

British Association for the Advancement of Science.

Circular No. 9, issued by the Seismological Committee, Professor J. W. JUDD, C.B., F.R.S. (Chairman), Mr. JOHN MILNE, F.R.S., *Shide, Isle of Wight* (Secretary).

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I. General Notes on Registers from Similar Horizontal Pendulums (*Milne type*).

The following registers are continuous with those published by the Seismological Investigation Committee in their first eight circulars and in the Reports of the Association, 1896 to 1899.

If observers at these and other places will kindly send a copy of their register, together with copies of their more important seismograms, to the Secretary of the Seismological Investigation Committee, British Association, Burlington House, London, W., as early as possible after June 30, and again after December 31 of each year, the interval of time which must elapse before they receive copies of the registers of co-workers in various parts of the world will be considerably reduced.

The time employed is Greenwich mean time (civil) expressed in hours, minutes, and in decimals of minutes. 24 or 0 hours = midnight.

Amplitude indicates half of the complete range of the maximum motion,

↑↑↑↑

and is expressed in millimetres. Values less than 1 millimetre refer to the thickening of the line and indicate half its width.

As 1° turn of the calibrating screw in the bed-plate of the instrument causes a tilt of 1''·9, and as this is accompanied by a measurable displacement of the outer end of the boom, it is easy to determine the angular value corresponding to a 1 millimetre displacement. This quantity should be stated at the end of each register.

At *Shide, Kew, Bidston, and Edinburgh* the instruments are at present so adjusted that a 4° turn of the screw results in a displacement of the outer end of the boom of 14 mm. One millimetre displacement therefore equals 0''·55.

The Register from Shide, Newport, Isle of Wight, England.
Observer, JOHN MILNE; Assistant, SHINOBU HIROTA.

The following entries refer to records obtained from three pendulums A, B, and C. These are given in their alphabetical order. When there are only one or two entries, the remarks indicate the instrument or instruments to which they refer. An amplitude of 0·2 mm. is equivalent to a slight thickening of the trace with a duration of from 1 to 5 minutes. When from tremors or other causes a time is uncertain this is indicated by the sign ? Pendulum A is the type instrument standing on its own pier. Its period has been kept at 17 seconds, and 1 mm. deflection of the boom = 0''·55 arc.

B and C are on the same piers and on the same stand. B is parallel to A and has the same sensibility. C is oriented N. and S. and has a period of 20 seconds. On April 29 the original weight on C of 155 gms was changed to one of 404 gms. On December 8 the original weight of 237 gms. on B was changed to one of 394 gms., and its period was made 30 seconds.

No.	Date	P.T. Commence	Max.	Max. Ampli- tude	Duration	Remarks
1903.						
737	July 1	H. M. 7 50·1	H. M. —	MM. 0·2	H. M. 0 5	C only. Also at 9h. 24m.
738	" 2	21 57·5	—	0·2	0 10	B record.
739	" 3	12 40·3	22 2·5	0·2	0 75	C record.
740	" 4	5 14·9	—	0·5	0 15	B and C records
741	" 8	12 46·1	—	0·2	0 5	C only.
742	" 9	{ 15 17·3 16 26·5	—	0·2	0 5	"
743	" 9	22 0·0	—	0·2	0 5	"
744	" 10	{ 6 22·5 7 11·3 7 59·1	—	—	—	C only. Slight thickening.
745	" 11	12 29·7	—	0·2	0 18	A.
	" 11	12 29·7	—	0·2	0 12	B.
	" 11	12 1·2	12 38·8	0·2	1 40	C.
746	" 12	6 33·8	—	0·2	0 10	B.
	" 12	5 48·1	6 44·0	0·7	1 55	C.
747	" 18	9 10·8	—	0·2	0 33	C only.
748	" 21	9 25·3	—	0·2	0 5	"
749	" 26	0 40·6	—	0·2	0 24	"
750	" 27	10 55·0	11 19·6	0·7	1 0	A.
	" 27	10 54·0	11 24·5	0·7	1 0	B.
	" 27	10 38·7	11 4·2	0·7	0 45	C.
751	" 27	12 55·0	—	0·5	0 30	A.

The Register from Slide, Newport, Isle of Wight, England—continued.

