

LEGEND

- QUATERNARY**
13 Glacial till, gravel, sand, and silt; lake clay
- TERTIARY**
12 Coal and clay
- MISSISSIPPIAN**
LOWER MISSISSIPPIAN
11 Limestone, chert-nodule limestone, sandstone, siltstone; minor black, calcareous argillite, slate, and sandy limestone
- DEVONIAN AND MISSISSIPPIAN**
UPPER DEVONIAN AND MISSISSIPPIAN
10 10a, grey and black shale, slate, argillite, siltstone, sandstone; 10b, hard grey sandstone, siltstone, slate, and quartzite; grit, pebble conglomerate, greywacke, calcareous shale; may be in part older and correlative with 1b; 10c, black slate, grey slate, sandstone, limestone
- DEVONIAN**
MIDDLE DEVONIAN
8 Upper unit: grey and dark grey, fetid, fossiliferous limestone
Lower unit: grey and dark grey, fetid dolomite and calcareous dolomite; may locally include 6
- LOWER DEVONIAN (?)**
7 Buff, orange, and yellow limestone breccia and conglomerate; minor laminated, light grey dolomite
- SILURIAN**
MIDDLE SILURIAN
5 Grey and black, fetid, fossiliferous dolomite; cherty dolomite, calcareous dolomite; minor limestone, sandstone
- GAMBRIAN AND (?) ORDOVICIAN**
4 Thin-bedded, grey and buff, argillaceous limestone and calcareous phyllite; greenstone sills and dykes; mainly Upper Cambrian (?); may include some indiked younger rocks
- GAMBRIAN**
LOWER GAMBRIAN
3 3a, light grey, well-bedded to massive limestone; includes sandy and argillaceous beds near Gundahoo River; 3b, quartzite, minor slate and shale; 3c, quartzite-pebble and cobble conglomerate; buff and reddish brown sandstone, siltstone, and argillite
- GAMBRIAN AND EARLIER**
2 Quartzite-pebble and cobble conglomerate; dark-weathering, laminated argillite, siltstone, sandstone, and sandy limestone; buff, brown, and reddish sandy dolomite; crossbedded, dolomitic sandstone and pebble conglomerate; quartzite; argillaceous sandstone, siltstone, and limestone; black argillite
- GAMBRIAN AND/OR EARLIER**
1 1a, impure grey and green quartzite, siltstone, sandstone, and argillite; brown and black, laminated siltstone; quartz-pebble conglomerate; minor limestone conglomerate; gabbroic sills and dykes; 1b, may be younger and correlative to part of 3b

- Geological boundary (defined, approximate or assumed)
- Limit of geological mapping, unmapped area
- Bedding (inclined, vertical, overturned)
- Cleavage (inclined, vertical)
- Fault (defined, approximate, assumed)
- Fault (direction of dip, downthrown side)
- Anticline (defined, approximate)
- Syncline (defined, approximate)
- Anticline, (overturned)
- Glacial striae, drift ridge or rock groove (showing direction of ice-movement)
- Fossil locality
- Mineral occurrence (barite, ba(b); witherite, wa(w); fluorite, fl)

Geology by H. Gabrielse, 1958 and 1960

Cartography by the Geological Survey of Canada, 1961

Base-map prepared by the Surveys and Mapping Branch 1952, and partially revised 1960. Minor additions and alterations by the Geological Survey of Canada, 1961.

Air photographs covering this area may be obtained through the National Air Photographic Library, Topographical Survey, Ottawa

In response to public demand for earlier publication, Preliminary Series maps are issued in this simplified form and will be clearer to read if all or some of the map-units are hand-coloured

DESCRIPTIVE NOTES

The Alaska Highway and Smith River Road provide access to the northern and eastern parts of the map-area. Good pack-train routes lead westerly from the Alaska Highway into Terminal Range. The southwestern part of the area can be reached by the Davie Trail which runs southeasterly from Lower Post, 37 miles to the northwest, or via the trail that runs from the mouth of Turnagain River to McDame Point on Dease River. Large burned areas make foot travel extremely difficult in many parts of Liard Plain. Liard River is easily navigated downstream from a point 3 miles south-east of the mouth of Coal River, but upstream from this point the river contains numerous dangerous rapids. Lower Kechika River includes several hazardous stretches that are best navigated during high water. Landings can be made by small float-equipped aircraft on parts of Liard, Kechika, and Coal Rivers and on numerous lakes throughout the area.

