

DESCRIPTIVE NOTES

MAP AREA IS DIVIDED INTO SEVEN COMPLEXLY FOLDED BELTS OF THE BASIN... PENINSULA TO CENTRAL SHERBORN ISLAND. IT IS COMPOSED OF GRANITOID GNEISS ROCKS OF ARCHAEAN AGE (2500 MA OR OLDER) OVERLAIN BY META-SEDIMENTARY ROCKS OF EARLY PROTEROZOIC AGE (APPROXIMATELY 2200 TO 1700 MA) OF THE PENNYNH GROUP AND FILLING GROUPS...

IN CENTRAL AND NORTHEASTERN PARTS OF THE AREA THE GNEISSIC COMPLEX CONTAINS ABUNDANT LAYERS OF ORTHOQUARTZITE, PARAGNEISS AND AMPHIBOLITE 30 TO 300 M. WIDE... THIS CARBONATE LAYERS ARE PRESENT IN SOME OF THOSE UNITS. LATE FAULTING AND LOCALLY, POOR OUTCROP MINOR AND ASSASSMENT OF SOME TO THE BASIN...

A THICK UNIT OF MARBLE (Apc) AND INTERBEDDED CALCIUM-SILICATE GNEISS (Apc) OVERLIES THE BASAL SEQUENCE IN THE SOUTH PART OF THE AREA. IN THE NORTHWEST PART, THE MARBLE IS THINNER AND INTERBEDDED WITH GRAPHITE (Aph) AND BIOTITE-BEARING PARAGNEISS (Am).

MARBLE AND CALCIUM SILICATE GNEISS ARE COMPOSITIONALLY SIMILAR, CONTAINING CALCIITE-DIOPSIDE-QUARTZ WITH MINOR PHLOGOPITE AND WHITE MICA AS WELL AS VESUVIANTITE, BIOTITE AND SCAPOLITE. A SMALL AMOUNT OF OLIGOCENE MARBLE HAS OBSERVED IN THE SOUTHWEST PART OF THE AREA.

BIOTITE PARAGNEISS AND SCHIST (Aph) WITH PORPHYROBLASTS AND BLEBS OF FELDSPAR OVERLIES AND INTERFINGERS WITH THE MARBLE UNIT. A POSSIBLE FACIES CHANGE FROM CALCIUM-SILICATE GNEISS AND MARBLE TO PARAGNEISS WITH THIN CARBONATE STRUCTURES...

THE ASSEMBLAGES OF LOW METAMORPHIC GRADE AND THE APPARENT LOW GRADE CONDITIONS INDICATED BY GARNET-CORDEDITE ASSEMBLAGES WOULD INDICATE: 1) RETROGRADE METAMORPHISM IN THIS PART OF THE SUCCESSION, 2) TWO STAGES METAMORPHISM, THE SECOND AFFECTING ONLY THE MUSCOVITE PARAGNEISS AND BIOTITE QUARTZITE UNITS...

GRANITIC, QUARTZ MONOZONIC AND PEGMATITIC SILLS, SOME POSSIBLY SYNTECTONIC OR SYNMETAMORPHIC ARE FOUND WITHIN PARAGNEISS UNITS BUT MOST INTRODUCE ALL UNITS IN THE AREA AND APPEAR TO BE LATE PEGMATITE PROBABLY THE RESULT OF PARTIAL MELTING (Ag)...

EARLIEST DEFORMATION OF THE PENNYNH GROUP (D1) APPEARS TO BE FORMED LARGE RECURRENT ISOCLINAL FOLDS POSSIBLY ASSOCIATED WITH THIRST SHEETS. IN FOLDS OF THE PENNYNH GROUP, INTERLEAVED WITH GNEISSIC SHEETS OR FOLD CORES CAN BE SEEN...

THE THIRD AND FOURTH PHASES (D3 AND D4) PRODUCED PROMINENT MESO- AND MEGASCOPIC FOLDS THAT IMPOSE AN EAST-NORTHWEST STRUCTURAL GRAIN IN THE FOXE FOLD BELT. D3 FOLDS ARE TIGHT TO NEARLY ISOCLINAL AND USUALLY RECURRENT. AXIAL PLANE FOLIATION (S3) IS NEARLY PARALLEL TO LIMBS (S0)...

NORTH TO NORTHEASTWARD TRENDS CROSS TRANSVERSE FLEXURES (D3) ALTER THE PLUNES OF PRE-EXISTING FOLDS. MESOSCOPIC STRUCTURES ASSOCIATED WITH THIS PHASE WERE OBSERVED, STEEPLY DIPPING FRACTURES AND FAULTS...

MASSIVE AND FOLIATED PLUTONIC ROCKS (Aq) CHIEFLY OF HORNBLENDE AND BIOTITE GRANODIORITE QUARTZ MONZONITE AND GRANITE COMPLEX AND THE PENNYNH GROUP, RESEMBLING GRANITOID ROCKS OF THE COMPLEX...

