
TABLES OF DISTURBANCES

REGISTERED BY

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

1906—1910.

NOTE ON THE LIST OF SEISMIC DISTURBANCES RECORDED BY THE DIFFERENT
SEISMOGRAPHS AT COLABA.




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, as was also a vertical motion (tilt) seismograph, which was ordered out from England, the detail specification and design of which were also conceived locally, 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 fifteen 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.*

1906.

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.	
18	1906 January	6	...	22 9.9	22 13.3	22 34.2	0.4	Sensibility to tilt 1 mm. = 0".47.
34	" "	15	...	19 44.3	19 46.0	20 6.0	0.7	
43	" "	21	...	13 58.8	14 8.2	...	1.5	End lost in shifting time.
62	" "	27	...	10 17.1	10 28.0	11 33.7	2.3	
78	" "	31	...	15 56.3	17 18.5	20 5.1	15.2	
79	" February	1	...	2 49.0	2 54.0	3 46.5	0.6	
137	" "	19	...	2 23.6	3 12.9	4 53.9	1.5	
149	" "	23	...	15 53.7	15 57.8	16 18.5	1.0	
153	" "	24	...	9 24.4	9 25.4	9 32.8	0.7	
167	" "	26	...	10 41.6	10 42.2	10 49.8	0.5	
175	" "	27	...	19 44.2	19 49.4	21 5.0	8.4	
188	" March	2	...	6 25.0	6 30.1	7 18.5	2.6	
192	" "	3	...	9 59.7	10 7.1	10 59.5	0.6	
217	" "	10	...	17 24.1	17 30.5	17 46.0	0.6	
227	" "	13	...	14 1.4	14 6.3	14 32.0	0.5	
236	" "	16-17	...	22 57.2	23 10.4	0 46.1	2.5	
246	" "	20	...	3 58.5	4 2.5	4 30.2	1.0	
262	" "	26	...	1 48.4	1 48.7	1 51.6	1.1	
267	" "	27	...	5 48.3	6 3.4	6 51.4	0.8	
272	" "	28	...	19 1.3	19 16.1	19 43.2	0.7	
315	" April	10	...	22 39.1	22 51.5	23 40.0	1.0	
317	" "	11	...	11 23.4	11 38.7	12 50.9	1.0	
326	" "	13	...	19 32.8	19 46.0	20 21.7	1.1	
345	" "	18	...	13 40.8	14 34.1	17 4.3	6.3	
351	" "	19	...	7 52.8	8 1.8	8 24.7	0.3	
389	" "	29	...	16 21.5	16 54.9	17 29.3	1.9	
396	" May	2	...	1 42.7	1 47.2	1 57.4	0.3	
420	" "	12	...	5 53.5	6 1.4	6 21.1	1.9	
425	" "	"	...	11 16.8	11 24.4	11 38.1	0.8	
464	" June	1	...	4 41.9	5 22.2	6 35.1	2.0	
484	" "	10	...	20 51.6	21 3.3	21 33.6	1.0	
506	" "	19	...	11 24.4	11 56.8	12 36.9	0.9	
527	" "	24	...	11 23.2	11 34.9	13 6.3	7.0	



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.	
577	1906 July	14	...	0	43.4	0	55.1	1	16.1	0.8	Sensibility to tilt 1 mm. = 0".37. Traces overlap due to intensity of the disturbance, and hence maximum phase cannot be ascertained.
620	" August	1-2	...	23	59.6	0	6.4	0	22.5	0.5	
657	" "	17	...	0	27.1	...		4	34.3	...	
685	" "	25	...	12	6.6	12	15.5	12	28.6	0.9	End lost in shifting time.
687	" "	"	...	14	0.2	14	9.3	15	4.2	5.0	
715	" "	30	...	3	46.3	4	6.8	4	48.7	1.3	
721	" "	31	...	15	2.9	15	6.4	15	21.2	0.9	
752	" September	7	...	19	10.8	19	37.1	20	36.0	2.1	
776	" "	14	...	14	6.8	14	12.1	14	39.8	0.7	
777	" "	"	...	16	16.3	17	2.4	19	21.0	2.4	
806	" "	20	...	18	46.9	18	54.9	19	7.9	0.7	
841	" October	2	...	2	12.9	2	51.2	4	48.9	1.7	
856	" "	6	...	12	55.4	13	3.7	13	27.1	0.4	
867	" "	10	...	13	9.3	13	31.3	13	56.1	0.8	
868	" "	10-11	...	23	25.6	23	38.7	0	9.2	0.9	
881	" "	17	...	9	54.4	10	14.4	11	1.6	1.6	
895	" "	24	...	14	50.1	14	55.8	...		15.4	
903	" "	31	...	2	19.2	2	21.0	2	57.4	0.7	
946	" November	14	...	18	9.5	18	37.9	19	20.7	0.6	
957	" "	19	...	7	27.9	7	52.4	9	42.0	8.7	
978	" "	28	..	10	10.6	10	27.6	10	55.5	0.6	
1037	" December	19	...	1	44.3	2	30.2	4	8.7	1.9	
1047	" "	22	...	18	26.9	18	39.1	20	57.0	9.0	
1051	" "	23	...	7	40.6	8	0.6	8	43.2	0.6	
1052	" "	"	...	17	45.2	18	22.7	20	14.8	4.0	
1065	" "	26	...	6	13.6	7	18.8	7	57.7	1.0	

1907.

3	1907 January	1	...	0	54.5	1	4.9	1	49.0	0.6	Sensibility to tilt 1 mm. = 0".37. End lost in shifting time. Traces overlap due to intensity of the disturbance, and hence maximum phase cannot be ascertained.
14	" "	2	...	12	23.6	13	14.0	...		1.8	
24	" "	4	...	5	25.5	...		8	44.5	...	
46	" "	8	...	5	48.2	6	20.1	7	7.2	0.5	End masked by tremors.
60	" "	12	...	8	38.6	8	47.2	9	8.9	0.4	
77	" "	19	...	13	42.8	13	45.3	14	6.4	0.5	
130	" February	9	...	4	48.9	4	50.6	5	4.8	0.5	
153	" "	24	...	7	53.4	8	2.5	8	33.2	0.5	
229	" March	29	...	20	54.6	21	15.8	21	51.1	1.0	
232	" "	31	...	22	19.6	22	29.3	23	22.4	1.2	
261	" April	15	...	6	28.6	7	43.5	9	11.4	7.0	
271	" "	18	...	21	15.9	21	30.3	22	54.7	3.5	
272	" "	19	...	0	8.5	0	24.9	1	32.4	3.0	
287	" "	26	...	19	17.2	19	27.1	19	37.3	0.3	
300	" May	4	...	8	49.3	9	17.7	9	33.1	0.5	
307	" "	7	...	10	46.1	10	50.1	...		0.5	
328	" "	25	...	12	6.4	12	23.5	13	11.0	0.5	
329	" "	"	...	14	20.4	14	37.4	15	12.3	0.9	
334	" June	1	...	9	57.1	10	15.0	11	0.6	1.2	
340	" "	5	...	4	32.6	5	2.7	5	37.6	1.0	
348	" "	10	...	19	2.5	19	33.3	19	58.3	0.7	
383	" "	25	...	18	1.7	18	16.8	19	7.2	1.3	Sensibility to tilt 1 mm. = 0".42.

