
TABLES OF DISTURBANCES

REGISTERED BY

MILNE'S SEISMOGRAPH, COLABA SEISMOGRAPHS, OMORI
EWING SEISMOGRAPH AND COLABA VERTICAL
MOVEMENT (TILT) SEISMOGRAPH.

1911—1915.

As already remarked in the Introduction where a brief description of the several instruments in use has been given, seismographic work commenced in this Observatory in 1898 when Milne's Seismograph was received and installed in September 1898 in connection with the international scheme of seismographic work initiated by the British Association for the Advancement of Science. Two other horizontal pendulums designed locally in 1900, which from time to time had to be modified for experimental and investigational purposes, were added to the installation from April 1900, and a vertical motion (tilt) seismograph, which was ordered out from England, the detail specification and design of which were also conceived locally, was installed from May 1902. An Omori-Ewing horizontal pendulum was supplemented in November 1907.

Thus the seismographic data and results of investigations have accumulated at the Observatory slowly during the last twenty years. It is proposed to publish the full data and their discussion in a special volume which it is hoped will be completed and issued at an early date. For this and other reasons the charts of the principal disturbances which usually accompanied the tables in these volumes, have not been included this time, as it is intended that the whole work may be embodied in one special volume indicating all the seismographic work done at this Observatory since its inception in 1898.

TABLE I.—*List of Principal Disturbances registered by Milne's Seismograph at Colaba, Bombay.*
1911.

Observatory number.	Date.	Time of Disturbance in G. M. T.			Amplitude or half the complete range of maximum motion.	Remarks.
		Beginning.	Maximum.	End.		
		H. M.	H. M.	H. M.	mm.	
2	1911 January	1 .. 10 21.9	10 30.7	11 1.2	8.3	Linear magnification 1 to 9. End lost in shifting time.
3	" "	1 .. 15 8.7	15 11.6	..	1.4	
5	" "	2-3 .. 23 14.5	23 53.3	0 17.5	0.3	
8	" "	3 .. 7 47.3	7 56.6	8 11.5	0.3	
9	" "	3-4 .. 23 31.2	..	3 33.9	..	
						Traces overlap due to intensity of the disturbance and hence maximum phase cannot be ascertained.
13	" "	4 .. 9 49.6	9 52.0	10 7.2	1.3	
18	" "	7 .. 2 25.8	2 54.8	3 30.6	0.9	
21	" "	14 .. 18 4.1	18 6.7	18 24.3	0.5	
24	" "	16 .. 9 9.4	9 28.8	9 45.2	0.4	
62	" February	18 .. 18 46.0	..	20 35.4	..	
						Traces overlap due to intensity of the disturbance and hence maximum phase cannot be ascertained.
70	" "	23 .. 11 30.8	11 45.9	12 9.6	0.5	
164	" April	7 .. 7 7.3	7 33.9	8 24.8	0.7	
196	" "	18 .. 18 19.3	18 29.1	19 44.7	14.8	
212	" "	29 .. 5 29.3	5 42.8	6 7.9	0.5	
216	" May	4 .. 13 42.2	13 51.8	14 25.0	0.7	
217	" "	4-5 .. 23 48.3	0 23.3	1 56.7	2.3	
220	" "	11 .. 4 25.0	4 32.9	4 58.9	0.5	
261	" June	7 .. 11 24.3	12 39.7	14 31.4	5.0	
262	" "	8 .. 0 9.1	0 24.3	0 34.9	0.5	
284	" "	15 .. 14 35.1	14 58.6	17 39.9	6.9	
287	" "	17 .. 5 39.7	5 41.2	5 57.1	0.3	
321	" July	4 .. 13 37.3	13 41.4	15 25.8	4.4	
322	" "	5 .. 2 20.1	2 24.1	2 37.2	1.2	
325	" "	5 .. 18 50.0	18 56.6	19 30.3	0.4	
342	" "	12 .. 4 16.5	4 42.9	6 53.2	6.5	
347	" "	19 .. 20 39.8	20 57.5	21 8.5	0.5	End mixed up in the beginning of the following disturbance.
387	" August	16 .. 22 52.3	23 25.6	..	2.7	

Observatory number.	Date.			Time of Disturbance in G. M. T.			Amplitude or half the complete range of maximum motion.	Remarks
				Beginning.	Maximum.	End.		
				H. M.	H. M.	H. M.	mm.	
388	1911 August	17	..	..	1 30.2	2 30.6	1.0	Beginning mixed up in the end of the preceding disturbance.
393	" "	18	..	3 29.2	3 30.2	3 38.8	0.3	
398	" "	21	..	16 55.8	17 9.3	18 4.2	0.2	
401	" "	23	..	16 55.5	16 56.5	17 14.5	0.3	
423	" September	6	..	1 13.2	1 17.3	1 38.0	0.2	
426	" "	8	..	23 23.3	23 30.4	23 44.5	0.4	
432	" "	15	..	13 39.8	14 35.3	15 27.7	1.0	
434	" "	17	..	3 44.9	4 16.4	6 39.1	3.6	
442	" "	22	..	5 53.6	5 54.8	6 21.2	0.4	
444	" "	26	..	14 16.6	14 23.7	14 39.6	0.4	
447	" October	6	..	11 28.8	11 41.2	12 16.7	0.4	
449	" "	13	..	3 10.6	3 19.1	3 36.3	0.3	
450	" "	14	..	6 48.7	6 55.7	7 4.1	0.6	
451	" "	14	..	13 3.7	13 11.4	13 24.7	1.1	
452	" "	14-15	..	23 29.1	23 31.2	0 6.8	14.8	
453	" "	15	..	12 28.5	12 36.0	12 52.2	0.6	
459	" "	17	..	12 8.1	12 38.7	13 32.5	0.9	
476	" November	13	..	16 36.1	17 0.8	17 41.9	5.7	
481	" "	30	..	23 44.3	23 45.0	23 49.7	0.4	
485	" December	11	..	11 11.6	11 18.0	12 16.6	1.4	
488	" "	13	..	9 3.3	9 9.8	9 16.3	0.5	
492	" "	16	..	19 35.9	20 43.4	21 44.5	3.3	
497	" "	20	..	6 19.2	6 46.4	7 12.9	1.4	
504	" "	29	..	16 18.2	16 23.3	16 33.7	0.3	
507	" "	31	..	6 28.4	6 53.2	7 13.1	0.4	

1912.

4	1912 January	4	..	16 10.9	16 40.7	17 13.2	0.9	Linear magnification 1 to 9.
18	" "	26	..	14 50.7	14 59.2	15 8.8	0.4	
24	" "	31	..	..	21 15.5	..	0.5	
82	" March	24	..	12 29.0	12 35.5	12 47.8	0.3	Beginning and end mixed up in tremors.
89	" April	1	..	5 19.1	5 23.1	5 30.3	0.4	
116	" "	23	..	21 52.4	21 59.6	22 10.7	0.5	
119	" "	25	..	10 34.7	10 35.9	10 42.4	0.2	Beginning and end mixed up in tremors.
141	" May	6	..	19 21.1	19 44.5	20 52.5	1.9	
147	" "	11	..	17 36.7	17 40.5	18 13.9	1.1	
149	" "	15	..	..	0 34.8	..	0.3	S at 2h 33.6m. Traces over lap due to in- tensity of the disturbance, and hence maximum phase cannot be ascertained.
157	" "	21	..	8 38.1	8 44.6	9 26.9	1.0	
161	" "	23	..	2 28.9	..	4 42.7	..	
183	" June	7	..	10 42.9	10 49.2	..	1.1	End merged into the beginning of the following disturbance. Beginning merged into the end of the preceding disturbance.
184	" "	7	..	..	11 30.5	11 55.3	0.5	
185	" "	7	..	12 59.7	13 8.1	13 30.0	0.4	
187	" "	7	..	18 56.9	19 12.5	19 51.4	1.0	

Observatory number.	Date.	Time of Disturbance in G. M. T.			Amplitude or half the complete range of maximum motion.	Remarks.
		Beginning.	Maximum.	End.		
		H. M.	H. M.	H. M.	mm.	
194	1912 June 8 ..	7 40.3	8 29.1	..	1.8	End merged into the beginning of the following disturbance.
195	" " 8 ..	..	9 45.0	..	1.3	Beginning merged into the end of the preceding disturbance.
196	" " 8 ..	..	11 26.9	12 21.0	0.5	End mixed with the beginning of the following disturbance.
197	" " 8 ..	13 45.7	13 52.6	14 29.4	1.3	Beginning mixed with the end of the preceding disturbance.
201	" " 10 ..	16 39.4	16 59.8	17 44.3	2.5	
206	" " 12 ..	7 53.8	7 58.8	8 14.9	0.5	
217	" " 17 ..	11 58.0	12 1.9	12 17.4	0.7	
220	" " 18 ..	12 16.4	12 50.2	13 49.5	1.0	
227	" " 26 ..	17 2.3	17 9.5	17 26.0	0.6	
241	" July 7 ..	8 21.3	8 56.2	11 11.0	5.8	
255	" " 24 ..	12 9.0	12 18.7	..	0.7	End mixed with the beginning of the following disturbance.
256	" " 24 ..	..	13 27.0	13 49.9	0.5	Beginning mixed with the end of the preceding disturbance.
258	" " 25-26 ..	23 19.5	23 59.2	0 40.9	0.5	
274	" August 6 ..	13 33.1	13 41.9	14 20.1	1.5	
279	" " 9 ..	1 37.3	..	5 1.8	..	Traces overlap due to intensity of the disturbance and hence maximum phase cannot be ascertained.
296	" " 17 ..	19 21.1	19 34.6	21 24.5	4.4	
302	" " 21 ..	17 48.8	18 4.8	18 19.4	0.4	
306	" " 23 ..	14 6.6	14 12.2	14 45.6	1.3	
307	" " 23 ..	21 48.4	21 48.8	22 31.6	1.1	
316	" " 31 ..	23 5.4	23 10.9	23 36.2	0.7	
325	" September 11 ..	0 58.8	1 5.5	1 47.1	2.5	
331	" " 13 ..	23 45.4	23 58.7	..	1.0	Beginning doubtful as it is mixed up in tremors. End mixed up in tremors.
342	" " 26 ..	19 42.5	19 44.4	19 51.2	0.5	
346	" " 29 ..	21 2.9	21 34.6	22 47.8	1.5	
347	" " 29-30 ..	23 21.7	23 41.0	0 2.4	0.5	
359	" October 12 ..	16 3.1	16 12.7	16 44.6	0.5	
372	" " 18 ..	12 25.8	12 41.3	13 15.0	2.3	
387	" " 31 ..	17 43.5	18 7.6	18 32.0	0.2	
399	" November 7 ..	8 5.0	8 41.6	9 25.1	2.6	
426	" " 28 ..	21 2.3	..	..	..	Very small disturbance. Phases ill defined.
447	" December 9 ..	..	0 28.9	..	1.0	Beginning and end mixed up in tremors.
448	" " 9 ..	8 54.0	10 10.9	10 58.7	0.5	
468	" " 24 ..	0 7.5	0 31.6	..	0.3	End mixed up in tremors.
470	" " 24 ..	18 26.5	18 35.7	18 51.6	0.3	
476	" " 28 ..	8 6.9	8 34.6	9 9.4	0.8	

