

RECORDS OF MILNE SEISMOGRAPHS.

582

Records of the Milne Seismographs Nos. 16 and 20, taken at Christchurch and Wellington, by Mr. Skey and Mr. Hogben.

Communicated by Mr. G. Hogben, Secretary for Education.

Plates L.-LIV.

RECORDS OF MILNE SEISMOGRAPH NO. 16, AT CHRISTCHURCH, NEW ZEALAND.

Latitude, 43° 31' 50" S.; longitude, 172° 37' 18" E. Time employed: Greenwich mean civil time.

P.T., preliminary tremors less than 2 mm. complete range; A.T., after-tremors less than 2 mm. complete amplitude; B., beginning and end of vibrations not less than 2 mm.; Amp., in millimetres; 1 mm. boom motion = 0".43. B. and E. signify beginning and end of amplitudes exceeding 1 mm., the range being 2 mm.

H. F. SKEY, Observer.

Date.	P.T. (from)	B.	Maxima		Amp.	E.	A.T. (till)	B P.	Remarks.
			From	To					
1903.					Mm.			Secs.	
Jan. 4	5.12-1	5.15-2	5.18-8	..	0.9	..	..	..
			5.28-8	..	1.65				
			5.23-7	..	1.6				
			5.31-2	..	1.3				
			5.35-6	..	1.25	5.36-7	7.20-6	..	
" 9	1.46-9	2.01-9	2.02-9	..	0.75	2.04-9	2.28-3	..	
" 14	2.06-4	2.36-4	2.44-8	..	4.75	3.12-5	5.17-3	..	Origin N.E. of Marquesas Islands (?)
" 17	16.53-0	16.58-1	17.02-1	..	2.5	17.07-7	19.43-0	..	
" 26	2.20-8	..	2.21-0	..	0.3	..	2.28-0	..	
Feb. 10	3.11-4	3.24-6	3.26-5	..	0.75	3.28-5	..	..

Transactions.

Feb.	21	..	..	8.09.8	..	0.05	..	..	..	Tremors lasting 2 or 3 min. each.
"	21	..	..	8.10.7	..	0.05	..	..	..	"
"	21	..	..	8.18.1	..	0.05	..	..	..	"
"	21	..	..	8.26.0	..	0.05	..	..	..	"
"	21	..	..	8.29.3	..	0.1	..	..	..	"
"	21	..	..	8.33.4	..	0.05	..	..	..	"
"	21	..	..	8.36.8	..	0.05	..	..	..	"
"	26	5.57.9	..	6.04.0	..	0.15	..	6.24.2	..	"
"	27	0.54.6	..	1.26.7	..	2.4	..	..	..	"
				1.31.4	..	3.75	..	5.05.0	..	"
					..	3.0	1.37.4	..	..	"
Mar.	26	8.54.7	..	9.06.2	..	1.0	..	9.37.0	..	"
"	30	3.38.6	3.53.8	4.01.1	..	0.75	4.10.0	5.43.7	..	"
April	1	2.48.1	..	..	..	..	2.54.7	2.54.7	..	Local; felt at Pipiriki. Began 2 h. 51 m. 50 sec. ; ended 2 h. 52 m. 10 sec. (by chronometer). Sudden and short.
"	1	3.00.7	..	..	..	..	..	..	..	"
"	29	4.10.8	4.17.6	4.19.6	4.28.8	4.2	4.31.9	6.17.1	..	"
"	29	..	..	13.17.6	..	0.6	..	..	..	P.T. and A.T. obscured by night tremors.
May	8	4.32.5	..	4.42.0	..	1.0	..	5.04.6	..	"
"	13	6.42.4	6.49.0	7.01.7	..	6.5	7.27.9	9.18.4	..	"
"	19	8.14.0	..	..	..	0.5	..	8.30.5	..	"
"	27	23.40.6	..	..	..	0.4	..	23.42.7	..	"
"	29	23.01.5	..	..	..	0.2	..	23.04.6	..	"
June	8	5.34.5	5.45.8	5.49.5	..	1.0	..	7.08.9	..	"
"	9	11.16.6	11.18.1	11.18.7	..	0.7	11.23.2	12.04.9	..	"
"	10	16.49.7	16.59.2	17.02.8	..	1.5	17.11.4	..	..	Minute thickenings for some hours.
"	15	22.18.1	22.21.3	22.22.9	..	1.0	..	22.53.1 +	..	"
"	21	7.43.9	..	..	..	..	..	8.17.3	..	Minute irregularities for considerable time before and after.
July	2	21.21.6	21.28.9	21.30.5	..	1.4	21.34.9	22.13.3	..	"
"	9	4.52.2	..	5.19.3	..	..	..	5.26.7	..	Thickening merely.
"	10	4.11.4	..	4.15.0	..	..	..	4.36.6	..	"
"	12	4.28.3	4.37.5	4.46.7	..	2.5	4.52.3	5.19.0	..	Origin New Britain (?).

