

1952/91
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COMMONWEALTH OF AUSTRALIA.

MINISTRY OF NATIONAL DEVELOPMENT.
BUREAU OF MINERAL RESOURCES,
GEOLOGY AND GEOPHYSICS.

RECORDS.

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GUNNING DISTRICT, N.S.W. - EARTH TREMORS

NOVEMBER, 1952.

by

G. F. Joklik and J. N. Casey

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INTRODUCTION.

During the period 19th November to 22nd November, 1952, severe earth tremors were felt in the Gunning District, and, less severely, over a considerable portion of south-eastern New South Wales.

As officers of the Bureau of Mineral Resources, Canberra, the writers were detailed to investigate the tremors.

INSTRUMENTAL DATA.

The times and earth amplitudes of the main shocks were supplied by Father N. Burke-Gaffney, Director of the Riverview College Observatory, Riverview, N.S.W. The earth amplitudes are compared with the main shocks from the series of tremors in November, 1934, and March, 1949 (Joklik, 1951).

Table I.

<u>Date</u>	<u>E.S.T.</u>			<u>Maximum Amplitude.</u> (N-S Movement; $1\mu = .001\text{mm}$)
	<u>h</u>	<u>m</u>	<u>s</u>	
1934 Nov.11th	09	47	40	40
	Nov.19th	07	58	42
	Nov.19th	17	10	16
	Nov.21st	16	32	07
1949 Mar.11th	08	31	36	170
	Mar.11th	13	33	54
	Mar.16th	23	25	24
1952 Sept.7th	15	41	46	30
	Nov. 19th	04	03	42
	Nov. 19th	11	59	48
	Nov. 22nd	17	57	56

EFFECTS OF THE EARTH TREMORS.

The tremors were felt most severely in the town of Gunning and in the area to the west. Their intensity decreased more gradually outwards from the epicentre than that of the 1949 tremors. Slight trembling of the ground was felt in the western suburbs of Sydney.

The intensity of the tremors at various localities in the area surrounding the epicentre is shown in terms of the modified Mercalli Scale of Earthquake Intensities on Plate I. As no permanently visible damage was caused to buildings or to any other structures, the intensity of the tremors is based in every case on personal accounts, most of which proved to be fairly unreliable.

At Gunning, the tremors were felt as severe jolts accompanied by a loud rumbling noise which was heard for approximately thirty seconds in the case of the three most severe shocks. Windows rattled, a little plaster fell from ceilings, but no objects were dislodged. The general opinion of the town's people was that these tremors were felt as severely in Gunning as were the tremors of March, 1949.

At C. Medway's property, "Narragundah", three miles west of Gunning on the southern side of the Hume Highway, the tremors caused portion of a broken window pane to fall from the frame. At this locality, and at the property of Mr. Bateup, six miles south of Gunning at the eastern foot of Mt. Dixon, the tremors were probably more severe than at the township of Gunning.

Residents of Dalton agreed that the recent tremors were not nearly as severe as those of 1949.

CAUSE OF THE TREMORS.

