

Geology of Myers Lake District, Alberta

Sheet No. 28

John D. Godfrey, C. Willem Langenberg, Thomas J. Donaghy, and Mervyn N. Rogan, 1974, 1975.

Map to accompany Earth Sciences Report No. 64-6

NOTE: West of Slave River Precambrian bedrock only indicated. For surficial geology see Bayrock, L.A. (1972): Surficial geology, Peace Point and Fitzgerald (area), scale 1:25000.

Any revisions or additional geological information would be welcomed by the Alberta Research Council.

Base maps compiled from planimetric sheets published by Alberta Energy and Natural Resources, Edmonton. Aerial photographs covering this area are obtainable from the Alberta Energy and Natural Resources, Edmonton, or the Mapping and Surveys Branch of Energy, Mines and Resources, Ottawa. Cartography by Alberta Research Council, Graphic Services, R.D. 1616.

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MYERS LAKE LEGEND

DEVONIAN

- 254** LA BUTTE FORMATION: light to medium, brownish gray, thin- to thick-bedded to massive, fossiliferous, bioclastic argillaceous fine-grained limestone, with laminations of brownish gray shale.
- 253** HAY CAMP FORMATION: light brown to orange brown, generally (collapse brecciated limestones and dolomitic limestones, containing laminated, lithographic dolostone, partly gypsiferous, and light gray fossiliferous, argillaceous limestone, with light gray, calcareous shale laminations.
- 252** FITZGERALD FORMATION: pale brown, weathering light orange brown, thin to rubby bedded to massive, fine grained, vuggy, dolostone and dolomitic limestone. Carbonaceous dolostone locally; transitional through sandy and argillaceous dolostone to underlying La Roche Formation. Locally bitumen impregnated.
- 251** LA ROCHE FORMATION: basal regolith developed on crystalline shield rocks, grades upwards through poorly sorted, poorly consolidated, conglomerate, arkosic and pebbly sandstone, to sandy dolostone. The finer-grained matrix includes clay, iron oxide, and secondary copper mineralization.

(Subdivision based on Norris, A.W. (1963), G.S.C., Bulletin 313)

PRECAMBRIAN**

REGIONAL SHEAR ZONES

Zones of regional shearing and recrystallization have principally affected granite gneisses and metasedimentary rocks to produce: ultramylonite, mylonite, cataclastite, blastomylonite, and flaser gneiss; megastructure is typically streaky; may contain rounded or augen rock clasts or feldspar porphyroclasts (0).

- 223** RECRYSTALLIZED MYLONITIC ROCK: dark colored, with white to gray anhedral feldspar porphyroclasts and euhedral feldspar porphyroblasts 10 to 50 mm long; foliated, locally gneissose; aphanitic matrix, locally medium-grained; minor apilite and pegmatite. Parent material largely Slave Granitoids and Arch Lake Granitoids.

- 222** RECRYSTALLIZED MYLONITIC ROCK: green to black; granulose (siliceous) to schistose, with biotite, chlorite, sericite; feldspar and minor quartz porphyroclasts in a massive to foliated, finely banded, aphanitic matrix. Parent material largely metasedimentary rock.

GRANITOID ROCKS

ARCH LAKE GRANITOIDS

- 161** ARCH LAKE GRANITE PHASE: typically reddish overall; 20 to 40 percent red, subhedral, elongate to tabular feldspar megacrysts, from 15 to 30 mm long, aligned subparallel in a medium-grained (locally coarse-grained) usually well-foliated matrix of feldspar, blue quartz and biotite. Locally reduced amounts of feldspar megacrysts. Mafic mineral content 6 to 14 percent. Commonly mildly mylonitic, with crushed matrix and augen megacrysts.

- 162** ARCH LAKE TRANSITIONAL GRANITE PHASE: (transitional to Slave Granitoids); typically reddish overall; up to 10 percent white to pink subhedral, elongate to tabular feldspar megacrysts, from 10 to 15 mm long, aligned subparallel in a medium-grained (locally coarse-grained) usually well-foliated matrix of feldspar, blue quartz, and biotite. Quartz content locally reduced from 25 to 10 percent. Commonly mildly mylonitic.

LA BUTTE GRANODIORITE

- 140** Generally light gray to brownish gray to mauve (bluish quartz combined with pink-gray feldspar), of uniform color and texture; in hand specimen specks and aggregates of dark mafic mineral in a lighter gray background. Medium grained but ranging to fine- and coarse-grained, with 8 to 20 mm long feldspar megacrysts from rare to 5 percent abundance in a quartz, feldspar, biotite matrix. Typically massive to uncommonly poorly foliated or locally gneissic. Rock types range from granite to granodiorite, quartz diorite, and quartz monzodiorite, with a mean composition of granodiorite.

SLAVE GRANITOIDS

- 101** SLAVE GRANITE PHASE: typically whitish gray (locally white to greenish gray to pink feldspar mottled on a darker background); medium- to coarse-grained (locally fine-grained); up to 5 percent white feldspar megacrysts, 7 to 15 mm long, in a matrix of white feldspars, quartz and biotite (< 1 to 5 percent); massive to more commonly foliated (increase in biotite content tends to better define foliation); typically garnetiferous, in knots 5 ± mm across with a biotite envelope; may be locally gneissic; includes minor small-scale mafelsic lenses of metasedimentary appearance; minor gray white, fine- to medium-grained felsic dykes and quartz veins.

- 102** MAFIC SLAVE GRANITE PHASE: similar to Slave Granite but with a notably higher biotite content (up to 10 percent); distinctly foliated.

