PLEISTOCENE-RECENT

Undifferentiated, unconsolidated deposits, some stratified and locally fossiliferous; chiefly glacial deposits partially reworked by fluvial, lacustrine, marine, and frost action; minor interglacial strata. Qui sand and silt overlain by glacial till

Hg FRANKLIN INTRUSIONS: tholeitic diabase, dark greyish-green

**APHEBIAN** 

Massive, rarely foliated, granite-granodiorite, chiefly pink quartz monzonite and monzogranite; minor white granitic rocks are mostly older than the pink; local syenite, trondhjemite; abundant aplite, granite, and pegmatite dykes; fine-to coarse-grained and pegmatitic; local potash feldspar phenocrysts and augen The v symbol represents Ag dykes and sills in older rocks

Banded migmatite: white to pink and light grey quartzofeldspathic bands alternate with, and commonly enclose, schlieren and boudins

of grey to grey-green and black, intermediate-mafic bands; quartzofeldspathic layers commonly intruded into paragneiss, felsic to ultramafic orthogneiss, pre-existing gneisses; considerable nebulite, lit-par-lit gneiss; minor agmatite, venite, aplite, pegmatite; local blastomylonite, younger crushed zones; chiefly medium grained; layers commonly 10s of metres thick, internally laminated to thinly banded; local garnet, blastoporphyritic and porphyroblastic potash feldspar, porphyroblastic hornblende. Derived in part from Piling and Mary River groups, and gneisses probably basement to these groups; most Archean components (including migmatite) reworked in Aphebian

PILING GROUP (ADL-AP) Undivided Piling Group, chiefly APs

LONGSTAFF BLUFF and ASTARTE RIVER FORMATIONS undivided. Upper part-Longstaff Bluff Formation: paragneiss, semipelite, phyllitic mica schist, lit-par-lit gneiss; in part contains garnet, sillimanite; grey, fine-to medium-grained, laminated to thin banded. Lower part-Astarte River Formation: micaceous schist, locally rusty, in part garnetiferous; contains interbedded calcsilicates, skarn, and thin bands of sulphide facies (pyrrhotite) and oxide facies (magnetite and hematite) iron formation

FLINT LAKE FORMATION: chiefly contorted and plastically deformed white dolomite marble with lesser calcite marble; minor buff, pink nd orange marble, skarn, calc-silicate gneiss, and rusty paragneiss, all chiefly in lower part

DEWAR LAKES FORMATION: Upper part (0-10m+): quartzite, discontinuous, ADL glassy, white to pale grey, fine-to coarse-grained, very thin bedded to massive; thin, grey, banded quartzite layer at base, minor pegmatite, potash feldspar porphyroblasts locally at top. Lower part (0-30 m+): quartzofeldspathic paragneiss (metamorphosed arkose or grit?), pale grey to pink, fine-to medium-grained, laminated, well layered; local porphyroblastic potash feldspar, graphite; may include blastomylonitic granite-granodiorite

ARCHEAN AND/OR PROTEROZOIC

lifferentiated gneisses, mixed rocks; chiefly undivided Amg, Agr Amn; minor supracrustals, veined gneiss, agmatite

Amphibolite dykes, sills, pods: chiefly metagabbro, local

metamorphosed diorite and quartz diorite; abundant biotite, local diopside; massive to foliated, dark grey to dark green and black, fine- to medium-grained, commonly lineated, veined, folded and/or disrupted to form boudins, schlieren younger than Mary River Group, and may include Amb

Homogeneous quartz-biotite-feldspar gneiss; minor hornblende; bg chiefly granodiorite composition; grey, fine-to medium-grained,

Paragneiss, lit-par-lit gneiss; minor acid-intermediate metavolcanics

with quartz eyes; light grey and pinkish-to medium-grey, fine-to

ARCHEAN

MARY RIVER GROUP (Amif-Am) Undifferentiated paragneiss, muscovite-biotite schist, lit-par-lit gneiss, acid-intermediate metavolcanics; light grey and pinkish-to medium-grey, very fine-to medium-grained, laminated to very thin banded; minor hornblende, quartz eyes; minor amphibolite, iron formation, quartzite, metachert