No.	Date	P.T. Commence		Max.	Max. Amplitude	Duration	Remarks
		H. M.	H. M.				
751	July 27	13 0.1	—	—	0.2	0 20	B.
	" 27	13 0.1	—	—	0.2	0 5	C.
752	" 28	4 32.7	—	—	0.5	0 15	B.
	" 28	4 24.5	—	—	0.5	0 10	C.
753	" 29	6 16.7	—	—	0.2	0 25	C. B hardly visible.
754	" 29	10 3.2	—	—	0.2	0 10	C.
755	Aug. 4	11 51.0	—	—	0.2	—	B. C not working.
756	" 6	0 22.0	—	—	0.2	—	A and B. C not working.
757	" 6	4 4.6	—	—	0.5	0 15	A. " "
	" 6	4 9.7	—	—	0.5	0 15	B. " "
758	" 9	17 37.9	—	—	0.2	—	A. C not working.
	" 9	17 44.1	—	—	0.2	—	B. " "
759	" 11	4 35.9?	4 44.1	—	2.0	0 40	A. C not working.
	" 11	4 38.0?	4 44.1	—	2.5	0 40	B. " "
760	" 13	15? 32.9	15? 42.2	—	0.5	0 30	A.
	" 13	16 31.9	16 43.2	—	0.7	0 35	B.
	" 13	16 19.5	16 35.0	—	1.0	0 43	C.
761	" 16	14 10.3	14 20.7	—	0.5	0 28	A.
	" 16	14 14.5	—	—	0.2	0 16	B.
	" 16	14 5.2	—	—	0.2	0 14	C.
762	" 19	10 0.1	—	—	0.2	0 25	C.
763	Sept. 2	23 57.0	—	—	0.2	0 17	C.
764	" 7	?	8 13.5	—	0.2	—	A.
	" 7	?	?	—	—	—	B.
	" 7	?	8 37.3	—	0.7	—	C.
765	" 8	6 22.9	—	—	0.2	0 8	A.
	" 8	6 15.6	—	—	0.2	0 30	B.
	" 8	6 8.4	6 23.9	—	0.5	0 25	C.
766	" 9	12 29.1	—	—	0.2	0 13	B.
	" 9	12 20.5	—	—	0.2	0 25	C.
767	" 13	15 36.3	15 41.5	—	1.5	0 20	A.
	" 13	15 36.3	15 42.5	—	1.5	0 20	B. C not working.
768	" 13	19 6.5	—	—	0.2	0 5	A.
	" 13	19 7.5	—	—	0.2	0 5	B.
769	" 23	1 49.4	1 50.4	—	0.5	0 7	A.
	" 23	1 51.0	—	—	0.5	0 7	B.
	" 23	1 51.0	—	—	0.2	0 5	C.
770	" 23	9 57.1	—	—	0.2	0 5	C.
771	" 25	1 46.3	—	—	0.2	0 8	A.
	" 25	1 46.3	—	—	0.2	0 5	B.
	" 25	1 45.3	—	—	0.2	0 4	C.
772	Oct. 4	6 0.3	6 4.4	—	0.5	0 45	C.
773	" 10	17 32.4	17 37.6	—	0.16	0 12	B.
	" 10	17 31.4	17 40.7	—	0.12	0 12	C.
774	" 14	4 26.0	—	—	0.2	—	B.
	" 14	4 4.5	—	—	0.2	0 15	C.
775	" 20	4 1.5	{ 4 16.9 } { 4 42.5 }	—	0.5	0 50	C.
776	" 20	8 20.2	—	—	0.2	0 25	C.
777	" 21	10 25.1	10 55.9	—	0.5	1 5	A.
	" 21	10 23.9	10 54.4	—	0.7	1 15	B.

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The Register from Slide, Newport, Isle of Wight, England—continued.

No.	Date	P.T. Commence		Max.	Max. Amplitude	Duration	Remarks
		H. M.	H. M.				
777	Oct. 21	10 20.9	10 54.4	—	0.2	1 15	C. Also at 12h. 10.7m., d. 12.
778	" 23	3 10.7	—	—	0.2	0 12	A.
	" 23	3 10.7	—	—	0.2	0 15	B. C not working.
779	" 24	2 3.7	—	—	0.2	0 5	A and B. C not working.
780	" 29	15 2.5	15 49.2	—	0.5	1 35	C.
781	" 30	5 33.2	—	—	0.2	0 50	A.
	" 30	5 14.7	5 21.8	—	0.5	0 50	C.
782	" 30	18 20.7	—	—	0.2	0 5	C.
783	Nov. 10	18 40.2	—	—	0.3	0 35	B and C. A is hardly visible.
784	" 10	22 18.6	—	—	0.2	0 8	A. " "
785	" 17	21 33.6	—	—	0.2	0 10	A.
	" 17	21 28.5	—	—	0.5	0 15	B.
	" 17	21 15.3	21 30.5	—	0.5	0 36	C.
786	" 18	16 28.7	—	—	0.2	0 10	A.
	" 18	16 27.7	—	—	0.2	0 5	B and C.
787	" 19	15 38.9	—	—	0.2	0 21	C. 16h to 20h. thickenings. Tremors on B.
788	" 24	14 38.5	14 48.7	—	0.3	0 23	B. On A tremors; not on C.
789	" 26	12 11.1	12 27.3	—	2.0	1 3	A.
	" 26	12 14.1	12 27.2	—	2.2	0 44	B.
	" 26	12 15.1	12 22.2	—	0.5	0 28	C.
790	Dec. 1	15 15.0	15 20.1	—	0.1	0 10	A and B.
	" 1	15 1.8	15 14.0	—	1.0	1 15	C.
791	" 3	9 54.7	—	—	0.5	0 35	A. On B just visible.
	" 3	9 46.5	9 51.5	—	0.7	0 20	C.
792	" 5	12 45.7	—	—	—	—	Thickening on A.
793	" 6	—	23 48.3	—	1.0	—	A, B and C.
794	" 11	5 15.3	5 36.7	—	1.2	2 50	A.
	" 11	5 15.3	5 32.5	—	1.5	2 35	B. D. of 1st P.T.s = 4m.
	" 11	5 15.3	5 35.7	—	3.5	2 35	C. " "
795	" 11	14 29.6	—	—	0.5	0 7	A.
	" 11	14 30.6	—	—	0.2	0 5	B.
	" 11	14 30.6	—	—	0.5	0 7	C. Also slight thickenings 19 to 20hrs.
796	" 13	20 41.5	—	—	0.2	0 15	C. On B just visible. On A tremors.
797	" 22	11 48.5	—	—	0.2	0 5	C.
798	" 23	1 51.7	—	—	0.2	0 42	A.
	" 23	1 44.0	—	—	1.0?	1 0	B.
	" 23	1 44.0	—	—	0.5	1 0	C.
799	" 23	9 19.9	—	—	0.2	0 20	B.
	" 23	9 27.2	—	—	0.2	0 5	C.
800	" 24	22 12.5	22 21.9	—	0.5	0 15	C only.
801	" 25	2 58.9	3 6.1	—	0.2	0 12	"
802	" 28	3 51.6	4 3.8	—	1.0	0 35	A. B and C not working.

