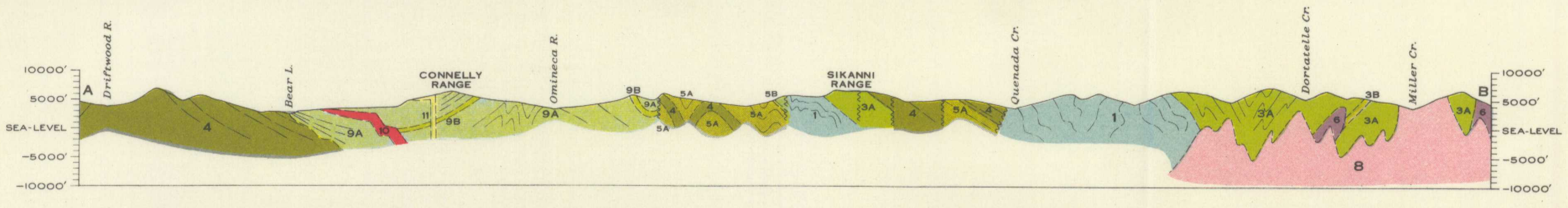
CANADA
DEPARTMENT OF MINES AND RESOURCES
MINES, FORESTS AND SCIENTIFIC SERVICES BRANCH
GEOLOGICAL SURVEY OF CANADA



Diagrammatic structure-section along line A-B

LEGEND

CENOZOIC

TERTIARY AND QUATERNARY

11 — *Basalt; minor pyroclastic rocks*

TERTIARY

KASTBERG INTRUSIONS

10 — *Feldspar and feldspar-quartz porphyries; porphyritic granodiorite and quartz diorite*

CRETACEOUS AND TERTIARY

UPPER CRETACEOUS AND PALEOCENE

SUSTUT GROUP

9A, 9B — 9A. *Sandstones, conglomerates, and shales; minor dacitic tuff and coal;* 9a, *interlayered dacitic tuff*
9B. *Mainly conglomerate*

MESOZOIC

JURASSIC AND/OR CRETACEOUS

UPPER JURASSIC AND/OR LOWER CRETACEOUS

OMINECA INTRUSIONS

8 — *Granodiorite, quartz diorite, and allied rocks*

JURASSIC (?)

6, 7 — 6. *Peridotite pyroxenite dunite and serpentine. May be in part or entirely of pre-Takla age*
7. *Olivine gabbro*

JURASSIC

TAKLA GROUP (3, 4, 5)

5A, 5B — 5A. *Greywacke, pebble-conglomerate, shale, and argillite; minor limestone and coal*
5B. *Probably includes undifferentiated volcanic rocks* (4)

4 — *Andesitic, basaltic, and dacitic tuffs, agglomerates, and lavas; in part interbedded with* 5

TRIASSIC AND(?) JURASSIC

UPPER TRIASSIC AND(?) LATER

3A, 3B — 3A. *Andesitic and basaltic tuffs, agglomerates, lavas, and minor tuffaceous argillite; meta-andesite, meta-basalt, greenstone, and hornblende schist and gneiss*
3B. *Limestone, tuff, and argillite. May include some undifferentiated older rocks*

PALÆOZOIC

PENNSYLVANIAN(?) AND PERMIAN

CACHE CREEK GROUP

2 — *Slate, argillite, phyllite, argillaceous quartzite, and ribbon chert; chlorite and amphibole schist and gneiss; minor limestone*

ASITKA GROUP

1 — *Rhyolitic lavas, andesitic lavas, tuffs, and breccias, and derived greenstones, slaty tuffs, phyllites, and schists; argillite, slate, phyllite, and chert; limestone, minor dolomite. May include some undifferentiated pre-Pennsylvanian rocks*

Heavily drift-covered area
Bedding (horizontal, inclined, vertical)
Schistosity, gneissosity (inclined, vertical)
Fault or shear zone
Anticlinal axis
Synclinal axis
Glacial striæ
Fossil locality .... (F)
Fossil collection (1-12, *Asitka group;* 13-33, *Jurassic, Takla rocks;* 34-39, *pper Cretaceous, Sustut rocks;* 40-42, *eocene, Sustut rocks*) .... (12)
Mineral occurrence .... ×
Mineral property .... •

MINERAL SYMBOLS

Beryllium	Be
Chromium	Cr
Coal	C
Copper	Cu
Gold, placer	Au(P)
Gold, lode	Au
Lead	Pb
Merc	Hg
Molybdenum	Mo
Platinum	Pt
Silver	Ag
Vanadium	Va
Zinc	Zn