RECORDS OF MILNE SEISMOGRAPH No. 16—continued.

Date.	P.T. (from)	B.	Maxima		Amp.	E.	A.T. (till)	B.P.	Remarks.
			From	To					
1903.					Mm.			Secs.	
July 19	13.10.5	..	13.15.0	..	..	..	13.23.1	..	Thickening merely.
" 28	4.35.0	..	..	..	..	..	4.47.0	..	
Aug. 1	10.00+	..	..	..	..	..	20.00+	..	Tremor (shocks felt in Hawke's Bay Province).
" 7	7.54.2	..	7.55.2	..	0.3	..	8.01.4	..	
" 19	9.43.6	..	9.55.0	..	0.5	..	10.15.7	..	
" 24	7.29.7	..	7.36.4	..	..	..	7.53.8	..	Thickening merely.
Sept. 3	6.05.3	6.25.3	6.26.5	..	1.2	6.30.4	7.24.3	..	
" 5	5.45.2	..	5.49.4	..	..	..	5.57.6	..	Thickening merely.
" 7	7.17.0	7.24.2	7.28.9	..	14.0	7.47.2	8.12.0	..	
" 8	5.23.4	..	5.36.9	..	0.6	..	6.31.7	..	
" 23	0.17.0	..	0.21.7	..	0.8	..	0.32.0	..	
" 23	7.19.1	..	7.23.2	7.31.5	0.5	..	7.50.0	..	
" 26	6.15.0	6.17.2	6.17.8	..	1.3	6.18.0	6.39.4	..	
Oct. 4	5.02.4	5.04.1	5.05.7	..	1.0	5.12.0	5.29.5	..	
" 13	22.04.1	..	22.10.4	..	0.5	..	22.14.5	..	
" 14	3.32.2	..	3.52.8	..	0.8	..	4.09.3	..	
" 17	..	..	..	..	..	..	2.09.0	..	
" 20	14.48.9	14.52.0	14.53.0	..	2.2	14.58.7	15.38.6	..	In progress while attending to instrument.
" 20	Indef.	14.29.9	14.36.5	..	11.5	..	..	..	P.T. and A.T. obscured by night tremors.
" 30	3.30.1	4.05.1	Max. between 4.10.0 and 4.20.0		6.0+	4.30.2	6.29.9	..	Attending to instrument during maxima.
" 30	12.00+	15.07.0	15.07.3	..	1.3	15.12.4	21.00+	..	
Nov. 1	18.02.5	..	18.07.7	..	1.0	..	18.36.2	..	
" 2	3.00.0	..	3.01.1	..	0.6	..	3.08.3	..	

