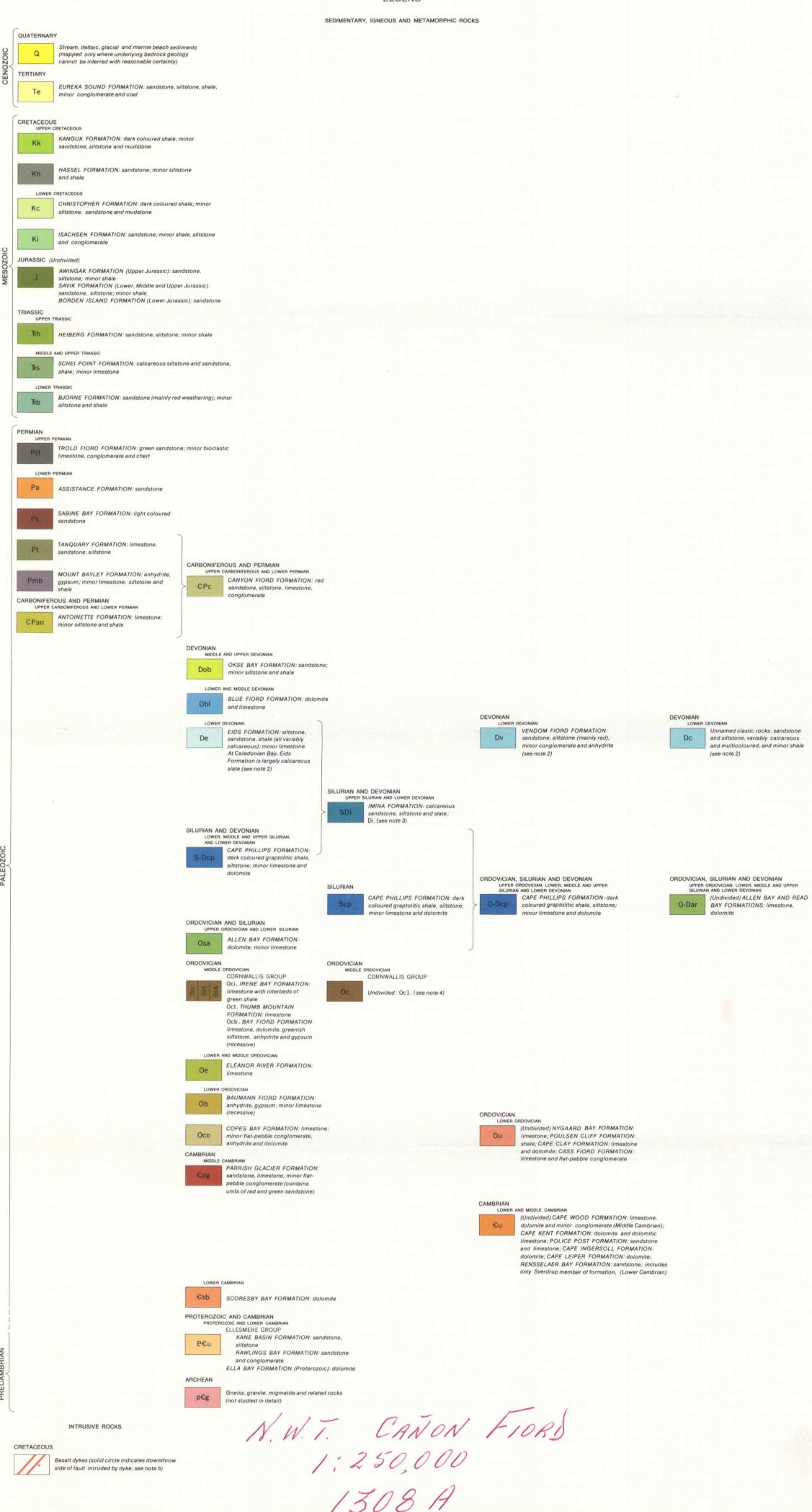
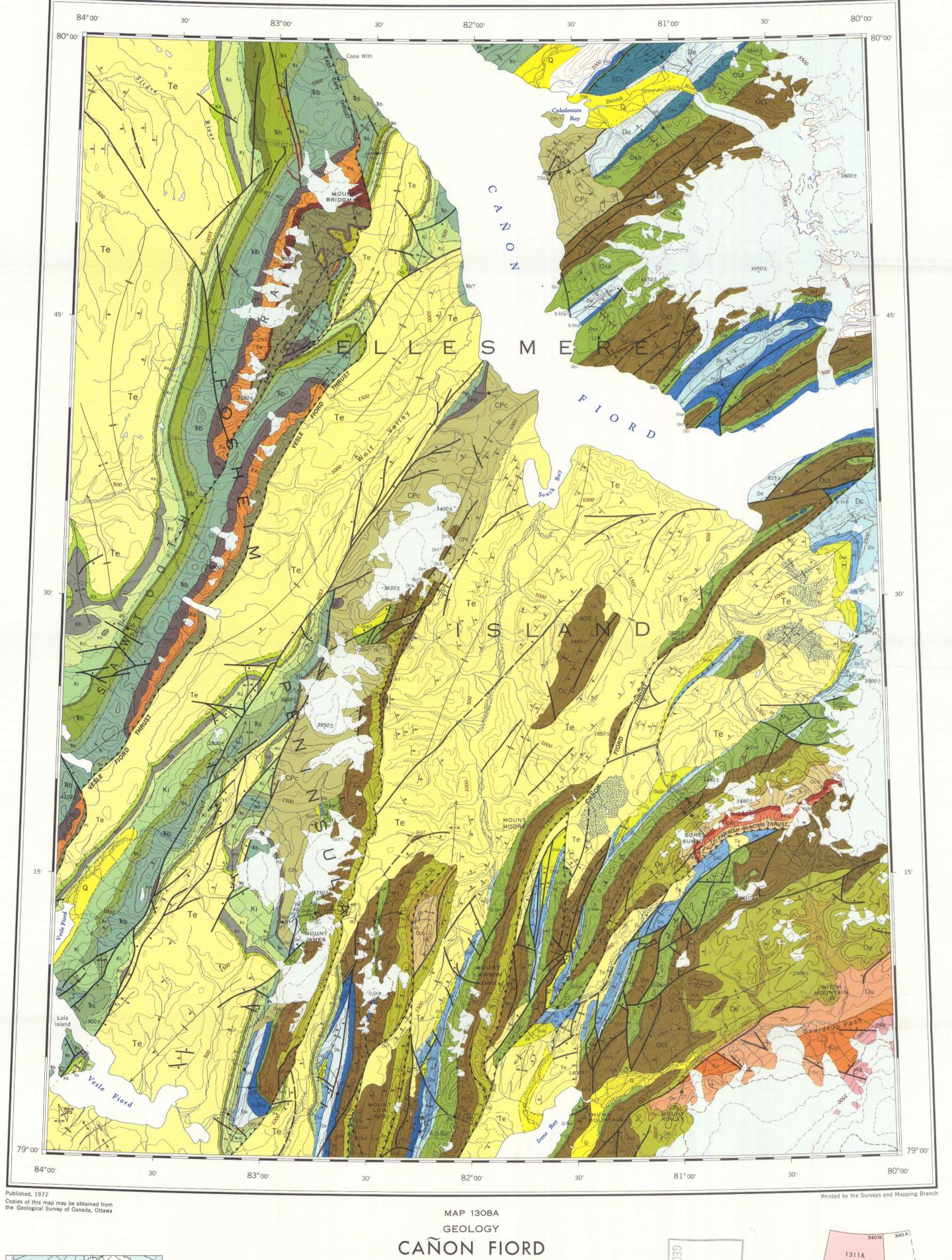
LEGEND