Amphibolite, biotite amphibolite dykes, sills and pods: may

foliated, dark grey to dark grey-green, fine-to medium-grained;

medium-grained; minor potash feldspar porphyroblasts

Amb include extrusive as well as intrusive rocks; homogenous,

Metamorphosed ultrabasic rocks: serpentinite, cummingtonite Amu schist, actinolite schist, serpentinized peridotite; green to dark green and grey-green, medium-to coarse-grained, massive; minor chlorite, talc, magnetite; local asbestos

granitic veins and hornblende lineation common

garnet-amphibole (anthophyllite-cummingtonite) silicate facies; lean quartz-garnet-magnetite metachert; minor zone of high grade magnetite; fine-to coarse-grained; laminated to thinly bedded; light to dark grey, metallic blue-grey to black, buff, brown, red

Iron formation: quartz-magnetite banded oxide facies; quartz-

Foliated monzogranite-granodiorite: local syenogranite, quartzmonzonite, tonalite, monzonite; uniform to variegated, locally banded, mottled; pale to medium pink and grey; locally white, black; massive to faintly and irregularly foliated; locally deformed, nebulitic, scattered schlieren, inclusions, migmatized areas; potash feldspar phenocrysts, augen, porphyroblasts, and hornblende porphyroblasts common; rare clinopyroxene and garnet May include some Aphebian rocks

Fluidal nebulitic monzogranite migmatite; minor granodiorite; local tonalite, syenogranite, trondhjemite; light to medium grey, pinkish grey and pink; minor white to grey, pinkishblack and black, yellowish brown, grey-green; fine-to mediumgrained; finely foliated to medium banded, and massive. The following features are common: schlieren, inclusions, lenses and boudined bands of granitoid igneous rocks and sweats, gneisses, metasediments, amphibolite and ultrabasic rocks; blastomylonite; potash feldspar phenocrysts, augen, porphyroblasts; granitoid, aplite, pegmatite and quartz-rich dykes and sills. Hornblende is common, garnet and clinopyroxene are local May include some Aphebian rocks

NOTE: relative ages of some map units are uncertain, and individual units may include rocks belonging to other units

Ge	pological boundary (defined, approximate, assumed, gradational)
Gı	neissic layering, mainly ground determinations (horizontal, inclined, vertical, inclination unknown; g - gentle, s - steep)
Ur	ndifferentiated foliation; mainly airborne and airphoto determinations (horizontal, inclined, vertical, inclination unknown; g - gentle, m - moderate, s - steep)
Fo	nliation, general trend (dip known, dip unknown)
Lii	near structures:
	Microfold axis; microscopic to hand specimen in size (horizontal, plunging)
	Mesoscopic fold axis; hand specimen to large outcrop in size (horizontal, plunging)
	Rodding; mineral aggregate or segregation (plunging)
	Mineral lineation; individual crystals (horizontal, plunging)
Lii	neament
Fa	ult, solid circle indicates downthrow side (defined, approximate - assumed)
Th	rust fault, teeth indicate direction of dip (defined - assumed)
Dy	rke (defined—approximate, inferred from aeromagnetic data)
Sy	onform, arrow indicates direction of plunge (upright - inclined, overturned - recumbent)
Fo	old structure, nature uncertain, most are recumbent; symbol shows cross-section
Er	nd and lateral moraines (may include some beaches)
Dr	umlinoid ridge (direction of ice movement undetermined)
Pil	ngo
Es	ker
Be	eaches (in part associated with moraines)
Sa	emple locations for whole-rock Rubidium-Strontium errorchron age of 2069 Ma•R1 to R8
Mi	neral occurrence

