

GEOLOGY AND ORE-DEPOSITS OF ROSSLAND.

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INTRODUCTION.

The Rossland gold-copper mining camp is situated in the district of West Kootenay, southern British Columbia, six miles west of the Columbia river and five miles north of the International Boundary-line. The town of Rossland is reached either by Canadian Pacific Railway through the Crowsnest pass, from the main line by way of the Arrow lakes, or by Great Northern from Spokane.

The field-work upon which the following conclusions are based was done while assisting Dr. C. W. Frysdale, of the Canadian Geological Survey, in the examination of the camp, and to him and to the Director of the Survey the writer wishes to acknowledge his indebtedness for permission to use the data collected. To Professors Kemp, Berkey, and Johnson, of the Geological Department of Columbia University, thanks are due for advice and assistance in the preparation of this thesis.

The earliest geological work dealing particularly with Rossland was done by McConnell in 1894.* In that year he made a brief examination of some of the chief mines and described the character of the ore-bodies. Further work was done by him in 1896.† He recognized the great series of fragmental rock and classed them as probably Carboniferous. The igneous rocks he believed to be differentiated from a common magma. He described the ore-deposits, briefly classifying them as replacement deposits along lines of fissuring.

In 1900 Brock examined part of the area, describing the rocks between Sophie and Record mountains. In 1901 the preliminary report on the Rossland Mining District was published by Brock, representing detailed work on the most important area. Besides Mr. Brock's conclusions on the economic geology, those of Dr. Young on the general geological relations were incorporated. Daly's work along the Boundary-line has also covered in a general way this area and gives much assistance in correlation.

Other articles on various phases of the geology and mining industry of Rossland have appeared in the various scientific journals, and a bibliography of these will be found appended.

SUMMARY AND CONCLUSIONS.

The geological history of the area, as described in detail later, may be briefly summarized here.

TABLE OF FORMATIONS.

Recent.....	River deposits.
Glacial.....	Silts.
	Till.
Pliocene-Miocene.....	Sheppard granite.
	Pulaskite.
	Porphyritic monzonite.
Eocene-Oligocene.....	Sophie Mountain conglomerate.
Jurassic.....	Basal dykes, tuffs, and flows.
	Normal monzonite.
	Diorite porphyry.
	Nelson gneissolite.
Tertiary.....	Tuffs, agglomerates, and flows.
Quaternary.....	Angite porphyry.
	Mount Roberts slates and tuffs.

* Annual Report, Geological Survey of Canada, 1894, Part A, page 35.
† Annual Report, Geological Survey of Canada, 1896, Part A, page 22.