Canada
Department of Mines
Hon. W. A. Gordon, Minister; Charles Camsell, Deputy Minister.
BUREAU OF ECONOMIC GEOLOGY
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LEGEND

Sedimentary and Volcanic Rocks

CENOZOIC — MODERN

RECENT AND PLEISTOCENE

Clay, silt, sand, gravel, boulders

18, 18a, 18b. *HOODOO VOLCANICS: trachyte, ash, pisolitic mud, tuff, breccia, agglomerate, and consolidated drift and alluvium. 18a, olivine basalt*

MESOZOIC — TRIASSIC

11 — *Andesite, keratophyre, basalt, tuff, breccia, agglomerate, conglomerate and greywacke; minor amounts of argillite, quartzite, shale and limestone; many small stocks, necks, sills and dykes of rock types mainly allied to the effusives*

PALEOZOIC — PERMIAN

10 — *Mainly white limestone; minor amounts of chert, quartzite, argillite, slate and schist*

PRE-PERMIAN

9 — *Quartzite, schist, slate, argillite, limestone; schistose tuff; highly altered eztrusives, and/or, intrusives; 9a, highly crystalline schist, gneiss*

Intrusive Rocks

MESOZOIC — TRIASSIC TO CRETACEOUS

7 — *Biotite-andesine granodiorite and some quartz monzonite*

6 — *Quartz diorite and some granodiorite*

5 — *Oligoclase granodiorite; rare quartz diorite and diorite*

4 — *Hornblende-andesine granodiorite; rare quartz diorite, diorite and quartz monzonite*

3 — *Orthoclase porphyry; pulaskite, nordmarkite, nepheline syenite, syenite, and, locally, pyroxenite*

2 — *Diorite*

1 — *Not subdivided: quartz monzonite, granodiorite, quartz diorite, diorite*

Geological boundary

Fossil locality

Boat channel, 1929. Parts of the channel, especially where sand bars are extensive change from year to year