## NOTES

**MINERALS** 

Metamorphosed rocks are chiefly in upper to middle amphibolite facies. Greasy looking rocks, possibly in subgranulite to granulite facies, occur sporadically, but no diagnostic assemblages were identified. Allanite, an accessory mineral in granitoid rocks and migmatites, increases in abundance the older the age of the containing rocks. It is rare in Ag, less rare in Amg, common in Agr, and very common in Amn. An incomplete section of the Flint Lake Formation near the head of Sam Ford Fiord is separated into two parts. Upper part (31 m +): marble with 2 m of dark green calc-silicate rock in the middle. Lower part (16m+): basal pale green skarn overlain by light grey impure quartzitic faserkiesel gneiss and interbedded white, pink and orange marble, locally brecciated green calc-silicate gneiss containing amphibole, clinopyroxene, wollastonite, serpentine, clinohumite and spinel; rusty garnetiferous biotite-quartz-porphyroblastic feldspar paragneiss, and garnet-biotite pegmatite with local scapolite. Because of its large MSWD the 2069 Ma whole-rock Rb-Sr age obtained for samples from map units

Agr and Amn is an errorchron. It is, however, close to previously reported whole-rock Rb-Sr ages elsewhere on Baffin Island. These are a 2033 Ma (errorchron) overprint on basement gneisses of the McBeth Gneiss Dome (McBeth Fiord (27C), Henderson, 1982; Jackson, 1978a) that also yielded a Rb-Sr metamorphic age of 2697 Ma (Jackson, 1978a), and an isochron age of 1971 Ma for Archean Mary River Group supracrustals in the Mary River area (Jackson, 1978b; Jackson and Morgan, 1978a). Granitoid gneisses, also in the Mary River area, yielded a metamorphic isochron age of 2642 Ma (Jackson, 1978b). By comparison, most mineral and whole-rock K-Ar ages for metamorphic rocks in the northern half of Baffin Island are between 1610 and 1780 Ma, although they range from 1525 to 2016 Ma (Jackson, 1978a, 1978b; Henderson, 1982; Morgan, 1981; Wanless, 1970, unpublished data). Following deposition of the Mary River Group, regional metamorphism and deformation occurred in late Archean time prior to Piling Group deposition, and again in mid-Aphebian time (2000-2100 Ma) following Piling Group deposition. The older K-Ar ages may be related to this event whereas the younger ones may reflect a subsequent? less intense orogenesis or uplift event.

Foliation orientations are highly varied but northeast to southeast trends with southerly dips are the most common. Northerly trends predominate in the western part of the map area, and westerly dips predominate about Sam Ford Fiord. Dips less than 25° are more predominant, and dips 50° or greater are nuch less common, than in adjacent map sheets (Henderson, 1982: Jackson and Morgan, 1978b: Jackson, Morgan and Davidson, 1978). Subhorizontal gneissosity is most abundant in a belt from lower Walker Arm southeast to Ayr Lake. Isoclinal recumbent folds, convergent foliations, and features interpreted as thrusts are most obvious in map units **Amg** and **Amn**, and are best displayed on fiord walls. Kranck (1955) concluded that large sheets have been overthrust to the southwest at the head of

Lineations are conspicuous in two regions. Mineral lineations predominate from Sam Ford Fiord westward, plunging easterly in the southern part of the region and northeasterly in the northern part. Fold axis lineations predominate in the Clyde Inlet region and are more varied in orientation than lineations in the Sam Ford Fiord region. In both regions mineral lineations and fold axes tend to parallel one another and to either trend subperpendicular or subparallel to the strike of the local foliation.

Postmetamorphic crushed zones were noted mostly in map units Ag, Amg, Agr and AmnThese crushed zones, together with late northwesterly to northerly trending faults and lineaments (e.g. Sam Ford Fiord westward and south of Eglinton Fiord), and northwesterly trending Hadrynian Franklin diabase dykes (concentrated in a belt through the centre of the map area and in another through the southwest corner) are probably southeastward continuations of similar features on northwest Baffin Island and on Bylot Island where fault activity has continued from Helikian to Recent time (Jackson and Morgan, 1978a).