Observatory number.	Date.			Time of disturbance in G. M. T.						Amplitude or half the complete ranges of maximum motion.	Remarks.
				Beginning.		Maximum.		End.			
				H.	M.	H.	M.	H.	M.	mm.	
19	1913 January	7	..	23	5.6	23	19.6	..	..	0.6	Linear magnification 1 to 9.
27	" "	11	..	13	26.7	13	52.2	..	..	3.5	End mixed up in tremors.
											End lost in shifting time.
											S at 13h. 34.1m; L at 13h 48.2m.
38	" "	19	..	17	9.7	17	17.1	} 18 56.6	{	15.4	S at 17h 13.7m; L at 17h 15.7m.
						17	18.4			15.4	
77	" February	20	..	9	18.4	9	38.6	} 10 10.0	{	0.7	S at 9h 29.7m; L at 9h 38.0m.
				..	..	9	42.0			0.7	
110	" March	6	..	..	..	2	16.6	..	..	2.7	Beginning and end mixed up in tremors.
111	" "	6	..	11	10.2	11	11.9	11	57.7	11.0	
123	" "	10	..	19	15.0	19	15.2	19	19.7	0.4	
132	" "	14	..	8	54.4	9	22.7	12	36.8	7.0	S at 9h 1.6m; L at 9h 8.2m.
133	" "	14	..	18	11.6	18	12.9	18	21.7	0.3	
158	" "	23	..	20	58.2	21	9.3	21	57.9	0.5	
160	" "	24	..	10	43.0	10	48.5	11	0.8	0.2	
165	" "	27	..	3	20.9	3	31.5	3	50.1	0.3	
173	" "	31	..	4	3.4	4	38.0	6	55.9	2.1	
193	" April	7	..	14	1.9	14	31.0	15	9.1	0.4	
200	" "	9	..	18	18.2	18	53.9	19	29.4	0.4	
214	" "	13	..	6	53.2	7	19.8	7	50.8	1.5	
218	" "	14	..	8	4.8	8	19.8	8	35.0	0.2	
227	" "	18	..	13	37.4	13	46.5	13	59.9	0.4	
228	" "	18	..	19	11.2	19	36.5	20	20.3	1.1	
240	" "	24	..	10	24.0	10	51.3	11	39.5	0.6	
241	" "	24	..	12	31.7	12	51.6	13	15.8	0.2	
245	" "	25	..	18	6.0	18	34.1	..	..	3.0	End mixed up in tremors.
247	" "	26	..	4	27.1	4	56.0	5	17.5	0.3	
250	" "	28	..	3	49.5	4	4.0	4	12.7	0.1	
252	" "	28	..	18	55.3	19	13.6	19	38.8	0.2	
253	" "	29	..	3	28.2	3	42.4	4	5.2	0.1	
256	" "	30	..	11	59.9	12	32.8	13	35.6	0.7	
287	" May	16	..	12	36.6	12	45.9	12	58.1	0.2	
291	" "	18	..	..	..	2	55.5	4	3.0	0.5	Beginning mixed up in tremors.
300	" "	24	..	..	..	19	8.1	..	..	0.5	Beginning and end mixed up in tremors.
301	" "	24	..	..	..	20	43.7	..	..	0.5	Do. do.
302	" "	25	..	..	..	0	51.1	..	..	0.6	Do. do.
309	" "	29	..	13	43.2	13	59.3	14	29.6	0.1	
313	" "	30	..	11	56.3	12	39.3	..	..	1.0	End mixed up in tremors.
330	" June	4	..	..	..	10	55.2	11	23.7	0.3	Beginning mixed up in tremors.
358	" "	14	..	9	43.6	10	7.9	11	18.8	0.9	Beginning doubtful.
370	" "	20	..	18	43.0	19	4.1	..	..	0.5	End mixed up in tremors.
376	" "	22	..	..	..	14	44.4	..	..	2.0	Beginning and end mixed up in tremors.
391	" "	26	..	5	17.1	5	26.8	} 8 15.7	{	2.5	
						6	9.8			3.6	
419	" July	6	..	16	33.0	16	52.1	17	16.8	0.4	
421	" "	7	..	17	58.5	18	28.3	19	11.7	0.3	
443	" "	12	..	10	42.8	11	6.0	11	22.6	0.5	Beginning doubtful.
484	" "	22	..	6	52.5	7	29.1	8	16.1	0.2	
507	" "	28	..	12	4.8	12	52.6	13	47.3	0.5	
518	" August	1	..	17	22.5	17	55.6	19	55.2	1.5	
528	" "	6-7	..	22	34.1	23	40.4	1	25.7	9.2	

Observatory number.	Date.	Time of disturbance in G. M. T.			Amplitude or half the complete ranges of maximum motion.	Remarks.
		Beginning.	Maximum.	End.		
		H. M.	H. M.	H. M.	mm.	
530	1913 August 7	3 22.7	3 39.9	4 14.7	0.4	
535	" " 13	4 33.1	4 49.7	5 22.0	1.6	
540	" " 15	19 23.7	19 45.9	20 5.5	0.3	
557	" " 30-31	23 26.3	0 4.8	0 40.8	0.5	Beginning doubtful.
568	" September 3	21 13.6	21 20.0	22 30.9	0.5	
588	" " 16	12 17.2	12 20.7	12 30.6	1.2	Beginning doubtful.
611	" October 2	5 43.0	5 59.3	6 37.5	0.4	Do.
618	" " 11	1 56.1	2 26.8	3 17.2	0.4	
619	" " 11	4 4.4	5 7.1	7 0.9	0.5	
620	" " 11	9 27.3	9 50.3	10 37.6	1.1	
626	" " 14	8 32.2	9 13.9	10 16.9	1.1	Do.
646	" " 29	4 44.1	4 51.0	5 23.2	0.7	
666	" November 10	..	22 14.7	..	0.6	Beginning and end mixed in tremors.
670	" " 14	20 57.7	21 2.3	21 4.7	0.2	
678	" " 19	3 30.3	3 57.1	4 30.6	1.1	
682	" " 23	21 59.4	22 8.3	22 23.6	1.0	
692	" December 2	20 7.6	20 9.0	20 13.5	0.2	
698	" " 10	7 4.6	7 9.1	7 38.9	0.1	
703	" " 18	7 28.8	7 31.0	7 39.4	0.3	
707	" " 21	15 49.3	15 56.8	17 35.4	2.5	

1914.

14	1914 January 12	9 49.6	10 0.2	10 28.9	0.5	Linear magnification 1 to 9.
23	" " 20	12 7.2	12 49.5	13 17.8	1.1	
34	" " 30	3 55.4	5 5.1	6 12.7	3.9	
35	" " 30	8 49.5	9 6.6	9 39.9	0.2	
47	" February 6	11 45.5	11 51.4	12 5.7	1.0	
69	" " 22	..	21 34.4	..	0.4	Beginning and end mixed in tremors.
74	" " 26	5 17.8	6 23.7	6 47.8	0.8	
85	" March 6	19 23.7	19 50.0	20 35.6	0.6	
86	" " 6	20 45.9	21 3.8	21 29.8	0.4	
99	" " 14	20 18.9	20 34.9	..	0.9	Beginning doubtful as it is mixed in tremors, end mixed in tremors.
104	" " 18	4 42.7	5 12.6	5 40.9	1.4	
105	" " 18	6 56.0	7 9.6	7 54.8	0.6	
121	" " 27	1 36.9	1 46.0	2 5.1	0.5	
122	" " 28	10 50.2	11 6.0	11 41.1	1.3	
126	" " 30	..	2 45.5	..	0.5	Beginning and end mixed in tremors.
142	" April 11	16 53.7	17 42.7	18 34.4	1.2	
156	" " 20	13 53.9	15 9.7	15 44.9	1.1	
164	" " 27	2 21.9	2 27.8	2 38.9	0.2	
169	" May 1	6 8.3	6 22.8	6 39.9	0.2	
200	" " 21	8 32.9	8 38.6	8 52.0	0.5	
208	" " 26	2 54.8	2 56.8	3 8.2	0.3	
209	" " 26	14 33.3	15 8.1	..	9.1	End lost in shifting time.
213	" " 29	4 54.4	5 6.8	6 36.9	1.8	
249	" June 20	7 38.9	8 30.9	9 8.2	0.6	
259	" " 25	19 13.2	19 29.8	20 51.0	7.6	



Observatory number.	Date.	Time of disturbance in G. M. T.			Amplitude or half the complete ranges of maximum motion.	Remarks.
		Beginning.	Maximum.	End.		
273	1914 July	4 ..	17 58.0	18 5.3	18 35.9	0.3
275	" "	5 ..	..	0 19.0	..	0.4
293	" "	14 ..	3 20.1	3 32.7	4 34.7	1.5
352	" August	4-5 ..	22 48.0	22 58.2	0 54.9	6.5
354	" "	5 ..	10 52.5	10 52.8	11 6.9	0.5
358	" "	6 ..	..	4 35.9	5 3.1	0.5
399	" "	28 ..	9 39.1	9 48.5	10 9.1	0.6
427	" September	26 ..	5 14.7	5 18.7	5 25.8	0.8
438	" October	3 ..	17 42.9	18 37.6	19 44.2	1.6
439	" "	3 ..	22 15.0	22 35.1	23 54.0	7.3
444	" "	6 ..	20 4.1	20 21.3	20 41.9	0.4
447	" "	9 ..	2 45.0	2 47.0	3 17.2	4.4
450	" "	11 ..	16 21.2	16 28.2	16 42.0	0.3
465	" "	23 ..	6 28.7	6 55.7	8 29.4	3.1
487	" November	4 ..	11 14.2	11 16.2	11 32.3	0.5
489	" "	4 ..	16 38.7	16 56.9	17 4.1	0.9
498	" "	10 ..	7 34.8	7 41.0	7 55.2	0.4
507	" "	18 ..	10 57.1	11 12.7	11 44.2	0.5
512	" "	22 ..	8 35.3	9 18.7	9 27.4	0.3
515	" "	24 ..	12 3.7	12 27.2	14 4.7	1.6
521	" "	28 ..	10 55.4	11 23.5	11 58.4	1.4

1915.

8	1915 January	5 ..	..	..	16 4.6	..	Linear magnification 1 to 9. Beginning and maximum lost in shifting time.
10	" "	5-6 ..	..	23 58.9	..	1.5	Beginning and end mixed in tremors.
..	" "	13 ..	..	..	..	..	Disturbance lost (room being whitewashed).
58	" February	8 ..	11 9.1	11 12.3	11 17.9	0.3	Beginning uncertain.
82	" "	21 ..	..	5 43.1	5 48.5	0.4	
..	" "	21 ..	..	..	..	..	Disturbance lost in shifting time.
93	" "	28 ..	19 7.9	19 30.3	20 31.1	1.5	Local shock.
101	" March	7 ..	21 21.2	..	..	..	
104	" "	8 ..	15 49.1	16 12.3	16 34.2	0.5	Beginning lost in shifting time.
115	" "	12 ..	..	15 19.2	15 48.4	1.2	
128	" "	17 ..	19 3.5	19 4.5	19 33.4	0.3	Beginning and end mixed in tremors.
147	" "	30 ..	..	9 30.9	..	0.3	
160	" April	3 ..	..	14 1.3	..	0.5	Do.
204	" "	22 ..	19 6.0	19 11.7	19 24.3	0.5	
225	" "	28 ..	3 28.4	3 36.0	3 50.6	0.5	Traces overlap due to intensity of the disturbance and hence maximum phase cannot be determined.
236	" May	1 ..	5 9.7	..	..	..	
238	" "	1 ..	..	9 27.8	..	0.4	End lost in shifting time. Beginning and end mixed in tremors.