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.	
404	1907 July	9	...	19 11.8	19 33.5	20 1 8	0.8	
407	" "	12	...	17 22.0	17 24.0	17 36.5	1.0	
423	" "	20	...	13 54.9	14 16.1	14 34.2	2.0	
449	" "	29	...	19 47.0	20 3.1	20 24.4	0.4	
470	" August	5	...	7 55.9	8 1.6	8 20.4	0.5	
499	" "	17	...	17 43.6	18 16.5	18 46.6	0.5	
533	" September	2	...	16 24.3	16 48.1	...	7.3	{ The end of previous disturbance merges into the beginning of another immediately following.
534	" "	"	...	...	18 34.5	19 31.5	1.5	
584	" October	4	...	10 41.1	10 51.7	11 35.5	2.1	
597	" "	11	...	14 52.1	15 23.4	...	0.9	End lost in shifting time.
604	" "	16	...	14 58.8	...	16 14.5	...	Maximum phase lost in shifting time.
611	" "	21	...	4 22.6	...	6 58.3	...	Traces overlap due to intensity of the disturbance, and hence maximum phase cannot be ascertained.
621	" "	27	...	5 24.8	5 30.2	5 59.2	3.1	
641	" November	16	...	22 29.3	22 35.1	22 50.8	0.4	
648	" "	21	...	20 8.8	20 18.7	21 17.2	6.8	
649	" "	22	...	6 19.4	6 22.3	6 33.4	0.5	
650	" "	24	...	14 16.4	14 29.2	14 59.3	0.4	
666	" December	5	...	12 53.5	12 59.8	13 19.3	0.3	
699	" "	30	...	6 49.1	7 0.3	7 39.3	2.2	Beginning uncertain as it is masked by tremors.

1908.

9	1908 January	11	...	3 43.0	4 3.4	5 2.3	3.5	Sensibility to tilt 1 mm. = 0".42.
11	" "	12	...	10 27.9	10 29.5	10 42.1	1.2	
15	" "	15	...	13 16.1	13 41.2	14 14.7	1.1	
46	" February	9	...	18 16.9	18 27.8	19 13.4	4.6	
79	" March	5	...	2 26.9	2 52.8	3 57.3	1.9	
88	" "	13	...	6 32.7	6 33.5	6 47.1	0.7	
99	" "	21	...	4 18.8	4 25.3	4 30.2	0.5	
103	" "	23	...	12 31.6	12 57.4	13 36.5	0.8	
111	" "	26-27	...	23 24.1	0 31.5	1 47.6	2.3	Sensibility to tilt 1 mm. = 0".41.
112	" "	27	...	4 27.9	5 22.6	6 3.4	0.6	
120	" April	2	...	6 2.5	6 23.9	6 41.4	0.4	
122	" "	4	...	6 24.0	6 31.2	6 50.5	0.4	
126	" "	10	...	0 16.1	0 25.0	0 45.0	0.5	
135	" "	16	...	17 45.2	17 50.3	18 11.1	0.3	
137	" "	19	...	8 11.4	8 22.2	8 47.2	0.3	
138	" "	23	...	0 3.8	0 16.5	1 23.1	0.6	
151	" May	5	...	6 33.0	6 58.0	7 43.4	2.3	
152	" "	"	...	11 24.9	11 27.9	12 0.6	1.5	
163	" "	15	...	9 20.1	9 34.6	10 18.8	2.4	
165	" "	20	...	7 59.2	8 15.7	8 36.5	0.4	
170	" June	3	...	16 0.2	16 3.5	16 31.3	1.0	
200	" "	28	...	17 13.5	17 14.1	17 17.5	0.6	
239	" July	13	...	21 44.8	21 49.4	22 6.1	0.5	
253	" "	26	...	16 19.6	16 26.7	16 44.5	0.5	
254	" "	"	...	17 30.5	17 39.1	17 58.4	0.4	
292	" August	17	...	11 34.1	11 43.7	13 16.2	1.5	

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.	
296	1908 August 20 ...	10 1'7	10 4'6	11 4'3	5'8	
301	" " 22 ...	12 13'4	12 13'8	12 20'1	0'3	
317	" September 9 ...	6 50'8	6 51'2	7 3'5	1'0	
332	" " 23 ...	7 13'5	7 19'0	7 42'0	1'1	
336	" " 26 ...	6 8'5	6 17'6	6 33'5	0'6	
339	" " 28 ...	6 49'3	6 49'5	7 3'3	0'4	
343	" October 13 ...	6 23'5	6 35'7	7 6'3	0'5	
347	" " 20 ...	3 1'3	3 14'4	3 31'4	0'5	
350	" " 23 ...	20 20'7	20 24'8	20 32'5	0'6	
351	" " 24 ...	21 23'3	21 23'9	21 35'0	0'7	
353	" November 2 ...	5 22'4	5 35'9	6 43'9	4'2	
354	" " " ...	7 27'8	7 37'6	7 53'0	0'5	
356	" " 6 ...	7 29'0	7 48'4	8 38'9	1'0	
357	" " " ...	14 28'5	14 35'5	14 58'6	0'5	
360	" " 11 ...	13 27'8	13 50'4	14 20'1	2'2	
361	" " 12 ...	16 53'0	16 58'0	17 4'0	0'2	
362	" " " ...	22 6'1	22 16'2	22 21'3	0'3	
369	" " 23 ...	12 59'8	13 23'7	13 36'2	0'2	
384	" December 12 ...	13 0'1	13 10'7	13 55'9	3'4	
385	" " " ...	19 9'2	19 27'7	19 44'3	0'3	
390	" " 18 ...	...	15 48'3	16 41'7	3'7	Commencement lost in shifting time.
396	" " 28 ...	4 30'3	4 57'3	6 14'0	2'2	

1909.

11	1909 January 22 ...	12 43'6	12 52'5	13 0'1	0'6	Sensibility to tilt 1 mm. = 0".41.
12	" " 23 ...	2 57'7	3 15'7	4 32'3	1'4	
22	" February 2 ...	19 24'8	19 25'5	19 34'9	0'2	
30	" " 9 ...	11 36'2	11 47'0	12 16'0	1'0	
31	" " " ...	14 59'8	15 2'9	15 13'5	0'3	
34	" " 15 ...	0 55'9	1 7'7	1 13'7	0'3	
35	" " 16 ...	8 9'5	8 22'2	8 32'4	0'3	
40	" " 22 ...	9 45'6	9 50'6	10 59'5	0'6	
60	" March 12-13 ...	23 37'8	23 57'3	0 36'1	1'5	
61	" " 13 ...	14 40'0	15 11'9	...	2'0	End lost in shifting time.
67	" " 17-18 ...	23 4'8	23 29'0	0 16'3	2'0	
74	" " 29 ...	9 9'7	9 12'4	9 19'8	0'2	
84	" April 9 ...	7 3'0	7 4'1	7 12'2	0'2	
87	" " 10 ...	6 23'9	6 46'1	7 40'0	0'3	
88	" " " ...	18 56'0	19 28'6	...	0'9	End cannot be determined as it merges in the beginning of another disturbance.
89	" " " ...	20 2'2	20 22'7	21 29'8	4'9	
90	" " 11 ...	14 42'6	14 48'7	15 5'5	0'8	
93	" " 12 ...	2 42'1	2 47'9	2 53'9	0'4	
95	" " 14 ...	20 2'5	20 20'5	20 36'5	0'2	
104	" " 25 ...	23 6'9	23 14'7	23 30'1	0'4	
107	" " 27 ...	13 4'0	13 29'8	14 26'7	0'4	
108	" " 29 ...	22 58'1	23 5'0	23 28'2	0'5	
122	" May 10 ...	20 27'6	20 30'8	20 36'8	0'2	
124	" " 12 ...	1 31'0	1 40'3	1 59'7	0'3	
125	" " 17 ...	8 24'7	8 37'3	...	0'9	
126	" " " ...	...	9 28'7	10 31'6	0'8	} Sensibility to tilt 1 mm. = 0" 36. } The end of previous disturbance merges into the beginning of another immediately following.