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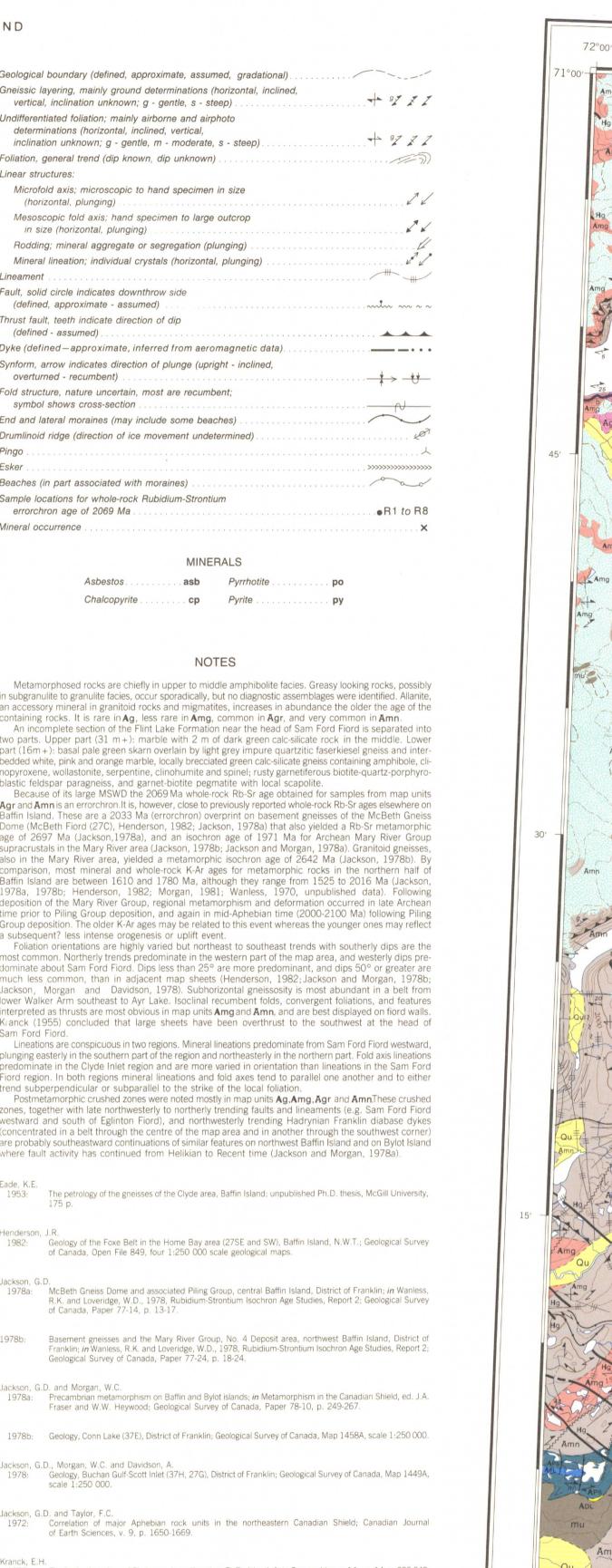
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71°00′

Geological cartography by L.P. Renaud, Geological Survey of Canada

Compilation and interpretation by G.D. Jackson, completed 1982

Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

**CLYDE RIVER** 

DISTRICT OF FRANKLIN NORTHWEST TERRITORIES

MAP 1582A

**GEOLOGY** 

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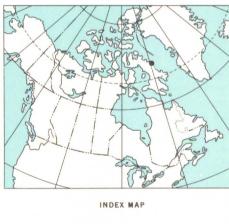
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Elevations in feet above mean sea level

CLYDE RIVER DISTRICT OF FRANKLIN NORTHWEST TERRITORIES

Printed by the Surveys and Mapping Branch. Published 1984



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