AVAILABLE RESULTS OF RADIOMETRIC ANALYSES INDICATE FORMATION OF THE BASIN COMPLEX PRIOR TO 2500 MA WITH SOME EVENTS OCCURRING POSSIBLY AS LONG AS 3000 MA AGO (R.K. WALLACE, PERSONAL COMMUNICATION, 1976). DEFORMATION OF THE BASIN AND THE PENNYNH GROUP MAY HAVE TAKEN PLACE 2326 MA AGO (LACKSON AND TAYLOR, 1972) AND AGAIN DURING THE HUDSONIAN OROGENY (GIBBS 1700 MA AGO)...

FAULTS: HIGH ANGLE FAULT (DEFINED, APPROXIMATE); ARROWS INDICATE APPARENT DIRECTION OF DIP. LOW ANGLE FAULT (DEFINED, APPROXIMATE); TEETH IN DIRECTION OF DIP.

REFERENCES: FARVEL, W.F., 1970, DIABASE DYKE SWARMS: IN GEOLOGY AND ECONOMIC POTENTIALS OF CANADA, ECONOMIC GEOLOGY REPORT NUMBER ONE, PP. 131 - 134.

GEOLOGICAL MAPPING BY: I. E. HUTCHEON. CROSS-SECTIONS BY: I. E. HUTCHEON. DESCRIPTIVE NOTES BY: I. E. HUTCHEON. DRAUGHTING BY: I. E. HUTCHEON.

NOTICE OF ANY REVISIONS OR ADDITIONAL GEOLOGICAL INFORMATION KNOWN TO USERS OF THESE MAPS WOULD BE GRATEFULLY RECEIVED BY THE AUTHORS.



GENERAL GEOLOGY

THE FOXE FOLD BELT EXTENDS IN AN EAST-NORTHWEST DIRECTION FROM SOUTHERN MELVILLE PENINSULA TO CENTRAL SHERBORN ISLAND. IT IS COMPOSED OF GRANITOID GNEISS ROCKS OF ARCHAEAN AGE (2500 MA OR OLDER) OVERLAIN BY META-SEDIMENTARY ROCKS OF EARLY PROTEROZOIC AGE (APPROXIMATELY 2200 TO 1700 MA) OF THE PENNYNH GROUP AND FILLING GROUPS...

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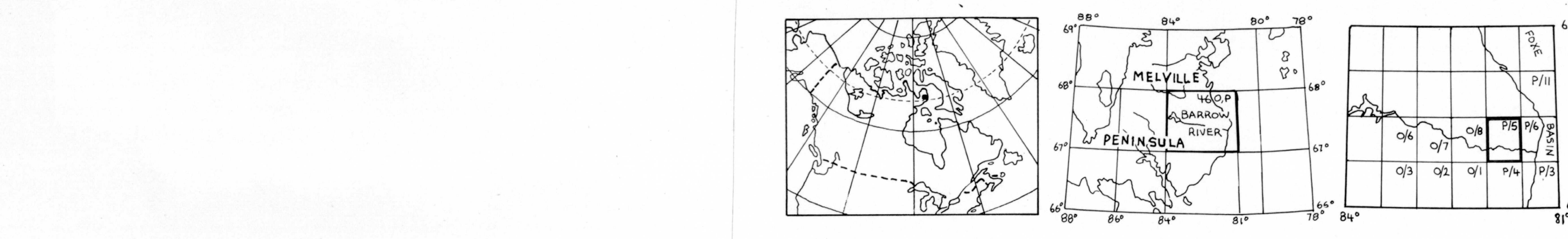
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LEGEND

- LATE(?) PROTEROZOIC: Hd (Dark green to black, fine to medium grained pyroxene diabase); Ag (Orange and buff weathering, white, tan and grey massive and foliated, medium to coarse grained, biotite and hornblende granodiorite, quartz monzonite and leucocratic gneiss); Ang (Migmatite composed of units Am and An in lit-par-lit, zoned and texturally transitional, variations of unit Am).

- EARLY PROTEROZOIC: Arva (White and light green weathering, light grey, massive, layered aphanitic siliceous rock (acid volcanic rock)); Arvb (Green to dark green actinolitic greenstone (basic to intermediate volcanic rock)); Aram (Grey, fine to medium grained, thin to thick bedded, quartz-muscovite-feldspar paragneiss, some with andalusite (?) porphyroblasts, muscovite schist, meta-breccia); Arp (Black, fissile, very fine grained, 'sooty' pelite); Arqb (Grey, fine to medium grained, thin to thick bedded, quartz-biotite-feldspar paragneiss, some with andalusite (?) porphyroblasts, muscovite schist, meta-breccia).