Register from Kew Observatory (National Physical Laboratory), Richmond, Surrey.
Director, R. T. GLAZEBROOK, D.Sc., F.R.S.; Superintendent, C. CHREE,
LL.D., F.R.S.; Observer, E. G. CONSTABLE.

No.	Date	P.T. or L.W. Commence	Max.	Max. Amplitude	Duration	Remarks
1903.						
465	July 4	H. M. 5 16.0	H. M. —	M.M. 0.3	H. M. 0 5	—
466	" 6	A series of small movements from 10h. 35m. to 11h. 30m. but seismic character perhaps doubtful.				
467	" 7	9 33.0	—	0.25	0 14	—
468	" 10	6 21.5	—	0.3	0 4	Ill-defined.
469	" 11	12 37.5	—	0.25	0 3	"
470	" 12	6 11.7	—	0.3	0 6	"
471	" 14	10 17.0	—	0.3	0 5	"
472	" 24	23 27.4	23 31.0	0.6	0 9	—
473	" 27	11 1.0	—	0.3	0 22	—
474	" 28	4 30.5	—	0.25	0 4	Ill-defined.
475	Aug. 2	18 20.5	—	0.25	0 4	—
476	" 9	17 28.0	—	0.25	0 5	—
477	" 11	4 37.8	4 42.0 4 51.5	3.3 1.7	0 42	1st maximum doubtful.
478	" 13	16 31.0	16 42.5	0.6	0 33	—
479	" 15	12 18.2	13 10.3	1.5	4 16	Seismic character doubtful.
480	" 16	14 11.7	14 17.5	0.5	0 16	—
481	Sep. 7	7 36.0	8 37.0	0.3	1 30	Long series of ill-defined movements.
482	" 8	6 20.0	6 29.5	0.4	0 15	—
483	" 10	12 39.6	—	0.3	0 9	—
484	" 10	17 58.8	18 5.0	0.4	0 14	—
485	" 10	22 45.5	—	0.25	0 5	—
486	" 13	15 36.6	15 38.8	0.7	0 13	—
487	" 23	1 50.8	—	0.4	0 6	—
488	" 25	1 45.5	—	0.2	0 4	A mere blurring of the line.
489	Oct. 4	6 19.2	—	0.25	0 11	—
490	" 10	17 34.5	—	0.2	0 4	A mere blurring of the line.
491	" 18	13 15.0	—	0.25	0 7	Seismic character doubtful.
492	" 21	10 23.5	11 0.0	0.8	0 48	End of movement interrupted.
493	" 23	3 10.7	3 12.0	0.5	0 13	—
494	" 29	13 28.2	—	0.3	0 12	—
495	" 29	15 2.0	15 51.5	0.5	1 11	Movements preceding maximum very small.
496	" 30	5 22.0	5 32.5	0.5	0 42	—
497	Nov. 10	18 47.7	—	0.25	0 28	—
498	" 14	16 16.5	—	0.4	0 5	—
499	" 16	9 46.2	—	1.0	1 34	Seismic character doubtful. Possibly A.T.
500	" 17	21 23.0	—	0.2	0 13	A mere blurring of the trace.
501	" 18	16 32.0	16 34.0	0.4	0 5	P.T. commencement obscured by A.T.
502	" 22	9 47.8	—	0.3	0 6	—
503	" 24	14 38.7	14 45.5	0.4	0 15	—
504	" 26	12 12.7	12 26.0	1.1	0 38	—
505	Dec. 1	15 11.0	—	0.2	0 4	Merely a blurring of the trace.
506	" 3	9 40.8	9 50.0	0.3	0 17	—
507	" 6	23 43.5	23 47.5	0.8	0 20	—
508	" 7	14 22.2	—	0.3	0 11	—

Register from National Physical Laboratory (Kew Observatory)—continued.

No.	Date	P.T. or L.W. Commence	Max.	Max. Amplitude	Duration	Remarks
509	Dec. 7	H. M. 15 30.0	H. M. 15 47.5	M.M. 1.1	H. M. 0 45	P.T. commencement uncertain.
510	" 11	—	17 18.0	1.4	1 4	Times somewhat approximate throughout.
511	" 19	14 11.8	—	0.3	0 5	—
512	" 23	1 44.5	—	0.7	0 53	Movement began suddenly.
513	" 23	15 23.2	—	0.4	0 6	—
514	" 28	3 37.0	4 7.5	1.1	1 0	—

