LEGEND

PERMIAN

Pa — ASSISTANCE FORMATION: sandy mudstone and sandstone, yellowish orange and greyish green, glauconitic, fossiliferous and concretion-bearing in upper part, thin to medium bedded

Pbc — BELCHER CHANNEL FORMATION: limestone and sandstone, reddish brown weathering, crossbedded quartz sandstone in lower part and bioclastic limestone in upper part with coral-bearing "reefal" beds

CARBONIFEROUS

Cc — CANYON FIORD FORMATION: conglomerate, greyish red weathering, rounded to subangular pebbles of finely crystalline limestone cemented by hematitic calcite, some grey chert pebbles, limestone at base in some places

Ce — EMMA FIORD FORMATION: sandstone and shale, grey shale and limestone in lower part, yellowish grey sandstone with pebble beds in upper part with some shale intervals

DEVONIAN

Dgb — GRIPER BAY FORMATION: sandstone, greyish yellow blocks of impure quartz sandstone but no actual outcrop

Do — OKSE BAY FORMATION: sandstone and shale. Lower member (Do_1): homogeneous resistant orange weathering quartz sandstone with "rusty" limonite cement, plant fragments common. Middle member (Do_2): resistant orange weathering quartz sandstone and brownish red siltstone and shale with plant fragments, broadly colour banded. Upper member (Do_3): recessive brownish red and green weathering sandy siltstone and shale, and limonite cemented argillaceous quartz sandstone are interbedded, the homogeneous grey burrowed siltstone and shale that forms the upper part of this unit may correlate with the Parry Islands Formation

Dbi — BIRD FIORD FORMATION: argillaceous and calcareous sandstone. Lower part (Dbi_1): recessive greenish grey and yellow weathering argillaceous quartz sandstone, shale and sandy fossiliferous limestone (brachiopods). Upper part (Dbi_2): slightly resistant yellow weathering impure quartz sandstone

Du — Undivided Devonian carbonate: limestone, dolomite anhydrite and sandstone. Du_1: limestone, bluish grey and fossiliferous with abundant brachiopods and crinoids, in some places a quartz pebble-bearing interval of cream weathering dolomite is present at the base of the unit. Du_2: dolomite, cream weathering vuggy, finely to medium crystalline "sucrosic" thick bedded dolomite and thin bedded silty dolomierite. Du_3: dolomite, sandstone, limestone and anhydrite, mainly a sandy dolomite and dolomitic sandstone with sandy dolomite conglomerate, interbedded anhydrite occurs locally in the vicinity of Grave Mount near Arthur Fiord. Du_4: limestone, a bluish grey cliff and ledge-former of tan pelletal lime mudstone (pelmicrite) medium bedded. Du_5: limestone, a brownish grey weathering argillaceous skeletal crinoid-bearing lime wackestone, corals and brachiopods are scattered throughout.

Dpa — PRINCE ALFRED FORMATION: dolomitic quartz sandstone, silty dolomite, dolomitic siltstone, dolomite breccia and conglomerate. Dpa_1: rusty brown weathering thin bedded silty dolomite with minor quartz sandstone and conglomerate. Dpa_2: sandy cream coloured dolomite containing chert pebble beds, some crossbedding in poorly developed medium bedding. Dpa_3: light reddish grey weathering "sooty" olive grey dolomite with green shale partings.

Dsr — SUTHERLAND RIVER FORMATION: dolomite, light grey to cream weathering thick bedded crinoid-bearing "sucrosic" dolomite and thin bedded argillaceous yellow, pink and green weathering silty dolomierite, some lenses of dolomite breccia.

Dst — STUART BAY FORMATION: calcareous siltstone, brownish grey weathering, some interbeds of shaly crinoidal limestone, this unit is restricted to southern Grinnell Peninsula and to islands in Penny Strait.

SILURIAN AND DEVONIAN

SDdi — DEVON ISLAND FORMATION: argillaceous dolomite and limestone, dark brownish grey weathering platy and fissile shaly dolomite and limestone.

SDq — Unnamed Silurian-Devonian limestone: limestone, bluish grey weathering tan pelletal lime wackestone and packstone, medium bedded with abundant orange-stained silicified corals and brachiopods.

SILURIAN

Sdo — DOURO FORMATION: limestone, argillaceous greenish grey weathering skeletal wackestone, nodular and uneven medium bedding, abundant brachiopods and crinoids, green argillaceous partings and green mottling.

