Earthquake—Vancouver Island (1946)

The 1946 earthquake on Vancouver Island substantially damaged homes, businesses and roads.

At 10:13 a.m. on Sunday, June 23, 1946, the strongest earthquake ever recorded on Canadian land occurred. Registering 7.3 on the Richter scale, the earthquake originated in the Forbidden Plateau area of central Vancouver Island. This hilly plateau has gentle terrain and low hills and is dotted with little lakes and small towns.

The three towns closest to the epicentre, or origin, of the earthquake suffered the greatest damage. These were Cumberland, Union Bay and Courtenay. In these towns, 75 per cent of chimneys crumbled or collapsed. Bricks fell off the roof overhang of the Courtenay post office and some homes shifted. There were also several landslides in the area and roads were upheaved.

Buildings in other towns, including Comox and Port Alberni, were substantially damaged, and the tremors were felt far and wide—from Prince Rupert and Vancouver in British Columbia to Portland, Oregon. Tall buildings in Vancouver swayed and people ran into the streets in panic. Power was disrupted and a few fires started, including one at the Hotel Vancouver.

Two deaths are attributed to the earthquake. A man drowned in a small dinghy when it was swamped by the seven-foot-high tsunami generated by the quake. Someone in Seattle, Washington, had a heart attack when the quake occurred.

Two factors influenced the extent of damage. On one hand, little human life was lost because the epicentre of the quake was located in an unpopulated area where those buildings that did exist were largely constructed of wood, which can absorb a lot of energy without collapsing, and infrastructure such as roads and bridges was not well developed. However, damage to roads and buildings extended to areas well beyond the epicentre. This was because the soil of Vancouver Island, like that of many islands and coastlines, is largely clay and sand. The waves of energy that flow through the ground during an earthquake shake the soil, much like sand in a box that is shaken back and forth. The soil shifts, acting like a liquid. The term for this horizontal movement of soil is liquefaction, which means the soil spreads out and flows like a fluid does. In areas like this, the ground motion caused by the earthquake is amplified.

The west coast of Canada lies close to a major fault line, where two plates are colliding. Small earthquakes occur each year and huge earthquakes—such as the 9.2 earthquake that occurred in Alaska in 1964—occur every three to eight hundred years off Canada's coast.

Additional reading

Klohn-Crippen Consultants, *Preliminary Seismic Microzonation Assessment for British Columbia*, Resources Inventory Committee (Canada), février 1994, http://www.for.gov.bc.ca/hts/risc/pubs/earthsci/seismic/index.htm.

The M7.3 Vancouver Island Earthquake of 1946. http://www.earthquakescanada.nrcan.gc.ca/historic-historique/events/19460623-eng.php

Rogers, Garry C. "The History of Earthquake Studies in British Columbia: From Indian Legend to Satellite Technology." Geological Survey of Canada, Pacific Geoscience Centre, Sidney, B.C. http://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/OpenFiles/1992/Pages/OF1992-19-Earthquake.aspx.