Observatory number.	Date.	Time of disturbance in G. M. T.			Amplitude or half the complete ranges of maximum motion.	Remarks.
		Beginning.	maximum.	End.		
		H. M.	H. M.	H. M.	mm.	
239	1915 May	2 ..	4 36.4	4 41.2	5 4.4	0.4
241	" "	3 ..	3 35.7	3 54.9	5 37.9	0.8
244	" "	5 ..	11 31.7	11 51.9	12 23.8	0.2
245	" "	5 ..	15 22.3	15 28.2	15 41.3	0.4
256	" "	12 ..	10 45.7	11 22.3	12 17.7	1.3
259	" "	14 ..	7 12.8	7 22.3	7 46.2	0.3
274	" "	21 ..	..	4 44.0	5 17.8	1.7
296	" June	1 ..	..	15 29.0	15 49.7	0.4
302	" "	3 ..	..	8 18.9	..	0.3
309	" "	6-7 ..	21 49.0	22 53.9	0 5.2	3.9
337	" "	17-18 ..	23 48.8	0 2.7	0 12.7	0.5
352	" "	22 ..	4 43.6	4 48.7	5 4.1	0.4
462	" July	31 ..	1 42.6	2 20.0	4 35.7	5.9
471	" August	3 ..	13 8.3	13 47.1	14 24.4	0.5
484	" "	6 ..	13 32.6	14 0.6	14 45.6	0.6
492	" "	7 ..	..	15 24.0	16 2.1	0.4
496	" "	11 ..	..	9 40.1	9 55.4	0.1
498	" "	12 ..	7 44.6	8 7.7	8 39.3	0.5
499	" "	12 ..	9 22.3	9 30.1	9 58.0	1.5
503	" "	16 ..	..	1 50.4	2 10.6	0.4
535	" "	31 ..	20 55.7	21 11.3	21 33.7	0.2
537	" September	1 ..	..	1 15.5	..	0.7
554	" "	7 ..	1 40.8	2 50.9	4 29.7	2.6
561	" "	12 ..	..	0 17.7	0 38.8	0.2
570	" "	23 ..	8 24.4	8 27.0	8 49.7	0.2
582	" October	3 ..	7 15.4	8 4.4	9 38.4	2.3
610	" November	1 ..	7 34.5	8 5.3	..	3.0
611	" "	1 ..	..	9 43.0	10 31.9	0.7
626	" "	18 ..	4 19.9	4 45.7	5 8.0	0.6
627	" "	18 ..	..	20 50.2	21 8.2	0.5
630	" "	21 ..	1 13.7	1 32.9	2 14.2	0.5
636	" "	30 ..	20 8.1	20 9.8	20 13.4	0.3
640	" December	3 ..	..	2 52.3	..	4.5
654	" "	17 ..	7 14.7	7 20.2	7 41.3	0.7
659	" "	19 ..	20 22.2	20 31.8	20 47.7	0.5

TABLE IIa.—List of principal Disturbances registered by Colaba (E.—W.) Seismograph at Bombay (1911—1915).

Observatory number.	Date.	Time of Disturbance in G. M. T.		Amplitude or half the complete range of maximum motion.	Sensibility to tilt value of 1 mm.	Remarks.
		Beginning.	Maximum.			
		H. M.	H. M.	Mm.		Linear magnification 1 to 8.
1	1911 January 1	10 21.8	10 29.5	7.1	0".26	
2	" " 1	15 7.8	15 10.7	1.4	0".26	
3	" " 2-3	..	..	..	..	Disturbance lost owing to the smoked paper being destroyed.
4	" " 2-3	7 47.5	..	..	0".22	Maximum not well marked.
5	" " 2-3	23 31.0	Boom stopped by thread guards.	>53.0	0".22	L at 23h.35.4m.
6	" " 4	9 47.0	..	..	0".20	Maximum not well marked.
7	" " 7	2 25.6	..	..	0".20	Do. do.
8	" " 14	18 4.0	..	..	0".23	Do. do.
9	" " 16	..	..	..	..	Movements very small.
10	" February 18	18 45.4	18 51.9	9.9	0".23	L at 18h.51.2m.
11	" " 23	11 30.5	..	..	0".20	Maximum not well marked.
12	" April 7	..	..	..	..	Movements very small.
13	" " 18	18 18.8	18 27.4	8.5	0".20	L at 18h.25.8m.
14	" " 29	5 33.2	..	..	0".19	Maximum not well marked.
15	" May 4	13 42.3	..	..	0".19	Do. do.
16	" " 4-5	23 48.0	0 22.1	2.3	0".19	
17	" " 11	4 24.0	..	..	0".18	Maximum not well marked.
18	" June 7	11 23.8	12 28.7	5.6	0".17	
19	" " 8	0 9.7	0 17.9	0.4	0".17	
20	" " 15	14 34.8	14 52.9	11.0	0".22	
21	" " 17	..	..	..	..	Movements very small.
22	" July 4	13 37.3	13 43.2	3.9	0".20	
23	" " 5	2 20.4	2 23.9	0.7	0".20	
24	" " 5	18 50.2	..	..	0".19	Maximum not well marked.
25	" " 12	4 15.6	4 38.4	11.6	0".20	
26	" " 19	..	..	..	..	Movements very small.
27	" August 16	22 52.4	23 17.7	2.0	0".23	
28	" " 16	..	..	..	..	Movements very small.
29	" " 18	..	..	..	..	Do. do.
30	" " 21	16 55.4	..	..	0".27	Maximum not well marked.
31	" " 23	16 56.4	..	..	0".30	Do. do.
32	" September 6	..	..	..	..	Movements very small.
33	" " 8	23 22.1	..	..	0".32	Maximum not well marked.
34	" " 15	13 33.2	14 29.4	0.9	0".24	
35	" " 17	..	4 16.0	1.9	0".24	Commencement lost in shifting time.
36	" " 22	..	..	..	..	Movements very small.
37	" " 26	14 18.1	14 24.8	0.3	0".24	
38	" October 13	3 11.2	..	..	0".27	Maximum not well marked.
39	" " 14	..	..	..	..	Beginning lost in shifting time ; maximum uncertain.
40	" " 14	13 2.8	..	..	0".28	Maximum uncertain.
41	" " 14	23 29.6	23 31.7	6.7	0".28	
42	" " 15	12 28.0	..	..	0".27	Maximum not well marked.
43	" " 17	..	..	..	..	Movements very small.
44	" November 13	..	..	..	0".23	Beginning uncertain ; maximum not well marked ; S at 16h.54.1m.
45	" December 11	11 10.5	..	..	0".19	Maximum not well marked.
46	" " 13	..	..	..	..	Movements very small.
47	" " 16	..	..	..	..	Beginning uncertain ; maximum not well marked.

The record in the case of this instrument was taken on smoked paper from 1st January to 5th October 1911, from 1st August to 5th December 1912, and from 22nd July to 31st December 1915. It was taken with pen and ink from 6th October 1911 to 22nd April 1912 and from 11th December 1912 to 21st July 1915.

1912.

Observatory number	Date.			Time of Disturbance in G. M. T.		Amplitude or half the complete range of maximum motion.	Sensibility to tilt value of 1 mm.	Remarks.
				Beginning.	Maximum.			
				H. m.	H. m.	Mm.		
1	1912 January	4	..	..	16 40.5	0.2	0".20	Linear magnification 1 to 8. Beginning uncertain.
2	" "	26	..	..	13 40.2	0.9	0".22	Movements very small.
3	" August	6	..	1 37.5	1 58.9	30.4	0".36	Beginning uncertain.
4	" "	9	..	19 21.3	19 34.3	3.2	0".41	
5	" "	17	..	14 6.4	14 11.3	0.7	0".57	
6	" "	23	..	21 45.5	21 48.9	0.5	0".57	
7	" "	23	..	..	..	..	..	Movements very small.
8	" September	1	..	0 58.1	1 3.6	0.9	0".71	
9	" "	11	..	23 46.1	0 0.5	0.4	0".52	
10	" "	13-14	..	..	..	..	..	Disturbance lost as the papers were destroyed.
11	" "	26	..	21 1.8	22 27.2	0.7	0".57	
12	" "	29	..	..	..	..	..	Commencement doubtful; maximum not well marked.
13	" "	30	..	..	..	..	..	Do. do.
14	" October	12	..	12 17.2	12 40.3	0.7	0".71	
15	" "	18	..	17 42.8	..	..	0".71	Maximum not well marked.
16	" "	31	..	8 4.2	8 40.1	1.4	0".71	
17	" November	7	..	21 2.2	..	..	0".71	Maximum not well marked.
18	" "	28	..	..	..	..	0".71	Disturbance lost as the instrument was under adjustment.
19	" December	9	..	..	0 29.7	0.2	0".47	Commencement not well marked.
20	" "	23-24	..	..	..	..	..	Movements very small.
21	" "	24	..	..	..	..	..	Do. do.
22	" "	28	..	..	..	..	..	

1913.

1	1913 January	7	..	..	..	..	..	Linear magnification 1 to 8. Movements very small.
2	" "	11	..	13 26.2	..	..	0".47	Maximum not well marked.
3	" "	19	..	17 10.5	17 17.9	8.0	0".57	S at 17 ^h .14.5 ^m ; L at 17 ^h .16.9 ^m .
4	" February	20	..	..	..	..	..	Movements very small.
5	" March	14	..	8 53.2	9 7.4	5.4	0".36	S at 9 ^h .1.0 ^m .
6	" "	23	..	..	..	..	..	Movements very small.
7	" "	27	..	..	..	..	..	Do. do.
8	" "	31	..	4 4.5	4 34.4	0.5	0".38	
9	" April	13	..	..	..	..	..	Beginning uncertain; maximum not well marked.
10	" "	14	..	..	..	..	..	Movements very small.
11	" "	18	..	..	..	..	..	Do. do.
12	" "	18	..	..	..	..	..	Beginning uncertain; maximum not well marked.
13	" "	24	..	..	..	..	..	Do. do.
14	" "	24	..	..	..	..	..	Do. do.
15	" "	25	..	18 6.0	18 32.8	0.8	0".57	
16	" "	26	..	..	..	..	..	Movements very small.
17	" "	30	..	..	12 31.9	0.2	0".44	Beginning uncertain.
18	" May	16	..	..	..	..	..	Movements very small.
19	" "	18	..	..	2 46.3	0.2	0".47	Beginning uncertain.
20	" "	25	..	..	..	..	..	Movements very small.

The instrument was dismantled from 22nd April to 1st August 1912 as the old room in which the instrument was located was demolished and a new one was being constructed in its place during the period.

Observatory number.	Date.		Time of Disturbance in G. M. T.		Amplitude or half the complete range of maximum motion.	Sensibility to tilt value of 1 mm.	Remarks.
			Beginning.	Maximum.			
			H. m.	H. m.	Mm.		
21	1913 May	30	.. 12 9.9	12 31.2	0.4	0".36	
22	" June	14	.. 9 48.6	..	..	0".36	Maximum uncertain.
23	" "	22	.. ..	14 43.4	0.3	0".44	Beginning uncertain.
24	" "	26	.. 5 16.8	6 4.1	1.5	0".47	
25	" July	12	.. ..	..	..	..	Movements very small.
26	" August	1	.. ..	17 55.2	0.7	0".23	Beginning not well marked.
27	" "	6	.. 22 34.3	23 39.5	2.7	0".25	
28	" "	13	.. 4 33.4	4 47.9	0.4	0".21	
29	" September	3	.. 21 14.0	..	..	0".18	Maximum not well marked.
30	" "	16	.. 12 17.3	..	..	0".18	Do. do.
31	" October	2	.. ..	..	..	..	Movements very small.
32	" "	11	.. ..	..	..	..	Do. do.
33	" "	11	.. ..	9 49.5	0.2	0".24	Beginning uncertain.
34	" "	14	.. 8 32.3	8 58.8	0.5	0".23	
35	" "	29	.. 4 45.8	4 52.4	0.2	0".19	
36	" November	10	.. ..	..	..	..	Movements very small.
37	" "	14	.. ..	..	..	..	Do. do.
38	" "	19	.. ..	..	..	..	Lost owing to stoppage of clock.
39	" "	23	.. ..	..	..	..	Movements very small.
40	" December	21	.. 15 48.4	15 56.9	0.5	0".19	

1914.

