

The Yukon-Alaska Highway, recently completed, links the entire northwest, through Edmonton, with the cities of the Prairie Provinces and the United States. Airports and other facilities have been provided over wide sections of the Mackenzie Valley and in future it is likely that travel and transport by air will have a great influence on the development of the Territories. In Chapter XXIX, Section 1, details regarding the resources and administration of these areas are given.

PART II.—SEISMOLOGY

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 of the earth's crust and interior as revealed by the peculiarities in the 'time-distance curves' for earthquakes. For further information on this subject, see pp. 7-9 of the 1943-44 edition of the Year Book.

The Cornwall-Massena Earthquake, Sept. 5, 1944.*—A moderately severe earthquake, the third largest in more than seventy years to occur in Canada, was felt over a large area in Eastern Canada and the United States in the early morning of Sept. 5, 1944. The tremors were reported from as far north as James Bay, as far south as New York City, as far west as Windsor and Detroit, and as far east as Quebec City. It was soon apparent from newspaper reports that the damage was confined to a small area about Cornwall, Ont., and Massena, N.Y., which lies about ten miles to the southwest of Cornwall.

The main shock was followed, as is usual, by aftershocks, of which the two largest occurred: (1) shortly before 5 a.m., E.W.T., Sept. 5, and (2) at about 7.25 p.m., E.W.T., Sept. 9. There were several smaller ones at intervals during the night and day of the main shock and they continued at increasingly longer intervals for some months. No damage was caused by any of the aftershocks.

The records obtained at the Dominion Observatory, Ottawa, showed the main shock and three of the aftershocks, of which the second was very well defined. The time at the focus (the point underground at which the earthquake originated) was determined as 12.38 a.m., E.W.T., Sept. 5, and the distance from Ottawa to the epicentre (the point on the surface vertically above the focus) as 59 miles (using the heavy aftershock as the source of the distance value).

The Ottawa records were supplemented within two or three days by the seismogram from Shawinigan Falls, Que. On this record the main shock was sufficiently attenuated by distance to make it a better source of data than the main aftershock. The focal time was determined, independently from the Shawinigan record, to be 12.38 a.m., and the distance from Shawinigan Falls to the epicentre was found to be 140 miles. The intersection of the distance circles about Ottawa and about Shawinigan Falls, the tentative location of the epicentre, lies a mile or so south of the international bridge crossing the St. Lawrence River at Cornwall.

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