Cambrian and Precambrian rocks (2), more than 3,000 feet thick, outcrop in a northwesterly plunging anticlinorium in Terminal Range. The succession is dominantly clastic and includes a coarse conglomerate member as much as 700 feet thick. West of Gundahoo River a conspicuous Lower Cambrian limestone member (3a) is underlain by a thick succession of impure clastic rocks (1a) that are cut by numerous gabbroic sills and dykes. In the southwestern part of the map-area Lower Cambrian rocks (3a, 3b) include a lower quartzite member and an upper limestone member, each more than 1,000 feet thick. Clastic Lower Cambrian strata (3c) including coarse conglomerate are either overturned or are thrust easterly over Silurian dolomites (5) 4 miles southeast of Smith River airport. Similar rocks are overlain unconformably by Silurian beds (5) 7 miles south-southwest of the airport. Impure clastic rocks (1b), including quartz-pebble conglomerate and phyllitic slate, east of Tatisno Creek in the northwestern part of the area have not been satisfactorily dated but are tentatively correlated with the Cambrian and/or Precambrian strata south and west of Gundahoo River.

A thick sequence of competent calcareous and argillaceous strata of Cambro-Ordovician age (4) are well exposed in the Kechika Ranges and in the northern Rocky Mountains. These rocks also outcrop along Liard River near Leguil Creek and south of the mouth of Coal River, and locally along Coal River.

Silurian and Devonian strata (5-9) are widespread in the northern and eastern parts of the map-area. The Middle Silurian unit (5) and the upper member of the Middle Devonian unit (6) are highly fossiliferous, but the intervening beds (6, 7) contain few fossils. An early Devonian age for map-unit 6 is based on the presence of fish fragments. Although the base of the succession is defined by an unconformity the relations between the four units are not known. Estimated thicknesses for the constituent map-units are as follows: Middle Silurian (5), 1,000-1,700 feet, including basal sandstone 10-150 feet; Lower Devonian (?) (6), 1,600-1,700 feet; Lower Devonian (?) (7), 500 feet; and Middle Devonian, 1,600+ feet.

Clastic Devono-Mississippian strata (10a) disconformably overlie Middle Devonian carbonate rocks (8) north of Liard Hot Springs, and are in fault contact with similar rocks southwest of Liard River in the same area. Greywacke and greywacke conglomerate (10b) of probable Devono-Mississippian age outcrop near the mouths of Rabbit and Kechika Rivers. Included with these rocks, however, are hard, arenaceous and argillaceous rocks that may be older. Highly contorted, locally calcareous, clastic rocks (10c) along lower Turnagain, Kechika, and Red Rivers, are tentatively dated as Devono-Mississippian. The relationship of black slate and argillite (10a) exposed along Coal River about 7 miles north-northwest of its mouth-to carbonate strata exposed nearby-is not known.

Lower Mississippian strata (11), tightly folded in Cambro-Ordovician strata (4) north of Turnagain River, include a basal unit of sandstone and siltstone as much as 300 feet thick, and an overlying carbonate unit more than 900 feet thick.