Register from Liverpool Observatory, Bidston. Director, W. E. PLUMMER.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
1903.								
408	July 2	H. M. —	H. M. 1 30.0	H. M. 29 2.0	H. M. 1 45.0	M.M. —	H. M. 0 15	Small.
409	" 2	—	21 53.9	5 14.9	22 19.5	0.4	0 27	—
409	" 4	—	—	5 21.0	5 25.6	0.5	0 12	—
406	" 10	—	—	9 40.0	—	—	—	Small.
407	" 10	—	15 54.0	—	16 8.0	0.3	0 14	—
408	" 11	—	12 37.3	12 40.0	12 47.0	—	0 10	—
409	" 12	—	6 16.1	6 26.8	6 43.0	0.3	0 23	—
410	" 13	—	0 55.0	0 58.0	1 8.9	0.7	0 13	Time uncertain; bearing lines not recorded.
411	" 19	—	18 18.0	—	18 31.0	—	0 13	Small.
412	" 23	—	23 22.2	23 30.4	23 43.2	1.0	0 26	—
418	" 27	—	0 43.8	0 56.2	1 4.0	—	0 20	Line thickening.
414	" 27	—	10 43.8	11 4.5	11 26.0	0.7	0 40	—
415	" 27	—	12 53.0	—	13 4.0	—	0 11	Small.
416	" 28	—	4 21.0	4 28.3	4 41.1	0.3	0 20	—
417	" 31	—	14 24.7	14 34.2	14 43.0	0.3	0 18	—
418	Aug. 2-3	—	23 44.2	23 56.5	0 17.0	0.2	0 33	—
419	" 3	—	7 26.2	7 37.0	7 42.3	0.1	0 16	—
420	" 6	—	0 12.0	—	0 22.0	—	0 10	—
421	" 6	—	3 59.1	4 11.3	4 22.0	0.2	0 33	—
422	" 9	—	17 24.4	17 27.2	17 35.5	0.1	0 11	—
423	" 11	—	4 37.0	4 43.6	5 24.2	2.3	0 57	—
424	" 13	—	16 29.9	16 35.2	17 6.4	0.7	0 37	Slight recrudescence 18 h. 24 m.
425	" 16	—	13 58.8	14 13.9	14 54.0	0.5	0 55	—
426	" 19	—	10 46.0	—	10 46.0	—	—	Small.
427	" 21	—	—	5 0.0	—	—	—	Similar to last.
428	" 26	—	13 58.2	14 5.3	14 18.0	0.3	0 18	—
429	" 29	—	1 34.4	1 38.0	1 47.0	0.3	0 13	—
430	" 29	—	15 59.5	16 6.3	16 17.1	0.3	0 18	—
431	Sept. 2	—	15 38.0	—	15 54.0	—	—	Possibly insect.
432	" 3	6 25	0 56.0	7 8.3	7 22.4	0.5	0 26	—
433	" 7	—	9 14.2	9 32.3	9 45.0	0.3	0 29	—
434	" 20	—	14 19.0	—	15 0.0	—	—	Possibly A.T.
435	" 25	—	1 41.3	1 48.0	1 58.7	0.4	0 17	—
436	" 26	—	22 40.0	—	23 34.0	—	0 54	Possibly A.T.
437	Oct. 4	—	6 7.2	6 12.7	6 29.8	0.4	0 23	—
438	" 10	—	17 34.6	17 38.5	17 54.0	1.0	0 29	—
439	" 12	—	17 33.0	17 39.2	17 44.3	—	0 11	Small.
440	" 15	—	18 41.2	18 44.4	18 51.5	—	0 10	Small. Oct. 17, 355 del.
441	" 19	—	3 29.7	3 40.4	4 18.0	0.3	0 48	—
442	" 26	—	4 22.5	4 22.0	4 59.1	0.2	0 38	—
443	" 21	10 24	10 52.1	10 57.7	12 17.3	2.4	1 25	—
444	" 23	—	3 7.7	3 13.0	3 33.3	1.5	0 26	—
445	" 23	—	14 22.6	14 24.4	14 48.9	0.3	0 22	—
446	" 24	—	2 2.8	2 7.1	2 18.0	0.2	0 15	—
447	" 29	—	15 1.3	15 42.6	16 21.2	0.8	1 20	—
448	" 30	—	4 39.6	5 28.4	6 12.0	0.7	1 32	Possibly A.T.
449	" 30	—	16 24.2	16 28.8	16 57.0	—	0 13	Small and del.

Register from Liverpool Observatory, Bidston—continued.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
	H. M.	H. M.	H. M.	H. M.	MM.	H. M.		
450	Nov. 8	—	—	—	—	—	0 19	—
451	" 10	—	15 23.0	15 32.8	15 41.5	0.2	0 19	—
452	" 13	—	18 41.6	18 52.0	19 6.3	0.8	0 25	—
453	" 17	—	21 26.3	21 29.4	21 49.2	0.2	0 23	Doubtful: accidental disturbance.
454	" 24	—	13 53.0	14 39.7	15 13.2	0.6	1 20	—
455	" 28	—	3 30.0	—	4 30.0	—	—	Probably A.T. Slight.
456	" 26	11 10	11 58.4	12 25.2	12 26.3	1.1	1 28	Small.
457	" 27	—	15 4.3	15 9.2	15 16.1	—	0 12	—
458	" 28	—	10 52.0	11 3.7	11 26.2	0.2	0 34	—
459	Dec. 1	—	7 13.7	7 32.5	8 21.6	0.5	1 8	—
460	" 1	—	15 5.2	15 14.4	15 36.5	—	0 31	Suspiciously like A.T.
461	" 3	—	9 39.3	9 44.2	10 2.0	0.3	0 23	—
462	" 3	—	22 7.2	22 11.0	22 33.0	0.2	0 26	—
463	" 5	—	3 29.2	3 44.3	6 13.4	0.7	0 44	—
464	" 6-7	—	23 42.7	23 48.5	0 5.0	0.9	0 23	—
465	" 7	—	15 14.1	15 40.3	16 14.2	1.4	1 0	—
466	" 10	—	17 14.1	17 43.9	18 59.2	1.5	1 45	—
467	" 10	—	19 45.0	19 54.4	20 12.6	—	0 28	Small.
468	" 11	—	2 22.6	2 38.5	2 39.0	—	0 16	Small.
469	" 18	—	13 11.2	13 39.0	13 57.3	0.3	0 45	—
470	" 23	—	1 37.4	1 44.8	3 24.0	0.8	1 47	—
471	" 24	—	9 52.6	10 1.0	10 12.7	0.2	0 20	—
472	" 28	3 9.2	3 40.0	4 2.3	4 42.0	1.4	1 3	—
473	" 31	—	14 19.4	14 32.2	15 1.0	0.6	0 42	—

