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GEOLOGICAL SURVEY OF CANADA | COMMISSION GÉOLOGIQUE DU CANADA

EARLY PROTEROZOIC

EPct — *Cataclasite: highly fractured, recrystallized gneiss with randomized fabric (little or no planar fabric and no linear fabric); weathers rust colour; minor breccia, mylonite*

EPgm — *Amphibolite to Greenschist grade mylonite: well foliated, layered, light coloured, mylonite to protomylonite with abundant sigma-type porphyroclasts. Protoliths include leucogranite, Eastern Slave granite and Charles Lake granite in CLSZ, Western Slave granite and Arch Lake granite in LLSZ, and Taltson basement gneiss and high-grade mylonite in both shear zones (see Note 3)*

EPgl — *Leucogranite: weakly to non-foliated white to light grey to pink, muscovite-bearing pegmatitic coarse-grained granite, rare biotite*

EPcl — *Charles Lake granite: massive to foliated megacrystic granite with 15-30 percent K-feldspar megacrysts in a medium-grained biotite-rich matrix. Megacrysts have distinctive biotite inclusions. Local fine-grained porphyry with 2-3% disseminated fine-grained pyrite (unit is Granite F of Godfrey and Langenberg (1986))*

EPws — *Western Slave granite: massive to weakly, locally moderately, foliated, medium- to coarse-grained quartz monzonite, monzogranite, and granite; colour varies from white to pink; small clots of garnet, biotite, hercynite, and cordierite. Locally abundant rafts of granitic gneiss, and pelitic and quartzitic paragneiss. Dykes on margin of main pluton intrude Arch Lake granite and high-grade mylonite of LLSZ*

EPes — *Eastern Slave granite: massive to weakly foliated, locally cataclasized, medium- coarse-grained granite with equant 1-4cm K-feldspar crystals in an equigranular matrix of quartz, feldspar, biotite, and locally abundant garnet in association with paragneiss xenoliths. Local abundance of xenoliths of paragneiss, banded basement gneiss, and high-grade mylonite (CLSZ?)*

EPhm — *High-grade mylonite: well banded, quartzo-feldspathic mylonite, protomylonite, and ultramylonite with sparsely preserved sub-horizontal quartz stretching lineations; amphibolite pull-aparts; ductile feldspars indicative of amphibolite to granulite facies during shearing. Protoliths include Taltson basement gneiss and Arch Lake granite. Variable greenschist and sub-greenschist overprint*

EPal — *Arch Lake granite: massive, weakly foliated to well-foliated, mylonitic granite to granodiorite gneiss with 30 to 50 percent lenticular 1x3cm K-feldspar crystals in a fine- to medium-grained matrix of biotite, quartz, feldspar, and rare garnet. Locally forms L-S tectonite with rods of blue quartz in association with high-grade mylonite in CLSZ and LLSZ (see Note 3)*

EPms — *Metasedimentary rocks: large inliers of quartzite, semipelitic gneiss, and pelitic gneiss; common mineral assemblages in pelitic gneiss include biotite+garnet+sillimanite +cordierite in the Leland Lakes area, with biotite+garnet+sillimanite common in areas to the east; locally pervasive pegmatite veins and dykes*

ARCHEAN? or EARLY PROTEROZOIC

AEPtb — *Taltson basement complex: well foliated, banded mylonitic biotite-hornblende granite to granodiorite gneiss, hornblende diorite gneiss, locally well layered, locally dismembered and plygmatically folded, highly sheared; pervasively intruded by medium-grained pink granite dykes, sills, and small intrusions similar to western Slave granite suite, which form up to 50 percent of outcrop; a, amphibolite*

MAP SYMBOLS

- Geological contact (defined, approximate, assumed)
- Fault, displacement unknown (approximate)
- Antiform, trace of axial surface (approximate)
- Synform, trace of axial surface (approximate)
- Foliation, high-grade mylonite (inclined, vertical) — 79
- Foliation, greenschist mylonite (inclined, vertical) — 66
- First Foliation (inclined, vertical) — 85
- Second Foliation (inclined, vertical) — 85
- Lineation, high-grade stretching (inclined) — 13
- Lineation, greenschist stretching (inclined) — 47
- Lineation, mineral (inclined) — 15
- Mesoscopic fold axis, vergence indicated by tick (inclined) — 28
- Mesoscopic W-fold axis (inclined) — 32
- Mesoscopic U-fold axis (inclined) — 38
- Mesoscopic sheath-fold axis (inclined) — 15
- Axial plane of mesoscopic fold (inclined, vertical) — 88
- Veins: quartz (inclined, vertical) — 85
  - pegmatite (inclined, vertical) — 78
  - epidote (inclined, vertical) — 87
  - granite (inclined, vertical) — 72
- Shear bands:
  - ductile, dextral (inclined, vertical) — 85
  - ductile, sinistral (inclined, vertical) — 76
  - brittle, dextral (inclined, vertical) — 83
  - brittle, sinistral (inclined, vertical) — 87
- Joint (inclined, vertical) — 77
- K-Ar hornblende date (Ma) — x 1835 hK

NOTES:

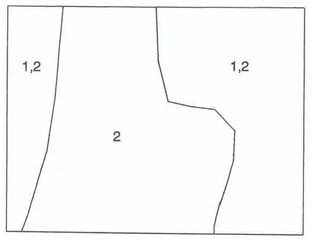
1) Ages of granitoid units not precisely known. Relative ages of Charles Lake, Eastern Slave, and Western Slave granites are not known. U-Pb dating is in progress.

2) Hornblende K-Ar data are from H. Baadsgaard, unpublished data. Location given by Godfrey and Langenberg (1986).

3) Leland Lakes shear zone (LLSZ) and Charles Lake shear zone (CLSZ) are composite shear zones active at granulite facies conditions, and later at greenschist and sub-greenschist facies conditions (McDonough et al., 1993, GSC Paper 93-1C).

4) Elevations are in feet above mean sea level.

SOURCES OF INFORMATION:



1. McDonough, M.R., Grover, T.W., McNicoll, V.J., and Lindsay, D.D. 1993. Geol. Surv. Canada, Paper 93-1C, p.221-232.
2. Godfrey, J.G. and Langenberg, C.W., 1986, Alta Res. Coun., Report 1986-4.

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Canada

GEOLOGY

MERCREDI LAKE

ALBERTA - NORTHWEST TERRITORIES

Scale 1:50 000 Échelle

Kilometres 1 0 1 2 3 Kilomètres

Transverse Mercator Projection

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