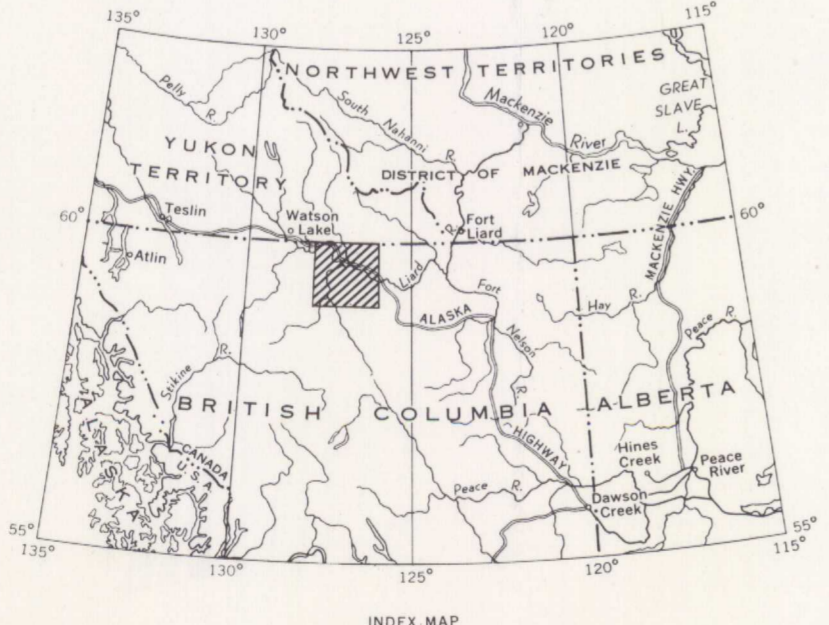
Coal and clay of Tertiary age (12) form small outcrops on the west bank of Coal River about 3 miles north of the bridge.

Much of Liard Plain is underlain by thick glacial, glacio-fluvial, and fluvial deposits.

During Pleistocene time an ice-sheet advanced northeasterly and easterly from the Cassiar Mountains across most of the map-area. No evidence was obtained to suggest that this ice covered the higher mountains south of Gundahoo River and those in Terminal Range south of latitude 59°20'. Glacial erratics occur on Mount Halkett at an elevation of about 5,000 feet. Drum-linoid ridges, glacial grooves, eskers, and kettles are abundant in Liard Plain. Glacial-lake silts are well exposed in the valley of Kechika River west of Gemini Lakes and in the valley of Rabbit River near the mouth of Gundahoo River. Easterly trending abandoned channels are deeply incised in bedrock east of Coal River. These and other less-spectacular channels in Liard Plain were apparently cut by streams that were diverted by ice occupying parts of the valleys of Kechika, Liard, lower Coal, and lower Smith Rivers.

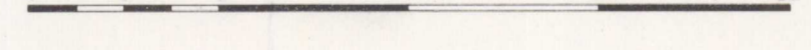
In general, the structural trends south of Liard River are northwest whereas the trends north of the river are north to northeast. Major southwest-dipping thrust faults along Liard River southwest of Liard River bridge separate the two areas of different structural trends. Cambrian and/or Precambrian strata (1a) have been thrust northeasterly over Cambro-Ordovician strata (4) west and south of Long Mountain. Rocks immediately east of the fault have been deformed into a northwesterly plunging syncline, overturned to the north-east. Except near faults, the rocks north of Liard River occur in relatively simple, open folds. Strata in the northern Rocky Mountains, on the other hand, are more tightly folded and have been involved in overturning and thrusting to the northeast. Rocks of Cambrian and/or Precambrian age (1a, 1b) near Gundahoo River and east of Tatisno Creek have been tightly folded and the latter locally exhibit plunging folds overturned to the north. Most of the thin-bedded, incompetent rocks are tightly folded. In particular, strata along Kechika, Turnagain, and Red Rivers have been intensely contorted.

Placer gold has been obtained from bars along Liard River; but most of this mining activity was carried on during the latter part of the nineteenth century. A barite, witherite, and fluorite deposit has been explored about 2 miles north of Liard River bridge. The mineralized zone occurs along and near a gently dipping contact between Middle Devonian carbonate rocks and overlying Devono-Mississippian clastic rocks.



MAP 2-1961
GEOLOGY
RABBIT RIVER
BRITISH COLUMBIA

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



Geographical names subject to revision
COPIES OF THIS MAP MAY BE OBTAINED FROM THE DIRECTOR, GEOLOGICAL SURVEY OF CANADA, OTTAWA

LEGEND

- Highway
- Road and buildings
- Trail
- District boundary
- Intermittent stream
- Marsh
- Fall and rapid
- Contours (interval 500 feet)
- Height in feet above mean sea-level

MAP 2-1961
RABBIT RIVER
BRITISH COLUMBIA
SHEET 94 M

JUL 27 1961

Approximate magnetic declination, 31° 44' East