1	1914 January	12	.. ..	..	..	..	Linear magnification 1 to 8.
2	" "	20	.. ..	..	..	..	Movements very small.
3	" "	30	.. 3 55.8	4 55.7	0.7	0".20	Do. do.
4	" "	30	.. ..	..	..	..	Movements very small.
5	" February	6	.. ..	11 50.2	0.4	0".20	Beginning uncertain.
6	" "	22	.. ..	..	..	..	Movements very small.
7	" "	26	.. ..	6 21.8	0.3	0".20	Beginning uncertain.
8	" March	6	.. ..	..	..	..	Movements very small.
9	" "	14	.. ..	..	..	..	Do. do.
10	" "	18	.. ..	..	..	..	Beginning uncertain; maximum not well marked.
11	" "	"	.. ..	..	..	..	Movements very small.
12	" "	27	.. ..	..	..	..	Do. do.
13	" "	28	.. 10 49.9	11 0.3	0.4	0".20	
14	" "	30	.. ..	..	..	..	Movements very small.
15	" April	11	.. 16 56.9	17 18.0	0.2	0".22	
16	" "	20	.. ..	..	..	..	Beginning uncertain; maximum not well marked.
17	" "	30	.. ..	..	..	..	Movements very small.
18	" May	1	.. ..	..	..	..	Do. do.
19	" "	21	.. 8 33.3	8 38.5	0.3	0".20	
20	" "	26	.. 14 33.1	15 2.5	30.9	0".20	S at 14 ^h .42.3m.
21	" "	29	.. 4 58.7	5 1.8	1.3	0".20	
22	" June	20	.. ..	..	..	..	Movements very small.
23	" "	25	.. 19 14.6	19 30.3	6.9	0".25	
24	" July	14	.. ..	3 31.1	0.3	0".27	Commencement uncertain.
25	" August	4	.. ..	22 57.9	3.9	0".36	Beginning cannot be determined owing to faint record.
26	" "	5	.. 10 52.0	10 52.2	0.1	0".32	
27	" "	6	.. 4 26.2	..	..	0".32	Maximum not well marked.

Observatory number.	Date.	Time of Disturbance in G. M. T.		Amplitude or half the complete range of maximum motion.	Sensibility to tilt value of 1 mm.	Remarks.
		Beginning.	Maximum.			
		H. m.	H. m.	Mm.		
28	1914 September 26	.. ..	.. ..	..	..	Movements very small.
29	" October 3	.. ..	18 37.5	0.1	0".30	Beginning uncertain.
30	" " 3	.. 22 18.9	22 33.8	4.1	0".30	S at. 22h.21.2m; L at 22h.30.2m.
31	" " 9	.. 2 45.1	2 47.3	..	0".32	Maximum doubtful; amplitude cannot be determined owing to loss of record.
32	" " 11	.. 16 21.7	16 25.6	0.2	0".28	
33	" " 23	.. ..	6 48.3	0.9	0".27	Beginning lost in shifting time, maximum doubtful.
34	" November 4	.. 11 13.8	11 16.3	0.1	0".27	
35	" " 24	.. 12 3.5	..	..	0".25	Maximum not well marked.
36	" " 28	.. ..	..	..	..	S at 12h.12.0m. Movements very small.

1915.

1	1915 January 5	.. ..	..	..	..	Linear magnification 1 to 8.
2	" " 5	.. 23 34.8	..	..	0".26	Movements very small.
3	" " 13	.. ..	..	..	..	Maximum not well marked.
4	" February 21	.. 15 1.4	..	..	0".25	Movements very small.
5	" " 28	.. ..	..	..	..	Maximum not well marked.
6	" March 3	.. 1 49.9	..	..	0".28	Movements very small.
7	" " 7	.. 21 21.2	..	..	0".28	Maximum not well marked.
8	" " 12	.. ..	..	..	..	Local shock.
9	" " 17	.. 19 3.5	..	..	0".28	Movements very small.
10	" April 3	.. ..	..	..	..	Maximum not well marked.
11	" " 22	.. ..	..	..	..	Movements very small.
12	" " 28	.. ..	..	..	..	Do. do.
13	" " 30	.. 2 3.4	..	..	0".27	Beginning and maximum not well marked.
14	" May 1	.. 5 11.4	5 44.8	59.0	0".26	Maximum not well marked.
15	" " 1	.. ..	..	..	..	S at 5h.20.7m; L at 5h.38.7m.
16	" " 2	.. ..	..	..	..	Movements very small.
17	" " 3	.. ..	..	..	..	Do. do.
18	" " 5	.. ..	..	..	..	Do. do.
19	" " 12	.. ..	..	..	..	Do. do.
20	" " 21	.. ..	..	..	..	Do. do.
21	" June 6	.. 21 52.4	22 55.7	0.3	0".27	
22	" August 3	.. ..	..	..	..	Beginning uncertain; maximum not well marked.
23	" " 6	.. ..	..	..	..	Movements very small.
24	" " 7	.. ..	15 24.3	0.1	0".11	Beginning uncertain.
25	" " 11	.. ..	..	..	..	Movements very small.
26	" " 12	.. ..	8 5.8	0.4	0".11	Beginning uncertain.
27	" " 12	.. 9 21.8	9 28.7	0.6	0".11	
28	" " 16	.. ..	1 49.0	0.2	0".10	Beginning uncertain.
29	" " 31	.. ..	..	..	..	Movements very small
30	" September 1	.. ..	1 15.5	0.1	0".10	Beginning uncertain.
31	" " 1	.. ..	..	..	..	Movements very small.
32	" " 7	.. 1 40.6	2 37.6	4.7	0".10	
33	" " 12	.. ..	..	..	..	Movements very small.
34	" " 23	.. ..	..	..	..	Do. do.
35	" October 3	.. 7 12.7	7 56.2	3.9	0".10	
36	" November 1	.. 7 33.8	8 2.8	1.3	0".09	

Observatory number.	Date.	Time of disturbance in G. M. T.		Amplitude or half the complete range of maximum motion.	Sensibility to tilt value of 1 mm.	Remarks.
		Beginning	Maximum.			
		H. m.	H. m.	Mm.		
37	1915 November 1 ..	..	9 37.7	0.3	0" .09	Beginning mixed with the end of the previous disturbance.
38	" " 18 ..	..	..	..	..	Beginning uncertain ; maximum not well marked.
39	" " 18 ..	..	..	..	..	Movements very small.
40	" " 21 ..	..	1 26.6	0.2	0" .09	Beginning uncertain.
41	" " 30 ..	20 8.3	..	..	0" .09	Maximum not well marked.
42	" December 3 ..	2 44.3	2 52.1	3.5	0" .08	
43	" " 17 ..	7 14.4	7 19.6	0.4	0" .08	
44	" " 17 ..	..	..	..	..	Movements very small.
45	" " 19 ..	..	..	..	..	Do. do.
46	" " 31 ..	..	..	..	..	Do. do.

TABLE IIb.—List of principal Disturbances registered by Colaba (N.—S.) Seismograph at Bomay (1911—1915).

Observatory number.	Date.		Time of Disturbance in G. M. T.		Amplitude or half the complete range of maximum motion.	Sensibility to tilt value of 1 mm.	Remarks.
			Beginning.	Maximum.			
			H. m.	H. m.	Mm.		
1	1911 January	1	.. 10 22.7	10 29.9	3.4	0".09	Linear magnification 1 to 7.5.
2	" "	1	.. 15 9.2	15 11.2	0.4	0".09	
3	" "	2-3	.. ..	..	..	..	Disturbance lost owing to the smoked paper being destroyed.
4	" "	2-3	.. 23 31.1	Boom stopped by thread guards.	>57.0	0".09	L at 23 ^h 35.5 ^m ;
5	" "	4	.. 9 46.2	..	..	0".09	Maximum not well marked.
6	" "	7	.. ..	..	..	..	Movements very small.
7	" "	16	.. ..	..	..	..	Do. do.
8	" February	18	.. 18 45.1	18 52.6	7.0	0".09	L at 18 ^h 51.4 ^m ;
9	" "	23	.. 11 30.7	..	..	0".09	Maximum not well marked.
10	" April	7	.. ..	..	..	..	Movements very small.
11	" "	18	.. 18 18.1	18 25.0	12.2	0".09	L at 18 ^h 23.7 ^m .
12	" "	29	.. ..	..	..	..	Movements very small.
13	" May	4	.. 13 42.1	..	..	0".09	Maximum not well marked.
14	" "	4-5	.. 23 48.6	0 19.0	2.1	0".09	
15	" "	11	.. 4 26.1	..	..	0".09	Maximum not well marked.
16	" June	7	.. 11 22.3	12 27.2	5.1	0".09	
17	" "	8	.. 0 9.7	0 20.4	0.9	0".09	
18	" "	15	.. 14 34.9	14 54.7	39.7	0".09	
19	" "	17	.. ..	..	..	..	Movements very small.
20	" July	4	.. 13 36.6	13 43.3	6.5	0".09	
21	" "	5	.. 2 20.9	..	..	0".09	Maximum not well marked.
22	" "	5	.. 18 55.7	..	..	0".09	Do. do.
23	" "	12	.. 4 17.0	4 36.7	11.1	0".09	
24	" "	19	.. ..	..	..	..	Movements very small.
25	" August	16	.. 22 52.4	23 14.0	2.8	0".09	
26	" "	17	.. ..	..	..	..	Movements very small.
27	" "	21	.. 16 55.7	..	..	0".09	Maximum not well marked.
28	" "	23	.. ..	..	..	..	Movements very small.
29	" September	6	.. ..	..	..	..	Do. do.
30	" "	8	.. 23 20.9	..	..	0".09	Maximum not well marked.
31	" "	15	.. ..	..	..	..	Commencement not well marked.
32	" "	17	.. ..	..	..	..	Maximum uncertain.
33	" "	22	.. ..	..	..	..	Disturbance lost in shifting time.
34	" "	26	.. ..	..	..	..	Beginning and maximum uncertain.
35	" October	13	.. 3 11.1	3 19.1	0.2	0".11	Do. do.
36	" "	14	.. ..	..	..	..	Disturbance lost in shifting time.
37	" "	14	.. 13 2.8	..	..	0".10	Maximum uncertain.
38	" "	14	.. 23 29.5	23 31.5	2.0	0".10	
39	" November	13	.. ..	..	..	..	Movements very small.
40	" December	11	.. ..	..	..	..	Do. do.
41	" "	16	.. ..	20 44.2	0.5	0"0.8	Beginning uncertain.

The record in the case of this instrument was taken on smoked paper from 1st January to 5th October 1911, from 3rd August 1912 to 12th January 1913, and from 31st July to 31st December 1915. It was taken with pen and ink from 6th October 1911 to 22nd April 1912 and from 14th January 1913 to 30th July 1915.

1912.

