

EARTHQUAKE SHOCKS

Tremors at Canberra

Buildings Shaken

CANBERRA, November 19.

Canberra experienced a further minor earthquake shortly before 8 a.m. to-day, and two further slight tremors were felt about 5 p.m. The previous shocks were felt on November 11. The earth tremor this morning, which lasted for several seconds, was sufficiently severe to cause buildings in the Federal Capital Territory to shake, and to move furniture in some houses. A resident of the suburb of Ainslie while serving breakfast had two plates knocked from her hands.

The Commonwealth geological adviser (Dr. W. G. Woolnough) said that unquestionably the earthquake was due to a movement along one of the lines of fracture which run through the Monaro district. One of these lines was well defined through Lake George, about 20 miles from Canberra, in the direction of Goulburn. Another probably marked the line of the Murrumbidgee River. He added that slow movements in the earth's mass produced stresses which were relieved from time to time by slight movements. Probably the cracks did not show above the surface to any extent.

CAUSES OF MOVEMENTS.

The movements were due to such causes as slow tidal movements in the earth's mass, the slow cooling of the earth as a whole, and other readjustments in the surface layers of the earth. Disastrous earthquakes generally occurred where the stress had been built up over long periods, and were not eased off by small movements. So far as the evidence went, the township of Gunning, about 40 miles from Canberra, had been close to the centre of the movement during the last two or three years, and shocks had been felt there over a period of some years.

N.S.W. SHOCKS

Severest Known

Much Damage Caused

SYDNEY, November 19.

One of the severest earthquakes ever experienced in New South Wales shook south-western districts of the State about 8 a.m. to-day. Residents of Gunning and Dalton, in particular, bore the brunt of the damage. The shock was felt in metropolitan districts also, notably Manly, Kensington, and Randwick.

The observatory at Riverview reported that at 7.59 a.m. a severe earthquake was recorded on the seismograph. The sweep of the recording pen was of the phenomenal range of 2 1/2 in.

graph. The sweep of the recording pen was of the phenomenal range of 2 1/2 in. Previously half an inch was considered a tremor of some importance.

Extensive damage was caused in Gunning, where the earthquake was the heaviest ever known. Tremors occurred last Sunday week, and shocks have continued daily for nine days. A heavy shock occurred yesterday morning (Sunday), followed by some minor tremors early this morning, which led up to the severe quake. The shock lasted for more than a minute, and was terrific in its intensity. Much damage was done to buildings. The residence of Mr.

A. J. Summer, two miles from Gunning, was damaged so extensively that the house is uninhabitable. This house was badly damaged by a tremor on January 12, and had been repaired throughout. The shock to-day cracked every wall, and masses of plaster covered the floors and furniture in every room. In the kitchen, the crockery, pots, and pans were heaped in confusion on the floor.

GRANITE ROCKS SHATTERED.

Granite rocks in the vicinity were shattered, and cracks were found in the ground near the house. A neighbouring house, that of Mr. A. Lawless, which also was damaged last January, suffered severely on this occasion. Plaster and ventilators were thrown from the walls, which were cracked, and vases, clocks, etc., were hurled to the floor and broken. In the shearing-shed the engine was shifted off its base by the shock.

A visitor returning from getting letters from the mailman was passing a granite rock when the shock occurred. The rock was split into fragments, and the man had a narrow escape from being crushed.

Houses in the town also suffered extensive damage. Portion of chimneys fell on several buildings, a baker's oven was cracked and rendered useless, and plaster and ventilators were dislodged in almost every brick or concrete structure in the town. Persons sought safety in the street and yards.

Mr. T. Booth, of Eulari, Gunning, said that he and his family were sitting down to breakfast when the floor heaved and trembled, and there was a cascade of crockery and plaster. He ran into his yard, where fissures had appeared, and saw that the walls of his home were cracked from top to bottom.

GROUND HEAVED.

The home of Dr. W. M. Barber, of Gunning, suffered. Mrs. Barber said that she was standing in the garden before breakfast when she felt the ground heave under her. She ran indoors, to be met with a shower of falling plaster, medicine bottles, and cooking utensils. The walls of the house, although of brick, were cracked. Other residents of the district had similar experiences.

The shock was also felt distinctly in Goulburn and Yass, but no serious damage was reported. Shocks were felt at Blackheath, Bogan Gate, Kangaroo Valley, Purkes, Blayney, Moss Vale, and Queanbeyan.

Queanbeyan.

The observatory at Riverview reported that the sweep of the recording pen of the seismograph was of the phenomenal range of 2½ in., previously, half an inch having been considered as recording a tremor of some importance.

Father O'Leary said that the earthquake was the severest that had occurred in Sydney since the Riverview Observatory commenced to take records in 1903. The seismograph pen swung from one side to the other. It was probably Australia's biggest earth tremor for many years. The disturbance passed through three phases before the waves commenced to diminish. At 7.59 a.m. there occurred the preliminary or compressional waves, whose recorded appearance was similar to sound waves. They corresponded to the first slight tremors which were felt about 30 seconds later. The tremor entered into the second phase when the torsional waves appeared on the seismograph. Then, about 45 seconds later, the peak of the disturbance occurred, and the quasi-gravitational waves, which represented a movement of 2½ in. by the pointer of the instrument, were recorded. A complicated movement in the earth's crust caused diminishing waves to occur for some time subsequently.