



LEGEND

- QUATERNARY**
PLEISTOCENE AND RECENT
18 Fluvialite gravel, sand, and silt; glacial outwash; till and alpine moraine
- TERTIARY AND QUATERNARY**
LATE TERTIARY AND PLEISTOCENE
17 Basalt, olivine basalt; 17a, rhyolite, pisolitic siliceous tuff, chalcodendritic rhyolite breccia
- CRETACEOUS AND TERTIARY**
UPPER CRETACEOUS AND PALEOCENE
16 Conglomerate, sandstone, shale; 16a, conglomerate, may be younger
- JURASSIC AND/OR CRETACEOUS**
15 Undifferentiated granitic rocks, mainly quartz monzonite; 15a, CASSIAR BATOLITH; mainly biotite quartz monzonite; and granodiorite, commonly gneissic and mafic-rich near contacts with 8 and 8a; 15b, mainly hornblende quartz monzonite and granodiorite
- JURASSIC**
LOWER JURASSIC
14 Well bedded greywacke, phyllitic slate, conglomerate; 14a, includes minor limestone; mainly metamorphosed, age uncertain
- 13 Well bedded greywacke, sandstone, siltstone, shale, conglomerate; 13a, includes volcanic rocks, may be in part older
- TRIASSIC**
UPPER TRIASSIC
12 Well bedded, locally fetid limestone
- UPPER TRIASSIC AND (?) EARLIER
11 Andesite, basalt, tuff, breccia, volcanic sandstone and conglomerate; minor greywacke, argillite and shale; many small stocks, sills, and dykes of porphyritic andesite and basalt, mainly Upper Triassic; 11a, greenstone; 11b, chert, slate, greenstone, phyllite; 11c, serpenitized peridotite; 11b and 11c may be pre-Upper Triassic and post-Permian, or may be equivalent to 8a and 8b
- PERMIAN**
10 Well bedded to massive, crystalline, foraminiferal limestone
- MISSISSIPPIAN**
LOWER AND MIDDLE MISSISSIPPIAN
9 Limestone, cherty limestone; minor dolomite and greywacke
- DEVONIAN AND MISSISSIPPIAN**
UPPER DEVONIAN AND LOWER MISSISSIPPIAN
8 Chert, argillite, argillaceous quartzite, greenstone, diorite, meta-diorite, conglomerate, limestone; 8a, may be in part or entirely younger; 8b, serpenitized peridotite, locally includes meta-andesite and meta-diorite; 8c, biotite-muscovite-quartz schist and gneiss, feldspar-quartz gneiss, quartz-biotite schist, amphibolite; 8d, greenstone, age uncertain
- SILURIAN AND DEVONIAN**
SILURIAN, LOWER (?) AND MIDDLE DEVONIAN
7 Graptolitic siltstone, Silurian, well bedded, laminated dolomite, sandy dolomite, dolomitic sandstone; well bedded limestone, fetid dolomite, Middle Devonian
- SILURIAN**
6 Dolomite, cherty dolomite, sandy dolomite, dolomitic sandstone
- CAMBRIAN AND ORDOVICIAN**
MIDDLE AND UPPER CAMBRIAN, LOWER AND MIDDLE ORDOVICIAN
5 Thin-bedded shale, limestone, calcareous shale, argillaceous limestone, graptolitic shale; includes minor bodies of greenstone
- CAMBRIAN**
LOWER CAMBRIAN
4 Limestone, dolomite, oolitic limestone; minor shale
- 3 Quartzite, shale, siltstone, pebble conglomerate
- LOWER PALAEOZOIC AND EARLIER (?)**
2 Quartz-mica gneiss, quartzite, crystalline limestone, hornfels, skarn, feldspar-quartz gneiss
- UPPER PROTEROZOIC**
1 Crystalline limestone, sandy limestone and dolomite, phyllite, sheared quartzite, chlorite schist

DESCRIPTIVE NOTES

The Cassiar-Stewart Road provides access to the western part of the map-area. A tractor road runs east from the Cassiar-Stewart Road in Turnagain River valley for about 4.5 miles to Wheaton Creek in Turnagain River valley.

The map-area lies entirely within the Cassiar Mountains, a moderately rugged region with local relief of as much as 4,500 feet. In general the irregular mountain masses are separated by deep, smoothly glaciated valleys.

An upper Proterozoic assemblage (1) south of Major Hart River includes a lower clastic unit of unknown thickness and an upper calcareous unit about 1,800 feet thick. Highly metamorphosed clastic and calcareous rocks (2) within the granitic terrain near Cry Lake probably contain rocks of lower Palaeozoic and Proterozoic ages, but their stratigraphy has not been studied in detail.

Lower Cambrian argillite rocks (3), 1,000 feet thick and overlying limestones (4) as much as 1,500 feet thick, are structurally conformable with the underlying Proterozoic succession (1). Locally, in the area south of Turnagain River, Proterozoic (1) and Cambrian rocks (4) have all been highly metamorphosed.

Thin-bedded, incompetent strata of Cambro-Ordovician age (5) are overlain discontinuously by a fossiliferous Silurian sequence (6) about 1,500 feet thick in the northeasternmost part of the map-area. Farther west, along Major Hart River, graptolitic siltstones of Silurian age form the basal part of an otherwise unfossiliferous assemblage (7) in part, 600 feet thick, that is overlain by Middle Devonian sediments (7) in part 800 feet thick.

