CANADA
DEPARTMENT
OF
MINES AND TECHNICAL SURVEYS

GEOLOGICAL SURVEY OF CANADA

SHEET 93 F

LEGEND

CENOZOIC

QUATERNARY
PLEISTOCENE AND RECENT

13 — *Till, gravel, sand, clay, and silt*

TERTIARY
MIOCENE AND (?) LATER
ENDAKO GROUP

12 — *Vesicular and amygdaloidal andesite and basalt; flow breccia, tuff, conglomerate, greywacke, and lignite;* **12a**, *necks, plugs and dykes*

PALEOCENE (?), EOCENE, AND OLIGOCENE

11 — *Rhyolite, dacite, and associated tuffs and breccias; minor andesite, basalt, and conglomerate;* **11a**, *rhyolitic and dacitic dykes, necks, and stocks*

CRETACEOUS AND (?) TERTIARY
UPPER CRETACEOUS AND (?) PALEOCENE

10 — *Basalt, andesite, and related tuffs and breccias; minor rhyolite and dacite;* **10a**, *conglomerate and greywacke*

JURASSIC AND/OR CRETACEOUS
UPPER JURASSIC AND/OR CRETACEOUS

9 — *Granite, quartz diorite, and granodiorite*

JURASSIC
UPPER JURASSIC
HAZELTON GROUP (In part)

8 — *Argillite and argillaceous limestone*

MIDDLE JURASSIC
HAZELTON GROUP (In part)

7 — *Greywacke, argillite, conglomerate, tuff, breccia, andesite, and arkose; minor rhyolite*

MESOZOIC

MIDDLE AND/OR LOWER JURASSIC
HAZELTON GROUP (In part)

6 — *Andesite, related tuffs and breccias, chert pebble conglomerate, shale, and sandstone;* **6a**, *mainly volcanic rocks;* **6b**, *mainly sedimentary rocks*

LOWER JURASSIC (?) AND/OR LATER

5 — *Quartz diorite, granite, granodiorite, and diorite*

LOWER JURASSIC
TOPLEY INTRUSIONS

4A, 4B — **4A**, *granite and granodiorite* **4B**, *diorite and quartz diorite*

TRIASSIC AND JURASSIC
UPPER TRIASSIC AND LOWER JURASSIC
TAKLA GROUP (2,3)

3 — *Red and brown shale, conglomerate, and greywacke*

2 — *Andesitic and basaltic flows, tuffs, and breccias; interbedded argillite and minor limestone*

PALÆOZOIC

PENNSYLVANIAN (?) AND PERMIAN
CACHE CREEK GROUP

1 — *Greenstone, gneiss, talc and chlorite schists; includes dykes and contact zone of the Topley Intrusions*

Bedding (inclined, vertical)
Fault (defined, approximate, assumed)
Anticline
Syncline
Glacial striæ
Drift ridges
Fossil locality — Ⓕ
Mineral occurrence — Fe×

MINERAL OCCURRENCES

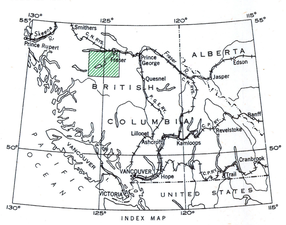
Iron . . . . Fe	*Silver* . . . . Ag
Perlite	*Zinc* . . . . . Zn

Geology by H. W. Tipper, 1949 - 1953

Approximate magnetic declination, 26°44' East

Cartography by the Geological Cartography Division, 1954

PUBLISHED, 1955



PRELIMINARY MAP 54-11

NECHAKO RIVER
COAST DISTRICT
BRITISH COLUMBIA

Scale: One Inch to Four Miles = $\frac{1}{253,440}$

Miles: 4 2 0 4 8 12

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

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LEGEND

Road
Wagon Road
Trail
Telephone or telegraph line
Provincial Park boundary
Indian Reserve boundary — IR
Triangulation station — ▲
Stream (intermittent)
Marsh
Sand or gravel
Contours (interval 500 feet) — 5000
Height in feet above mean sea-level (approximate) — 4558

DESCRIPTIVE NOTES

The best exposures of bedrock occur above tree-line, in river and creek canyons, and on some of the steeper hills. Elsewhere glacial drift, to a maximum depth of 500 feet, covers much of the area, less than 5 per cent of it being rock outcrops.

The oldest rocks in the area belong to the Cache Creek group(1) and occupy a small area in the northeast quarter where they occur along the contact of the Topley intrusions(4B). They are contorted and metamorphosed rocks, not typical of the group as represented farther north.

The Takla group(2, 3) has been subdivided, division 2 being characteristic of the group as exposed in the type area, whereas division 3 is a non-marine, red-bed sequence. The two divisions are lithologically distinct, but were deposited contemporaneously and are in part interbedded. The group is at least 5,500 feet thick, but is not necessarily a conformable succession. Marine shells indicate that part of the group is Upper Triassic and part probably Lower Jurassic.