MINERAL PROPERTIES

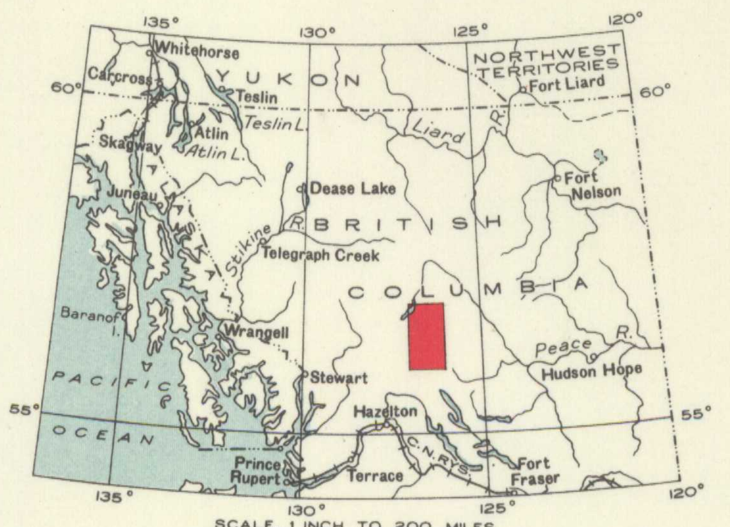
1. King George group (pyrite)
2. Quyzvhx group (gold)
3. Solo group (gold)
4. Bruce group (gold)
5. Ginger group (gold)
6. Shell group (gold, copper)
7. Motase group (copper, silver)

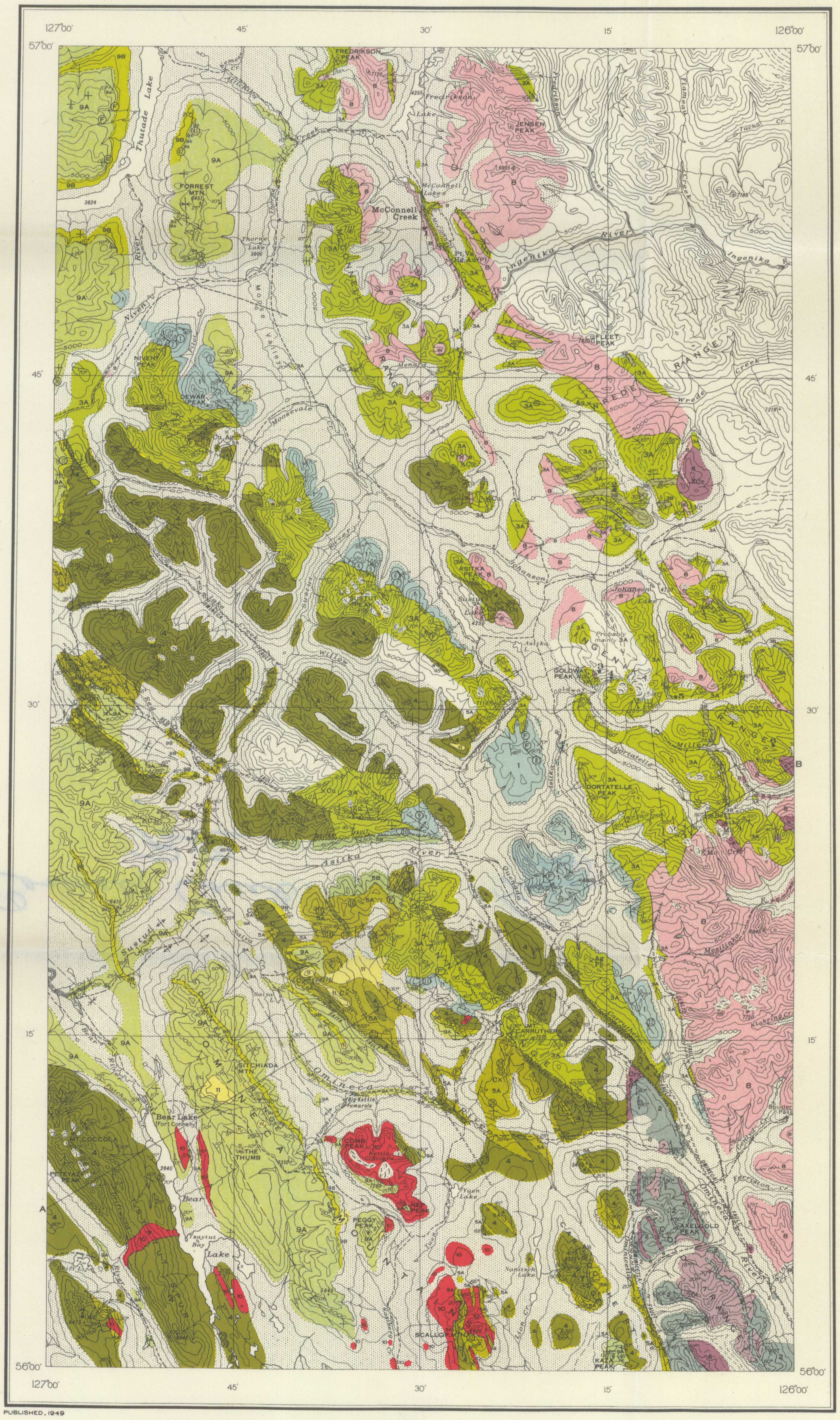
Geology by C.S. Lord, 1941, 1944, and 1945.