Nov.	10	17.23·0	17.23·6	17.29·2	..	3·5	17.45·5	18.20·5	..	
"	10	20.58·3	21.02·2	21.04·3	..	1·8	21.07·0	21.23·4	..	
Dec.	23	..	1.12·3	1.19·3	1.20·0	3·6	1.25·2	2.13·3	..	
"	23	23.45·0	..	23.51·3	23.55·4	0·6	..	24.08·0	..	
"	24	21.26·0	..	21.32·2	..	0·9	..	21.40·4	..	
"	28	3.07·0	..	3.35·7	..	1·0	..	4.12·1	..	
"	31	Indef.	14.10·7	14.13·8	..	4·5	14.24·1	Indef.	..	Obscured by night tremors.
1904.										
Jan.	2	0.05·8	..	0.10·0	..	1·0	..	0.41·8	..	
"	7	Indef.	2.52·7	2.54·8	..	7 5	3.19·8	Indef.	..	P.T. and A.T. obscured by night tremors.
"	10	3.01·8	3.12·4	3.13·0	..	2 9	3.19·0	4.13·0	..	
"	20	Indef.	15.49·8	15.52·5	..	4·5	16.08·0	Indef.	..	P.T. and A.T. obscured by night tremors.
"	25	Indef.	..	..	..	..	3.53·0	4.06·7	..	In progress while attending instrument.
"	29	0.12·3	..	0.41·0	..	0·9	..	1.09·2	..	
Feb.	4	10.31·4	..	10.35·8	..	1·0	..	11.03·4	..	
"	8	5.47·5	..	5.51·1	5.54·2	0·8	..	6.05·1	..	
"	18	5.59·9	6.03·1	6.03·9	..	2·0	6.05·9	6.16·2	..	
"	20	10.15·0	..	10.19·0	..	0·8	..	10.30·0	..	
"	22	Indef.	1.29·7	1.31·0	..	1·8	1.32·7	2.06·3 +	..	
"	28	5.42·8	..	6.00·5	..	0·5	..	6.45·3	..	
Mar.	1	Indef.	3.22·2	3.23·7	..	2·5	3.29·9	Indef.	..	P.T. and A.T. obscured by night tremors.
"	1	Indef.	4.26·0	4.30·1	..	4·0	4.39·9	Indef.	..	"
"	2	9.09·9	9.13·0	9 15·0	..	2·5	9.31·5	9.49 +	..	
"	3	8.49·1	..	8.50·7	..	0·5	..	8.56·4	..	
"	3	11.02·8	11.11·7	11.20·4	..	1·8	11.30·4	11.52·9	..	
"	16	7.50·1	..	7.55·4	..	0·5	..	8.16·5	..	
"	26	Indef.	15.08·9	15.11·0	..	4·5	15.15·6	Indef.	..	P.T. and A.T. obscured by night tremors.
"	29	10.07·8	10.20·3	10.21·8	..	1·0	10.23·9	Indef.	..	
April	4	10.41·6	..	12.26·4	12.38 5	0·5	..	13.13·8	..	Salonika (?)
"	6	0.12·3	..	..	..	..	..	0.20·5	..	Thickening merely.
"	11	Indef.	14.11 3	14.12·9	14.15·9	4·3	14.23 6	Indef.	..	P.T. and A.T. obscured by night tremors.
May	1	6.39·5	6.42·5	6.51·8	..	3·8	6.55·9	8.07·1	..	
"	1	15.35·7	15.55·5	16.06·7	16.11·4	5·5	16.17·5	Indef.	..	A.T. obscured by night tremors.
"	1	23 39·6	..	24.00·0	..	1·3	..	24.30·8	..	

RECORDS OF MILNE SEISMOGRAPH NO. 16—continued.

Date.	P.T. (from)	B.	Maxima		Amp	E.	A.T. (till)	B.P.	Remarks.
			From	To					
1904.					Mm.			Secs.	
May 21	15.12.4	..	15.16.5	..	0.4	..	15.44.2	..	
" 28	23.39.6	..	23.55.0	..	1.3	..	0.57.0	..	
June 10	18.59.2	..	19.05.1	..	..	..	19.37.9	..	Thickening merely.
" 13	15.33.6	..	15.38.8	..	..	..	15.44.0	..	Very slight.
" 13	17.22.3	..	17.25.9	..	..	..	17.28.4	..	"
" 17	Indef.	..	6.39.5	..	..	..	Indef.	..	Elongated swelling. P.T. and A.T. obscured by night tremors.
" 17	Indef.	..	13.29.2	..	0.5	..	Indef.	..	P.T. and A.T. obscured by night tremors.
" 17	19.18.0	..	19.31.3	..	0.5	..	19.38.4	..	
" 18	6.25.9	6.32.3	6.38.4	..	2.7	6.42.0	7.18.5	..	
" 26	19.58.2	..	20.20.7	..	0.9	..	21.11.5	..	
" 26	21.25.9	..	22.22.8	..	1.3	..	24.31.0	..	
" 27	0.32.5	..	1.31.0	1.36.1	0.9	..	3.07.4	..	In progress while attending instrument.
July 12	1.54.5	..	2.01.7	..	0.3	..	2.13.0	..	
" 22	0.49.3	1.0.26	1.04.1	1.10.6	4.0	1.14.4	2.21.0	..	
" 22	15.23.5	..	15.35.8	..	0.5	..	16.12.2	..	
" 27	Indef.	15.58.5	16.00.1	..	2.2	16.05.1	Indef.	..	P.T. and A.T. obscured by night tremors.
Aug. 8	..	..	..	..	..	23.03.4	24.43.7	..	Severe shocks at Wellington. Light out at commencement of quake.
" 14	2.56.1	2.59.7	3.01.3	..	5.7	3.10.0	3.44.8	..	
" 16	22.20.3	..	..	..	..	..	22.24.6	..	Very slight and sudden.
" 18	Indef.	5.18.4	5.21.8	..	3.5	5.27.0	5.52.8	..	P.T. obscured by night tremors.
" 19	2.31.7	..	2.34.8	..	..	..	2.40.1	..	P. slight swelling.
" 22	1.37.4	..	Max. at	begin'ng	0.5	..	1.43.6	..	P. slight and sudden.

