

GENERAL GEOLOGY

The Folex and Committee Fold Belts extend in an east-northeast direction from southern Melville Peninsula to central Baffin Island. They are composed of granitoid rocks extending during the Hudsonian Orogeny (circa 1700 Ma ago), post-tectonic plutons (1600 Ma old, Heywood, 1967) were emplaced into the fold belt late in the orogenic history. Following extensive uplift and erosion, diabase dykes (Hd) presumed to be part of the Palaeozoic dyke swarm of about 1000 Ma age (Fahrig, 1970), cut rocks of the fold belt. These are specially associated with faults and fractures trending north-south. Subsequent uplift and erosion was followed by deposition of Silurian and Devonian carbonate rocks (Osc) remnants of which lie north and south of the Committee and Folex Fold Belts and bordering Foxe Basin.

DATE OF ABOUT 2700 Ma (R.K., Wanless, personal communication, 1977). DEFORMATION OF THE BASEMENT COMPLEX AND THE PENNYNH GROUP MAY HAVE TAKEN PLACE 2324 Ma ago (Jackson and Taylor, 1972) and again during the Hudsonian Orogeny (circa 1700 Ma ago). Post-tectonic plutons (1600 Ma old, Heywood, 1967) were emplaced into the fold belt late in the orogenic history. Following extensive uplift and erosion, diabase dykes (Hd) presumed to be part of the Palaeozoic dyke swarm of about 1000 Ma age (Fahrig, 1970), cut rocks of the fold belt. These are specially associated with faults and fractures trending north-south. Subsequent uplift and erosion was followed by deposition of Silurian and Devonian carbonate rocks (Osc) remnants of which lie north and south of the Committee and Folex Fold Belts and bordering Foxe Basin.

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DESCRIPTIVE NOTES

Map-area 46 P/12 is underlain solely by the Pennyhn Group and Late Proterozoic diabase dykes. The structure and stratigraphy is complex and commonly poorly understood, particularly in the southern half of the area where outcrops are scattered because of indistinct and gradational lithologic variations and few obvious or continuous marker units. The Pennyhn succession is bounded by the basement complex just beyond the northwest and southeast corners of the area. In the southeast, the basal sequence of the group is lacking and the order of units near the basement is not typically that of the lower part of the group. The basal sequence is exposed in the northwest in map-area 46 O/16 and is followed by a thick carbonate succession (Apc, Apcs) that is exposed in the northeast corner of this area. It is overlain by paragneiss (Anp), biotite quartzite (Aqb), calcium silicate gneiss (Ags) and yet more paragneiss. In presumed ascending order southward, is a thick, or at least widespread, unit of interbedded calcium silicate gneiss and biotite quartzite. The southern third of the area contains a thinly bedded succession of biotite quartzite and paragneiss with occasional marble and rare calcium silicate interbeds. Distinction in the field between biotite quartzite and calcium silicate gneiss is sometimes hampered by subtle compositional variations. Gradational transitions between biotite quartzite and paragneiss which superficially appear to be the result of differing metamorphic conditions are in fact caused by differing compositions which allow growth of K-feldspar and development of permatite (Aq). Compositional differences are also believed responsible for the low grade appearance of rocks of unit Aq and Aq in the southeast quarter of the area and in map-area 46 P/11. Porphyroblasts resembling relic andiolite in unit Aq and Aq contain sillimanite. A large massive and sporadically foliated leucocratic intrusion dominates the north-central part of the area; numerous smaller bodies pervasively interpenetrate rocks of the southern half (Aq). Most are believed to be syn- or late-tectonic in age and were presumably generated largely in situ by partial melting during the zenith of regional metamorphism. Complex polyphase deformation during at least 4 phases has affected the Pennyhn Group in this area. Two early isoclinal phases, best seen in the carbonate units in the northern part of the area and in map-area 46 P/15, were followed by development of upright folds with northeasterly axes. Local intense deformation about this trend transposed earlier fold axes and associated lineations into parallelism with it, thus the original orientation of early folds is uncertain. The latest folding formed concave north-west trending warps. These are not well developed, but one forms the large synformal fold, plunging gently north-west and cored by unit Aq in the northwest quarter of this area. It does not extend into southern parts of the area. In its vicinity, northeasterly trending structures are bent and plunge north or south. A similar hierarchy of polyphase structures has been observed on a small scale in the south half of the area but large features were not mapped because of poor exposure and obscured stratigraphy.