Register from Royal Observatory, Edinburgh. Director, Dr. R. COPELAND; Observer, THOMAS HEATH.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
	H. M.	H. M.	H. M.	H. M.	MM.	H. M.		
1903.								
207	July 4	5 20.0	—	—	5 23.0	0.2	0 13.0	Small tremors.
208	" 6	8 23.0	—	—	16 7.0	—	7 44.0	Sinusoidal line.
209	" 13	1 37.0	—	—	1 47.5	0.2	0 10.5	—
210	" 23	23 24.0	—	—	23 23.5	0.6	0 19.9	—
211	" 27	11 2.5	—	—	11 38.0	—	0 36.5	Series of small tremors.
212	" 28	4 31.0	—	—	4 34.5	0.2	0 3.5	—
213	Aug. 2-3	23 50.0	—	—	0 17.0	0.2	0 27.0	—
214	" 6	0 21.0	—	—	0 25.0	0.2	0 4.0	—
215	" 6	4 10.0	—	—	4 17.0	0.25	0 7.0	—
216	" 11	4 38.5	4 42.5	—	4 43.8	0.3	0 51.5	—
217	" 13	16 32.5	16 40.0	—	16 41.5	0.6	0 35.0	—
218	" 16	14 14.5	—	—	14 21.5	0.4	0 26.5	—
219	" 27-28	13 30.0	—	—	6 30.0	—	17 0.0	Small A.T.s frequent.
220	Sept. 7	8 3.5	—	—	8 12.0	0.2	1 19.5	—
221	" 8	6 28.0	—	—	6 38.0	—	0 8.0	Very slight tremor.
222	" 10	14 26.0	—	—	14 31.5	0.2	0 5.5	—
223	" 13	15 32.0	15 37.0	—	15 37.5	0.8	0 23.0	—
224	" 23	1 53.5	—	—	1 54.5	0.4	0 4.5	—
225	" 25	1 47.0	—	—	1 51.0	0.2	0 4.0	—
226	Oct. 3	17 30.0	—	—	Oct. 6, 15 30.0	—	70 0.0	Instrument in almost constant agitation from A.T.s, of which several equal 0.3 mm. Perhaps A.T.s.
227	" 10	17 37.0	—	—	17 49.0	—	0 12.0	—
228	" 21	10 24.5	—	—	10 30.5	0.35	0 24.0	—

Register from Royal Observatory, Edinburgh—continued.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
	H. M.	H. M.	H. M.	H. M.	MM.	H. M.		
229	Oct. 21	10 53.0	10 57.0	11 2.0	11 41.5	0.65	0 49.5	—
230	" 22	3 7.5	—	—	3 11.5	0.8	0 27.5	—
231	" 23	14 32.0	—	—	14 34.0	0.25	0 5.0	—
232	" 25-26	7 0.0	—	—	10 30.0	—	27 30.0	Many small A.T.s.
233	" 29	35 51.5	16 0.5	16 3.0	16 44.0	0.4	0 52.5	—
234	" 30	5 27.0	—	—	6 30.0	0.3	1 3.0	—
235	Nov. 15	14 3.5	—	—	14 6.0	—	0 2.5	Very slight tremor.
236	" 18	16 23.0	—	—	16 28.0	0.2	0 10.5	—
237	" 24	14 50.5	—	—	14 54.0	0.2	0 7.0	—
238	" 28	12 3.8	12 23.5	12 33.5	12 57.0	0.5	0 53.2	—
239	" 27-28	21 30.0	—	—	14 0.0	—	16 20.0	Numerous A.T.s.
240	Dec. 1	7 31.5	—	—	8 1.0	—	0 29.5	Small A.T.s.
241	" 5	5 42.0	5 44.0	5 46.0	6 27.5	0.6	0 45.5	—
242	" 6-7	23 47.5	23 50.5	23 53.0	0 2.0	0.8	0 14.5	—
243	" 7	15 12.5	15 41.0	15 45.0	16 16.0	0.8	1 3.5	—
244	" 10	17 13.5	17 37.0	17 44.0	18 38.0	0.5	1 2.5	—
245	" 11	2 27.0	—	—	2 28.5	0.2	0 5.5	—
246	" 23	1 40.0	1 44.5	—	1 46.0	0.5	0 11.0	—
247	" 28	3 20.5	—	—	3 24.0	0.2	0 3.5	Small tremor, perhaps A.T.
248	" 28	3 41.5	3 57.5	4 8.0	4 33.0	0.5	0 51.5	—

1903, Sept. 9 . 1° of foot-screw = 3.25 mm. measured on photographic roll.
 " Dec. 4 . 1° " = 3.60 mm. " "
 1904, Jan. 7 . 1° " = 3.65 mm. " "
 " " . 1° " = 3.42 mm. " "
 Mean 1° = 3.48 mm. " "
 0''·55 tilt of pillar = 1 mm. amplitude at end of boom.

Register from The Coats Observatory, Paisley. Chairman of Directors, Rev. ANDREW HENDERSON, LL.D., F.R.A.S.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
	H. M.	H. M.	H. M.	H. M.	MM.	H. M.		
1903								
54	Jan. 4	5 46.5	—	—	6 50	—	1 4	—
55	" 5	22 46.6	—	—	22 51.3	23 0	0.4	0 14
56	" 7	0 52	—	—	—	2 48	0.6	1 66
57	" 14	1 57.5	2 3.2	2 34	3 50(?)	12.5	2 0	Doubtful.
58	" 17	16 25.7	16 47	16 51.5	17 30	1.0	1 5	—
59	" 19	—	—	14 0	—	—	—	Faint.
60	" 22	0 15.4	—	—	1 10	0.4	0 55	—
61	" 24	—	—	16 30	—	—	—	Paper exposed; blackened.
62	" 30	23 53.5	—	—	1 0	—	1 7	Thickening.
63	Feb. 1	?	10 3	10 14.6	11 12	4.8	—	—
64	" 1	12 27.5	—	—	12 31.8	—	—	—
65	" 1	13 22	—	—	13 47	—	—	Repetitions of preceding (?)
66	" 2	10 8.7	—	—	10 56	0.6	0 47	Disturbed
67	" 4	6 40	—	—	—	—	—	Thickening.
68	" 5	19 14.5	—	—	19 41	20 36	0.8	1 27
69	" 6	8 8	—	—	8 17	8 45	1.0	0 37
70	" 9	—	—	—	5 45	—	—	Small.
71	" 10	3 20.5	—	—	4 0	5 10	—	Small movements.
72	" 11	16 30	—	—	—	—	—	Small.
73	" 11	22 15	—	—	—	—	—	—
74	" 24	18 40	—	—	20 0	—	1 20	Thickenings.