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.	
136	1909 May	30	...	21 22.1	21 42.3	22 4.6	0.5	Traces overlap due to intensity of the disturbance, and hence maximum phase cannot be ascertained.
141	" June	3	...	18 47.2	...	21 13.1	...	
145	" "	8	...	6 20.3	7 12.9	...	2.5	
148	" "	9	...	1 46.2	1 53.8	2 21.1	0.5	End masked by tremors.
155	" "	12	...	21 3.4	21 13.8	21 49.9	1.0	
190	" July	7	...	21 41.9	21 45.7	23 33.4	15.2	
222	" "	23	...	20 27.2	20 40.2	20 58.8	0.2	Sensibility to tilt 1 mm. = 0".37. Sensibility to tilt 1 mm. = 0".36.
227	" "	26	...	10 58.6	11 4.3	11 35.2	1.1	
241	" "	30	...	...	12 25.1	13 31.9	0.9
243	" "	31	12 8.0	...	0.3	Beginning masked by tremors. Beginning and end masked by tremors.
245	" "	"	...	20 35.0	20 51.6	21 38.0	0.2	
248	" August	2	...	10 27.1	10 29.1	10 41.9	0.2	
254	" "	14	...	6 49.1	7 4.5	7 32.3	1.0	
259	" "	16	...	8 21.6	8 30.3	9 2.3	0.3	
265	" "	22	...	15 48.5	15 51.4	15 56.4	0.3	
277	" September	8	...	17 12.9	17 48.5	18 14.1	0.6	
288	" "	16	...	19 4.3	19 13.1	19 20.2	0.2	
336	" October	20-21	...	23 45.3	23 47.9	1 30.7	16.1	
345	" "	30	...	10 36.5	10 54.6	11 15.6	0.3	
347	" "	31	...	11 43.8	11 49.9	12 37.1	0.5	
349	" November	10	...	6 22.7	6 42.3	7 48.9	1.8	
357	" "	21	...	8 2.4	8 9.2	8 26.3	0.8	
372	" December	9	...	16 19.5	16 48.9	17 29.3	0.7	
373	" "	"	...	22 8.1	22 30.8	22 43.8	0.4	
374	" "	9-10	...	23 48.1	0 6.0	0 31.2	0.5	
379	" "	22	...	13 47.5	13 58.6	14 13.5	0.3	

1910.

3	1910 January	1	...	11 42.4	12 30.2	13 32.5	0.5	
15	" "	22	...	9 15.7	9 38.7	10 27.3	0.8	
18	" "	30	...	4 27.2	4 48.5	5 36.5	1.0	
26	" February	4	...	14 49.6	15 5.8	...	0.5	End lost in shifting time.
30	" "	12	...	18 27.1	18 49.2	19 6.9	0.4	
56	" March	25	...	16 45.2	16 46.8	17 14.2	0.3	
59	" "	30	...	17 20.0	18 1.0	19 33.8	1.0	
60	" "	31	...	19 6.9	19 23.1	19 59.7	0.6	
71	" April	12	...	0 30.2	0 49.2	1 34.6	1.8	
77	" "	16	...	12 48.0	13 6.9	13 24.7	0.4	
78	" "	17	...	1 43.0	1 52.0	2 1.9	0.3	
89	" "	27	...	2 52.9	2 57.2	3 18.8	0.4	
95	" May	1	...	18 53.9	19 37.6	20 11.7	1.2	
110	" "	13	...	8 40.1	8 58.0	9 37.3	0.3	
113	" "	18	...	9 21.7	9 31.1	9 50.3	0.8	
117	" "	22	...	6 44.6	7 3.2	7 42.9	1.0	Sensibility to tilt 1 mm. = 0".41.
125	" June	1	...	6 20.3	7 0.8	8 45.3	0.7	
133	" "	9	...	12 24.2	12 27.4	12 35.0	0.1	
143	" "	16	...	6 45.1	7 4.8	9 28.9	2.4	
					7 36.8		2.2	
145	" "	17	...	5 58.7	5 59.8	6 3.9	0.2	
157	" "	25	...	19 37.8	19 46.1	20 5.1	0.7	
161	" "	29	...	11 14.0	12 2.5	13 21.3	0.8	
168	" July	7	...	8 29.8	8 49.4	9 29.7	2.6	

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				Beginning.	Maximum.	End.		
				H. m.	H. m.	H. m.	mm.	
169	1910 July	12	...	7 42.2	7 43.7	7 50.8	0.2	
176	" "	21	...	22 19.4	22 22.1	22 38.6	0.6	
183	" "	29	...	10 47.7	11 28.0	11 50.3	0.4	
196	" August	13	...	8 0.8	8 1.8	8 7.1	0.3	
197	" "	"	...	21 27.3	21 29.9	21 33.3	0.2	
202	" "	17	...	12 1.9	12 6.8	13 9.8	4.6	
204	" "	21	...	6 0.7	6 5.1	6 30.0	0.4	
212	" September	1	...	0 59.6	1 17.4	1 39.0	2.0	
213	" "	"	...	14 39.7	14 54.7	15 23.3	0.6	
221	" "	6	...	21 16.4	21 27.2	21 56.9	0.4	
222	" "	7	...	7 58.0	8 10.2	8 25.6	0.3	
223	" "	9	...	1 30.5	2 13.6	2 43.2	1.2	
229	" "	16	...	23 27.6	23 36.0	23 56.6	0.2	
253	" October	5	...	0 14.4	0 27.9	0 48.0	0.4	Sensibility to tilt 1 mm. = 0".37.
256	" "	7	...	16 9.7	16 16.2	16 27.8	0.3	
265	" "	18	...	3 42.3	3 44.3	3 58.3	0.3	
268	" "	20	...	5 15.0	5 25.9	5 50.8	2.4	
285	" November	9	...	6 20.3	7 10.0	9 46.2	7.8	
292	" "	14	...	7 50.5	8 10.7	9 6.5	0.4	
293	" "	15	...	14 46.7	15 22.1	...	2.2	End lost in shifting time.
298	" "	24	...	15 45.2	15 55.2	16 11.2	0.5	
301	" "	26	...	4 59.5	5 50.4	7 42.4	1.6	
306	" "	29	...	2 51.7	2 56.8	3 19.8	0.9	
310	" December	1	...	16 3.2	16 22.4	16 39.3	0.9	
312	" "	3	...	8 39.7	8 52.0	9 1.4	0.3	
314	" "	4	...	11 45.4	12 3.8	12 30.2	0.3	
318	" "	10	...	9 43.2	10 28.2	12 27.0	1.5	
322	" "	13	...	11 46.3	12 5.9	15 22.0	11.3	
325	" "	16	...	14 55.2	15 26.1	...	8.2	End lost in shifting time.
326	" "	"	...	18 57.9	19 27.9	20 10.0	1.1	
327	" "	18	...	3 2.5	3 23.1	3 51.5	0.5	
333	" "	23	...	1 0.2	1 5.7	1 50.5	1.1	
337	" "	29	...	13 22.0	13 42.1	14 5.7	0.5	
338	" "	30	...	0 56.7	1 10.0	1 34.5	0.5	

TABLE IIa.—List of principal Disturbances registered by Colaba (E.—W.) Seismograph at Bombay (1906—1910).

Observatory number.	Date.			Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
				Beginning.	Maximum.		
1	1906	January	21 ...	H. m. 13 58·9	H. m. 14 6·7	mm. 0·5	Sensibility to tilt 1 mm. = 0"·11.
2	"	"	27 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
3	"	"	31 ...	15 56·7	16 50·8	6·0	Sensibility to tilt 1 mm. = 0"·10.
4	"	February	19 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
5	"	"	27 ..	19 47·2	19 49·9	1·2	Sensibility to tilt 1 mm. = 0"·12.
6	"	March	2 ...	6 24·8	...	...	Do. = 0"·08; maximum phase not well defined.
7	"	"	16-17 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
8	"	"	26 ...	1 48·3	...	...	Sensibility to tilt 1 mm. = 0"·04; maximum phase not well defined.
9	"	April	18 ...	13 42·5	14 29·0	3·8	Sensibility to tilt 1 mm. = 0"·14.
10	"	May	12 ...	5 54·0	6 1·5	2·0	Sensibility to tilt 1 mm. = 0"·06.
11	"	"	" ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
12	"	June	1 ...	...	...	...	Disturbance partially recorded.
13	"	"	24 ...	11 23·1	11 34·8	0·7	Sensibility to tilt 1 mm. = 0"·11.
14	"	August	17 ...	...	...	...	Record very faint.
15	"	"	30 ...	...	...	...	Movements very small and difficult to locate the phases exactly.
16	"	"	31 ...	...	...	...	Do. do.
17	"	September	7 ...	...	...	...	Do. do.
18	"	"	14 ...	...	...	...	Do. do.
19	"	October	2 ...	...	...	...	Do. do.
20	"	"	17 ...	...	...	...	Do. do.
21	"	"	24 ...	14 50·7	14 54·6	16·0	Sensibility to tilt 1 mm. = 0"·09.
22	"	"	31 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
23	"	November	19 ...	...	...	...	Owing to shifting of zero the lines are intermingled and it is therefore difficult to determine the phases exactly.
24	"	December	19 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
25	"	"	22 ...	18 26·8	18 36·2	12·5	Sensibility to tilt 1 mm. = 0"·03.
26	"	"	23 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
27	"	"	" ...	18 12·3	18 22·9	0·9	Sensibility to tilt 1 mm. = 0"·4.