Scs — CAPE STORM FORMATION: dolomite limestone, yellow weathering platy silty argillaceous dolomierite, thick bedded, bluish grey weathering intraclastic lime packstone and rudstone. (Scs_1): thick bedded light grey to cream finely crystalline dolomite (Scs_2).

ORDOVICIAN AND SILURIAN

OSa — ALLEN BAY FORMATION: dolomite, light to medium brown thick to very thick bedded, finely crystalline "sucrosic" dolomite. OSa_1: dolomite, greyish brown crinoid-bearing bituminous and vuggy "sucrosic" dolomite. OSa_2: similar to OSa_1 but more cream coloured and less vuggy and bituminous.

OSba — BATHURST ISLAND FORMATION: siltstone, brown to yellow tan weathering impure quartz siltstone, thin to medium bedded.

OScp — CAPE PHILLIPS FORMATION: shale and limestone, dark grey and brownish grey weathering silty fissile calcareous shale with some thin limestone interbeds.

ORDOVICIAN

Oci — IRENE BAY FORMATION: limestone, greenish grey weathering and recessive argillaceous and shaly fossiliferous lime wackestone with brachiopods, trilobites and cephalopds.

Oct — THUMB MOUNTAIN FORMATION: limestone, medium grey weathering resistant lime wackestone, yellow dolomitized burrow mottles. Octi: undivided Irene Bay and Thumb Mountain formations.

Ocb — BAY FIORD FORMATION: siltstone, mudstone and argillaceous dolomite weathering greenish grey in upper part, gypsum, anhydrite and limestone in lower part.

Oe — ELEANOR RIVER FORMATION: limestone, argillaceous, medium grey and yellowish grey. Oe_1: limestone, resistant thick bedded medium to dark grey stromatolitic intervals abundant. Oe_2: limestone, largely yellowish grey, thin to medium bedded pelletal and intraclastic mudcracked lime wackestone, recessive. Oe_3: limestone, medium to dark brown thick bedded fetid intraclastic lime packstone and rudstone, resistant, some mottled beds.

Ob — BAUMANN FIORD FORMATION: limestone and anhydrite/gypsum, thick bedded stromatolite bioltihite limestone, laminated gypsum intervals.

Oco — COPES BAY FORMATION: dolomite and limestone, platy very finely crystalline silty dolomite and limestone, thin to medium bedding, greenish grey argillaceous partings, some resistant cliff-forming stromatolitic intervals.

CAMBRIAN

Cpg — PARRISH GLACIER FORMATION: limestone dolomite and shale, thin bedded platy lime mudstone with rusty silty and sandy partings, ripple marked calcareous shale.

Geological boundary (defined, approximate, assumed)
Bedding attitude (measured, observed from air)
Syncline (arrow shows sense of plunge)
Anticline (arrow shows sense of plunge)
Fault (normal, type unknown)
Thrust fault (teeth on hanging wall)
Linear feature of uncertain origin
Line of section

Additional Notes

The exposed bedrock strata on Grinnell Peninsula range in age from Cambrian to Permian. As may be seen clearly on the accompanying chart of schematic stratigraphic relationships, the dominant bedrock structure is a broad north-trending arch of early Paleozoic formations whose axis extends across west central Grinnell. It is possible that this regional arch is the expression of the northward extension of Boothia Uplift and the Cornwallis Fold Belt and a basement horst structure has been inferred to exist beneath the arch although this is purely hypothetical. The easterly trending open folds involving mainly the Undivided Devonian Carbonates, and the Bird and Okse Bay formations on eastern Grinnell form the next younger major structural trend. This may be the expression of the Parry Island Fold Belt (Kerr, 1974) on Grinnell Peninsula. Finally the Carboniferous to Permian sequence of the Sverdrup Basin on northernmost Grinnell unconformably overlies the deformed succession of the Franklinian Geosyncline that forms most of Grinnell Peninsula.

The thickness and lithology of most mapped units and formations are described in the accompanying stratigraphic section descriptions, with the exception of Section 20 which is described in Nassichuk and Davies (1975) and sections 1 to 8 which are described in Morrow and Kerr (1978). In addition to the unconformities shown in the chart of schematic stratigraphic relationships, important unconformities occur within the Undivided Devonian Carbonates, and within the Prince Alfred Formation and beneath parts of the Cape Storm Formation as may be inferred from the map pattern.

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SCHEMATIC STRATIGRAPHIC RELATIONSHIPS

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