Aug.	24	Indef.	21.32·6	21.40·3	..	2·05	22.05·3	Indef.	..	P.T. and A.T. obscured by night tremors.
Sept.	6	2.05·2	..	2.08·3	..	0·55	..	2.13·5	..	
"	9	1.23·9	..	1.33·2	..	1·0	..	2.08·3	..	
"	9	Indef.	20.42·1	20.48·8	..	2·4	20.55·4	Indef.	..	P.T. and A.T. obscured by night tremors.
"	13	6.35·8	..	6.42·5	..	0·5	..	7.10·4	..	
"	13	Indef.	17.18·2	17.25·4	..	5·2	17.37·9	Indef.	..	P.T. and A.T. obscured by night tremors.
"	17	Indef.	20.11·3	20.11·8	..	1·2	20.13·9	Indef.	..	" "
"	17	Indef.	..	23.47·0	..	0·4	..	..	..	" "
"	19	4.59·1	5.04·0	5.12·7	6.40·9	5·1	5.38·3	7.19·9	..	Very slight waves until second maximum is reached.
"	20	3.16·3	..	3.18·8	3.21·0	0·4	..	3.48·6	..	
"	24	Indef.	15.11·6	15.14·7	015.15·8	17+	15.45·0	Indef.	..	P.T. and A.T. obscured by night tremors.
"	27	2.23·4	..	2.26·0	..	0·25	..	2.38·4	..	
Oct.	3	3.54 4	..	4.31 0	..	0·65	..	6.04·9	..	
"	4	0.06 8	0.09·9	0.10·4	..	2 05	0.10·9	0.49·9	..	
"	10	12.56·9	..	13.00·5	..	0·3	..	13.05·2	..	
"	10	14.00·3	..	14.05·5	..	1·4	..	14.25·6	..	
"	11	9.57·3	..	10.01·2	..	0·8	..	10.08·2	..	Night tremors (?).
"	16	5.41·1	..	5.46·0	..	0·4	..	6.31·8	..	
"	19	3.14·2	..	3.17·8	..	0·45	..	3.42·6	..	
"	28	5.01·9	..	..	..	..	..	5.13·2	..	Thickening merely.
"	28	Indef.	14.28·2	14.29·3	..	1·6	14.30·0	..	..	P.T. and A.T. obscured by night tremors.
"	31	1.31·1	..	1.33·4	..	0·25	..	1.42·0	..	
Nov.	3	3.49·0	..	4.00 9	..	0·8	..	4.21·6	..	
"	8	7.01 0	..	7.08·2	..	0·25	..	7.18·6	..	
"	21	3.13·7	3.21·0	3.25·6	..	6·0	3.50 4	5.08·0	..	
"	22	1.21 2	..	1.38·7	..	0 55	..	2.59 2	..	
Dec.	2	1.57 6	3.20·8	3.23·7	..	2·25	3.28 1	4.25·0	..	
"	9	..	..	6.30·2	..	1·4	..	..	..	Sudden displacement.
"	9	..	..	21.08·2	..	0·55	..	..	..	"
"	19	Indef.	..	17.55·7	..	14·0	..	Indef.	..	Obscured by night tremors.
"	19	..	..	17.57 8	..	14·5	..	..	..
"	20	5.59·8	6.35·3	6.39·1	..	3·4	6.58 8	8.39·1	..	