1907.

1	1907	January	2 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
2	"	"	4 ...	5 25·4	5 32·9	45·1	Sensibility 1 mm. = 0"·03.
3	"	March	29 ...	20 55·0	21 5·5	0·5	Do. = 0"·02.
4	"	April	15 ...	..	7 27·53	1·5	Commencement lost in shifting time; sensibility to tilt 1 mm. = 0"·06.
5	"	June	1 ...	9 57·1	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0"·03.
6	"	"	5 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
7	"	"	25 ...	18 4·2	18 12·1	1·2	Sensibility to tilt 1 mm. = 0"·06.

Observatory number.	Date.		Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks
			Beginning.	Maximum.		
8	1907 July	12 ...	H. m. 17 22.3	H. m. 17 24.1	m. m. 0.4	Sensibility to tilt 1 mm. = 0".06.
9	" "	20 ...	13 54.9	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".07.
10	" September	2 ...	16 24.3	16 46.8	5.2	Sensibility to tilt 1 mm. = 0".05.
11	" October	4 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
12	" "	16 ...	...	...	...	Do. do.
13	" "	21 ...	4 28.5	4 36.6	29.5	Sensibility 1 mm. = 0".07.
14	" "	27 ...	5 23.8	5 29.5	0.7	Do. = 0".06.
15	" November	21 ...	...	...	...	Owing to shifting of zero the lines are intermingled and it is therefore difficult to determine the phases exactly.

1908.

1	1908 January	11 ...	...	4 3.5	0.5	Commencement lost in shifting time. Sensibility to tilt 1 mm. = 0".06.
2	" February	9 ...	18 17.4	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".04.
3	" March	5 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
4	" "	13 ...	...	...	...	Do. do.
5	" "	26 ...	...	...	...	Record faulty.
6	" April	4 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
7	" "	10 ...	...	...	...	Do. do.
8	" "	23 ...	0 3.9	0 12.1	...	Sensibility to tilt 1 mm. = 0".04
9	" May	5 ...	...	...	...	Beginning lost in shifting time.
10	" "	" ...	11 24.0	11 27.9	0.9	Sensibility to tilt 1 mm. = 0".04.
11	" "	15 ...	9 19.1	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".04.
12	" "	20 ...	...	...	...	Lost in shifting time.
13	" June	28 ...	17 13.0	17 13.7	0.5	Sensibility to tilt 1 mm. = 0".05.
14	" July	13 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
15	" August	17 ...	...	...	...	Do. do.
16	" "	20 ...	9 59.7	10 6.0	11.3	Sensibility to tilt 1 mm. = 0".07.
17	" "	22 ...	12 13.1	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".06.
18	" September	9 ...	6 50.4	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".07.
19	" "	23 ...	7 13.0	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".07.
20	" "	28 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
21	" October	13 ...	...	...	...	Do. do.
22	" "	20 ...	...	...	...	Do. do.
23	" "	23 ...	20 17.2	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".06.
24	" "	24 ...	21 24.3	21 26.5	1.2	Sensibility to tilt 1 mm. = 0".06
25	" November	2 ...	5 21.1	5 33.4	4.2	Do.
26	" "	" ...	...	...	...	Beginning lost shifting time.
27	" "	6 ...	7 29.1	7 47.9	0.7	Sensibility to tilt 1 mm. = 0".06.
28	" "	" ...	...	...	...	Movements very small and hence difficult to locate phases exactly.

Observatory number.	Date.			Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
				Beginning.	Maximum.		
29	1908 November	11	...	H. m. 13 27.3	H. m. ...	mm. ...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".06.
30	"	23	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
31	" December	12	...	13 0.2	13 11.7	5.0	Sensibility to tilt 1 mm. = 0".06.
32	"	18	...	15 40.7	15 46.4	4.5	Do. 1 mm. = 0".06.
33	"	28	...	4 29.7	4 42.4	2.1	Do. 1 mm. = 0".07.

1909.

1	1909 January	22	...	...	...	...	Owing to shifting of zero the lines are intermingled and it is therefore difficult to determine the phases exactly.
2	"	23	...	...	...	...	Do. do.
3	" February	2	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
4	"	9	...	11 36.2	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".20.
5	"	"	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
6	"	15	...	...	...	...	Do. do.
7	"	16	...	...	...	...	Do. do.
8	"	22	...	9 45.3	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".18.
9	" March	12-13	...	...	...	...	Owing to the failure of minute marks the exact times cannot be determined.
10	"	13	...	14 39.1	15 5.5	1.3	Sensibility to tilt 1 mm. = 0".20.
11	" April	10	...	...	...	...	Portion of disturbance lost in shifting time.
12	"	"	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
13	"	"	...	20 1.4	20 21.0	?	Sensibility to tilt 1 mm. = 0".18.
14	"	11	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
15	"	12	...	...	...	...	Do. do.
16	"	14	...	...	...	...	Do. do.
17	"	25	...	...	...	...	Do. do.
18	"	27	...	...	...	...	Commencement is doubtful.
19	"	29	...	22 58.7	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".17.
20	" May	17	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
21	"	"	...	...	...	...	Do. do.
22	"	30	...	...	...	...	Do. do.
23	" June	3	...	18 47.3	18 59.6	23.4	Sensibility to tilt 1 mm. = 0".14.
24	"	8	...	...	...	...	Disturbance lost in shifting time.
25	"	9	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
26	"	12	...	...	...	...	Do. do.
27	" July	7	...	21 41.8	21 45.8	10.5	Sensibility to tilt 1 mm. = 0".20.
28	"	26	...	10 57.1	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".25.
29	"	30	...	12 25.2	...	...	Do. do. 1 mm. = 0".25.
30	"	31	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
31	"	"	...	...	...	...	Do. do.
32	" August	14	...	...	...	...	Lost in shifting time.
33	"	16	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.

Observatory number.	Date.	Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
		Beginning.	Maximum.		
34	1909 September 7 ...	H. m. ...	H. m. ...	mm. ...	Movements very small and hence difficult to locate the phases exactly.
35	" " 8 ...	...	...	...	Do. do.
36	" October 20 ...	23 45.1	23 47.6	8.2	Sensibility to tilt 1 mm. = 0".36.
37	" " 30 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
38	" " 31 ...	...	...	...	Do. do.
39	" November 10 ...	6 20.6	6 29.7	2.0	Sensibility to tilt 1 mm. = 0".20.
40	" " 21 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
41	" December 9 ...	...	...	...	Do. do.
42	" " " ...	22 8.2	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".18.
43	" " " ...	23 48.6	...	...	Do. do. 1 mm. = 0".18.
44	" " 22 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.

1910.

1	1910 January 1 ...	11 39.7	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".18.
2	" " 22 ...	9 7.7	...	...	Do. do. 1 mm. = 0".17.
3	" February 4 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
4	" " 12 ...	18 27.0	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".20.
5	" March 25 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
6	" " 30 ...	17 20.7	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".19.
7	" " 31 ...	...	...	...	The smoked paper spoiled by insects all over and the commencement cannot be well distinguished.
8	" April 12 ...	0 30.3	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".19.
9	" " 16 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
10	" " 17 ...	...	...	...	Do. do.
11	" May 1 ...	...	...	...	Do. do.
12	" " 18 ...	...	...	...	Do. do.
13	" " 22 ...	6 44.1	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".12.
14	" June 1 ...	...	...	...	Lost in shifting time.
15	" " 9 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
16	" " 16 ...	6 45.1	...	...	Maximum phase not well defined. Sensibility to tilt 1 mm. = 0".15.
17	" " 25 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
18	" " 29 ...	...	...	...	Do. do.
19	" July 7 ...	8 29.2	8 43.3	1.7	Sensibility to tilt 1 mm. = 0".17.
20	" " 21 ...	22 18.9	...	...	Do. 1 mm. = 0".20; maximum phase not well defined.
21	" " 29 ...	10 47.7	...	...	Sensibility to tilt 1 mm. = 0".19; maximum phase not well defined.
22	" August 13	Movements very small and hence difficult to locate phases exactly.