GEOLOGICAL SURVEY OF CANADA DEPARTMENT OF ENERGY, MINES AND RESOURCES





DISTRICT OF FRANKLIN

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Geology of Carboniferous and younger rocks by R. Thorsteinsson, 1956, 1957, 1961, 1962, 1963 and E.T. Tozer, 1956, 1961, 1962

Type section (see note 6) . . .

Geology of Silurian and Devonian in environs of Caledonian Bay by H.P. Trettin, 1970

Geology of Devonian and older rocks mainly by J.W. Kerr, 1961, 1962

Compilation by R. Thorsteinsson, 1970, 1971

NOTES

 The outlier mapped as Cornwallis Group some 8 miles southeast of South Bay contains also exposures of the lower part of the Allen Bay Formation.

2. The Eids Formation, Vendom Fiord Formation and map-unit Dc occupy similar stratigraphic positions in different regions of the Franklinian miogeosyncline in Ellesmere Island. The Eids (grey clastics) is widely distributed in outer regions of the miogeosyncline from southwestern parts of the island to the north side of Cañon Fiord. The Vendom Fiord (redbeds) crops out along the eastern border of the miogeosyncline south of the Cañon Fiord. Map-unit Dc (variegated clastics) is distributed around the head of Cañon Fiord, and extends eastward into, and beyond the adjoining Sawyer Bay map-area. All three formations are apparently Early Devonian in age, but their precise ages and stratigraphic relations are uncertain.

