Geological Survey Department of Canada 1906



# SUMMARY REPORT

OF THE

# GEOLOGICAL SURVEY DEPARTMENT

OF

# CANADA

FOR THE CALENDAR YEAR

# 1906

*PRINTED BY ORDER OF PARLIAMENT*

OTTAWA
PRINTED BY S. E. DAWSON, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1906

[No. 26—1907.]

No. 959

Geological Survey Department of Canada 1906



gether with data relating to the iron ores of Nova Scotia, the result of several seasons' work in that province by Mr. Hugh Fletcher.

The following is a short synopsis of the work performed by the field officers :—

Mr. R. G. McConnell, assisted by Mr. Joseph Keele, geologist, and Messrs. F. H. Maclaren and F. O'Farrell, was engaged in measuring the volume, and estimating the values of the high level gravels in the Klondike district. This difficult work has, I am pleased to say, been successfully performed. There has not yet been time to prepare all the available data for the writing of a report on the matter, but so soon as the necessary calculations can be made a pamphlet on the subject will be issued.

Mr. D. D. Cairnes spent the season in the southern part of the Yukon, where quite a variety of valuable economic mineral deposits have been found and, although quartz mining has just commenced, it is progressing rapidly and in several localities. Considerable work is being done on the Windy Arm silver and gold properties with very good results indeed. Also about 700 claims were located on mineralized quartz veins about fifteen miles west of the W. P. and Y. R'y. between Caribou and Robinson.

Recent developments on the extensive copper deposits west of Whitehorse have shown them to be even richer than expected. Adding to this the fact that there is plenty of available anthracite and bituminous coal in the vicinity, the future looks bright indeed for this district.

Mr. O. E. LeRoy examined that part of the coast of British Columbia lying between the International Boundary and Powell river.

In addition to the purely geological work special attention was given to those formations which are of economic importance. The principal economic areas in the region examined are the Lynn Creek camp, Burrard inlet; the Britannia mineral zone, Howe sound ; and Texada island.

Mr. W. W. Leach was chiefly engaged in delimiting the coal and copper areas in the Telkwa valley, B.C. So far as the coal is concerned this work presented considerable difficulty owing to the large amount of faulting and folding to which the coal measures have been subjected.

Mr. Charles Camsell was surveying in the Similkameen district, B.C. He reports most encouraging activity in mining, both for coal and for the precious metals. He makes a particular point of the large areas of low grade ores that abound in the district, areas which it seems probable will shortly be profitably mined.

Mr. Lawrence Lambe, Vertebrate Palaeontologist, was in the southern portion of British Columbia with a view to ascertaining the definite horizons of the Tertiary coal deposits and the correlation of the sedimentary beds.

Mr. R. W. Brock whose efforts have been so much appreciated in the Rossland, B.C. district, continued and completed his examination of the mines in that area. He is now engaged on his final report of the district, which will be published as soon as possible.

The work of mapping the Rocky Mountain coal districts has been continued by Mr. D. B. Dowling, and the area now receiving attention lies between the Panther and

Geological Survey Department of Canada 1906



## ON SURVEYS IN NEW WESTMINSTER DISTRICT AND TEXADA ISLAND, B.C.

*O. E. LeRoy.*

The area comprised by this season's work extends from the 49th parallel to the mouth of Powell river, a distance of over ninety miles along the main coast of British Columbia. This includes Burrard inlet, Howe sound, Jervis inlet, the islands adjacent to the coast, and Texada island.

From Burrard inlet to the International Boundary the country is underlain by conglomerates, sandstones and shales of Miocene age. These rocks are but slightly disturbed and have low dips to the south. In a few of the sandstone beds small irregular seams of lignite coal are found, but so far no bed of any value has been discovered. The whole area is covered to a considerable depth by glacial and alluvial deposits, and it is only along the south shore of the inlet that the rocks outcrop. In Stanley park and on Fairview heights, Vancouver city, these sedimentaries are cut by dikes of basic lava, but are of very limited extent.

North of Burrard inlet lies the coast range, and in its northern extension as far as Powell river; it is composed of a series of subordinate ranges which run approximately at right angles to the trend of the main coast. The elevation of these ranges is from three to five thousand feet, with individual peaks of one to three thousand feet higher.