Trail and cabin
Passable pack-train route (position approximate)
Church
Lake and stream (position approximate)
Glacier
Contours (interval 500 feet) 5000
Contours (position approximate) 5000
Height in feet above mean sea-level 6525

Base-map from surveys by the Topographical Survey, 1937.
Cartography by the Geological Mapping Division, 1948.

Approximate magnetic declination, 27° to 31° East.





PUBLISHED, 1949

MAP 962A

McCONNELL CREEK

CASSIAR DISTRICT
BRITISH COLUMBIA

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

Miles

DESCRIPTIVE NOTES

The centre of the map-area is about 165 miles north-northwest of Fort St. James, whence a good gravelled road leads to Vanderhoof, a Canadian National Railways station 41 miles to the south. Access from Fort St. James during the summer is provided by aircraft on floats, or by motor launches and scows as far as Bulkley House at the head of Takla Lake and thence by pack-horse over about 105 miles of fair trail that leads to McConnell Creek placer camp.

Elevations range from 2,600 to 8,100 feet above sea-level, but the local relief rarely exceeds 4,000 feet. Particularly rugged mountains occupy areas underlain by volcanic rocks of the Takla group (3, 4). An ice-sheet, which in Pleistocene time covered most or all of the map-area, moved easterly and southeasterly. Remnants, as alpine glaciers, are far more numerous than those mapped, and some have receded noticeably within recent years. Unconsolidated Pleistocene and Recent deposits conceal much bedrock, particularly on the bottoms and lower slopes of the main valleys. Timber-line is about 5,000 feet above sea-level, and the densest stands of timber occur in the southern and southwestern parts of the area where precipitation is relatively abundant.

The base of the oldest, ASITKA group (1) has not been recognized. These rocks comprise probably more than 8,500 feet of variously metamorphosed volcanic and sedimentary strata, the most characteristic of which are hard, dense, red, green, or buff, massive, streaked, and spherulitic rhyolitic lavas; varicoloured, bedded cherts; and scattered bands of massive to bedded, crystalline, commonly impure limestone. The upper members of the assemblage contain abundant Lower Permian foraminifera, and Pennsylvanian or even older strata may occur elsewhere.

The dominant members of the CACHE CREEK group (2) are black, platy, argillaceous rocks and grey cherts; these are accompanied by minor interlayered limestone, and by chlorite and amphibole schist and gneiss derived from andesitic lavas and tuffs. Ribbon cherts are common: they are composed of platy or crumpled layers of grey chert, commonly less than one-quarter inch thick, separated by thin partings of lustrous, black, partly graphitic argillite or slate, in places altered to mica schist. The assemblage was not seen in contact with Asitka strata.

The TAKLA strata (3, 4, 5) occupy a broad, northwesterly trending synclinorium greatly complicated by faults and subsidiary folds. The approximate axial part of this structure extends northerly and northwesterly from Scallop Mountain to beyond the mouth of Asitka River. The members of the lower division (3) rest on Asitka rocks without apparent angular discordance despite the long interval of erosion that must have intervened. Southwest of a line extending from the southeast corner of the map-area northwesterly through Sustut and Thutade Lakes they comprise about 10,000 feet of relatively fresh, mainly dark green, andesitic and basaltic tuffs, coarse agglomerates, and pillow lavas, all characterized by prominent, black, blocky pyroxene grains and phenocrysts. Other members of the lower division, lying to the northeast, are probably the metamorphosed equivalents of these rocks: they are mainly greenish meta-andesites and meta-basalts, with numerous, black, stubby hornblende and pyroxene grains and phenocrysts, and here and there display bedding, fragmental textures, amygdules, and other internal structural features common in their less altered equivalents.