Observatory number.	Date.			Time of disturbance in G. M. T.		Amplitude or half the complete range of maximum motion.	Sensibility to tilt value of 1 mm.	Remarks.
				Beginning.	Maximum.			
				H. m.	H. m.	Mm.		
1	1912 January	4	..	..	..	..	..	Linear magnification 1 to 7.5. Movements very small.
2	" "	26	..	..	..	..	..	Do. do.
3	" August	6	..	..	..	..	..	Beginning uncertain ; maximum not well marked.
4	" "	9	..	1 37.8	1 58.1	24.5	0" .22	
5	" "	17	..	..	19 37.6	2.8	0" .17	Beginning not well marked.
6	" "	23	..	..	..	..	..	Traces intermingled owing to shift of zero.
7	" "	23	..	21 45.5	21 49.0	0.3	0" .24	
8	" "	31	..	..	..	..	..	Movements very small.
9	" September	11	..	0 58.0	1 1.5	0.5	0" .21	
10	" "	13	..	23 46.1	23 58.2	0.2	0" .21	
11	" "	26	..	..	..	..	..	Disturbance lost as the papers were destroyed.
12	" "	29	..	..	21 22.5	0.4	0" .34	Beginning doubtful.
13	" October	12	..	..	..	..	..	Movements very small.
14	" "	18	..	..	12 39.6	0.3	0" .31	Beginning uncertain.
15	" "	31	..	..	..	..	..	Movements very small.
16	" November	7	..	8 4.0	8 40.4	1.2	0" .39	
17	" "	28	..	21 2.0	..	..	0" .31	Maximum not well marked.
18	" December	9	..	..	0 29.4	0.1	0" .34	Beginning not well marked.
19	" "	9	..	..	..	..	..	Disturbance lost as the papers were destroyed.
20	" "	24	..	..	..	..	..	Beginning uncertain ; maximum not well marked.
21	" "	24	..	..	18 33.9	0.1	0" .31	Beginning uncertain.
22	" "	28	..	..	..	..	..	Movements very small.

1913.

1	1913 January	8	..	..	..	..	..	Linear magnification 1 to 7.5. Movements very small.
2	" "	11	..	..	..	..	..	Traces intermingled owing to shift of zero.
3	" "	19	..	17 10.7	17 17.8	1.1	0" .31	S at 17 ^h .14.4 ^m ; L at 17 ^h .16.7 ^m .
4	" February	20	..	..	..	..	..	Movements very small.
5	" March	6	..	2 11.8	2 16.8	0.3	..	
6	" "	6	..	11 9.6	..	..	..	Maximum not well marked.
7	" "	10	..	..	..	..	..	Movements very small.
8	" April	13	..	..	..	..	..	Beginning uncertain ; maximum not well marked.
9	" "	18	..	..	..	..	..	Movements very small.
10	" "	24	..	..	..	..	..	Do. do.
11	" "	25	..	18 6.0	18 29.8	0.4	0" .62	
12	" "	30	..	..	12 29.6	0.2	0" .52	Beginning uncertain.
13	" May	16	..	..	..	..	..	Movements very small.
14	" "	18	..	..	..	..	..	Do. do.
15	" "	29	..	..	..	..	..	Do. do.
16	" "	30	..	12 9.6	12 29.9	0.6	0" .31	
17	" June	14	..	9 48.5	10 2.9	0.2	0" .34	
18	" "	22	..	..	14 42.4	0.2	0" .31	Beginning uncertain.
19	" "	26	..	..	6 0.2	1.1	0" .52	Do. do.

The instrument was dismantled from 22nd April to 1st August 1912 as the old room in which the instrument was located was demolished and a new one was being constructed in its place during the period.

Observatory number.	Date.			Time of disturbance in G. M. T.		Amplitude or half the complete range of maximum motion.	Sensibility to tilt value of 1 mm.	Remarks.
				Beginning.	Maximum.			
				H. m.	H. m.	Mm.		
20	1913 August	1	..	17 22.3	17 54.9	0.5	0".17	
21	" "	13	..	..	4 48.9	0.6	0".18	Beginning uncertain.
22	" September	3	..	21 14.2	..	..	0".15	Maximum not well marked.
23	" "	16	..	..	..	..	..	Movements very small.
24	" October	2	..	..	..	..	..	Do. do.
25	" "	11	..	..	..	..	..	Do. do.
26	" "	11	..	..	9 50.1	0.2	0".34	Beginning uncertain.
27	" "	14	..	8 32.8	8 58.9	0.2	0".17	
28	" "	29	..	4 45.5	..	..	0".18	Maximum not well marked.
29	" November	14	..	..	..	..	..	Movements very small.
30	" "	19	..	3 31.5	..	..	0".16	Maximum not well marked.
31	" "	23	..	..	..	..	..	Movements very small.
32	" December	2	..	..	..	..	..	Do. do.
33	" "	21	..	15 49.0	15 54.7	1.6	0".16	

1914.

1	1914 January	12	..	..	..	..	..	Linear magnification 1 to 7.5. Movements very small.
2	" "	20	..	..	..	..	..	Traces intermingled owing to shift of zero.
3	" "	30	..	3 54.6	4 59.6	0.8	0".21	
4	" "	30	..	..	..	..	..	Movements very small.
5	" February	6	..	..	..	..	..	Do. do.
6	" "	26	..	..	..	..	..	Do. do.
7	" March	6	..	..	..	..	..	Do. do.
8	" "	14	..	20 10.5	20 37.2	0.2	0".17	
9	" "	18	..	..	..	..	..	Beginning uncertain ; maximum not well marked.
10	" "	18	..	..	7 5.0	0.1	0".24	Beginning uncertain.
11	" "	27	..	..	..	..	..	Movements very small.
12	" "	28	..	10 53.9	10 58.3	1.0	0".31	
13	" "	30	..	..	..	..	..	Beginning uncertain ; maximum not well marked.
14	" April	11	..	..	17 33.3	0.2	0".24	Beginning uncertain.
15	" "	20	..	..	..	..	..	Beginning uncertain ; maximum not well marked.
16	" "	30	..	..	..	..	..	Movements very small.
17	" May	1	..	..	..	..	..	Do. do.
18	" "	21	..	8 33.3	..	..	0".22	Maximum not well marked.
19	" "	26	..	..	14 59.0	16.3	0".24	S at 14h.42.5m ; Beginning uncertain
20	" "	29	..	4 58.6	5 1.5	1.1	0".24	
21	" June	20	..	..	7 29.0	0.2	0".26	Beginning uncertain.
22	" "	25	..	19 14.6	19 28.7	9.0	0".18	
23	" July	14	..	..	..	..	..	Beginning uncertain ; maximum not well marked.
24	" August	4	..	22 52.4	23 0.0	3.5	0".24	
25	" "	5	..	..	..	..	..	Movements very small.
26	" "	6	..	4 26.3	..	..	0".31	Maximum not well marked.
27	" September	26	..	..	..	..	..	Movements very small.
28	" October	3	..	..	18 36.7	0.1	0".26	Beginning uncertain.
29	" "	3	..	..	22 39.5	1.6	0".26	Beginning uncertain ; S at 22h.21.2
30	" "	9	..	2 45.4	2 47.1	5.8	0".26	
31	" "	9	..	..	..	..	..	Movements very small.

Observatory number.	Date.			Time of Disturbance in G. M. T.		Amplitude or half the complete range of maximum motion.	Sensibility to tilt value of 1 mm.	Remarks.
				Beginning.	Maximum.			
				H. m.	H. m.	Mm.		
32	1914 October	11	..	16 21.5	16 25.9	0.2	0".22	Disturbance lost in shifting time.
33	" "	23	..	..	..	..	..	
34	" November	4	..	11 14.3	11 16.0	0.1	0".18	S at 12 ^h 12.2 ^m ; maximum not well marked.
35	" "	24	..	12 3.9	..	..	0".26	
36	" "	28	..	..	..	..	..	Movements very small.
37	" December	15	..	..	..	..	..	Do. do.

1915.

1	1915 January	5	..	..	..	..	..	Linear magnification 1 to 7.5. Movements very small.
2	" "	5	..	23 35.0	23 46.6	0.5	0".34	L at 23 ^h 41.5 ^m .
3	" "	13	..	..	..	..	..	Movements very small.
4	" February	8	..	..	..	..	..	Do. do.
5	" "	21	..	15 1.2	..	..	0".19	Maximum not well marked.
6	" "	28	..	19 14.3	19 27.6	0.3	0".21	Movements very small.
7	" March	3	..	..	..	..	..	
8	" "	7	..	21 21.2	..	..	0".26	Local shock.
9	" April	22	..	..	..	..	..	Movements very small.
10	" "	28	..	..	..	..	..	Beginning and maximum not well marked.
11	" "	30	..	2 1.6	..	..	0".24	Maximum not well marked.
12	" May	1	..	5 11.5	Curve passed out of range of paper		0".22	S at 5 ^h 20.8 ^m ; L at 5 ^h 38.5 ^m ; Maximum lost.
13	" "	1	..	..	..	..	..	Movements very small.
14	" "	2	..	..	..	..	..	Do. do.
15	" "	3	..	..	..	..	..	Do. do.
16	" "	5	..	..	..	..	..	Do. do.
17	" "	12	..	..	..	..	..	Do. do.
18	" "	21	..	..	..	..	..	Do. do.
19	" June	6	..	21 52.4	22 55.1	0.4	0".17	Maximum not well marked.
20	" "	22	..	4 44.8	..	..	0".21	
21	" July	31	..	..	2 15.3	1.5	0".26	S at 1 ^h 52.7 ^m . Beginning uncertain.
22	" August	3	..	..	..	..	..	Beginning uncertain; maximum not well marked.
23	" "	6	..	..	..	..	..	Do. do.
24	" "	7	..	..	..	..	..	Do. do.
25	" "	11	..	..	..	..	..	Movements very small.
26	" "	12	..	..	..	..	..	Beginning uncertain; maximum not well marked.
27	" "	12	..	..	9 27.9	1.7	0".16	Beginning uncertain.
28	" "	16	..	..	1 50.2	0.2	0".15	Do. do.
29	" "	31	..	..	..	..	..	Movements very small.
30	" September	1	..	..	1 14.8	0.1	0".15	Beginning uncertain.
31	" "	1	..	..	..	..	..	Movements very small.
32	" "	7	..	1 40.5	2 41.9	11.8	0".15	Movements very small.
33	" "	12	..	..	..	..	..	
34	" "	23	..	..	..	..	..	Do. do.
35	" October	3	..	7 13.4	8 3.3	1.7	0".17	Movements very small.
36	" November	1	..	7 34.3	8 2.5	1.7	0".16	

Observatory number.	Date.	Time of disturbance in G. M. T.		Amplitude or half the complete range of maximum motion.	Sensibility to tilt value of 1 mm.	Remarks.
		Beginning.	Maximum.			
37	1915 November 1	H. m. ..	H. m. ..	Mm. ..	..	Beginning mixed in the end of the previous disturbance; maximum not well marked.
38	" " 18	4 21.4	4 42.7	0.5	0".31	Movements very small.
39	" " 18	..	..	..	..	
40	" " 21	..	1 33.5	0.4	0".16	
41	" " 30	..	..	..	..	Movements very small.
42	" December 3	2 44.2	2 50.6	6.6	0".15	Beginning doubtful.
43	" " 17	7 10.2	7 19.8	0.7	0".16	
44	" " 17	..	..	..	..	
45	" " 19	..	20 30.0	0.2	0".15	Beginning not well marked.
46	" " 30	..	..	..	..	Movements very small.
47	" " 31	..	..	..	..	Do. do.

1911.