MEGACRYSTIC COMPONENT: up to 15 percent white feldspar megacrysts 15 to 50 mm long, either randomly oriented or aligned with the foliation of map units 101 and 102 (#).

- 103** RED SLAVE GRANITE PHASE: similar to Slave Granite Phase but with a distinct pinkish red color.

- 104** SPECKLED SLAVE GRANITE PHASE: similar to Slave Granite Phase, but reddish to mottled overall; red and white feldspars in a medium-grained matrix of feldspar, quartz, chloritic biotite, and sericite; mildly crushed and foliated matrix.

METASEDIMENTARY ROCKS

- 31** METASEDIMENTARY ROCKS: the high-grade metasedimentary rock types included in this map unit are lithologically and texturally gradational, and in part intermixed on outcrop scale. Typically impure quartzite; dark greenish (bluish) gray (fresh surface); fine-grained; layered, with ferruginous and garnetiferous zones, locally scattered pyrite, gossans, and milky to bluish gray quartz pods and veins. Minor amphibolite may be present. Common local lithologic gradational variations to: (1) fine- to medium-grained, metamorphic quartzo-feldspathic (granitic and minor pegmatitic) phase ranging from individual white feldspar porphyroblasts 5 to 15 mm long, to nebulous or distinct aggregations and masses; commonly foliated to locally gneissic (#); (2) fine-grained, retrograde phyllite and schist (biotite, chlorite, sericite, and uncommonly hornblende), and phyllonite.

AMPHIBOLITE

- 20** Dark brownish green (fresh surface) to grayish green; typically medium grained; biotite may be common; composition ranges from essentially amphibole pure or amphibole rich to a feldspathic biotite amphibolite; commonly foliated but may be banded where feldspar rich; minor pyrite common.

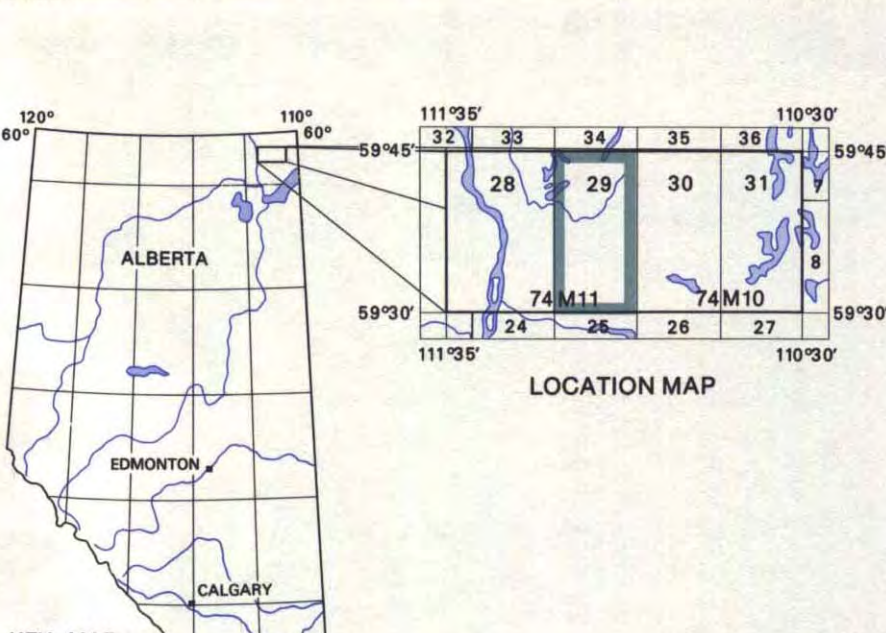
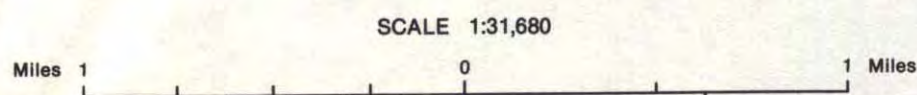
**NOTE: Rock groups are arranged in approximate chronological sequence. Nomenclature follows Strekeisen (1967): Classification and nomenclature of igneous rocks; Neues Jahrbuch für Mineralogie, Abhandlungen, 107, No. 2, p. 144-240.

- Geological boundary (defined, approximate)
- Foliation (defined: dip known, dip vertical; foliation assumed)
- Foliation trend*
- Lineation (combined with foliation)
- Extreme contortion (structural trend shown)
- Tight folds (structural trend shown)
- Local gneissosity in generally massive to foliated rock
- Joint (dip-known, vertical, unknown)
- Fault (defined: dip known; fault assumed)
- Shear (dip known)
- Breccia
- Mylonite (local)
- Crystalline standard sample
- Metasedimentary rock band standard sample
- Mineral occurrence — copper
- Yellow mineral stain
- Garnet
- Epidote
- Isotopic age (million years); biotite (b), K-Ar (k); University of Alberta
- Glacial stria (direction of ice movement shown)
- Drumlin* (outline to scale)
- Esker* (flow direction known, unknown)
- Kettle*
- Dune
- Raised beach* (downslope indicated)
- Wind-cut groove (wind direction shown)
- Sand-covered area*
- Small outcrop (map unit shown)
- Muskeg
- Drainage (permanent, intermittent)
- Township boundary
- National Park boundary
- Road
- Trail

*Aerial photographic interpretation

Approximate magnetic declination 26°12' East in 1984 decreasing approximately 4.4' annually for the Myers Lake map area.

SCALE 1:31,680



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