Register from The Coats Observatory, Paisley—continued.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
75	Feb. 27	H. M. 1 12	H. M. 1 45.5	H. M. 1 54	H. M. 3 50	MM. 4.5	H. M. 2 38	—
76	" 28	10 18	—	10 29	10 51	0.4	0 33	—
77	Mar. 12	—	—	14 50	—	—	—	Thickening.
78	" 15	—	—	6 55	—	—	—	"
79	" 15	14 41	14 49.3	14 51.6	15 25	1.0	0 44	"
80	" 22	4 36	—	5 5	5 55	—	1 19	Small.
81	" 22	11 28	—	—	13 20	—	1 52	"
82	" 22	15 3	—	—	15 45	—	0 42	"
83	" 22	22 35	—	—	—	—	—	Doubtful.
84	" 28	8 27	—	—	—	—	—	Thickening.
85	" 29	17 6.7	17 21.5	—	17 38.8	?	0.6	—
86	" 30	1 (?)	—	—	—	—	—	(?) Tremors.
86	April 3	Movements about 10	40 and 21	20.	Film improperly developed.	—	—	Obscured.
87	" 28-29	23 58	—	—	—	2.5	—	Obscured.
88	" 29	—	—	5 48	—	—	—	"
89	May 13	—	—	7 5.5	—	—	—	"
90	" 28	—	—	14 14	—	—	—	"
91	" 29	9 42	9 47.5	9 50	10 (?)	1.0	0 18(?)	Interrupted.
92	June 2	13 29.5	13 34.5	13 34.5	15 0	1.6	1 30	Second max. at 13 44.
93	" 2	—	—	16 3	—	—	—	Small.
94	" 4	15 35	—	15 39	15 51	0.5	0 16	—
95	" 7	9 53	—	10 5	10 22	0.5	0 22	Movements at 9 16, 9 30, and 9 42.5.
96	" 9	—	—	12 42.5	—	—	—	Small.
97	" 10	—	—	14 57	15 21	—	—	Thickenings; also at 15 15.5
98	" 11	—	—	7 40	—	—	—	Thickening.
99	" 24	15 38.5	—	16 19	16 35	0.4	0 57	—
100	July 1	0 44.5	0 50	0 52	—	0.5	—	? Seismic.
101	" 2	—	—	9 8	—	0.1	—	—
102	" 6	—	—	13 59.3	—	0.1	—	—
103	" 6	16 35	—	18 55	17 12	0.4	0 27	? Small.
104	" 14, 15	Light out.	—	13 30	—	—	—	—
105	" 17	14 22.5	—	14 24.5	—	—	—	Small.
106	" 19	—	—	16 16	—	—	—	"
106	" 22, 23	Film spoiled.	—	—	—	—	—	—
107	" 26	—	—	12 44	—	—	—	?
108	" 27	11 1.5	—	11 12	—	—	—	Also 12 7 and 12 14.
109	" 28	Room under repair.	—	—	—	—	—	—
110	" 30	9 57.4	—	10 0	10 4	0.8	0 7	?
111	" 31 to Aug. 4	Repairs, &c.	—	6 45	—	0.1	—	?
112	Aug. 5	6 42.5	—	—	15 50	—	—	Thickenings.
112	" 6, 7, 8	Repairs.	—	—	—	—	—	—
113	" 11	4 42(?)	—	4 44	5 15(?)	3.0	0 43(?)	Obscured.
114	" 13	16 32.5	16 38.5	16 40	17 10	0.5	0 28	—
114	" 14	Light out.	—	—	—	—	—	—
115	" 18	—	—	13 15	—	—	—	Small.
116	" 18	17 44	—	19 2	19 30	0.5	1 46	—
117	Sept. 3	—	—	11 1	—	—	—	Small.
118	" 5	—	—	14 0	—	—	—	"
119	" 8	8 19.5	—	—	8 53	—	—	Two small movements.
120	" 6	—	—	11 12	—	—	—	Small.
121	" 8	—	—	9 0	—	—	—	"
122	" 8	6 31.4	—	8 35.5	6 46	0.2	0 15	—
123	" 13	Light out from 22h. to 21h. of Sept. 9.	15 36.8	15 38.8	15 52.5	1.2	0 21	—
124	" 23	15 31.6	1 52.7	1 53.3	1 58.4	0.5	—	—
125	" 23	—	—	10 1.5	—	—	—	Small.
125	" 24	Light out from 12 30 to 22 40.	—	—	—	—	—	—
126	Oct. 12	—	12 16	12 36	—	—	—	Small.
127	" 13	—	—	12 49.5	—	—	—	—
128	" 21	10 39	—	—	11 35	—	1 5	Doubtful; disturbed.
129	" 21	17 39.7	—	—	18 25	0.2	0 45	—
130	" 23	3 10.3	—	—	3 25.5	0.4	0 15	—
131	" 23	—	—	14 39.5	—	—	—	Thickening.
132	" 23	—	—	23 50	—	—	—	Spoiled in development.
133	" 30	5 5	—	5 43	6 23	0.25	1 18	—