Observatory number.	Date.			Time of Disturbances in G. M. T.		Amplitude or half the complete range of maximum motion.	Remarks.
				Beginning.	Maximum.		
				H. m.	H. m.	Mm.	Magnification 1 to 20.
1	1911 January	1	..	10 22.2	10 31.0	37.3	
2	" "	1	..	15 3.9	15 10.9	2.1	
3	" "	2-3	..	..	..	..	Disturbance lost owing to the smoked papers being destroyed.
4	" "	3	..	23 30.8	Boom stopped by thread guards.	>70.0	L at 23 ^h .35.0 ^m .
5	" "	4	..	9 46.4	9 50.2	1.9	
6	" "	7	..	2 25.3	..	..	Maximum not well marked.
7	" "	14	..	18 4.3	..	..	Do. do.
8	" "	16	..	9 9.0	..	..	Do. do.
9	" February	18	..	18 45.2	18 52.9	42.4	L at 18 ^h .50.8 ^m .
10	" "	23	..	11 30.5	..	..	Maximum not well marked.
11	" April	18	..	18 18.4	18 27.3	>56.5	L at 18 ^h .24.8 ^m .
12	" "	29	..	5 33.4?	..	..	Maximum not well marked.
13	" May	4	..	13 42.7	..	..	Do. do.
14	" "	4	..	23 48.4	..	..	Do. do.
15	" June	7	..	11 22.4	12 35.1	20.0	
16	" "	8	..	..	..	..	Movements very small.
17	" "	15	..	14 34.9	14 43.5	25.5	
18	" "	17	..	..	..	..	Do. do.
19	" July	4	..	13 37.3	13 41.6	15.7	
20	" "	5	..	2 19.7	..	..	Maximum uncertain.
21	" "	12	..	4 17.1	4 43.4	21.2	
22	" "	19	..	..	..	..	Movements very small.
23	" August	16	..	22 51.8	23 0.8	3.9	
24	" "	17	..	..	..	..	Movements very small.
25	" "	21	..	16 49.4	..	..	Maximum not well marked.
26	" "	23	..	16 56.4	..	..	Do. do.
27	" September	6	..	..	..	..	Movements very small.
28	" "	8	..	23 23.7	23 30.7	0.2	
29	" "	15	..	13 29.6	14 31.9	0.4	
30	" "	17	..	3 40.1	4 17.9	6.0	
31	" "	26	..	14 18.3	..	..	Maximum not well marked.
32	" October	13	..	3 10.9	3 19.9	3.0	
33	" "	14	..	6 47.9	6 56.2	0.2	
34	" "	14	..	13 2.2	13 12.8	3.6	
35	" "	14	..	23 27.2	23 31.5	49.2	S at 23 ^h .29.7 ^m ; L at 23 ^h .31.4 ^m .
36	" "	15	..	12 27.7	12 36.1	0.2	
37	" "	17	..	..	..	..	Movements very small.
38	" November	13	..	16 35.8	17 0.9	14.9	S at 16 ^h .55.1 ^m ; L at 16 ^h .59.2 ^m .
39	" "	30	..	23 43.2	..	..	Maximum not well marked.
40	" December	11	..	11 5.3	11 16.6	1.6	Sat 11 ^h .9.7 ^m ; L at 11 ^h .12.9 ^m .
					11 31.1	1.5	
41	" "	13	..	9 4.0	..	..	Maximum not well marked.
42	" "	16	..	19 34.1	20 43.4	3.3	
43	" "	20	..	6 13.4	6 45.3	0.6	
44	" "	29	..	16 19.0	..	..	Maximum not well marked.
45	" "	31	..	6 27.5	..	..	Do. do.

Observatory number.	Date.			Time of disturbance in G. M. T.		Amplitude or half the complete range of maximum motion.	Remarks.
				Beginning.	Maximum.		
1	1912 January	4	..	H. m. ..	H. m. 16 40.6	Mm. 1.0	Magnification 1 to 20. Beginning uncertain.
2	"	26	..	14 50.5	14 58.5	0.5	
3	"	31	..	..	..	..	Movements very small.
4	" March	24	..	..	..	..	Movements very small.
5	" April	23	..	21 50.6	..	..	Maximum not well marked.
6	"	25	..	10 31.8	..	..	Beginning doubtful; maximum not well marked
7	" May	6	..	19 21.3	..	..	Maximum not well marked.
8	"	11	..	17 32.6	17 42.1	4.8	S at 17 ^h .36.6 ^m ; L at 17 ^h .40.3 ^m .
9	"	21	..	..	..	..	Exact times cannot be determined as time marks have failed.
10	"	22	..	23 12.2	..	..	Maximum not well marked.
11	"	23	..	2 28.9	..	..	Maximum lost as the pen was lifted.
12	" June	7	..	10 46.3	..	..	Maximum not well marked.
13	"	7	..	..	..	..	Movements very small.
14	"	7	..	..	..	..	Do. do.
15	"	7	..	..	..	..	Do. do.
16	"	8	..	7 40.4	8 29.2	6.7	
17	"	8	..	..	..	..	Beginning uncertain; maximum not well marked
18	"	8	..	..	..	..	Movements very small.
19	"	8	..	13 48.8	13 52.8	0.4	
20	"	10	..	..	17 3.2	1.2	Beginning uncertain.
21	"	17	..	11 58.1	..	..	Maximum not well marked.
22	"	18	..	12 16.8	..	..	Do. do.
23	"	26	..	17 2.6	..	..	Do. do.
24	" July	7	..	8 21.6	8 53.7	14.8	
25	"	24	..	12 9.5	12 14.3	0.7	
26	"	24	..	..	..	..	Movements very small.
27	"	25	..	23 19.5	..	..	Maximum not well marked.
28	" August	6	..	13 32.5	13 40.4	0.2	
29	"	9	..	1 37.4	..	..	Maximum uncertain owing to shift of zero.
30	"	17	..	19 21.3	19 33.8	4.2	
31	"	23	..	14 6.1	14 11.5	3.5	
32	"	23	..	21 45.6	21 49.0	3.5	
33	" September	11	..	..	..	..	Beginning uncertain; maximum not well marked
34	"	13	..	..	..	..	Movements very small.
35	"	26	..	..	..	..	Disturbance lost as the papers were destroyed.
36	"	29	..	21 2.2	..	..	Maximum not well marked.
37	" October	18	..	12 17.2	..	..	Do. do.
38	" November	7	..	8 4.8	..	..	Do. do.
39	"	28	..	21 2.1	..	..	Do. do.
40	" December	9	..	..	..	..	Disturbance lost as the papers were destroyed.
41	"	24	..	..	..	..	Beginning uncertain; maximum not well marked

1913.

1	1913 January	7	..	..	..	..	Magnification 1 to 20. Movements very small.
2	"	11	..	13 26.2	..	..	Maximum not well marked.
3	"	19	..	17 10.4	17 17.4	11.2	S at 17 ^h .14.1 ^m ; L at 17 ^h .16.6 ^m .
4	" February	20	..	..	17 18.7	12.2	
5	" March	6	..	2 12.7	2 17.0	3.8	Movements very small.
6	"	"	..	11 7.4	11 11.6	32.5	
7	"	10	..	19 16.0	19 16.7	0.4	

Observatory number.	Date.		Time of Disturbances in G. M. T.		Amplitude or half the complete range of maximum motion.	Remarks.
			Beginning.	Maximum.		
			H. m.	H. m.	Mm.	
8	1913 March	14	..	..	..	Record faulty.
9	" "	24	..	..	..	Movements very small.
10	" "	31	..	4 4.4	4 36.6	0.3
11	" April	13	..	..	..	Movements very small.
12	" "	25	..	..	..	Beginning uncertain ; maximum not well marked.
13	" May	16	..	..	..	Movements very small.
14	" "	18	..	..	..	Do. do.
15	" "	30	..	12 9.7	..	Maximum not well marked.
16	" June	14	..	9 48.3	..	Maximum uncertain.
17	" "	22	..	..	..	Movements very small.
18	" "	26	..	5 17.3	6 3.8	1.0
19	" July	7	..	17 59.2	..	Maximum not well marked.
20	" "	12	..	..	..	Movements very small.
21	" "	22	..	..	..	Do. do.
22	" August	1	..	..	17 55.3	0.4
23	" "	6	..	22 34.3	23 39.7	1.5
24	" "	13	..	4 33.3	4 47.8	0.4
25	" September	3	..	21 14.1	..	Maximum not well marked.
26	" "	16	..	..	..	Movements very small.
27	" October	11	..	..	..	Do. do.
28	" "	14	..	8 32.4	8 58.6	0.5
29	" "	29	..	4 45.0	..	Maximum not well marked.
30	" November	19	..	3 31.2	..	Do. do.
31	" "	23	..	..	..	Movements very small.
32	" December	2	..	..	..	Do. do.
33	" "	21	..	15 48.5	15 57.4	0.8

1914.

1	1914 January	20	..	..	12 46.9	0.3	Magnification 1 to 20.
2	" "	30	..	3 55.6	5 0.6	1.1	Beginning uncertain.
3	" "	30	..	..	..	..	Movements very small.
4	" February	6	..	11 44.9	11 50.4	0.6	
5	" "	26	..	..	..	..	Beginning uncertain ; maximum not well marked.
6	" March	6	..	..	..	..	Movements very small.
7	" "	14	..	20 10.4	20 40.6	0.2	
8	" "	18	..	..	5 8.6	0.5	Beginning uncertain.
9	" "	18	..	..	..	..	Movements very small.
10	" "	28	..	10 49.7	11 0.5	1.0	Do. do.
11	" "	30	..	..	..	..	Beginning uncertain ; maximum not well marked.
12	" April	11	..	16 50.9	17 21.7	0.3	
13	" "	20	..	..	..	..	Movements very small.
14	" "	30	..	..	..	..	Do. do.
15	" May	1	..	..	..	..	Do. do.
16	" "	21	..	8 32.8	8 38.5	0.4	
17	" "	26	..	14 33.6	15 5.4	21.7	S at 14 ^h .42.6 ^m .
18	" "	29	..	4 58.8	5 1.5	1.1	Beginning and maximum doubtful.
19	" June	20	..	7 38.0	..	..	Maximum not well marked.
20	" "	25	..	19 14.6	19 31.1	39.5	
21	" July	14	..	..	..	..	Lost in shifting time.
22	" August	4	..	22 47.9	22 57.9	15.6	
23	" "	5	..	10 46.9	10 52.5	0.1	
24	" "	6	..	4 25.8	4 30.5	0.3	

Observatory number.	Date.	Time of Disturbances in G. M. T.		Amplitude or half the complete range of maximum motion.	Remarks.
		Beginning.	Maximum.		
		H. m.	H. m.	Mm.	
25	1914 August 28	..	..	..	Movements very small.
26	„ September 26	..	5 13.1	..	Maximum not well marked.
27	„ October 3	..	..	18 37.6	Beginning uncertain.
28	„ „ 3	..	22 15.0	22 33.9	S at 22 ^h 21.4 ^m .
		2 45.1			
29	„ „ 9	..	2 42.9	2 47.2	8.8
30	„ „ 9	..	..	..	Lost in shifting time.
31	„ „ 11	..	..	..	Movements very small.
32	„ „ 11	..	16 21.6	16 25.6	0.6
33	„ „ 23	..	6 28.4	6 48.2	2.3
34	„ November 4	..	11 13.7	11 16.3	0.3
35	„ „ 18	..	10 56.6	..	Maximum not well marked.
36	„ „ 24	..	12 3.8	..	S at 12 ^h 12.2 ^m ; maximum not well marked.
37	„ „ 28	..	..	..	Movements very small.
38	„ December 15	..	..	..	Movements very small.

1915.

