

### III.—SEISMOLOGY IN CANADA.<sup>1</sup>

Seismology—the 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 abrupt changes in level are present. Seismological researches, while recording their location, duration and intensity, seek to determine particular causes. They ascertain the physical properties of the earth's crust and interior, as revealed by the peculiarities of the recorded waves after their passage through the earth. Instruments as developed by seismological research for the better recording of earth tremors are being used commercially in many ways, not the least important being for the mapping out of underground densities, in order to locate minerals and oil without frequent and expensive borings.

During the years for which records are available, Canada has been but slightly affected by earthquakes. Historically, a record shows that the St. Lawrence valley was shaken by a great quake in 1663. From time to time other shocks have been felt in that region, notably in 1870 and again on Feb. 28, 1925. In 1899 a great disturbance shook Alaska at Yukatat bay, very close to Canadian territory. On June 28, 1925, an earthquake in Montana, caused tremors which were felt in Alberta. The most serious earthquake for more than two centuries was the St. Lawrence tremor of Feb. 28, 1925. Although very widely felt it cannot be classed as a seriously destructive earthquake such as are experienced in more seismic regions. On November 18, 1929, a serious earthquake occurred about 300 miles south of Newfoundland, the tidal wave from which caused considerable destruction in Newfoundland. This earthquake was felt throughout Eastern Canada, as far west as Ottawa. Considerable damage was caused to the cable lines crossing the disturbed area.

At present five seismologic stations, all maintained by the Dominion Government, are in active operation in Canada, and are situated at Halifax, Ottawa, Toronto, Saskatoon and Victoria. Two of these—at Toronto and Victoria—are under the Meteorological Branch of the Department of Marine, while the three remaining stations are controlled by the Dominion Observatory, of the Department of the Interior, with the assistance and co-operation of the universities at Halifax and at Saskatoon.

The records for Toronto and Victoria are published from Toronto, whence monthly bulletins are issued to seismologic observatories interested, giving full details of all quakes registered. The records for the remaining stations are published from Ottawa. Monthly bulletins are issued to 219 seismologic observatories situated throughout the world. These are supplemented by a yearly publication giving the location of epicentres of all earthquakes of which any trace is registered at Ottawa and for which the total data are sufficient. Reports are received regularly from all the working seismologic stations of the world.

Regular research work in seismology is carried on at Ottawa, where the full time of three seismologists is given to the work of earthquake study alone. The reports are issued in the publications of the Dominion Observatory, Ottawa.

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