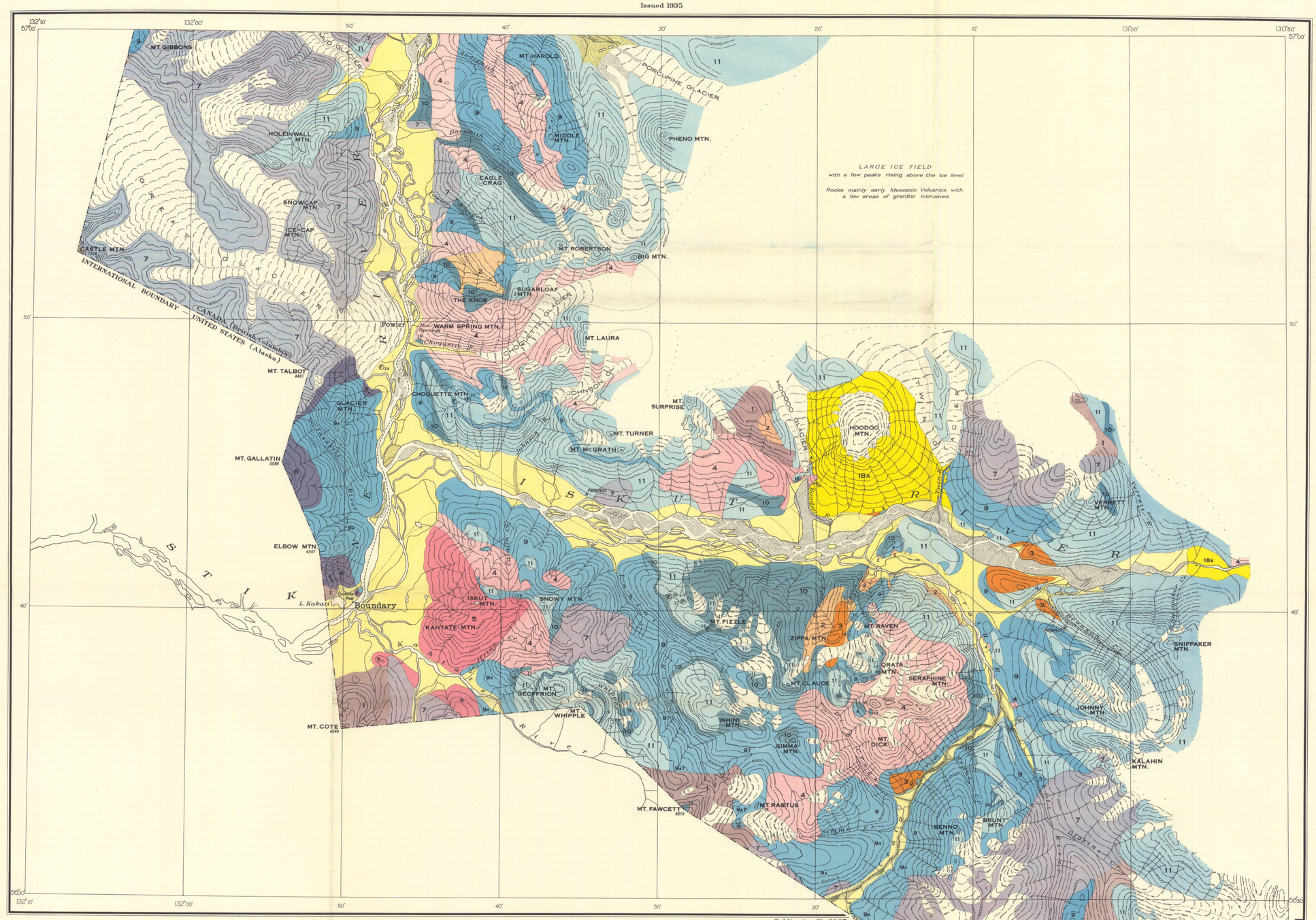
River sand and gravel bars and deposits

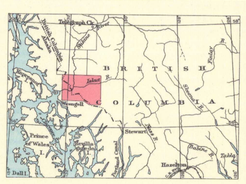
Trail

SOURCES OF INFORMATION

Topography by the **International Boundary Commission**, *with additions by* **F. A. Kerr**.

Geology by **F. A. Kerr**, *1926–1929.*





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MAP 311A

South Sheet

STIKINE RIVER AREA

CASSIAR DISTRICT

BRITISH COLUMBIA

Scale, 126,720 or 1 Inch to 2 Miles

Miles 1 ½ 0 1 2 3 4 5 6 7 8

Kilometres 1 0 1 2 3 4 5 6 7 8 9 10

GENERAL GEOLOGY

Bedrock, except where covered by ice and snow, is well exposed above timber line which is at elevations ranging from 3,500 to 4,500 feet. Below timber line bedrock is largely concealed by glacial and slide debris and in the valley bottoms by stream and lake deposits of clay, sand and gravel.

The oldest rocks are recrystallized, chiefly dark grey, Palæozoic sediments accompanied by some contemporaneous volcanic rocks. In a belt, 2 miles or more broad, in the southwest and locally near some intrusives they are highly crystalline schists and gneisses. Capping these rocks in places there is white, crystalline limestone (Permian). The Palæozoic rocks are overlain by strata of volcanic origin accompanied by very limited quantities of sediments that occur irregularly intercalated mainly as discontinuous lenses. These rocks are in the main Triassic but some of later age may be included. All these rocks are intensely deformed and are cut by numerous dykes, stocks and other small bodies of igneous rocks that are largely fine grained and not readily distinguishable from the Mesozoic volcanic rocks.