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Register from The Coats Observatory, Paisley—continued.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
134	Nov. 3	H. M. —	H. M. —	H. M. 0 0	H. M. —	MM. —	—	? Seismic.
135	" 3	—	—	10 50.8	18 0.5	—	—	Two thickenings.
136	" 9	Paper off roller	for over 24 hours.	22 30	—	—	—	Small.
137	" 24	14 49.5	—	14 51.6	14 56.4	0.3	0 7	—
138	" 25	12 9.7	12 25.4	12 27.5	—	0.8	—	Interrupted.
139	" 25	—	—	11 5	—	—	—	Small.
140	Dec. 6	23 46.7	—	23 52	23 59.5	0.3	0 13	—
141	" 7	15 10.3 or 15 36.7	15 38.8	15 44.8	16 10	1.2	1 0	—
142	" 10	17 15.2	17 36.3	17 44.2	18 29	1.0	1 14	—
143	" 23	1 44.3	1 46.8	1 46.4	2 30.5	0.5	0 56	—
144	" 28	3 20.1	3 55.8	4 3.6	4 51.3	0.6	1 11	—
145	" 31	—	—	14 45	—	—	—	Thickening.

From the end of April to the middle of August air tremors were of abnormal amplitude, and long continued.
 4° turn of the calibrating screw=14 mm. displacement of boom.
 Instrument tested at intervals and adjusted if necessary.
 1 mm. displacement=0°55.

Register from the Meteorological Observatory, Toronto, Canada.
Director, Professor R. F. STUART.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Remarks
1903.							
470	July 21	H. M. Nothing	H. M. —	H. M. —	H. M. —	MM. —	See next Register.
471	" 27	0 29.0	—	—	0 44.0	0.05	Minute thickening.
472	" 27	10 46.0	10 49.0	10 52.8	11 34.0	1.1	Medium.
473	" 27	12 42.0	—	12 45.8	—	0.5	Small, lasting a short time.
474	" 28	4 1.2	—	4 5.8	—	0.1	Mere thickening.
474	" 31	14 10.4	—	14 11.4	—	0.05	Mere thickening.
475	Aug. 3	7 7.2	—	—	7 17.0	0.1	Very small.
476	" 9	17 2.5	—	—	17 8.0	0.1	Small.
477	" 11	4 53.5	—	—	5 23.0	0.2	Very small and extended.
478	" 13	16 44.2	—	—	16 48.0	0.05	Mere thickening.
479	" 16	13 50.0	13 54.0	13 55.0	14 24.0	1.2	Medium.
480	Sept. 7	7 41.0	—	8 28.0	9 4.0	0.3	Small and extended, long interval between P.T.s and L.W.
481	" 10	11 10.6	—	—	11 18.0	0.05	Small, lasting but a short time.
482	" 10	14 9.5	—	—	14 15.5	0.2	Marked thickening.
483	" 13	15 46.0	—	—	15 52.5	0.1	Minute tremors.
484	Oct. 17	13 8.4	—	—	13 22.0	0.1	Very small, no P.T.s.
485	" 21	19 40.5	—	—	11 34.0	0.1	Extended thickenings.
486	" 29	15 25.2	—	16 0.0	16 28.0	0.5	Very small and well marked.
487	" 30	4 41.0	—	5 13.0	6 10.0	0.5	Very small and well marked.
488	Nov. 10	18 13.0	—	18 34.0	18 49.0	0.3	Very small and well marked.
489	" 10	22 1.0	—	—	22 16.0	0.05	Minute thickenings.
490	" 26	12 14.0	—	12 44.0	13 5.0	0.2	Marked thickenings.
491	" 29	18 55.0	—	—	18 58.2	0.1	Marked thickenings.
492	Dec. 1	7 4.5	—	7 27.0	7 56.0	0.3	Very small but well marked.
493	" 5	6 25.8	5 29.5	5 34.0	6 10.0	1.5	Medium.
494	" 7	15 5.0	—	15 8.0	—	—	Very small.
495	" 23	1 27.0	—	—	2 39.0	0.10	Very small but extended.

Vibration of boom 14.4 seconds.

1 mm.=0°73.

Register from Victoria, B.C., Canada.
Superintendent, E. BAYNES REID.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Remarks
1903.							
476	July 12	H. M. 5 42.8	H. M. —	H. M. 6 34.0	H. M. 7 5.0	MM. 0.5	Prolonged thickenings decidedly marked.
477	" 21	17 16.1	—	—	17 18.1	0.1	Minute thickening, brief period.
478	" 27	0 24.0	—	—	0 31.0	0.1	Marked thickenings.
479	" 27	11 6.5	—	11 21.0	11 44.5	0.3	Very small.
480	" 28	4 08.0	4 11.0	4 12.0	4 21.0	0.4	Small.
481	" 31	14 32.0	—	—	—	0.05	Minute thickening.
482	Aug. 3	6 55.2	—	7 1.0	7 8.5	0.4	Small and well marked.
485	" 9	17 13.0	—	—	17 36.0	0.1	Thickening.
484	" 11	4 58.0	—	—	5 44.0	0.2	Very small and extended.
485	" 13	16 28.2	—	—	—	0.05	Brief thickening.
486	" 16	14 8.2	14 10.0	14 14.0	14 25.0	0.3	Small.
487	Sept. 7	7 36.2	—	—	8 50.0	0.2	Small but prolonged.
488	" 10	11 4.0	—	11 13.0	11 23.0	0.3	Small, lasting only a short time.
489	" 10	13 54.5	—	13 57.5	14 11.5	1.1	Moderate and well marked.
490	" 11	23 44.8	—	—	—	0.045	Thin thickenings.
491	" 13	15 50.0	—	—	16 5.0	0.05	Thin thickenings.
492	Oct. 17	Nothing	—	—	—	—	See last Register.
492	" 21	10 42.0	—	—	12 9.0	0.15	Marked and extended thickening.
493	" 29	14 43.5	—	15 41.0	16 54.0	0.2	Very small, continuing for a long time.
494	" 30	4 21.5	—	5 8.0	6 1.0	0.2	Marked thickenings.
495	Nov. 6	15 4.2	—	—	15 16.0	0.15	Marked thickenings.
496	" 10	17 44.8	—	18 33.5	18 44.0	0.06	Slight thickening.
497	" 26	12 27.5	—	12 31.8	12 45.5	0.3	Small.
498	" 29	18 54.0	—	—	19 0.0	0.2	Marked thickening.
499	Dec. 1	6 57.4	—	7 20.0	8 8.8	0.5	Small, prolonged, well marked.