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Observatory number.	Date.	Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.	
		Beginning.	Maximum.			
23	1910 August	17 ...	H. m. 12 2.5	H. m. 12 7.2	mm. 2.0	Sensibility to tilt 1 mm. = 0".25.
24	" "	21 ...	6 0.7	...	...	Do. 1 mm. = 0".25; maximum phase not well defined.
25	" Septembe	1 ...	0 59.8	...	...	Do. 1 mm. = 0".23; do.
26	" "	" ...	14 39.5	...	...	Do. 1 mm. = 0".24; do.
27	" "	6 ...	21 15.2	...	...	Do. 1 mm. = 0".25; do.
28	" "	7 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
29	" "	9 ...	1 31.6	2 6.1	1.5	Sensibility to tilt 1 mm. = 0".31.
30	" "	16 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
31	" October	5 ...	...	...	...	Do. do.
32	" "	7 ...	16 9.7	...	...	Sensibility to tilt 1 mm. = 0".21; maximum phase not well defined.
33	" "	18 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
34	" "	20 ...	5 15.8	...	...	Sensibility to tilt 1 mm. = 0".21; maximum phase not well defined.
35	" November	9 ...	...	...	...	Lost in shifting time.
36	" "	14 ...	7 50.0	...	...	Sensibility to tilt 1 mm. = 0".16; maximum phase not well defined.
37	" "	15 ...	14 47.9	...	...	Do. 1 mm. = 0".17; do.
38	" "	26 ...	4 57.9	...	...	Do. 1 mm. = 0".20; do.
39	" "	29 ...	2 41.8	...	...	Do. 1 mm. = 0".19; do.
40	" December	1 ...	15 59.8	16 15.7	1.5	Do. 1 mm. = 0".20.
41	" "	10 ...	9 50.4	10 20.9	1.6	Do. 1 mm. = 0".22.
42	" "	13 ...	11 46.2	12 3.4	9.9	Do. 1 mm. = 0".18.
43	" "	16 ...	14 54.0	15 15.5	6.1	Do. 1 mm. = 0".21.
44	" "	" ...	19 9.1	...	...	Do. 1 mm. = 0".21; maximum phase not well defined.
45	" "	18 ...	3 1.6	...	...	Do. 1 mm. = 0".25; do.
46	" "	23 ...	1 0.9	...	...	Do. 1 mm. = 0".20; do.
47	" "	29 ...	13 23.2	...	...	Do. 1 mm. = 0".20; do.
48	" "	30 ...	0 56.5	...	...	Do. 1 mm. = 0".20; do.

TABLE IIb.—List of principal Disturbances registered by Colaba (N.—S) Seismograph at Bombay (1906 to 1910).

Observatory number.	Date.			Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
				Beginning.	Maximum.		
				H. m.	H. m.	mm.	
1	1906 January	21	...	13 59.2	14 6.9	0.4	Sensibility to tilt 1 mm. = 0".31.
2	" "	27	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
3	" "	31	...	15 56.6	17 4.9	6.7	Sensibility to tilt 1 mm. = 0".27.
4	" February	19	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
5	" "	27	...	19 46.8	19 49.3	6.1	Sensibility to tilt 1 mm. = 0".25.
6	" March	2	...	6 24.7	...	...	Do. 1 mm. = 0".31; maximum phase not well defined.
7	" "	16-17	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
8	" "	26	...	1 48.2	...	...	Sensibility to tilt 1 mm. = 0".30; maximum phase not well defined.
9	" April	11	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
10	" "	"	...	...	...	...	Do. do.
11	" "	13	...	...	...	...	Do do.
12	" "	18	...	13 42.5	14 27.9	3.9	Sensibility to tilt 1 mm. = 0".27.
13	" "	29	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
14	" May	12	...	5 53.7	5 59.6	1.0	Sensibility to tilt 1 mm. = 0".31.
15	" "	"	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
16	" June	1	...	...	...	...	Do. do.
17	" "	24	...	11 24.3	11 38.0	0.6	Sensibility to tilt 1 mm. = 0".31.
18	" August	17	...	0 34.2	0 57.6	9.5	Do. 1 mm. = 0".27.
19	" "	30	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
20	" "	31	...	...	...	...	Do. do.
21	" September	7	...	...	...	...	Do. do.
22	" "	14	...	...	...	...	Do. do.
23	" October	2	...	...	...	...	Do. do.
24	" "	17	...	...	...	...	Do. do.
25	" "	24	...	14 47.5	14 55.8	4.2	Sensibility to tilt 1 mm. = 0".42.
26	" "	31	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
27	" November	19	...	7 27.7	7 48.5	3.9	Sensibility to tilt 1 mm. = 0".42.
28	" December	19	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
29	" "	22	...	18 26.7	18 39.3	8.6	Sensibility to tilt 1 mm. = 0".50.
30	" "	23	...	18 11.8	18 22.4	1.4	Do. 1 mm. = 0".38.

1907.

1	1907 January	2	...	12 23.7	13 13.8	0.9	Sensibility to tilt 1 mm. = 0".38.
2	" "	4	...	5 25.6	5 39.9	21.2	Do. 1 mm. = 0".38.
3	" March	29	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
4	" April	15	...	...	7 40.3	2.5	Commencement lost in shifting time.
5	" "	18	...	21 16.4	21 30.9	0.6	Sensibility to tilt 1 mm. = 0".42.
6	" "	19	...	0 9.2	...	...	Do. 1 mm. = 0".42; maximum phase not well defined.
7	" July	12	...	17 22.2	17 23.2	0.5	Sensibility to tilt 1 mm. = 0".36.
8	" September	2	...	16 24.5	16 47.3	3.5	Do. 1 mm. = 0".42.
9	" "	"	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.

Observatory number.	Date.			Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
				Beginning.	Maximum.		
10	1907 October	16	...	H. m. ...	H. m. ...	mm. ...	Movements very small and hence difficult to locate phases exactly.
11	"	21	...	4 28.6	4 37.5	9.0	Sensibility to tilt 1 mm. = 0".50.
12	"	27	...	5 23.8	5 29.2	0.6	Do. 1 mm. = 0".50.
13	" November	21	...	20 13.2	20 19.6	1.3	Do. 1 mm. = 0".50.
14	" December	30	...	...	...	...	Movements very small and hence difficult to locate phases exactly.

1908.

1	1908 January	11	...	...	4 0.7	1.3	Sensibility to tilt 1 mm. = 0".50 ; commencement lost in shifting time.
2	" February	9	...	18 21.6	18 26.9	3.9	Sensibility to tilt 1 mm. = 0".50.
3	" March	5	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
4	" "	13	...	6 30.9	...	...	Sensibility to tilt 1 mm. = 0".50 ; maximum phase not well defined.
5	" "	26	...	23 23.2	...	...	Do. 1 mm. = 0".50 ; do.
6	" "	27	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
7	" April	2	...	...	...	...	Do. do.
8	" "	4	...	...	...	...	Do. do.
9	" May	5	...	...	...	...	Lost in shifting time.
10	" "	"	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
11	" "	15	...	...	...	...	Do. do.
12	" June	3	...	16 0.4	...	...	Sensibility to tilt 1 mm. = 0".50 ; maximum phase not well defined.
13	" "	28	...	17 13.3	17 15.2	0.4	Do. 1 mm. = 0".50.
14	" August	17	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
15	" "	20	...	10 3.6	10 4.1	1.3	Sensibility to tilt 1 mm. = 0".50.
16	" October	23	...	20 18.1	...	...	Do. 1 mm. = 0".50 ; maximum phase not well defined.
17	" "	24	...	21 20.5	21 23.8	0.5	Do. 1 mm. = 0".50.
18	" November	2	...	5 24.6	...	...	Do. 1 mm. = 0".50 ; maximum phase not well defined.
19	" "	6	...	7 28.9	...	...	Do. 1 mm. = 0".50 ; do.
20	" "	11	...	...	...	...	Movements very small and hence difficult to locate phases exactly.
21	" December	12	...	13 0.6	13 11.2	3.2	Sensibility to tilt 1 mm. = 0".50.
22	" "	18	...	15 41.5	...	...	Do. 1 mm. = 0".50 ; maximum phase not well defined.
23	" "	28	...	4 29.4	4 41.6	0.5	Do. 1 mm. = 0".50.