The type section of the Eids Formation which was defined by McLaren (1963) is in the Baumann Fiord map-area of southwestern Ellesmere Island, a few miles north of the type section of the Blue Fiord Formation that lies gradationally on the Eids. The type section of the Eids has not provided diagnostic fossils, nor is the base of the formation exposed there. Nevertheless the formation appears to be Early Devonian in age on the basis of its stratigraphic position and faunas. Eids rocks in Ellesmere Island commonly overlie the graptolitic Cape Phillips Formation in which the youngest fossils are generally Gedinnian in age. The Blue Fiord Formation which was also defined by McLaren (op. cit.), and dated by him as Eifelian on the basis of rich coral and brachiopod faunas, is now considered to include rocks of Emsian age (J.G. Johnson, pers. com.). Moreover, Klapper (1969) has dated conodonts from basal beds of the Blue Fiord on Devon Island as Emsian. Eids rocks have yielded diagnostic fossils at two localities in Ellesmere Island. About 17 miles northeast of the type section of the Eids (Locality 115, Baumann Fiord map-area), Thorsteinsson collected conodonts (GSC Cat. No. 57730) that were dated as Emsian by T.T. Uyeno. At locality 32 in the Strathcona Fiord map-area a fauna consisting largely of brachiopods (GSC Cat. No. C-3846), was obtained from basal beds of the Eids Formation by Thorsteinsson, and dated as Gedinnian by J.G. Johnson. Thus the Eids Formation appears to range from Gedinnian to Emsian in age.

The Vendom Fiord Formation (Kerr, 1967) has not yielded fossils. The type section of the formation is in the Cañon Fiord map-area, where it overlies the Cape Phillips Formation, and is in turn overlain by the Blue Fiord Formation. Both contacts are abrupt, yet conformable. A fauna, consisting largely of brachiopods (GSC Cat. Nos. 28730 and 28706) was collected by Thorsteinsson in upper beds of the Cape Phillips Formation, immediately below the type section of the Vendom Fiord Formation (Locality 25) and dated by J.G. Johnson as Gedinnian (see also Boucot, 1960). Rocks of the Blue Fiord Formation that overlie the type section of the Vendom Fiord Formation are apparently unfossiliferous. However, a little over 11 miles to the west, at locality 96, Thorsteinsson obtained from basal strata of the Blue Fiord, a collection made up largely of brachiopods (GSC Cat. No. C-4394) which J.G. Johnson regards as very probably Emsian in age. At this locality Blue Fiord rocks overlie the Eids Formation. The Vendom Fiord Formation is not older than Gedinnian, and probably not younger than Emsian.

Map-unit Dc has not been studied in detail, nor has it yielded fossils. However, it is presumably Early Devonian in age, because it lies variously on the Cape Phillips Formation or the undivided Allen Bay and Read Bay Formations, and is overlain by the Vendom Fiord Formation, through an unconformity that exhibits marked angularity. A broad twofold subdivision is discernible in map-unit Dc: an upper unit of dusky red sandstone that is lithologically similar to the Vendom Fiord Formation; and a lower unit of light grey, light red and brown clastic sediments, parts of which resemble the Eids Formation.

The Eids is 2,150 feet thick in measured section 23. The type section of the Vendom Fiord is 1,695 feet thick. Map-unit Dc is roughly estimated as 5,000 feet or more in thickness.

Boucot, A.J.: Lower Gedinnian brachiopods of Belgium; Bull. Inst. Roy. Sci. Nat. Géol. vol. 21, pp. 279-344 (1960).

Klapper, Gilbert: Lower Devonian conodont sequence, Royal Creek, Yukon Territory, and Devon Island, Canada; *J. Pal.*, vol. 43, No. 2, pp. 1-27 (1969).

Kerr, J.W.: Vendom Fiord Formation - a new redbed unit of probable early Middle Devonian (Eifelian) age, Ellesmere Island, Arctic Canada; Geol. Surv. Can., Paper 67-43 (1967).

McLaren, D.J.: Goose Fiord to Bjorne Peninsula; Geol. Surv. Can., Mem. 320, pp. 310-338 (1963).

3. The lower and upper contacts of the Imina Formation are markedly diachronous. Exposures of the Imina that include Silurian and Devonian rocks are indicated by letter symbol SDi, whereas those including Devonian rocks only, are indicated by letter symbol Di.

4. Exposures mapped as Oc1 east of Caledonian Bay have not been studied on the ground. In addition to the Cornwallis Group, these exposures may include rocks of the Eleanor River, Baumann Fiord, and possibly also the Copes Bay Formation.

5. Basic dykes and sills are generally common in upper Paleozoic and Mesozoic rocks in much of Axel Heiberg Island and western Ellesmere Island, and are believed to be mainly Cretaceous in age. Dykes are however rare in the Casen Fixed man area where only four dykes have been

in age. Dykes are, however, rare in the Cañon Fiord map-area where only four dykes have been mapped, and they occur northwest of Mount Bridgman. Sills are also rare, but have not been mapped.

Vendom Fiord, and Canyon Fiord Formations.

6. The map-area contains the type sections of the Bay Fiord, Thumb Mountain, Irene Bay,

Geological cartography by the Institute of Sedimentary and Petroleum Geology, Geological Survey of Canada, 1972



Topographic base-map at the same scale published by the Surveys and Mapping Branch in 1967, with revisions by the Institute of Sedimentary and Petroleum Geology, 1972

The daily change of the North Magnetic Pole causes the magnetic compass to be very erratic in this area

BOBA FIORD FRANKLIN

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NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX

TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

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