The Palæozoic and Mesozoic complex is invaded by the granitic rocks of the Coast Range batholith, which was developed by successive intrusions that probably commenced in Triassic and ended in Lower Cretaceous time. Nine groups of granitic rocks have been distinguished in the Stikine district and are believed to represent nine distinct periods of intrusion. Only seven of these groups, and two of these doubtfully, have been recognized in this map-area. The intrusive rocks believed to be the oldest in this map-area, are diorites (2), orthoclase porphyry (3) and related rocks. Diorite is widespread although few of the masses have been indicated; it is of different ages but much appears to be of one age. The diorite is usually dark grey to green and medium-grained and is variable in composition. The rocks grouped under orthoclase porphyry (3) are heterogeneous in colour, texture and composition. Most of them hold large, light grey to red crystals of orthoclase but some contain no orthoclase and may be entirely of pyroxene. Some hornblende-andesine granodiorite (4), especially as found in the northern part of the map-area, is believed to belong to the older of the two groups of this composition found in Stikine district and to be of Triassic age. It is medium to dark grey, usually moderately coarse with some large masses of orthoclase and in part is sheared or gneissic. Hornblende-andesine granodiorite (4) belonging to a younger group of probable Jurassic age may also be present. Rocks of this composition show a great variety and intrusive contacts in many places indicate that they are of different ages, so that it has not been possible to carry the classification throughout the area. Oligoclase-albite granodiorite (5) (classed in the younger of the two groups of this composition found in the Stikine district) of variable composition and also believed to be of Jurassic age occurs within the map-area. It is usually light grey and moderately coarse. Quartz diorite (6) of varying composition, dark grey and usually fairly coarse grained, is presumably Lower Cretaceous in age. The biotite-andesine granodiorite (7) present is probably only a little younger. It is accompanied by numerous pegmatite dykes and is uniformly fresh, light grey and coarse except near contacts where it is pink and resembles the quartz monzonite group (8) which has not been noted in this map-area.

Hoodoo Mountain, a volcanic cone in an old tributary valley of the Iskut, has been built up over a long period of time which continued nearly to the present. Lavas also occur farther up in Iskut valley representing the westward limit of an extensive mass which blocks the base of the valley.

ECONOMIC GEOLOGY

A little prospecting done in this map-area has resulted in a few discoveries of lode deposits and a little development work has been done but the activity has been too meagre to demonstrate the possibilities of the area. Many hitherto unreported mineral deposits were noted during the geological mapping of the area. Because of the geological similarity existing throughout the length of the eastern contact zone of the Coast Range batholith in British Columbia, it is reasonable to expect that valuable deposits, such as have been found in other districts will be found here.

Mineral deposits discovered are mainly of mixed sulphides, such as pyrite, pyrrhotite, galena, sphalerite, chalcopyrite, tetrahedrite and bornite. The most important metal constituents, occurring together or separately, are copper, lead and zinc. Gold and (or) silver values are generally important and in some cases are high. The mineral deposits are chiefly of the replacement type but some fissure veins of economic significance have also been noted. The replacement deposits occur chiefly in limestone where they are marked by a change of the colour of the rock from white to light green, and in volcanic rocks where the green rock is changed to a light grey rock. The veins may be found in any kind of rock but are most likely to occur in pre-Permian strata and in the intrusives.

Mineralization in the main is related to the Coast Range batholithic intrusives; certain groups of intrusives clearly have associated mineral deposits and those noted with each group show marked similarities. Associated with the orthoclase porphyry are large deposits of mixed sulphides, mainly pyrite, which occur generally replacing volcanic rock. They have been noted at the contact and for distances of more than a mile from it. Some evidence of mineralization connected with most of the older phases of batholithic rocks has been noted but little or none appears to be associated with the biotite-andesine granodiorite. All rocks except the biotite-andesine granodiorite and the Cenozoic strata are considered to constitute favourable ground for prospecting especially those along Iskut valley and to the south.

RELATED PUBLICATION

SUMMARY REPORT, PART A, 1929: Preliminary Report on Iskut River Area, British Columbia; by F. A. Kerr.

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