Devono-Mississippian rocks (8) overlie the Middle Devonian strata with little, if any, structural discordance along Major Hart River but discontinuously overlie Silurian strata (6) farther east. Southwest of the Cassiar batholith a sequence (8a), lithologically similar to that of the Devono-Mississippian unit (8) along Rapid River, may include younger rocks. In both terranes the larger ultramafic bodies (8b) are spatially related to large bodies of greenstone, diorite, and meta-diorite. Regionally metamorphosed strata (8c) near Dease and Eagle Rivers are tentatively included in map-unit 8.

Northwest of Rapid River the Devono-Mississippian rocks (8) are overlain unconformably (7) by as much as 1,000 feet of Mississippian limestones (9) whereas northwest of Moose Lakes they are overlain by about 500 feet of Permian limestones (10).

The base of the predominantly volcanic Triassic assemblage (11) in the southern part of the map-area is not exposed. Greenstones (11a) near Dease and Eagle Rivers are tentatively included in this unit but they may be in part, or entirely, older. Southeast of Turnagain Lake, strata of possible Triassic age (11b) underlie Triassic limestones (12). The limestones are faulted against fossiliferous Lower Jurassic rocks (13) and overlain unconformably by an unfossiliferous Lower Jurassic sequence (14). The southern belt of Lower Jurassic rocks (13) is characterized by a strongly near-shore, relatively shallow-water deposition whereas the northern belt (14) exhibits features indicating deep-water deposition. Conglomerate containing debris of underlying strata is everywhere present at or near the base of the Lower Jurassic map-units (13, 14). In both sequences the upper beds are finer grained.

Granitic rocks (15a) near roof pendants along Eagle River have a heterogeneous composition and range from diorites to quartz monzonites. The batholith west of McBride River (15b) is characterized by a prevalent pink-weathering, turbid alteration of potash feldspar, the predominance of hornblende and, locally, pyroxene over biotite, and a relatively low quartz content.

Strata west of Tucho River (16) are believed to be correlative to the Sustut Group of late Cretaceous and Palaeocene age (16a) in the northeastern part of the map-area consist almost entirely of cobbles and boulders of peridotite and volcanic rocks in a poorly sorted matrix. These rocks appear to overlie Lower Cambrian limestones (3) unconformably.

Black cinder cones (17) form conspicuous topographic features near Little Eagle and Eagle Rivers. The cones are elongated north-northeasterly in the direction of ice-movement, and glacial erratics occur high on the flanks of the highest cones. On the other hand, several of the cones appear to rest on fresh glaciated surfaces, thus indicating that they formed during Pleistocene time. Flat-lying flows of columnar basalt (17) outcrop along Settes Creek and north of Eaglehead Lake. Flows of siliceous volcanic rock (17a) are intercalated with layers of tuff and breccia in the northeast corner of the map-area. This assemblage may be a remnant of a stratovolcano.

Major northeasterly dipping thrust faults marked by zones of extensive shearing and brecciation form the northeastern boundaries of Lower Jurassic rocks except where map-unit 14 is in contact with the Cassiar batholith (15a). Southeast of Eaglehead Lake, Lower Jurassic rocks (14) are separated from peridotite (8b) by a northeasterly dipping normal fault. This fault probably extends northeasterly along the northeastern margin of the Devono-Mississippian (?) belt (8a). A major fault separates Cambrian (3, 4) and Proterozoic rocks (1) from Silurian strata (6) near Major Hart River. The Proterozoic assemblage southeast of the fault is overturned to the southwest, and overlying Lower Cambrian limestone (4) is thrust southwesterly over Cambro-Ordovician sediments (5).

Cambro-Ordovician (5) and Devono-Mississippian (8) strata are highly folded and contorted whereas most of the Mesozoic rocks, except near faults, exhibit open folds. The late Cretaceous and Palaeocene sequences are gently folded.

Placer gold has been recovered in substantial quantities from Wheaton Creek and nearby streams tributary to Turnagain River. A small amount of gold has also been won from Little Eagle River, particularly from its tributary, Golden Creek. Exploratory work is being carried out on a chrysotile-asbestos showing in ultramafic rocks (8b) northeast of Letain Lake. Many of the other ultramafic bodies contain minor amounts of chrysotile asbestos and small lenses of chromite.

Small occurrences of copper minerals have been noted in the batholith west of McBride River and in adjacent volcanic rocks (11). Minor amounts of galena occur in Lower Cambrian limestone (4) near the granitic stock north of Turnagain River.

- Geological boundary (defined, approximate and assumed)
- Limit of geological mapping
- Bedding (inclined, overturned)
- Bedding, tops unknown (inclined)
- Schistosity, gneissosity (inclined)
- Fault (defined, approximate and assumed; solid circle indicates downthrow side)
- Anticline (approximate)
- Syncline (approximate)
- Anticline, syncline (overturned)
- Glacial striae

Geology by H. Gabrielse, 1957, 1958, 1960, 1961 and by Officers of the Geological Survey of Canada, Operation Slikine, 1956

Base-map by the Army Survey Establishment, R. C. E., Department of National Defence, 1949-52

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COPIES OF THIS MAP MAY BE OBTAINED FROM THE DIRECTOR, GEOLOGICAL SURVEY OF CANADA, OTTAWA

MAP 29-1962
GEOLOGY
CRY LAKE
BRITISH COLUMBIA

Scale: One Inch to Four Miles = 1/253,440 Miles

4 2 0 4 8 12

Mean magnetic declination, 30° 23' East, decreasing 3.7' annually. Readings vary from 30° 03' E in the SE corner to 30° 41' E in the NW corner of the map-area.

LEGEND

- Road
- Cart track
- Trail
- Building
- Horizontal control point
- Intermittent stream
- Marsh
- Contours (interval 500 feet)
- Height in feet above mean sea-level

MANUSCRIPTS UNIT
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C. S. C.