The upper Takla rocks (4, 5) overlie those of the lower division (3) without recognized angular discordance and without known evidence of widespread intervening erosion. Nevertheless, a basal conglomerate 4 miles south of Sustut Lake contains detritus apparently derived from underlying basaltic lava and agglomerate (3A) and is interpreted as evidence of local erosion prior to the deposition of the upper Takla assemblage. This assemblage (4, 5) comprises more than 23,000 feet of volcanic and sedimentary rocks. The oldest part (4) includes more than 18,000 feet of mainly reddish, andesitic, basaltic, and dacitic lavas and pyroclastic rocks, commonly with conspicuous white feldspar phenocrysts and grains. These are overlain by more than 5,000 feet of shallow water, marine, fossiliferous sedimentary beds (5) interlayered with minor volcanic rocks, carbonaceous strata, and coal. Conglomerate beds, with chert pebbles apparently derived from Asitka rocks, are common.

Scattered dykes, sills, and other ultrabasic bodies (6) cut Cache Creek formations and in places probably cut the lower Takla rocks (3); they were not found in contact with the upper part of the Takla group (4, 5).

Most of the olivine gabbro (7) is a medium-grained, fresh, conspicuously banded rock, with individual layers ranging from less than 1 foot to 5 feet in thickness.

The OMINECA INTRUSIONS (8) are not known to represent more than one general period of emplacement. They cut fossiliferous Lower Jurassic strata in the nearby Takla map-area, and contributed abundant detritus to upper Lower Cretaceous formations of the adjacent Aiken Lake map-area.

More than 3,000 feet of conspicuously bedded and banded continental SUSTUT strata (9) were laid down on an erosion surface that truncated folded Takla and older rocks and Omineca intrusions. The strata are mainly interlayered, buff to grey, impure, crossbedded sandstones, conglomerates containing pebbles and cobbles derived in part from the Omineca batholith, and red, green, and grey shales. Fossil plant remains are common. The most diagnostic collections from the lower part of the group are of early Upper Cretaceous age, whereas others, from thin bands of dacitic tuff in the upper part, are of Paleocene age. The strata southwest of Saiya and Red Creek faults occupy mainly rather open folds, but near the latter fault are overturned towards the northeast as if thrust from the southwest. Northeast of the Omineca fault they are horizontal or gently inclined.

Chalky weathering, grey, buff, rarely pink, fine- to medium-grained, porphyritic rocks (10) form one principal stock (Nep Peak to Comb Peak) and numerous dykes and sills. They may be a late phase of an early Tertiary period of mountain building that deformed the Sustut strata, which they intrude.

The youngest consolidated rocks (11) are fresh, dark grey to black basalts, and occur mainly as necks, dykes, and lavas. Probable KASTBERG porphyries (10) are cut by a few of the dykes. None of the basalts is known to have been folded or faulted. They range in age from about Middle Tertiary to, in the case of a few, related, cone-like, pyroclastic deposits, Recent.

Most of the known major faults lie within a northwesterly trending belt, about 12 miles wide, bordering the Omineca fault on the southwest. The fault zones probably dip steeply, and range from about 25 feet to possibly 1,000 feet or more in width. They are marked by various combinations of schistose, fractured, crumpled, or carbonatized and otherwise altered rocks. Directions and magnitudes of the lateral displacements are not known. The apparent vertical displacements may be greatest in the northeast half of the faulted belt, along the Omineca, Carruthers, and Ominicetla faults, where in places as much as 10,000 feet of strata appear to be missing. Available evidence suggests that the strata on the southwest side of the Omineca fault have moved upwards relative to those on the northeast side, whereas the relative movement on the other northwesterly trending faults of the belt is probably in the opposite direction. Major, although not necessarily the greatest, displacements took place in post-Paleocene, probably early Tertiary time.

Fine, apparently erratically distributed, placer gold was found in gravel resting on lacustrine silts along McConnell Creek in 1899, and a little has been recovered each year since, affording the only known mineral production of the map-area. The annual recovery, now insignificant, probably never exceeded a few hundred ounces. No lode deposit in the map-area is known to be of commercial size or grade, but none has received more than a little stripping and trenching, and only a very casual, intermittent search was made for such deposits prior to 1946. In view of the number and distribution of mineral deposits, including gold, copper, silver, and other metals, found by prospectors during this brief period, and by the Geological Survey, the area undoubtedly warrants further examination. The most promising host rocks appear to be volcanic members (3A, 4) of the Takla group. The numerous coal seams, found mainly in Jurassic strata (5A), will require trenching and stripping before much is known of their size and quality.