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LEGEND

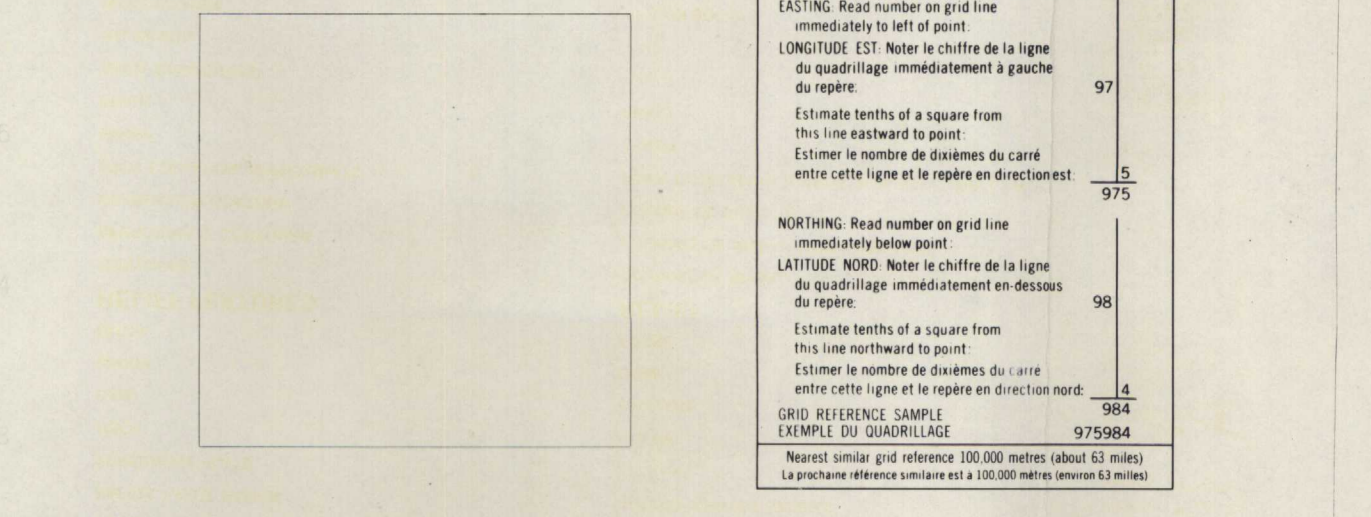
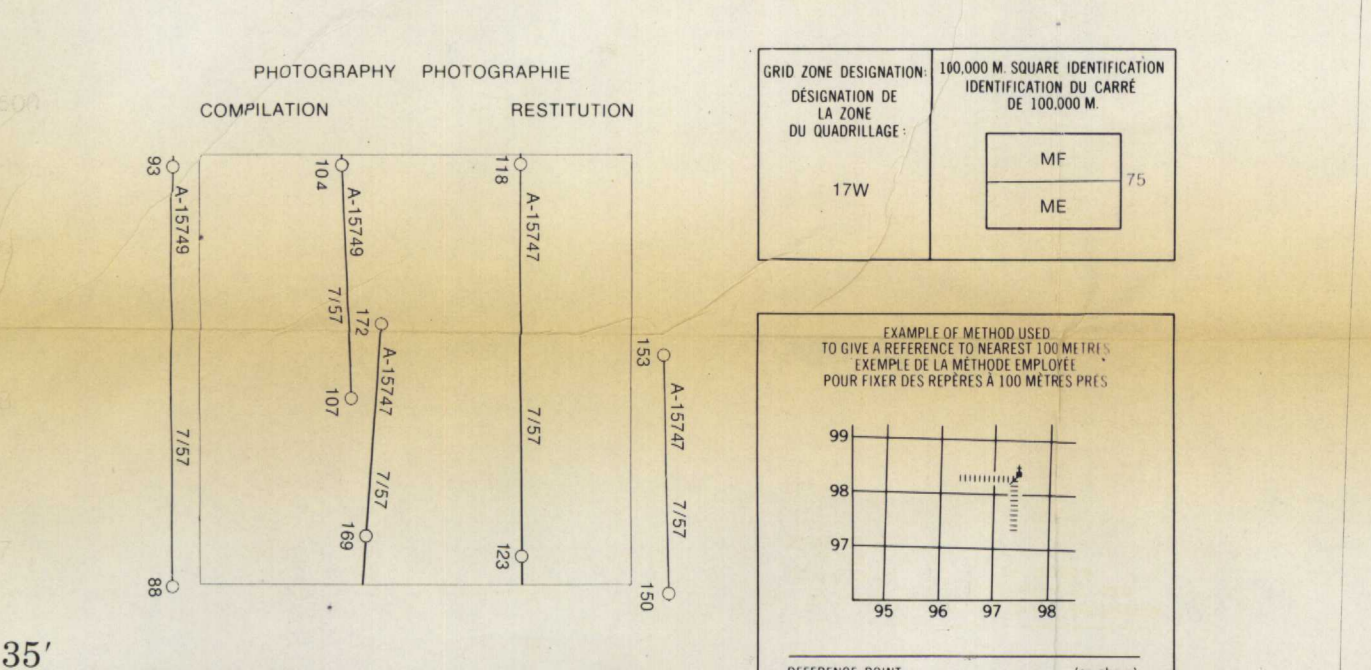
Legend detailing geological units (Phanerozoic, Late Proterozoic, Early Proterozoic, Archean), planar structures (bedding, foliation, schistosity), linear structures (lineation, folding), faults (high angle, low angle), and symbols for boundaries and data presentation. Includes a note on data presentation and geological mapping credits.

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Scale bars in meters and feet, conversion scale for elevations, and grid information for the map area.

ROADS AND RELATED FEATURES, LEGEND - LÉGENDE, and other symbols for roads, railways, and landmarks.



ONE THOUSAND METRE UNITS, TRANSVERSE MERCATOR GRID, and other technical details for the map's projection and scale.

CONVERSION SCALE FOR ELEVATIONS, ÉCHELLE DE CONVERSION DES ÉLEVATIONS, and other technical details for the map's projection and scale.