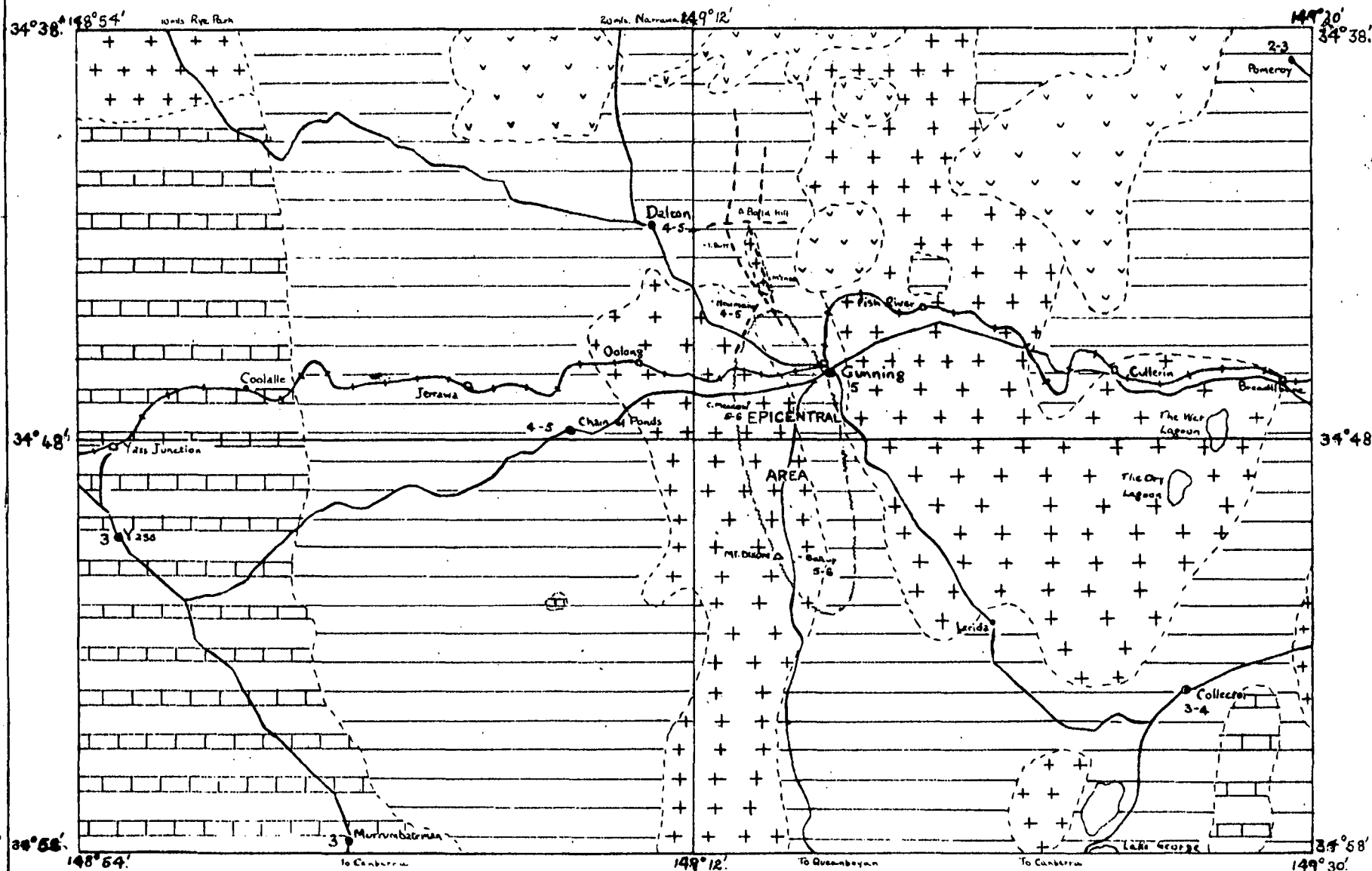
The tremors of March, 1949, were related to minor adjustments in a fault system which trends south from the Bald Hill range, three miles east of Dalton (Joklik, 1951, p.22). It was suggested that during the 1934 disturbance, stress relief occurred mainly on the eastern side of the "horst", whereas movements on the western flank caused the 1949 tremors. The recent tremors were felt most severely along the southern continuation of the fault-block (see Plate I); adjustments were probably localized at the contacts between granite and Palaeozoic shale.

CONCLUSIONS.

No damage to property resulted from the earth tremors of November, 1952. Newspaper reports of them were grossly exaggerated. Reports of tremors in the Dalton-Gunning area date back to the earliest settlers, and the tremors will probably continue for many years.

REFERENCE.

Joklik, G.F., 1951 - "Dalton-Gunning Area, N.S.W. Earth Tremors of March, 1949". J. & Proc. Roy. Soc. N.S.W., v. lxxiv, pp.17-27, 1951.



GEOLOGICAL SKETCH MAP

GUNNING AREA, NSW.

Scale 4 Miles to 1 Inch



BASALT

TERTIARY



GRANITE

DEVONIAN

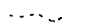


LIMESTONE, SHALE, BRECCIA Dev. and Sil.



SHALE, SLATES etc.

ORDOVICIAN



Geological Boundaries



Faults



4-5 Seismic Intensity on Modified Mercalli Scale



Roads



Railways



Homesteads

T.N.