1	1915 January 5	..	..	..	..	Magnification 1 to 20. Movements very small.
2	„ „ 5	..	23 34.9	23 46.5	0.2	L at 23 ^h 41.5 ^m .
3	„ „ 13	..	..	..	..	Movements very small.
4	„ February 8	..	11 8.8	..	..	Maximum not well marked.
5	„ „ 21	..	5 (?) 38.9	..	..	Do. do.
6	„ „ 21	..	15 1.5	..	..	Do. do.
7	„ „ 28	..	19 14.6	19 27.9	0.4	
8	„ March 3	..	1 49.9	..	..	Do. do.
9	„ „ 7	..	21 21.2	..	..	Local shock.
10	„ „ 12	..	..	..	..	Movements very small.
11	„ „ 17	..	19 3.5	..	..	Maximum not well marked.
12	„ April 3	..	..	..	..	Movements very small.
13	„ „ 28	..	..	..	..	Partially lost in shifting time.
14	„ „ 30	..	2 3.6	..	..	Maximum not well marked.
15	„ May 1	..	5 11.4	curve passed out of range of paper.	..	S at 5 ^h 20.7 ^m ; L at 5 ^h 37.5 ^m .
16	„ „ 2	..	..	..	..	Movements very small.
17	„ „ 5	..	15 22.5	15 28.8	0.3	
18	„ „ 12	..	..	..	..	Movements very small.
19	„ „ 21	..	..	..	..	Lost as the instrument was dismantled.
20	„ June 1	..	15 3.3	15 31.2	0.2	
21	„ „ 3	..	8 12.6	8 (?) 18.0	0.1	
22	„ „ 6	..	21 48.8	22 54.6	1.9	
23	„ „ 17-18	..	..	..	..	Movements very small.
24	„ „ 22	..	..	..	..	Do. do.
25	„ July 7	..	6 51.8	..	..	Maximum not well marked.
26	„ „ 31	..	1 43.3	2 17.7	13.8	S at 1 ^h 52.8 ^m ; L at 2 ^h 9.3 ^m .
27	„ August 3	..	..	..	..	Beginning uncertain; maximum not well marked.
28	„ „ 6	..	..	..	..	Movements very small.
29	„ „ 7	..	..	..	..	Beginning uncertain; maximum not well marked.
30	„ „ 11	..	..	..	..	Movements very small.
31	„ „ 12	..	7 45.4	..	..	Maximum not well marked.
32	„ „ 12	..	..	9 29.6	0.9	Commencement uncertain as it is mixed in the hourly mark.
33	„ „ 16	..	..	..	..	Movements very small.

Observatory number.	Date.		Time of Disturbances in G. M. T.		Amplitude or half the complete range of maximum motion.	Remarks.
			Beginning.	Maximum.		
			H. M.	H. M.	Mm.	
34	1915 August	31	..	..	..	Movements very small.
35	" September	1	..	1 16.8	0.3	Beginning uncertain.
36	" "	1	..	..	..	Movements very small.
37	" "	7	1 40.4	2 37.9	19.5	
38	" "	12	..	..	..	Movements very small.
39	" "	23	..	..	..	Do. do.
40	" October	3	7 12.7	7 56.5	10.1	
41	" November	1	7 34.2	8 3.3	3.2	
42	" "	1	..	9 39.8	0.4	Beginning mixed in the end of the previous disturbance.
43	" "	18	..	4 42.3	0.2	Beginning uncertain.
44	" "	21	..	..	..	Movements very small.
45	" "	26	..	..	..	Do. do.
46	" "	30	..	..	..	Do. do.
47	" December	3	2 44.3	2 52.4	14.2	
48	" "	17	7 10.3	7 19.6	0.9	Commencement not well defined.
49	" "	17	..	..	..	Movements very small.
50	" "	19	..	..	..	Disturbance lost owing to stoppage of clock.
51	" "	30	2 41.0	..	..	Maximum not well marked.

TABLE IV.—List of principal Disturbances registered by the Colaba Vertical Movement (Tilt) Seismograph.

1911.

Observatory number.	Date.	Time of Disturbances in G. M. T.			Amplitude or half the complete range of maximum motion.	Remarks.
		Beginning.	Maximum.	End.		
		H. m.	H. m.	H. m.	Mm.	
1	1911 January	1 ..	10 22.1	* ..	10 52.1	..
2	" "	1 ..	15 3.9	* ..	15 25.9	..
3	" "	3-4 ..	23 31.0	* ..	0 39.0	..
4	" "	4 ..	9 43.0	9 50.7	10 5.0	4.0
5	" "	7 ..	2 25.6	2 32.7	2 40.6	0.7
6	" "	14 ..	17 59.7	* ..	18 24.7	..
7	" "	16 ..	9 1.7	* ..	9 20.7	..
8	" February	18 ..	18 43.9	* ..	19 5.9	..
9	" "	23 ..	11 23.2	movements very small	11 41.2	movements very small
10	" April	18 ..	18 18.7	18 23.1	18 48.7	10.0
11	" "	29 ..	lost	in shifting time.	..	S at 18 ^h 22.2 ^m .
12	" May	4 ..	13 36.0	13 42.3	13 49.0	4.0
13	" "	4-5 ..	23 47.9	23 58.2	0 25.9	3.6
14	" June	7 ..	11 19.6	11 26.6	12 43.5	2.5
15	" "	8 ..	0 6.7	† 0 ..	† 0 12.7	..
16	" "	15 ..	14 34.6	* ..	† 15 10.6	..
17	" July	4 ..	13 37.3	* ..	14 13.3	..
18	" "	5 ..	2 16.6	2 24.3	2 35.6	4.7
19	" "	..	18 48.0	18 55.7	19 1.0	2.0
20	" "	12 ..	4 16.7	* ..	4 41.7	..
21	" "	19 ..	† 20 30.1	20 32.7	† 20 40.1	1.5
22	" August	16 ..	22 50.4	* ..	23 12.4	..
23	" "	21 ..	† 16 49.5	16 55.4	17 3.5	1.9
24	" September	6 ..	1 4.1	1 14.3	1 21.1	2.0
25	" "	15 ..	† 13 29.6	13 30.1	13 40.6	2.5
26	" "	17 ..	3 40.1	3 54.2	4 18.1	2.0
27	" "	26 ..	14 13.8	14 23.5	14 33.8	1.2
28	" October	14 ..	23 27.2	* ..	23 57.2	..
29	" November	13 ..	16 25.7	16 36.3	16 40.7	2.2
30	" " 30-Dec. 1	..	23 42.9	* ..	0 5.9	..
31	" December	11 ..	† 11 6.2	11 21.6	11 33.2	2.0
32	" "	16 ..	† 19 33.6	19 38.3	20 59.6	1.5

1912.

1	1912 January	4 ..	15 59.6	..	16 14.6	..	Optical magnification 1 to 103.
2	" "	26 ..	14 50.8	14 52.1	15 1.8	1.1	Movements very small.
3	" February	1 ..	..	..	..	..	Movements very small.
4	" March	24 ..	12 24.4	..	12 29.4	..	Do. do. do.
5	" April	1 ..	..	..	..	..	Lost in shifting time.
6	" "	23 ..	21 48.9	* ..	22 4.9	..	
7	" "	25 ..	10 29.6	* ..	10 53.6	..	
8	" May	6 ..	19 10.5	19 21.1	20 0.5	0.8	
9	" "	11 ..	17 32.1	17 32.5	17 47.1	4.5	
10	" "	21 ..	8 33.5	8 39.2	8 54.5	3.7	Commencement doubtful as it occurs at the time of hourly break.
11	" "	22 ..	23 12.1	23 16.2	23 33.0	7.0	
12	" "	23 ..	2 29.0	..	4 9.0	..	

Observatory number.	Date.		Time of Disturbances in G. M. T.			Amplitude or half the complete range of maximum motion.	Remarks
			Beginning.	Maximum.	End.		
			H. m.	H. m.	H. m.	Mm.	
13	1912 June	7	.. 18 48.7	18 52.8	19 13.7	0.7	
14	" "	26	.. 17 2.6	17 3.0	17 15.6	3.6	
15	" July	7	.. 8 10.8	8 21.7	9 10.8	3.1	S at 8 ^h 21.3 ^m (?).
16	" "	24	.. †12 10.0	† ..	12 32.0	..	
17	" August	6	.. 13 30.0	..	14 1.0	..	Commencement doubtful as the hourly breaks have failed.
18	" "	9	.. † 1 37.5	1 45.6	2 37.5	4.8	S at 1 ^h 44.1 ^m .
19	" "	17	.. 19 21.0	19 29.4	20 2.0	4.5	S at 19 ^h 28.7 ^m .
20	" "	23	.. 14 5.9	14 7.9	14 22.9	4.4	
21	" "	23	.. 21 45.5	21 51.5	22 7.5	22.7	
22	" September	11	.. 0 53.3	1 0.6	1 17.3	3.4	
23	" "	13	.. 23 41.0	23 41.7	24 1.0	1.5	
24	" "	29	.. 21 3.0	..	21 36.0	..	Commencement doubtful as the hourly breaks have failed.
25	" October	18	.. †12 7.0	12 17.4	12 47.0	2.2	
26	" November	7	.. 7 53.9	8 5.7	8 46.9	11.5	S at 8 ^h 4.8 ^m .
27	" "	28	.. 20 59.3	21 2.2	21 20.3	16.0	S at 21 ^h 2.7 ^m
28	" December	8-9	.. 23 59.5	0 8.7	0 15.5	3.0	
29	" "	9	.. 8 51.9	8 55.8	9 17.9	1.3	
30	" "	24	.. 0 3.5	0 7.6	0 36.5	2.5	
31	" "	24	.. 18 15.5	18 16.0	18 34.5	1.1	
32	" "	28	.. 8 3.9	8 4.2	8 16.9	1.5	

1913.

1	1913 January	7	.. 22 59.0	22 59.6	23 25.4	4.8	Optical magnification 1 to 103.
2	" "	11	.. 13 25.6	13 33.2	13 54.3	5.0	S at 23 ^h 5.7 ^m .
3	" "	19	.. 17 10.3	17 17.5	17 45.1	>22.5*	S at 13 ^h 32.7 ^m .
4	" "	19-20	.. 23 58.7	0 7.7	0 20.3	3.5	Not recorded in any other seismographs.
5	" February	20	.. † 9 9.4	9 18.9	9 25.0	..	Beginning approximate as it occurs at the time of the hourly break.
6	" March	6	.. 2 12.7	* ..	2 38.2	..	
7	" "	"	.. 11 7.9	* ..	11 33.0	..	Commencement doubtful as it occurs at the time of hourly break.
8	" "	10	.. 19 14.7	19 17.3	19 27.5	>7.5*	
9	" "	14	.. 8 54.1	* ..	9 44.3	..	S at 9 ^h 1.2 ^m .
10	" "	14	.. 18 8.0	18 9.0	18 18.2	2.1	
11	" "	23	.. 20 57.9	21 7.6	21 16.9	1.5	
12	" "	24	.. 10 38.6	10 38.6	10 57.9	6.0	
13	" "	27	.. 3 18.9	3 21.0	3 32.2	1.6	
14	" "	28	.. 17 17.1	17 19.7	17 28.3	2.6	S at 17 ^h 19.1 ^m .
							Not recorded in any other seismographs.
15	" "	31	.. 3 54.1	4 5.1	4 17.2	9.7	
16	" April	7	.. 13 58.7	..	..	..	Movements very small.
17	" "	9	.. 18 11.8	18 12.1	18 13.9	3.2	
18	" "	13	.. 6 50.2	6 57.2	7 4.6	0.6	
19	" "	14	.. 7 52.9	7 57.4	8 5.7	1.5	
20	" "	18	.. 19 11.5	19 11.7	19 27.9	2.3	
21	" "	24	.. 10 24.7	10 32.2	10 39.2	1.2	

