

Around Banff they include a thickness of 5,000 feet. In the interior belt around Kootenay lake Carboniferous beds rest directly on Precambrian rocks.

During the Triassic and Jurassic, sedimentation and volcanism on a vast scale occurred in the region from the Rocky mountains westward to the Pacific ocean, and on the site of what are now Vancouver island and the Queen Charlotte islands. In late Jurassic and early Cretaceous times this whole region was deformed. The Selkirk and Coast ranges were produced and the Coast range batholith was intruded. In later Cretaceous time, sediments were deposited on both sides of these Jurassic ranges.

Long continued erosion in late Cretaceous time reduced the mountains to a peneplain and unroofed their granite cores. During the Eocene occurred the great Laramide revolution which produced the Rocky mountains. The rocks of this belt were folded and faulted and in places great blocks of older rocks were thrust over younger beds. Local intrusions of igneous rock accompanied the deformation. In the Oligocene local movements accompanied by igneous intrusions again took place. During the Miocene period great fissure eruptions took place while during the succeeding Pliocene period there was further volcanism with general uplift and subsequent valley cutting. In the Pleistocene or Glacial period most of the Cordilleran Region with the exception of some of the higher ridge tops was covered by what is known as the Cordilleran ice sheet. The whole region was depressed at this time but in post-glacial time there has been uplift ranging from 450 to 1,000 feet.

The Cordilleran Region is a great mineral area. Most of the deposits are related to the Coast Range batholith. They occur principally along the borders of the batholith and in the older rocks surrounded by the intrusives and were produced by mineralizing solutions given off from the igneous masses. Some of the more important deposits are the copper ores of Hidden Creek, Britannia, and Allenby mountain, the gold-silver deposits of Salmon River district, the silver-lead-zinc ores of the Slocan, and the Sullivan ore body, the largest silver-lead-zinc mine in the world. Other mineral deposits include coal which occurs in the Rocky mountains and on Vancouver island in beds of Cretaceous and also of Tertiary age, iron ores on Vancouver and Queen Charlotte islands, placer gold in Yukon and in the Cariboo country in gravels of Tertiary age, and numerous other mineral occurrences.

Section 2.—Economic Geology.

An article on this subject, prepared by F. J. Alcock, Ph.D., Mines and Geology Branch, Department of Mines and Resources, Ottawa, appeared at pp. 16-28 of the 1937 Year Book.

PART III.—SEISMOLOGY IN CANADA.*

Seismology—that branch of science which treats of earthquakes—has received considerable attention in Canada during recent years. It has been generally recognized that earthquakes are frequent in regions of adjustment of strata and are characteristic of the newer mountain and coast regions where steep level-gradients occur. The energy radiated from an earthquake in the form of elastic waves in the earth is, however, recorded on sensitive seismographs up to great distances, even to the antipodes of the earthquake. Seismological researches, while regularly recording the routine statistical data regarding earthquakes, seek also to determine particular causes. Moreover, they endeavour to ascertain the physical properties

* Prepared under the direction of R. Meldrum Stewart, Director, Dominion Observatory, Department of Mines and Resources, by Ernest A. Hodgson, Ph.D.