1909.

1	1909 January	23	...	2 58.9	...	...	Sensibility to tilt 1 mm. = 0".50 ; maximum phase not well defined.
2	" February	9	...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
3	" "	16	...	...	...	...	Do. do.
4	" March	12-13	...	...	...	...	Do. do.

Observatory number.	Date.		Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
			Beginning.	Maximum.		
			H. m.	H. m.	min.	
5	1909 March	13 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
6	" "	17-18 ...	...	...	...	Do. do.
7	" April	10 ...	...	...	...	Do. do.
8	" "	" ...	...	...	...	Do. do.
9	" "	27 ...	...	...	...	Do. do.
10	" May	17 ...	...	...	...	Do. do.
11	" June	3 ...	18 49.1	19 0.2	7.5	Sensibility to tilt 1 mm. = 0".31.
12	" "	8 ...	...	...	...	Disturbance lost in shifting time.
13	" "	12 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
14	" July	7 ...	21 41.6	21 45.2	3.9	Sensibility to tilt 1 mm. = 0".33.
15	" "	26 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
16	" "	30 ...	...	...	...	Do. do.
17	" "	31 ...	...	...	...	Do. do.
18	" August	14 ...	...	...	...	Lost in shifting time.
19	" October	20 ...	23 45.5	...	...	Sensibility to tilt 1 mm. = 0".13; maximum phase not well defined.
20	" November	10 ...	6 22.6	...	...	Do. 1 mm. = 0".13; do.
21	" "	21 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
22	" December	9 ...	...	...	...	Beginning is uncertain.
23	" "	" ...	...	...	...	Do.
24	" "	" ...	23 47.5	...	...	Sensibility to tilt 1 mm. = 0".17; maximum phase not well defined.

1910.

1	1910 January	1 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
2	" February	4 ...	...	...	...	Do. do.
3	" "	12 ...	18 26.6	...	...	Sensibility to tilt 1 mm. = 0".12; maximum phase not well defined.
4	" March	25 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
5	" "	30 ...	17 20.7	...	...	Sensibility to tilt 1 mm. = 0".17; maximum phase not well defined.
6	" "	31 ...	19 5.1	...	...	Do. 1 mm. = 0".14; do.
7	" April	12 ...	0 30.1	0 47.0	4.5	Do. 1 mm. = 0".16.
8	" "	16 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
9	" "	17 ...	...	...	...	Do. do.
10	" May	1 ...	...	...	...	Do. do.
11	" "	22 ...	6 44.6	...	...	Sensibility to tilt 1 mm. = 0".19; maximum phase not well defined.
12	" June	1 ...	...	...	...	Lost in shifting time.
13	" "	16 ...	6 49.1	...	...	Sensibility to tilt 1 mm. = 0".17; maximum phase not well defined.
14	" "	25 ...	...	...	...	Movements very small and hence difficult to locate phases exactly.
15	" "	29 ...	...	...	...	Do. do.
16	" July	7 ...	8 32.1	...	...	Sensibility to tilt 1 mm. = 0".17; maximum phase not well defined.
17	" "	29 ...	10 47.9	...	...	Do. 1 mm. = 0".17; do.
18	" August	17 ...	12 3.3	12 7.1	1.3	Do. 1 mm. = 0".17.

Observatory number.	Date.		Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
			Beginning.	Maximum.		
			H. m.	H. m.	mm.	
19	1910 August	21	...	...	...	Commencement lost in shifting time.
20	" September	1	0 59.8	...	...	Sensibility to tilt 1 mm. = 0".18; maximum phase not well defined.
21	" "	"	14 39.9	...	...	Do. 1 mm. = 0".18; do.
22	" "	6	...	...	...	Movements very small and hence difficult to locate phases exactly.
23	" "	7	...	...	...	Do. do.
24	" "	9	1 30.1	2 3.1	2.5	Sensibility to tilt 1 mm. = 0".16.
25	" "	16	...	...	...	Movements very small and hence difficult to locate phases exactly.
26	" October	5	...	...	...	Do. do.
27	" "	18	...	...	...	Do. do.
28	" "	20	5 16.5	...	...	Sensibility to tilt 1 mm. = 0".16; maximum phase not well defined.
29	" November	9	...	...	...	Lost in shifting time.
30	" "	14	7 49.9	...	...	Sensibility to tilt 1 mm. = 0".14; maximum phase not well defined.
31	" "	15	14 47.9	15 14.7	1.1	Do. 1 mm. = 0".16.
32	" "	26	...	...	...	Owing to shifting of zero the lines are intermingled and it is therefore difficult to determine the phases exactly.
33	" "	29	2 44.6	...	...	Sensibility to tilt 1 mm. = 0".15; maximum phase not well defined.
34	" December	1	15 59.8	16 12.1	3.4	Do. 1 mm. = 0".16.
35	" "	10	9 50.7	...	...	Do. 1 mm. = 0".14 do.
36	" "	13	11 46.1	12 2.9	3.6	Do. 1 mm. = 0".16.
37	" "	16	14 54.6	15 13.7	11.1	Do. 1 mm. = 0".16.
38	" "	"	19 8.8	...	...	Do. 1 mm. = 0".16; maximum phase not well defined.
39	" "	18	3 1.8	...	...	Do. 1 mm. = 0".14 do.
40	" "	23	1 0.7	...	...	Do. 1 mm. = 0".16 do.
41	" "	29	13 23.0	...	...	Do. 1 mm. = 0".14 do.
42	" "	30	...	...	...	Movements very small and hence difficult to locate phases exactly.

TABLE III.—List of principal Disturbances registered by Omori-Ewing Seismograph.

1908.

Observatory number.	Date.	Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
		Beginning.	Maximum.		
		H. m.	H. m.	mm.	
1	1908 January	11 ... 3 42.9	4 3.5	5.5	
2	" February	9 ... 18 17.0	18 26.9	13.7	
3	" March	5 ... 2 25.8	2 52.0	1.6	
4	" "	13 ... 6 31.8	...	...	Maximum phase not well marked.
5	" "	23 ... 12 32.9	...	...	Maximum uncertain.
6	" "	26 ... 23 23.3	0 30.5	5.5	
7	" April	4 ... 6 23.6	6 26.8	1.0	
8	" "	10 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
9	" "	16 ... 17 42.9	17 46.1	1.0	
10	" "	19 ... 8 11.2	...	...	Maximum phase not well defined.
11	" May	5 ...	...	...	Partly lost in shifting time.
12	" "	" ... 11 25.1	11 28.6	1.7	
13	" "	15 ... 9 18.7	9 33.7	3.3	
14	" "	20 ...	...	...	Partly lost in shifting time.
15	" June	3 ... 15 59.5	16 8.5	2.6	
16	" "	28 ... 17 11.6	17 13.7	1.0	
17	" July	13 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
18	" August	17 ...	...	...	Owing to the failure of minute marks exact times cannot be determined.
19	" "	20 ... 9 58.1	10 4.2	22.6	
20	" "	22 ... 12 12.6	12 14.5	0.5	
21	" September	9 ...	...	...	Partly lost in shifting time.
22	" "	23 ... 7 13.4	...	...	Maximum phase not well marked.
23	" "	26 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
24	" "	28 ...	...	...	Do. do.
25	" October	13 ...	...	...	Do. do.
26	" "	20 ...	...	...	Do. do.
27	" "	23 ... 20 18.0	20 23.3	1.0	
28	" "	24 ... 21 20.5	21 23.8	3.5	
29	" November	2 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
30	" "	6 ... 7 29.0	7 48.1	2.0	
31	" "	11 ... 13 28.2	...	...	Maximum phase not well marked.
32	" "	23 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
33	" December	12 ... 13 0.3	13 12.4	17.9	
34	" "	" ... 19 9.3	...	...	Maximum phase not well defined.
35	" "	18 ... 15 41.5	15 47.5	4.1	
36	" "	28 ... 4 29.7	4 41.8	2.9	

1909.

