

GENERAL GEOLOGY

Bedrock is largely concealed by glacial drift and vegetation. Few mountains rise above timber-line, which is about 6,200 feet above sea-level. Glacial drift, though present on the summits of the higher mountains, occurs mainly below 5,500 feet elevation and is commonly only a few feet thick except on lower valley slopes where it is locally more than 100 feet thick. A continental ice sheet formerly covered the area though the latest glaciers occupied the valleys only.

The oldest rocks are a series of sediments known as the CARIBOO SERIES. They are assumed to be of Precambrian age because they strongly resemble rocks of the Beltian series. The strata, which are more than 10,000 feet thick, lie in a broad, northwesterly plunging anticline. In the northeastern limb of this fold they are divisible into a number of distinct formations, but in the southwestern limb these formations are not recognizable and the series consists mainly of quartzites and their schistose equivalents. The schistosity planes conform closely to, and only rarely obscure, the bedding.

The SLIDE MOUNTAIN SERIES lies unconformably above the Cariboo series. Basal conglomerates and grits are 900 feet thick and overlying crinoidal limestone, 400 feet. The top formation, several thousand feet thick, consists mainly of chert in beds 1 to 2 inches thick. A few poorly preserved fossils in the limestone formation indicate a Carboniferous age, probably Mississippian.

IGNEOUS ROCKS. Basic breccias and flows overlie sediments of the Slide Mountain series and some are perhaps intercalated with upper beds of the Antler formation.

The PROSPERINE INTRUSIVES, which cut the Cariboo series as quartz porphyry dykes and sills, are considerably altered. They are not sheared, however, and for that reason are considered to be younger than the stage of shearing of the Cariboo series. On the other hand they are assumed to be older than the Slide Mountain series for they are not known to cut the latter. Some of these intrusives contain many irregular gash-veins of quartz and this has led to the view that the quartz porphyry or a parent body from which it came was the source of all the quartz veins within the area. No body of quartz porphyry has been traced on the surface for more than 200 feet. This apparent lack of continuity suggests the porphyry sills are mainly lenticular.

The MOUNT MURRAY INTRUSIVES comprise numerous basic dykes and perhaps other small intrusive bodies that cut the Slide Mountain series in the eastern and northeastern part of the area. They are so similar in mineral composition to the basic flows that overlie the Slide Mountain series that they are believed to be related in origin and of the same age.

STRUCTURAL GEOLOGY

The major structure in the area is a broad northwesterly plunging anticline in the Cariboo series. Its crest is approximately horizontal near Barkerville but to the northwest it plunges about 10 degrees. Whilst this anticline is broadly a simple arch local minor folds striking northwest are present on the limbs. Dips of beds of the Cariboo series in the limbs range from 15 to 60 degrees, though the mean dip is about 35 degrees. The Slide Mountain series appears to be part of the major structure although folding probably affected the Cariboo series prior to deposition of the Slide Mountain sediments.

The rocks of the area are cut by a great many fractures, which are of two, if not three, ages. The oldest set cuts the Cariboo series only and includes numerous fractures filled with quartz veins, most of which strike northeast though some strike east and others northwest. A second set of fractures, later than the quartz veins, are normal faults that strike north and dip east. Only a few have been located and all these are confined to the Cariboo series. In each instance the strata on the east side of a fault are offset 400 to 1,200 feet south of their position on the west side. A third set of fractures, perhaps younger than the second set, are normal faults that cut both the Slide Mountain and Cariboo series. They strike northeast and offset the strata a few hundred feet to 4 miles.

ECONOMIC GEOLOGY

The Cariboo district has produced \$45,000,000 in placer gold and probably two-thirds of this amount has come from this area. Ground sluicing and hydraulic mining is still carried on from year to year on many of the streams. Lode mining began in the 60's but met with very little success. Lode gold production began again in 1933 at the Cariboo Gold Quartz Mine at Wells on a 50-ton scale. In 1934 the Island Mountain Mine at Wells began producing on a 50-ton basis, and the Cariboo Gold Quartz Mine increased its capacity to 100 tons per day.

The lode deposits are gold-bearing quartz veins and gold-bearing pyritic replacements in limestone. Deposits with an encouraging gold content have been found only in the Cariboo series. Where the series is divided into formations, the best of the known veins lie in the upper part of the Richfield formation.

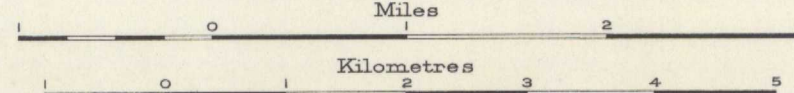
Most of the known gold-bearing veins strike northeast, dip steeply, and cut the strata roughly at right angles. These veins, known locally as transverse veins, rarely exceed 300 feet in length and vary in width from a fraction of an inch to 6 feet. The gold occurs free in pyrite which in some veins occurs in as high a proportion as 50 per cent of the vein matter. Another series of veins strikes north 60 degrees east to east. These veins are a little longer than the transverse veins and also appear to be somewhat wider but the largest veins do not average more than 3 or 3 1/4 feet wide. They are similar in mineralization to the transverse veins. Other veins are large lenticular masses of quartz lying parallel to the strata and containing only a little pyrite. None of these is known to be of commercial value. Other veins occupy fractures approximately parallel with the strata. Some of these are as much as 20 feet wide, are well mineralized with pyrite, and have yielded very encouraging assays. There are many veins in the map-area that do not belong to the classes mentioned, but none is yet known to be of commercial value. The best veins commonly assay an ounce of gold per ton but those mined so far have averaged half an ounce per ton.

Replacement deposits in limestone were discovered in the Island Mountain and the Cariboo Gold Quartz Mines in 1933 and so far have been found only in limestone beds in the upper part of the Richfield formation. The ore is typically a solid mass of fine-grained pyrite, the richer parts of which commonly assay 2 ounces of gold per ton. In mining the ore yields about an ounce of gold per ton.



MAP 336A WILLOW RIVER SHEET (EAST HALF) CARIBOO DISTRICT BRITISH COLUMBIA

Scale, 1/33,360 or 1 inch to 1 mile



Contour interval 100 feet.

- Legend
- Road and buildings
 - Road not well travelled, trail
 - Post office
 - Mine tunnel
 - Prospect
 - Shaft
 - Triangulation station
 - Dam
 - Pipe line, ditch
 - Sand bar
 - Intermittent stream
 - Marsh
 - Contours
 - Contours (position approximate)

NOT TO BE TAKEN FROM LIBRARY
NE PAS SORTIR DE LA BIBLIOTHÈQUE

336A