The intrusive rocks(4A, 4B) in the northeast quarter of the area are an extension of similar rocks to the north and northwest that have been called the Topley intrusions. The granites and granodiorites(4A) are coarse-grained, equigranular, deeply weathered rocks, and include many pink pegmatitic granites. The diorites and quartz diorites(4B) are coarse-grained, gneissic rocks occurring northeast of the granitic rocks(4A). The trend of the gneissosity is northerly or northwesterly. The relation between the different rock types is not known; several intrusions may be represented but are here mapped as essentially one unit. The intrusions are believed to be younger than the Upper Triassic strata of the Takla group but are not demonstrably younger than Lower Jurassic.

The intrusions around Tetachuck Lake(5) cut Lower Jurassic strata of the Takla group but are not known to cut Hazelton group rocks(6, 7, 8). They differ from the Topley intrusions(4A, 4B) and Upper Jurassic intrusions(9) in texture, manner of weathering, topographic expression, size of individual bodies, and composition. Although they may be a phase of other intrusions in the area, there is no evidence to suggest such a relationship.

The Hazelton group(6, 7, 8) is a marine and non-marine assemblage of sedimentary and volcanic rocks over 7,500 feet thick. The lowest division(6), characterized by chert-pebble conglomerate, rests unconformably on the Takla group and includes detritus derived from the Topley intrusions. This division is overlain, probably disconformably, by a fossiliferous Middle Jurassic division(7). A fossiliferous Upper Jurassic division(8) is not known in contact with the other divisions. Although volcanic and sedimentary rocks form locally distinct units, these units cannot be traced for any distance in Nechako map-area. The group as a whole is distinguished from the Takla group by the dominance of coarse, clastic, sedimentary rocks.

The intrusions(9) occurring in the south and central parts of the area rarely form the cores of mountains but occur mainly in the valley bottoms, most boundaries being near the bases of mountains. The rocks are coarse grained and, as most erode readily, they are deeply weathered. Their effect on the intruded rocks is generally slight and inclusions within the granites are rare. Although these intrusions have been mapped as younger than the Hazelton group, they have not been seen in contact with the youngest division(8) of that group.

The volcanic rocks of Upper Cretaceous to Oligocene age(10, 11) are a complex non-marine assemblage, in places at least 1,500 feet thick, which rests unconformably on Jurassic rocks. In many parts of the area it was noted that most of the rhyolitic flows are younger than most of the basaltic and andesitic flows. As these rocks are in discontinuous patches, there is no certainty that the rhyolites or basalts and andesites are everywhere correlative, and the division into two distinct units, as has been done in this map-area, may not be wholly true. The rhyolitic rocks(11) are buff, cream-coloured, mauve, or white, flow-banded or massive rocks, commonly with abundant rounded phenocrysts of quartz. Associated tuffs and breccias are chalky. The andesites(10) are commonly green or bright red to reddish brown and the basalts(10) are dense, black to grey rocks. Both basalts and andesites commonly have plagioclase feldspar laths as phenocrysts.

The Endako group(12) is an assemblage of essentially flat-lying basaltic flows reaching a maximum thickness, in this area, of 1,900 feet. It rests unconformably on the early Tertiary volcanic rocks. Conglomerate and greywacke is locally interbedded with the flows, particularly along Nechako River.

The entire area was overridden by a piedmont glacier moving in a direction varying from east to north 40 degrees east. The glacier, to override the highest point of the area, must have been at least 3,500 feet thick and was probably much thicker. It did not retreat in the usual manner but stagnated and melted in situ. Resulting accumulations of glacial materials(13) took the form of ground moraine, drumlins, eskers, kettles, lake clays, and outwash. The whole area was covered by till and this was in turn dissected by post-glacial meltwater forming deep channels.

Scarcity of exposed rock and paucity of information in outcrops resulted in little information being secured by which to interpret the structural geology. In general, most structures have a northwesterly trend except near François Lake where northeast trends are indicated. The most pronounced periods of deformation were during the Lower and Middle Triassic, in the late Lower Jurassic, and in the Lower and Middle Cretaceous, the last two being also periods of intrusion.

Prospecting in this area has been neither intensive nor rewarding. Poor exposure, thick vegetation, low relief, and discouraging results have been the main deterrents. Few mineral occurrences have been reported from the area and indications of mineralization were rarely observed, despite seemingly suitable geological conditions.

Specular hematite with traces of silver occurs on a mountain north of Finger Lake in sheared greenstone near the contact with the Topley granites. Although known for many years, this occurrence has not proved rich enough or large enough to warrant development.

Sphalerite with traces of silver and gold occurs in argillaceous limestone northwest of Tetachuck Lake. It forms a vein of massive sphalerite 2 to 4 inches wide but of unknown extent.

Perlite or perlitic rhyolite occurs south of Uncha Lake, south of Cheslatta Lake, and near the outlet of Ootsa Lake. Smaller occurrences have been noted and it is probable that there are many perlitic flows in the Tertiary rocks.

Disseminated molybdenite occurs in Topley granites in the north part of the area, but none of the occurrences is large or important.

Some tremolite asbestos has been reported in the Permian rocks(1).

PRELIMINARY MAP 54-11
NECHAKO RIVER
BRITISH COLUMBIA

SHEET 93 F

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