1	1909 January	22 ... 12 43.7	...	...	Maximum phase not well marked.
2	" "	23 ... 2 53.8	...	...	Do. do.
3	" February	9 ... 11 36.2	...	...	Do. do.
4	" "	15 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
5	" "	16 ... 8 9.8	...	...	Maximum phase not well marked.
6	" "	22 ... 9 45.4	...	...	Do. do.
7	" March	12-13 ...	...	...	Owing to the failure of minute marks exact times cannot be determined.

Observatory number.	Date.	Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
		Beginning.	Maximum.		
8	1909 March 13 ...	H. 14 m. 39.5	H. 15 m. 12.9	mm. 2.0	Movements very small and hence difficult to locate the phases exactly.
9	" " 17-18 ...	...	...	...
10	" April 10 ...	18 55.9	19 28.7	0.9	Movements very small and hence difficult to locate the phases exactly.
11	" " 10 ...	20 1.8	20 22.7	13.8	
12	" " 11 ...	...	...	...	Do. do.
13	" " 12 ...	...	...	...
14	" " 14 ...	...	...	...	Do. do.
15	" " 25 ...	...	...	...
16	" " 27 ...	...	...	...	Do. do.
17	" " 29 ...	22 59.1	...	...
18	" May 17 ...	...	...	...	Maximum phase not well defined. Movements very small and hence difficult to locate the phases exactly.
19	" " 17 ...	...	...	...
20	" June 3 ...	18 47.4	...	...	Maximum phase not well defined. Partly lost in shifting time.
21	" " 8 ...	...	...	...
22	" " 9 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
23	" " 12 ...	...	...	...
24	" July 7 ...	21 41.9	1st 21 45.3 2nd 21 49.8	41.4 43.6	Do. do.
25	" " 26 ...	10 58.9	11 4.3	1.5	
26	" " 30 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
27	" August 2 ...	10 26.4	...	...
28	" " 14 ...	...	...	...	Maximum phase not well defined. Movements very small and hence difficult to locate the phases exactly.
29	" " 16 ...	...	...	...
30	" " 22 ...	...	...	...	Do. do.
31	" September 7 ...	15 51.7	...	...
32	" " 8 ...	...	...	...	Maximum uncertain. Movements very small and hence difficult to locate the phases exactly.
33	" October 20 ...	23 43.3	23 47.6	44.3	
34	" November 10 ...	6 22.2	...	...	Maximum uncertain. Movements very small and hence difficult to locate the phases exactly.
35	" " 21 ...	...	...	...
36	" December 9 ...	...	...	...	Do. do.
37	" " " ...	...	...	...
38	" " " ...	...	...	...	Do. do.

1910.

1	1910 January 1 ...	...	...	...	Movements very small and hence difficult to locate the phases exactly.
2	" " 22 ...	9 15.8	...	...
3	" February 4 ...	...	...	...	Maximum phase not well marked. Movements very small and hence difficult to locate the phases exactly.
4	" " 12 ...	...	...	...
5	" March 30 ...	...	...	...	Do. do.
6	" " 31 ...	...	...	...
7	" April 12 ...	0 31.2	0 46.5	2.9	Movements very small and hence difficult to locate the phases exactly.
8	" " 16 ...	...	...	...
9	" " 17 ...	...	...	...	Do. do.

Observatory number.	Date.	Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
		Beginning.	Maximum.		
		H m.	H. m.	mm.	
10	1910 May	1 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
11	" "	13 ...	...	...	Do. do.
12	" "	18 ...	...	...	Do. do.
13	" "	22 ...	6 45.1	...	Maximum uncertain.
14	" June	1 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
15	" "	16 ...	6 44.6	7 2.7	5.5
16	" "	25 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
17	" "	29 ...	...	...	Do. do.
18	" July	7 ...	8 24.9	...	Maximum uncertain.
19	" "	21 ...	22 15.9	...	Do.
20	" "	29 ...	10 47.0	...	Do.
21	" August	13 ...	8 2.3	...	Do.
22	" "	" ...	...	...	Movements very small and hence difficult to locate the phases exactly.
23	" "	17 ...	12 3.8	12 8.9	18.2
24	" "	21 ...	5 57.2	...	Maximum uncertain.
25	" September	1 ...	0 56.6	1 20.5	2.5
26	" "	" ...	14 41.0	...	Maximum uncertain.
27	" "	6 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
28	" "	7 ...	...	...	Do. do.
29	" "	9 ...	1 28.2	2 8.0	1.5
30	" "	16 ...	...	...	Do. do.
31	" October	20 ...	5 16.2	5 26.7	1.2
32	" November	9 ...	6 14.0	7 9.2	15.2
33	" "	14 ...	7 52.0	8 3.8	0.1
34	" "	15 ...	14 47.8	15 21.0	0.7
35	" "	26 ...	4 58.0	...	Maximum uncertain.
36	" "	29 ...	2 48.0	...	Do.
37	" December	1 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
38	" "	10 ...	9 50.7	...	Maximum uncertain.
39	" "	13 ...	11 46.8	12 6.7	33.1
40	" "	16 ...	14 53.8	15 21.4	25.0
41	" "	" ...	19 1.7	...	Maximum uncertain.
42	" "	18 ...	3 1.3	...	Do.
43	" "	23 ...	1 1.2	...	Do.
44	" "	29 ...	...	...	Movements very small and hence difficult to locate the phases exactly.
45	" "	30 ...	0 56.3	...	Maximum uncertain.

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

1906.

Observatory number.	Date.			Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
				Beginning.	Maximum.		
1	1906 January	31	...	H. m. 16 52.9	H. m. 17 14.4	mm. ...	Whenever the maximum is not entered, it should be inferred that the trace is either too faint and the maximum uncertain, or owing to rapidity of movement no impression is left on the photographic film indicating the true maximum.
2	" February	27	...	19 46.7	...	...
3	" March	26	...	1 48.5	...	...
4	" August	17	...	0 53.4	...	...
5	" October	24	...	14 51.2	...	...
6	" December	22	...	18 26.8	...	...

1907.

1	1907 January	4	Commencement doubtful.
2	" April	18	...	21 14.5	21 16.1	1.2	Movements very small and hence difficult to locate the phases exactly.
3	" "	"	...	...	...	...
4	" May	4	...	8 46.3	...	...
5	" July	9	...	19 10.2	19 10.5	1.3	Commencement doubtful as the hourly breaks have failed.
6	" "	12	...	17 21.3	17 24.4	3.0	
7	" "	20	...	13 47.8	...	...
8	" September	2	...	16 29.0	Commencement doubtful.
9	" "	"	...	18 6.7	...	...
10	" October	4	...	10 35.2	...	...
11	" "	11	...	14 41.7	Movements very small and hence difficult to locate the phases exactly.
12	" "	21	...	4 28.2	...	...
13	" "	27	...	5 20.5	...	...
14	" November	17	Movements very small and hence difficult to locate the phases exactly.
15	" "	21	...	20 8.8	...	...

1908.

