

EARTHQUAKE REPORTS—continued.

No.	Date.	Character.	Phase.	Time. G.C.M.T.	Boom Period.	Amplitude.	Remarks.
						Ac.	
	1922.			H. M. S.	S.	MM.	
31	Dec. 3	r	S	0 24 18	Duration, 15m.
			L	0 27 24	..	..
			M	0 29 12	..	1.6	
32	" 5	r	L	7 34 18	Duration, 20m.
33	" 14	..	M	7 36 24	..	0.6	
			PR ₁	23 15 00	..	..
			S	23 19 36	O = 47°±. Duration, about 70m. Microseisms not running.
			SR ₁	23 22 24	..	..
			SR ₂	23 24 24	..	..
			L ₁	23 27 24	..	..
			M ₁	23 28 54	..	4.2	
			M ₂	23 31 36	..	6.5	
			L ₂	23 36 48	..	..
34	" 24	21 14 42	Minute sudden displacement of boom to E., through about 0.1 mm.
35	" 24	21 29 36	Ditto. These occur at the end of nocturnal microseisms.
36	" 25	..	PS ₁	3 33 00	17	..	R.F.7-8. Origin North Canterbury, where widespread damage to chimneys especially occurred, most marked at Cheviot and Waikari, respectively 58 miles N.E. and 40 miles N. of the Observatory. Damage slight in Christchurch. The seismograph was immediately thrown out of adjustment by the shock.
37	" 25	21 05 18	Very minute displacement of boom to E., less sudden than on 24th, at end of nocturnal microseisms.
38	" 31	..	SR ₁	7 36 24	17	..	
			SR ₂	7 43 54	..	..
			L	8 05 24	..	..
			M ₁	8 08 06	..	0.9	
			M ₂	8 12 00	..	0.7	
			M ₃	8 17 00	..	1.0	
			M ₄	8 20 54	..	0.5	
			M ₅	8 28 42	..	0.6	
			M ₆	8 33 42	..	0.7	

APPENDIX IV.

STANDARD SURVEYS.

MR. C. A. MOUNTFORT having now retired on superannuation the following notes by him on certain points in his methods and apparatus used on standard surveys are published in order to preserve a record of the character and degree of precision aimed at. The notes, which do not profess to be a complete essay, refer generally to his methods on the standard surveys of Nelson, Wanganui, Palmerston North, Feilding, and Napier, and rural surveys near Hastings-Napier, and Feilding-Palmerston North.

NOTES.

(See figures.)

In ranging lines I have found the following to be a good method where you cannot see from end to end but can see from the middle both ways. I generally get as near one end as I can see the other from. I first set up on 2,* set on 4, and reverse to 1, repeat the operation until I am exactly in line, drive peg a short distance off and put in tack; reverse and put in a second tack and take the mean, drawing into line a second time before putting in second tack. Now shift to 3, set on 1, and pull in line with 4, putting in peg and meaning as before. Now set up at centre and pull in line, setting on 1 and reversing on 4, put in peg, and reverse. Remove signals from 1 and 4, put up smaller ones at 2 and 3 at centre, pull in line with these direct and reversed, mean with former, set up signal at mean centre. Start at 1 and put pegs in line, shifting from peg to peg. If correct, tack on peg 2 ought to be struck; proceed in a similar manner starting from peg 4. My method of putting pegs in line is this: Peg is driven in line by holding up bar 8 to 10 chains off on the line. Steel rod is then driven off to one side of peg, its cross-arm being over peg; man then stoops down, chalks his plumb-string, and faces me, slipping the string along until I give him signal to mark, when he lets string slide down until plumb strikes peg so that the point of the plumb marks the peg, where he drives tack, and tries it two or three times, he making scratch on tack at mean line. I now shift on to this point, and he moves on, repeating the operation. Where there is a similar road, parallel and a short distance off, it can be treated in a similar manner. Chain across twice at each end and in the centre; if the centre-line distance

* See Fig. 2.