavily altered gneiss, commonly reddish or grey-green, occurs in several localities. Biotite-rich and amphibolitic interbands are common, and locally alternate with light-coloured, coarse-grained granitic gneiss or pegmatite.

Crystalline limestone and accompanying meta-sediments (2) apparently overlie rocks of map-unit 1, although tectonic effects and minor intrusions obscure the nature of the contact. White to grey crystalline limestone is largely confined to a few thick bands near this contact. Grains and masses of diopside, scapolite, phlogopite, serpentine, graphite, sphene, and other minerals are nearly everywhere present in the limestone. Graphite schist, typically associated with calcareous rocks, holds shiny flakes of graphite, biotite, and occasional sillimanite or garnet, in a fine- to medium-grained, quartz-feldspar matrix. Quartzite, generally in relatively thin layers, ranges from clean, white, and nearly structureless, to impure, dull or rusty, and well stratified. Light-coloured garnet-biotite gneiss is widespread, and becomes the predominant rock-type towards the inland side of the meta-sedimentary belt.

Amphibolite, pyroxene granulite and related rocks (3) make up dark layers, zones, and irregular masses, commonly conformable with adjacent rocks, but in some cases crosscutting. They range from well banded to massive, and include gneissic and schistose varieties. Interbanding of two or more types is common. Amphibolite is a coarse-grained, hornblende-rich rock, with or without plagioclase, and may contain small amounts of pyroxene, garnet, or biotite. Chocolate-brown weathering peridotite is dark brown to greenish black on a fresh surface, and forms dykes and sill-like bodies among other mafic rocks. It is essentially amphibole, pyroxene, and olivine, is commonly partly altered to serpentine, and is micaceous in places. Spinel, pyrrhotite, pyrite, and magnetite are common accessories. Pyroxenite, consisting wholly of pyroxene, is rare, but rock-types intermediate between pyroxenite and amphibolite or peridotite are abundant, the different varieties being nearly indistinguishable megascopically. Pyroxene granulite is medium grained, granular, and possesses a mineral composition corresponding to that of norite.

Well stratified, biotite-rich mafic schists (4) form cake-shaped hills, and overlie gneisses and granulite unconformably. The schists are cut by conspicuous granitic dykes and quartz veins, and show signs of shearing in many places. Dark brown biotite is most conspicuous in sheared sections, and is well developed in masses enveloping lenses and augen of more resistant material. Biotite schist is marked by thin layers and oriented flakes of biotite in a fine-grained matrix of serpentine and scaly alteration products. Scattered remnants of pyroxene, amphibole, and plagioclase suggest that the rock was previously, in part at least, a pyroxene-bearing plagioclase amphibolite. Hornblende schist is fine grained for the most part, but coarser varieties exist, and some of these approach gneisses in appearance. One variety contains partly altered grains of hornblende, which seems to be an original constituent, together with chlorite, carbonate, mica, and remnants of feldspar.

All rocks described above are cut by vertical dykes of diabase (5). Dykes mapped range in thickness from 80 to 250 feet. Several thin dykes, not indicated on the map, have similar trends. In thin dykes, and at the margins of thick ones, diabase is black and aphanitic; in the central parts it is brown, coarse grained and gabbroic. Weathered surfaces are reddish brown to rust coloured. Diabase at Shugba Bay holds numerous xenoliths of country rock in all stages of assimilation.

Granite pegmatite is common throughout the area, and cuts all rock-types except diabase. It is most abundant in granulite and garnet-biotite gneiss, and nearly everywhere comprises mineral assemblages similar to those of the enclosing rocks.

Structures are complex and highly variable. The predominant plunge of tight folds is west-northwest with many reversals, and these folds are commonly overturned from the north. Other less strongly folded structures trend north to northeast. Dome-and-basin structures, circular or elliptical in plan, reflect transverse warping of isoclinally folded strata. The concentration of rocks of map-unit 4 in structural basins is evident from the prevailing inward dips.

The strongest faults and shear zones trend west to northwest with indications in several places, that relative movement of the inland side was northwestward. A major shear zone crosses Jubilee Island, and shows evidence of repeated movement. Locally, sets of northeast-trending brecciated zones are prominent.

Concentrations of magnetite are largely confined to narrow belts in which meta-sediments (2) and mafic rocks (3) are associated. One belt extends from Amadjuak Bay to Keltie Inlet and, for much of its length, contains one or more magnetite-rich quartzitic bands with thickness of 4 to 15 feet. Nearby mafic rocks include serpentinized peridotite and amphibolite, and commonly carry more or less magnetite and iron sulphides. East of Korak Inlet, a band of massive magnetite, up to 3 feet thick and several hundred feet long, forms part of an iron-rich zone. Similar assemblages occur on Hobart Island and other islands to the west, and at Shugba Bay. In some localities, magnetite-rich quartzites show excellent relict bedding; in others, magnetite is more evenly distributed through the rock; and in a few, veinlets of magnetite cross indistinct stratification. The magnetite is nearly everywhere coarse grained. Several bands, up to 75 feet across, lie in a magnetite-rich zone at the southeast tip of Diamond Island, the total width of the zone being determined by its position near the nose of a plunging fold. Thin, isolated quartz-magnetite and quartz-garnet-magnetite bands occur southeast of Chorkbak Inlet. A small amount of magnetite is present in limestone cut by diabase, near the head of Korak Inlet.

Ultra Shawkey Mines Limited acquired claims near Korak Inlet in 1957, and diamond drilling and other work was done during the summer of 1958.

MAP 4-1959
FOXE PENINSULA
NORTHWEST TERRITORIES
SHEETS 36 A AND B (PARTS OF)

5.1.5 Foxe Peninsula, NWT.
Geol 1959