1	1908 January	11	...	3 43.4	3 44.1	2.1	Curve faint.
2	" "	12	...	10 25.9	10 27.4	2.1	
3	" February	9	...	18 17.9	As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
4	" March	5	...	2 26.6	2 35.4	3.0	Maximum uncertain.
5	" "	13	...	6 26.5	...	...
6	" "	21	...	4 2.1	4 2.5	1.0	
7	" "	23	...	12 33.7	12 38.7	2.0	Commencement doubtful.
8	" "	26	...	23 23.1	23 28.1	2.0	
9	" "	27	...	4 7.4	4 12.3	1.0	
10	" April	2	...	6 1.8	6 2.0	1.0	As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
11	" "	4	...	6 20.1	...	...
12	" "	16	...	17 43.0	17 46.3	6.0	
13	" "	19	...	8 7.7	8 14.3	3.0	
14	" "	22	...	23 55.9	23 56.7	4.4	

Observatory number.	Date.		Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
			Beginning.	Maximum.		
			H. m.	H. m.	mm.	
15	1908 May	5 ...	6 26.7	6 29.7	3.4	
16	" "	" ...	11 20.2	11 21.7	1.7	
17	" "	20 ...	7 50.1	7 57.2	2.1	
18	" June	3 ...	16 0	16 11.0	12.0	
19	" "	28 ...	17 11.5	17 14.1	9.0	Commencement doubtful as it is mixed up in tremors.
20	" August	20 ...	9 58.1	10 1.1	12.5	
21	" "	22 ...	12 11.0	12 13.9	4.5	Commencement doubtful as it is mixed up in tremors.
22	" September	9 ...	6 48.3	6 50.9	5.5	
23	" "	20 ...	5 54.5	6 0.7	5.8	Not recorded in any other seismographs.
24	" "	23 ...	7 9.6	7 15.0	4.7	
25	" October	20 ...	2 52.0	2 52.5	1.5	Commencement doubtful.
26	" "	23 ...	20 18.2	20 25.7	12.5	
27	" "	24 ...	21 20.6	21 29.6	> 11.0	
28	" November	2 ...	5 17.7	5 28.5	7.0	
29	" "	" ...	7 25.5	7 30.1	3.4	
30	" "	6 ...	7 20.5	7 31.3	1.5	Commencement doubtful.
31	" "	" ...	13 57.3	14 8.3	1.4	Do.
32	" "	11 ...	13 27.5	13 29.8	7.0	
33	" "	12 ...	16 46.6	16 49.6	1.8	Commencement doubtful.
34	" "	" ...	22 1.8	22 9.3	2.1	
35	" "	23 ...	12 51.9	12 52.0	1.5	
36	" December	12 ...	13 0.2	...	...	As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
37	" "	" ...	19 1.5	19 2.0	2.7	
38	" "	18 ...	15 41.3	15 43.2	> 9.0	
39	" "	28 ...	4 29.8	4 32.3	3.2	

1909.

1	1909 January	22 ...	12 40.2	12 44.0	2.2	Commencement doubtful as it occurs during hourly break.
2	" "	23 ...	2 54.1	2 56.1	> 5.0	
3	" February	9 ...	...	...	...	Record doubtful.
4	" "	15 ...	0 51.6	1 1.6	2.0	
5	" "	16 ...	8 4.7	8 9.9	3.0	
6	" "	22 ...	9 41.0	9 45.6	4.7	
7	" March	12 ...	23 28.6	23 37.4	2.4	
8	" "	13 ...	14 39.6	14 48.1	4.5	
9	" "	17 ...	23 2.9	23 10.4	2.5	
10	" "	29 ...	9 3.8	9 8.9	4.5	
11	" April	9 ...	7 3.5	7 4.9	5.0	
12	" "	10 ...	19 56.9	20 22.6	1.2	
13	" "	14 ...	20 2.1	20 3.1	4.0	
14	" "	27 ...	12 54.5	12 57.9	2.2	
15	" "	29 ...	22 51.0	22 51.5	2.0	
16	" May	15 ...	14 20.6	14 22.6	1.9	Not recorded in any other seismographs.
17	" "	17 ...	8 22.3	8 31.3	2.2	
18	" "	20 ...	13 48.1	13 49.5	4.0	Not recorded in any other seismographs.
19	" "	" ...	21 41.6	21 46.1	1.4	Do. do.
20	" "	30 ...	21 12.3	21 21.1	1.9	
21	" June	3 ...	18 47.3	...	...	As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.

Observatory number.	Date.		Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
			Beginning.	Maximum.		
			H. m.	H. m.	mm.	
22	1909 July	7 ...	21 42'0	...	...	Commencement doubtful as it occurs at the time of hourly break. As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
23	" "	26 ...	10 57'0	10 59'5	3'0	Commencement mixed up in tremors.
24	" "	30 ...	...	11 30'3	2'7	
25	" August	2 ...	10 26'4	...	...
26	" "	14 ...	6 44'1	6 49'3	1'9	Commencement doubtful as it is mixed up in tremors. As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
27	" "	22 ...	15 44'6	15 47'1	4'0	
28	" "	24 ...	12 2'4	12 10'1	4'5	
29	" September	7 ...	15 37'0	...	...	Not recorded in any other seismographs. Commencement doubtful as it is mixed up in tremors. As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
30	" "	8 ...	17 2'7	17 13'9	5'0	Not recorded in any other seismographs.
31	" "	16 ...	18 56'5	19 3'2	6'5	
32	" "	28 ...	23 52'5	23 54'7	1'5	
33	" October	17 ...	22 26'3	22 32'3	4'0	Not recorded in any other seismographs. Commencement doubtful due to tremors.
34	" "	20 ...	23 44'1	...	...	As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
35	" "	30 ...	10 27'4	10 29'9	1'7	As the photographic trace is very faint owing to rapid movements, maximum cannot be determined. Commencement doubtful due to tremors.
36	" November	10 ...	6 22'5	...	...
37	" December	9 ...	15 47'3	15 52'3	1'7	
38	" "	" ...	21 56'4	21 57'1	2'5	
39	" "	" ...	23 40'3	23 40'8	3'5	

1910.

1	1910 January	1 ...	11 24'5	...	...	Maximum uncertain.
2	" "	13 ...	8 45'4	8 49'5	3'2	Not recorded in any other seismographs.
3	" "	22 ...	9 1'5	...	...	Maximum uncertain.
4	" March	2 ...	14 52'9	15 0'7	1'7	Not recorded in any other seismographs.
5	" "	5 ...	10 2'0	10 2'5	2'8	Do. do.
6	" April	12 ...	0 29'4	...	...	As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
7	" May	11 ...	15 55'1	...	...	As the photographic trace is very faint owing to rapid movements, maximum cannot be determined. Not recorded in any other seismographs.
8	" June	16 ...	6 47'3	6 49'9	3'5	Commencement mixed up in tremors. Not recorded in any other seismographs.
9	" "	19 ...	...	16 11'7	1'7	
10	" July	12 ...	7 39'8	...	...	Commencement doubtful. As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
11	" "	21 ...	22 14'8	...	...	Maximum uncertain.
12	" August	13 ...	21 23'7	...	...	As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
13	" "	17 ...	12 4'1	...	...	Do. do.

Observatory number.	Date.			Time of Disturbance in G. M. T.		Amplitude of half the complete range of maximum motion.	Remarks.
				Beginning.	Maximum.		
				H. m.	H. m.	mm.	
14	1910 August	21	...	5 56.9	6 3.9	3.0	Not recorded in any other seismographs. Maximum uncertain.
15	" "	27	...	7 7.8	7 9.8	5.0	
16	" September	1	...	0 53.0	...	...
17	" "	9	...	1 26.3	Do.
18	" "	16	...	23 23.5	23 24.1	3.5	Maximum uncertain.
19	" October	7	...	16 10.2	...	...
20	" November	9	...	6 16.4	6 20.6	3.5	
21	" "	14	...	7 43.0	7 44.0	1.3	Maximum uncertain.
22	" "	15	...	14 40.8	14 41.3	> 4.0	
23	" "	24	...	15 44.1	15 44.5	1.5	
24	" "	26	...	4 54.9	5 5.7	2.0	Maximum uncertain.
25	" December	1	...	15 59.9	...	...
26	" "	10	...	9 40.2	...	...
27	" "	13	...	11 46.4	As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
28	" "	16	...	14 54.5	14 58.0	9.0	Commencement doubtful. Maximum uncertain.
29	" "	"	...	19 1.6	19 2.0	2.2	
30	" "	18	...	2 54.6	...	...
31	" "	29	...	13 16.0	13 16.5	2.0	As the photographic trace is very faint owing to rapid movements, maximum cannot be determined.
32	" "	30	...	0 56.8	...	...