Observatory number.	Date.	Time of Disturbances in G. M. T.			Amplitude or half the complete range of maximum motion,	Remarks.
		Beginning.	Maximum.	End.		
		H. m.	H. m.	H. m.	Mm.	
22	1913 April	24 .. 12 25.9	12 27.0	12 37.2	0.7	
23	" "	25 .. 18 5.9 *	..	18 18.9	..	
24	" "	28 .. 18 48.9	18 50.4	19 0.6	0.4	
25	" "	30 .. †11 47.7	11 59.1	12 2.2	1.2	
26	" May	16 .. 12 32.8 *	..	12 54.1	4.0*	
27	" "	18 .. 2 19.9	2 30.5	2 38.0	1.5	
28	" "	24 .. 23 44.3	23 44.6	23 53.5	3.0	Not recorded in any other seismographs.
29	" "	29 .. 13 37.2	13 43.9	13 59.7	1.5	
30	" "	30 .. 11 57.9	12 3.6	12 20.2	2.5	
31	" June	14 .. 9 41.9	9 45.6	9 54.3	2.7	
32	" "	22 .. † ..	14 14.1	14 20.7	6.0	
33	" July	8 .. † ..	22 31.2 †	..	3.5	Not recorded in any other seismographs.
34	" "	12 .. † ..	10 43.5 †	..	2.0	
35	" "	22 .. † ..	6 57.4 †	..	3.0	
36	" August	1 .. †17 20.8	17 27.9	†17 48.9	2.0	
37	" "	6 .. 22 33.9 *	....	† ..	..	
38	" "	13 .. 4 33.2	4 39.8	† 4 57.5	5.8	
39	" "	15 .. † ..	19 22.1 †	..	1.8	
40	" September	3 .. 21 3.9	21 14.0 †	..	4.5	
41	" "	16 .. 12 10.9	12 11.3 †	..	1.3	
42	" "	22 .. 20 41.1	20 41.6	20 48.8	1.1	Not recorded in any other seismographs.
43	" October	11 .. 4 3.3	4 19.2 †	..	1.4	
44	" "	11 .. 9 18.4	9 21.4 †	..	1.3	
45	" "	13 .. 13 19.6	13 20.0 †	..	2.0	Not recorded in any other seismographs.
46	" "	14 .. 8 25.8	8 27.4 †	..	3.3	
47	" "	29 .. 4 38.4	4 46.3	..	1.5	End lost in shifting time.
48	" November	10 .. 21 29.3	21 31.2	21 46.2	1.1	
49	" "	14 .. 20 54.0	20 59.6	21 1.9	1.1	
50	" "	19 .. 3 29.7	3 32.1	4 7.1	1.1	
51	" "	30 .. 17 34.3	17 36.7	17 46.1	2.1	S at 17 ^h 36.1 ^m . Not recorded in any other seismographs.
52	" December	2 .. 20 3.6	20 3.7	20 18.1	2.5	
53	" "	18 .. 7 24.5	7 24.9 †	..	6.0	
54	" "	21 .. 15 43.7	15 50.5	16 6.0	3.8	S at 15 ^h 48.5 ^m .

1914.

1	1914 January	20 .. 12 2.2	12 13.0	12 50.8	1.0	Optical magnification 1 to 103.
2		30 .. 3 55.6	3 55.8	4 15.8	8.9	
3		30 .. 7 54.8	7 55.5	8 29.1	4.0	Not recorded in any other seismographs.
4		31 .. 13 20.3	13 26.7	13 38.9	1.0	Do. do.
5	February	6 .. 11 44.6	11 49.2	12 15.4	>18.0*	S at 11 ^h 46.8 ^m .
6		22 .. 21 15.8	21 28.1	21 40.4	2.2	
7		26 .. 5 17.0	5 19.0	5 40.7	3.5	S at 5 ^h 30.8 ^m .
8	March	6 .. 19 17.2	19 29.1	19 46.7	1.0	
9		6 .. 20 40.2	20 55.8	21 9.1	2.9	
10		14 .. 20 10.5	20 10.8	20 58.8	3.0	

Observatory number.	Date.		Time of Disturbances G. M. T.			Amplitude or half the complete range of maximum motion.	Remarks.
			Beginning.	Maximum.	End.		
			H. m.	H. m.	H. m.	Mm.	
11	1914 March	16	.. 22 52.5	23 0.7	23 9.1	2.0	S at 22 ^h 59.7 ^m . Not recorded in any other seismographs.
12	" "	18	.. 4 31.8	5 6.7	..	5.0	End lost in shifting time.
13	" "	28	.. 10 50.0	11 2.2	11 22.0	14.0	S at 10 ^h 54.1 ^m .
14	" "	28	.. 13 20.9	13 28.1	13 38.4	2.5	Not recorded in any other seismographs.
15	" "	30	.. 1 0.4	1 5.0	..	0.5	End uncertain.
16	" April	8	.. 0 45.3	0 50.4	1 2.9	5.0	Not recorded in any other seismographs.
17	" "	11	.. 16 43.9	16 55.1	17 6.0	1.0	S at 0 ^h 48.1 ^m . S at 16 ^h 54.9 ^m .
18	" "	20	.. 13 49.4	13 54.0	14 6.0	0.9	
19	" "	21	.. 23 29.9	23 34.3	23 48.6	1.9	S at 23 ^h 34.2 ^m . Not recorded in any other seismograph.
20	" "	25	.. 20 43.3	20 43.9	20 54.8	3.0	S at 20 ^h 44.3 ^m . Not recorded in any other seismographs.
21	" "	27	.. 2 11.4	2 11.7	† 2 27.1	0.9	Maximum partially passed out of paper.
22	" "	30	.. 22 23.0	22 25.0	22 33.2	>11.0*	Not recorded in any other seismographs. S at 22 ^h 24.3 ^m .
23	" May	1	.. 6 9.1	6 10.7	6 12.7	3.3	
24	" "	21	.. 8 31.8	8 34.4	8 53.8	>8.5*	
25	" "	26	.. 2 49.6	2 50.2	2 58.6	3.0	
26	" "	26	.. 14 33.5	14 36.5	15 50.7	12.0	S at 14 ^h 42.5 ^m .
27	" "	29	.. 4 52.4	..	5 41.5	..	Maximum lost in shifting time.
28	" June	20	.. †	7 41.9	†	1.5	
29	" "	25	.. 19 14.6	* ..	† ..	..	
30	" July	4	.. † ..	17 59.3	† ..	1.7	
31	" "	4	.. † ..	23 56.8	† ..	2.2	
32	" "	14	.. † ..	3 19.8	† ..	1.6	
33	" August	4	.. 22 48.1	* ..	† ..	..	
34	" "	5	.. † ..	10 48.1	† ..	2.5	
35	" "	6	.. † ..	* 4 26.1	† ..	*	
36	" "	27	.. † ..	14 48.9	† ..	2.6	Not recorded in any other seismographs.
37	" September	26	.. ..	..	..	..	Lost in shifting time.
38	" October	3	.. 17 41.5	17 44.5	18 7.1	1.0	
39	" "	3	.. 22 14.9	22 23.4	22 59.9	3.5	
40	" "	9	.. 2 42.5	* ..	3 17.9	..	S at 2 ^h 45.2 ^m .
41	" "	9	.. 3 39.1	3 40.9	3 56.8	7.5	
42	" "	11	.. 1 31.7	1 33.3	1 46.6	3.5	Not recorded in any other seismographs.
43	" "	11	.. 16 21.7	* ..	16 49.7	..	S at 1 ^h 33.3 ^m . S at 16 ^h 25.4 ^m .
44	" "	23	.. 6 28.2	6 31.7	7 9.2	5.5	S at 6 ^h 35.9 ^m .
45	" November	4	.. 11 10.8	* ..	11 39.5	..	S at 11 ^h 14.1 ^m ..
46	" "	22	.. 8 33.1	8 40.0	8 54.8	1.0	
47	" "	24	.. 12 3.7	* ..	13 0.0	..	S at 12 ^h 12.3 ^m .
48	" "	28	.. 10 54.9	10 55.1	11 13.9	2.5	
49	" December	15	.. 10 26.8	10 30.7	10 40.4	1.6	

Observatory number.	Date.	Time of Disturbances in G. M. T.			Amplitude or half the complete range of maximum motion.	Remarks.
		Beginning.	Maximum.	End.		
		H. m.	H. m.	H. m.	Mm.	
1	1915 January 5	14 46.8	14 52.2	15 6.6	2.5	Optical magnification 1 to 103.
2	" " 5-6	23 34.8	* ..	0 14.8	..	
3	" " 13	7 2.3	7 10.5	7 42.5	1.7	S at 7 ^h 10.0 ^m .
4	" February 8	11 9.0	11 13.3	11 25.1	3.8	
5	" " 21	5 37.9	5 43.7	6 7.1	2.2	
6	" " 21	15 0.9	15 4.0	15 26.1	11.0	
7	" " 28	† ..	19 15.3	† ..	1.5	
8	" March 3	1 49.4	1 49.9	2 2.1	3.7	
9	" " 7	21 21.3	..	..	..	Local shock.
10	" " 8	15 49.0	15 49.4	15 50.4	1.4	
11	" " 12	14 57.4	14 57.9	† ..	2.0	
12	" " 17	19 3.6	19 3.7	19 12.8	2.2	
13	" April 3	13 53.2	13 57.6	14 2.0	1.2	
14	" " 23	15 47.6	15 47.8	15 58.9	3.5	Not recorded in any other [seis- mographs.
15	" " 28	3 25.5	3 30.5	3 40.5	3.5	
16	" " 30	1 59.9	..	2 10.7	..	Movements very small.
17	" May 1	5(?) 10.5	5 12.3	6 54.8	5.7	S at 5 ^h 20.8 ^m (?).
18	" " 5	15 17.9	15 23.0	15 30.7	2.8	
19	" " 21	4 26.9	4 27.2	4 48.2	1.2	
20	" June 3	8 12.6	8 16.4	8 30.2	4.6	
21	" " 6	21 49.2	* ..	† ..	4.4	
22	" " 17	† ..	23 49.9	† ..	2.2	
23	" July 7	6 52.5	6 54.2	† ..	4.5	
24	" " 31	1 43.4	1 54.5	† ..	5.7	
25	" August 11	† ..	9 28.1	† ..	1.9	
26	" " 12	7 45.0	7 53.1	† ..	4.0	S at 7 ^h 52.5 ^m .
27	" " 12	9 21.8	9 30.4	† ..	5.5	
28	" " 31	20 52.2	20 59.4	† ..	3.7	Times approximate as there are no hourly breaks.
29	" September 1	1 11.3	1 11.8	† ..	2.5	Do. do.
30	" " 1	2 6.8	2 6.9	† ..	1.7	Do. do.
31	" " 7	..	..	..	..	Disturbance lost owing to the smoking of chimney.
32	" " 12	0 7.5	0 7.5	† ..	4.0	
33	" " 23	8 21.5	8 22.8	8 35.5	2.3	
34	" October 3	† ..	† ..	† ..	..	
35	" " 12	21 39.7	21 48.9	21 54.1	1.4	Not recorded in any other seis- mographs.
36	" " 26	22 15.4	22 15.9	22 29.8	2.1	Do. do.
37	" November 1	7 34.3	7 43.5	† ..	6.5	S at 7 ^h 42.9 ^m .
38	" " 1	9 10.6	9 20.1	10 1.8	2.5	S at 9 ^h 18.7 ^m .
39	" " 18	4 12.9	4 22.1	..	2.1	End lost in shifting time.
40	" " 18	20 27.8	20 34.4	20 39.9	1.7	
41	" " 26	20 8.7	20 15.1	20 26.2	3.5	
42	" " 30	20 4.3	20 4.8	20 16.1	1.4	
43	" December 3	2 44.0	2 51.5	3 14.4	..	S at 2 ^h 47.9 ^m . Maximum mo- tion passed out of paper.
44	" " 17	7 10.3	7 18.3	7 31.8	10.0	
45	" " 17	19 11.2	19 19.4	19 29.0	2.6	
46	" " 19	20 19.5	20 27.8	20 42.0	2.2	
47	" " 28-29	23 58.6	23 59.0	0 22.4	2.9	Not recorded in any other seis- mographs.
48	" " 30	2 40.7	2 44.5	2 53.7	1.6	
49	" " 31	19 1.7	19 2.4	19 10.1	1.4	
50	" " 31	23 13.6	23 18.8	23 34.1	1.9	