- ARCHAEN: Ag (Orange and buff weathering, grey and pink, medium to coarse grained, layered and foliated, biotite and hornblende granodiorite, quartz monzonite and leucocratic gneiss); Agghd (Orange, grey and tan weathering, buff and grey, fine to medium grained, quartz-biotite-feldspar schist, some with andalusite (?) porphyroblasts, muscovite schist, meta-breccia); Am (Dark green, coarse grained, serpenitized pyroxene-bearing ultramafic rock); An (White, grey and blue-grey, medium to coarse grained, massive and bedded marble with calcite-dolomite-silicate gneiss and minor calcite); Aph (White, grey and blue-grey, medium to coarse grained, massive and bedded marble with calcite-dolomite-silicate gneiss and minor calcite); Anb (Brown and rusty weathering, schistose, biotite-garnet-sillimanite paragneiss); Anq (Rusty, fine to medium grained, graphitic paragneiss with pyrite and pyrrhotite).

- PLANAR STRUCTURES: Bedding and compositional layering (horizontal, inclined, vertical); Foliation, schistosity, gneissic layering, cleavage and axial planes (horizontal, inclined, vertical, dip unknown) (earliest or only observed); Foliation, cleavage and axial planes (inclined, vertical); associated with folds of later phases observed to have deformed bedding or early foliation; Foliation, cleavage and axial planes (inclined, vertical); associated with folds observed to have deformed bedding, early foliation and/or pre-existing structures; Cleavage and axial planes (inclined, vertical) associated with gentle folds observed to have deformed earlier structures and believed to be formed late in the tectonic history.

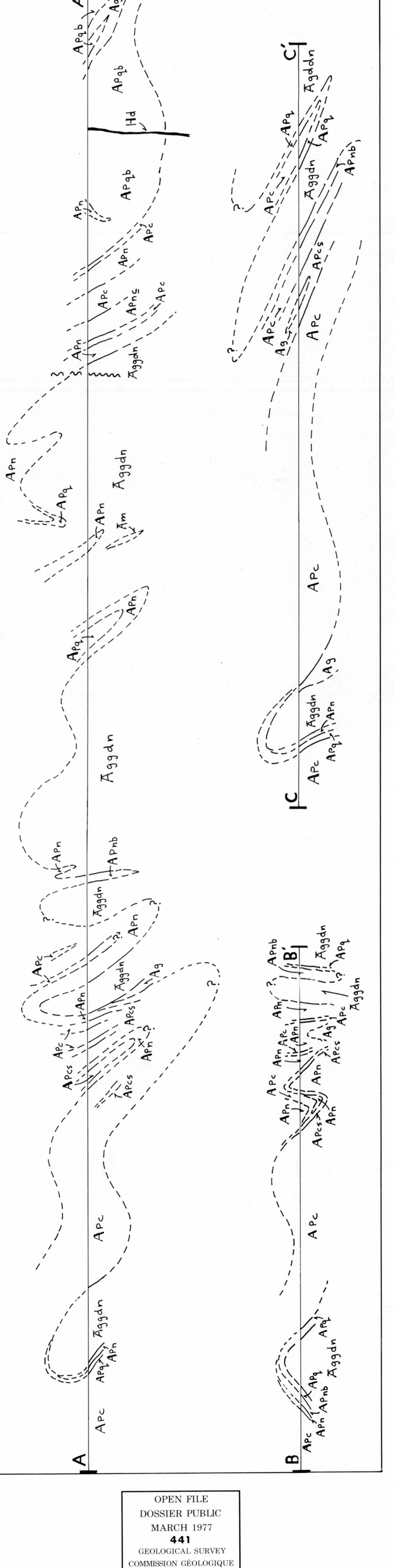
- LINEAR STRUCTURES: Lineation (plunging, horizontal) formed by bedding-foliation intersection; Lineation (plunging, horizontal) formed by bedding-foliation and foliation-foliation intersection; Lineation (plunging, horizontal) formed by bedding-foliation and foliation-foliation intersection; Lineation (plunging, horizontal) formed by bedding-foliation and foliation-foliation intersection.

- FAULTS: High angle fault (defined, approximate); Low angle fault (defined, approximate); Antiform (defined, approximate); Synform (defined, approximate).

- STRUCTURAL NOTE: Description of structures is facilitated by separation into six phases corresponding to criteria such as fold style and orientation and sequential relationships among folds, foliation and lineation. Such separation does not imply presence of discrete events, particularly in the case of phases D1, D2 and D3 which may well be partly or wholly synchronous in some areas.

- METAMORPHIC MINERALS: A: andalusite, C: cordierite, G: garnet, P: phlogopite, S: scapolite, T: tremolite, Ac: actinolite, Ch: chlorite, M: muscovite, S: sillimanite, St: staurolite.

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LEGEND - LEGÈNDE: ROADS AND RELATED FEATURES, LANDMARK FEATURES, BOUNDARIES AND SURVEY CONTROL, PHOTOGRAPHY, RELIEF, PHOTOGRAPHY, PHOTOGRAPHIE, CONVERSION SCALE FOR ELEVATIONS, ELEVATIONS EN MÈTRES AU-DESSUS DU NIVEAU MOYEN DE LA MER, DISTRICT OF FRANKLIN, NORTHWEST TERRITORIES, Scale 1:50,000 Échelle 1:50,000