A dense forest growth occupies the gentler slopes and the relatively narrow valleys, the principal woods being the Douglas fir, cedar, hemlock and spruce. The steeper slopes are either bare or support a sparse growth of stunted pine.

The streams are nearly all steep grade, and will furnish power as local conditions demand. The stream draining the Clowhom lakes into Salmon Arm and Powell river are of special importance. The former has a fall of over sixty feet and the estimated horse power is twelve thousand, the latter has a total fall of about one hundred and twenty feet and it is estimated that 30,000 horse power could be developed.

The coast range is an enormous batholithic mass of plutonic rocks which vary in composition from the most acid granite to a basic gabbro.

Lying on this batholith and usually occupying depressions are areas of older rocks. These consist of a great variety of massive and schistose rocks of igneous origin, together with limestones, conglomerates, quartzites, and slates representing remnants of the ancient roof of the batholith. These areas are of great economic importance, as nearly all the mineral deposits of any value are either in them or along their contact with the batholith. Both the granite-gabbro batholith and the associated rocks are cut by a large series of dikes which are mainly diabases.

Thormanby, Merry, and Texada islands are underlain by rocks of the Vancouver series, consisting of two formations. The lower is largely volcanic and is made up of

Geological Survey Department of Canada 1906



altered ash rocks, chlorite and hornblende schists, porphyrites, and agglomerates. The upper formation is limestone and has a limited distribution along the northeast shore of Texada island, between Van Anda and Blubber bay. It has a length of seven and a half miles and a maximum width of two. Both formations are of economic importance, especially the limestone. The Vancouver series is cut by numerous dikes of porphyry, greenstone, felsite and garnetite, and also by larger bodies of granite, which are extensions from the coast range batholith. Sandstones of Cretaceous age occur along the shore of Gillies bay on the south side of Texada island.

Sandstones also occur on the mainland east of Grief point, between Wolfsohn and Scow bays. From information received it would seem that the formation has a considerable distribution inland. Small seams of impure lignite coal have been found but no beds of any value have been discovered.

Glacial deposits are of limited extent in the coast range. Boulder clays occur at the head of Howe sound on the east side, on Anvil island, where they are used in the manufacture of brick, on Gambier island, and in the vicinity of Gibson landing.

In the region embraced by this season's work there are, in addition to numerous isolated mineral claims, three areas of special importance. They are the Lynn Creek camp, the Britannia Mineral zone and Texada island.

The Lynn Creek camp is about eight miles north of North Vancouver. It has an area of five square miles, and about thirty-five claims have been staked. The rocks are banded siliceous and massive hornblende and epidote schists surrounded by syenites and granites. The ores are zinc blende, pyrite, chalcopyrite, molybdenite and magnetite. Very little development work has been done beyond the actual assessment work required by the Provincial Mining Regulations.

The Britannia Mineral zone lies on the east side of Howe sound twenty-three miles from the entrance. The zone has a width of one and one-half miles along the shore and extends inland about eight miles. The rocks are conglomerates, quartzites, slates and sericite schists. The mineralization is confined almost wholly to the silicified sericite schists. The ores are mainly chalcopyrite and pyrite, the former occurring in lenticular areas and masses while the latter is finely disseminated through the schist and quartz. Both carry appreciable values in gold and silver. On the western half of the zone there are three principal groups, the Goldsmith, Britannia and Empress.

The Britannia Copper Company's mines are 3·8 miles from the beach, and 3,300 feet above sea level. The company has 8,500 feet of lode which has a maximum width of 600 feet. The deposit is essentially a low grade proposition, but the enormous amount of ore in sight, and its situation, present most favourable advantages for economic mining and large output. At present the ore is mined only on the Jane claim at the Jane bluff and Mammoth bluff. The method of mining is by tunnels, crosscuts and stopes, and glory holes. The ore is conveyed to the beach by a Riblet aerial tramway, the shipping ore going directly to the bunkers and the concentrates to the mill.

About 350 tons a day are mined at present, but it is the intention of the company to greatly increase their output at an early date. The ore is shipped to the company's smelter at Crofton, Vancouver island.