

- LEGEND**
- QUATERNARY**
PLEISTOCENE AND RECENT
14 Till, gravel, sand, clay, and silt
- TERTIARY**
MIOCENE AND/OR LATER
ENDAKO GROUP
13 Basalt, andesite, related tuff and breccia
- MIOCENE (?)**
12 Conglomerate, sandstone, mudstone, lignite, and diatomite
- PALEOGENE (?) TO OLILOCENE**
11 Andesite, basalt, breccia, and tuff; 11a, minor sediments
10 Rhyolite, dacite, trachyte, related tuff and breccia; minor sediments
9 Andesite, basalt, breccia, and tuff; minor rhyolite
- JURASSIC**
MIDDLE JURASSIC
HAZELTON GROUP (in part)
8 Rocks of dark grey andesite and basalt, related pyroclastic rocks, chert-pebble conglomerate, argillite, and greywacke
- LOWER JURASSIC AND (?) LATER**
7 7A. TOPLEY INTRUSIONS: granodiorite, quartz diorite, diorite, biotite granite
7B. Quartz monzonite, monzonite, and granite; minor diorite
7C. Granodiorite, diorite, granite, minor gabbro
- TRIASSIC AND JURASSIC**
UPPER TRIASSIC (?) AND LOWER JURASSIC (?)
6 6A. Eastern group: argillite, greywacke, green, grey, black, purple andesite and basalt and related tuffs and breccias; minor conglomerate and limestone
6B. Western group: chert-pebble conglomerate, red, brown, and black shale, greywacke; minor purple to green andesite
- TRIASSIC**
POST-PERMIAN, PRE-UPPER TRIASSIC (?)
5 Serpentinized peridotite, serpentinite
- PENNSYLVANIAN (?) AND PERMIAN**
CACHE CREEK GROUP
3 3. Black to dark grey ribbon chert, black argillite
4. Green to black basic volcanic rocks, grey limestone; minor argillite and chert; 4a, mainly grey limestone
- MISSISSIPPIAN (?)**
2 **SLIDE MOUNTAIN GROUP**
Grey and buff chert, argillite, basalt and related pyroclastic rocks; 2a, diabase
- CAMBRIAN AND/OR LATER**
LOWER CAMBRIAN AND/OR LATER
CARIBOO GROUP
1 Grey micaceous quartzite, black to dark grey phyllite and argillite; minor grey limestone
- Geological boundary (defined, approximate or assumed)
Bedding (inclined, vertical, overturned)
Schistosity (inclined)
Fault (defined, approximate, assumed)
Anticline (defined, approximate)
Syncline (defined, approximate)
Glacial striae
Fossil locality
Mineral occurrence X Cu
- MINERAL SYMBOLS**
- | | |
|--------------------------|------------------------|
| Asbestos asb | Gold Au |
| Copper Cu | Manganese Mn |
| Diatomite diat | |
- Geology by H. W. Tipper, 1959-1960

DESCRIPTIVE NOTES

Bedrock is everywhere poorly exposed but outcrops are sufficiently well distributed to permit a reasonable interpretation of the major geological features. Glacial drift, although widespread, is probably not deep. Bedrock is best exposed along major creeks and rivers and on higher hills in the eastern and southern parts of the area.

No fossils have been found in the Cariboo group (1) in this area but the rocks exposed there are believed to be the upper two formations of this group. They are, in part, more highly metamorphosed than in the type area, which is to the southeast in the Barkerville district, due to contact-metamorphic effect of intruding granitic rocks (7B).

Rocks of the Slide Mountain group (2), as here represented, are unfossiliferous but are lithologically identical with part of the group in the type area near Barkerville. Basic dykes and sills (2a) cut the group and may be correlative with the Mount Murray intrusions (6A).

Fossils in the Cache Creek group (3, 4) indicate an Upper Permian age, but possibly the whole period is represented. The group is tightly folded and is structurally complex. The stratigraphic relation of the two units mapped is uncertain.

The ultrabasic rocks (5) are not in contact with the Mesozoic rocks (6A, B) but are confined to areas of Paleozoic rocks. Many small, unmapped bodies probably occur throughout the belt of Cache Creek group rocks. These ultrabasic rocks are almost completely serpentinized wherever encountered.

The Upper Triassic (?) and Lower Jurassic (?) strata were laid down in two basins separated by a land area of Permian rocks and hence are lithologically dissimilar. The western group (6B) is unfossiliferous but overlies Permian limestone and underlies Middle Jurassic (8). The conglomerates and sandstones of this group resemble somewhat the Lower Cretaceous sediments in the Nazko River valley of Quesnel area. The eastern group (6A) contains poorly preserved Jurassic and Triassic marine fossils. Although the unfossiliferous rocks east of Tabor Lake and along Willow River are lithologically similar to known Triassic rocks, they also, in part, resemble the Mississippian (?) rocks (2).

The Topley intrusions (7A) disappear beneath Tertiary and Quaternary deposits but beneath this cover they may be continuous with lithologically similar granites in Quesnel map-area to the south. The granitic rocks in the east half of the map-area (7B, C) may be in part correlative with the Topley intrusions, but some (7C) apparently intrude Lower Jurassic rocks and may be wholly or in part younger than the Topley intrusions.

The volcanic and sedimentary rocks (8) in the southwestern quarter are a direct continuation of a lithologically similar succession in adjoining areas, which are believed to represent the lower part of the Hazelton group, although locally no fossils have been found in them.

The Paleocene (?) to Oligocene volcanic and sedimentary rocks (9, 10, 11) are not clearly defined by paleontological or stratigraphic information. Unit 10 is believed to be equivalent to the Eocene and Oligocene rhyolitic volcanic rocks in adjoining areas. The andesitic and basaltic rocks of unit 11 are more extensive to the south where they overlie the rhyolites (10). The volcanic rocks of unit 9 are lithologically indistinguishable from some flows of units 10 and 11 although to the west of this map-area they were believed to be older than unit 10. The sedimentary rocks of these units are not extensive, suggesting deposition in many small basins.

The Miocene (?) sediments (12) represent the Miocene drainage system of a northward-flowing ancestral Fraser River. These sediments are poorly consolidated, generally undeformed, and in places indistinguishable from Pleistocene or Recent river gravels. They occur below elevation 2,600 feet.

Basaltic and andesitic flows (13) resemble the Miocene group to the west and occupy the same stratigraphic position as that group and the group of plateau lavas farther south. Here, they are essentially undeformed. They are not believed to occur extensively beneath the drift-covered areas of low relief, except north and west of Clucutz Lake.

A relatively thin covering of glacial deposits (14), 5 to 20 feet deep, extends with monotonous uniformity over much of the area. The whole area, including the highest hills, was covered by glacial ice moving in its final stages from the west in the northwest quarter, from the southwest quarter, and from the south in the southeast quarter. Proglacial lake deposits are widespread around Prince George, along Nechako River, and north of West Road (Blackwater) River.

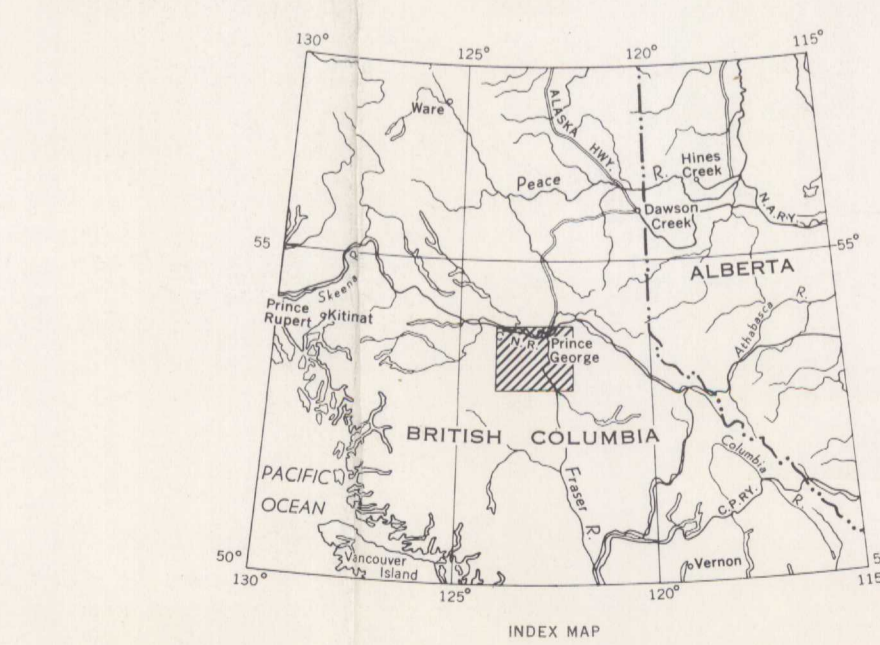
Characteristic of the area is a strong northwesterly trend of fold axes and faults. Local variations occur and the intensity of deformation and metamorphism varies from one group to another. The Cariboo group (1) has been domed by the batholith north of Naver Creek. The Mississippian (?) rocks (2) apparently were thrust to the northeast onto Upper Triassic rocks near Bowron River. The Cache Creek group (3, 4) is more complexly folded and faulted and more metamorphosed than the Mississippian (?) rocks. Mesozoic rocks along Fraser River and eastward are tightly folded and, in places, overturned to the northeast. The early Tertiary rocks (9, 10, 11) are warped into broad open folds and are cut by many normal faults. Late Tertiary rocks are essentially undeformed. The eastern half of the map-area has many northerly to northwesterly trending faults; one that extends southeasterly across the area from near Hutchison is probably an extension of the Pinchi fault to the north.

Chrysotile asbestos has been noted in four ultrabasic bodies (5). Good-quality cross-fibre, up to 1/2 inch long, occurs on Bobtail Mountain. The ultrabasic rocks were not closely examined by the writer and to his knowledge they have not been carefully prospected in the past. The occurrence of diatomite in map-unit 12 north of Quesnel has been known for many years.

Pselomelane occurs in fractures in Cache Creek chert along the lower West Road (Blackwater) River. A bog manganese deposit of Tertiary or later age occurs along Nazko River valley.

Chalcocite occurs disseminated in sheared Jurassic volcanic rocks southeast of Ten Mile Lake.

A lode gold mine was formerly operated by Quesnel Quartz Mining Co. on Hixon Creek. Placer mining for gold has been carried out along Fraser River and its eastern tributaries since the Cariboo gold rush and is still carried on sporadically by a few miners. The Miocene (?) gravels (12) or recent gravels downstream from them appear to be the main source of the placer gold.



MAP 49-1960
GEOLOGY
PRINCE GEORGE
CARIBOO DISTRICT
BRITISH COLUMBIA

Scale: One Inch to Four Miles = 1/253,440
Miles 0 4 8 12

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

- LEGEND**
- Main highway
Other roads (all weather, dry weather)
Cart track
Railway
Intermittent stream
Marsh
Contours (interval 500 feet)
Height in feet above mean sea-level 3500

Cartography by the Geological Survey of Canada, 1961
Approximate magnetic declination, 26° 12' East

MAY 3 - 1961

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