The earthquake recorded at Toronto on the 6th was missed at Victoria. Boom of the paper.

500	" 7	15 8.0	—	—	16 6.0	0.3	Very small, gradual beginning, a quiet interval, then marked disturbance.
501	" 23	1 25.0	—	1 25.5	2 20.0	0.4	Small and well marked, no P.T.s.
502	" 30	15 17.0	Gradual commencement	—	15 24.0	0.2	Small and well marked, lasting but a short time.

Vibration of boom 15 seconds. 1 mm. = 0.76.

Register from the Johns Hopkins University, Baltimore, U.S.A.
Professor HARRY FIELDING REID.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
1903.								
No record July 4d. 17h. to 5d. 12h.								
No record July 7d. 22.3h. to 8d. 2h.								
47	July 9	21 31.6	—	21 32	21 38	0.3	—	—
48	" 12	6 23.2	—	6 43.1	7 22	0.6	—	E.Q.
49	" 13	1 2.2	1 4.8	1 6.8	1 33	0.7	—	E.Q.
No record July 25d. 0.4h. to 25d. 14.6h.								
50	" 27	10 43.6	10 45.6	10 48.5	11 28	1.1	—	E.Q.
51	" 27	12 39.2	12 41	12 42.1	13 0	0.4	—	E.Q. Closely resembles 50.
No record July 27d. 22.1h. to 28d. 0.2h.								
No record July 28d. 21.6h. to 29d. 0.3h.								
52	" 31	19 24.6	—	—	19 30	0.4	—	Probably not E.Q.
53	Aug. 2	23 51.2	—	23 55.2	24 4.2	0.2	—	Small swelling.
54	" 3	7 6.0	—	7 8.0	7 21	0.3	—	Probably earthquake.

Register from the Johns Hopkins University, Baltimore, U.S.A.—continued.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
55	Aug. 5	H. M. 12 0	H. M. —	H. M. —	H. M. —	MM. —	H. M. —	Small disturbance, probably not E.Q.
56	" 7	18 37.5	—	18 40.5	18 45.5	0.4	15 9	Probably not E.Q.
57	" 8	16 0	—	—	—	—	—	Air current.
58	" 9	17 0	—	—	17 29	0.4	—	Probably earthquake.
No record Aug. 10d. 5h. to 19.5h.								
No record Aug. 16d. 3h. to 23.8h.								
No record Aug. 17d. 15h. to 20.2h.								
No record Aug. 26d. 7h. to 27d. 0.2h.								
No record Aug. 27d. 18.2h. to 20h.								
No record Sept. 2d. 18.3h. to 3d. 0.5h.								
61	Sept. 10	14 10	—	14 11	?	0.4	—	—
				14 14	?	0.4	—	—
No record Sept. 10d. 21h. to 11d. 19.3h.								
No record Sept. 17d. 13.5h. to 17d. 20.1h.								
63	" 18	4 0	—	—	16 0	0.3	—	Air current.
64	" 22	21 10	—	—	21 15	0.2	—	Probably not E.Q.
65	" 25	6 5	—	—	13 0	0.1	—	Air current.
71	Oct. 4	5 55	—	6 4.5	6 9	0.3	—	Small swelling of line.
74	" 14	0 14	—	—	0 22.5	0.1	—	Small swelling of line.
No record Oct. 15d. 23.3h. to 16d. 18.2h.								
78	" 25	8 0	—	—	15 0	0.4	—	Air current.
				15 34	—	0.6	—	—
				15 41	—	0.6	—	—
80	" 29	14 19	15 33.4	15 44.5	16 46	0.6	—	E.Q. Record contains four very similar swellings.
				15 49	—	0.6	—	E.Q.
81	" 30	5 3	0 9	5 14.4	6 9	0.9	—	—
				0 13	—	0.8	—	—
83	Nov. 1	7 7	—	—	7 12	0.1	—	Small swelling.
84	" 6	3 30	—	—	13 0	—	—	Air current.
85	" 7	—	—	—	13 0	—	—	Strong air current.
86	" 7	13 58	—	13 54	13 56	0.4	—	Probably not E.Q.
87	" 8	7 0	—	—	18 0	—	—	Air current.
88	" 9	1 11	1 12.6	1 14.3	1 18	0.4	—	Earthquake.
89	" 10	18 14.5	18 30	18 32	18 49	0.4	—	"
No record Nov. 17d. 6h. to 18.4h.								
92	" 18	3 0	—	—	13 0	0.4	—	Air current.
93	" 19	2 0	—	—	12 0	0.4	—	" "
94	" 19	15 46.8	—	—	16 49	0.2	—	" "
95	" 20	9 9	—	—	13 0	0.2	—	Air current.
96	" 21	6 0	—	—	13 0	0.2	—	" "
97	" 24	16 38	—	—	16 56	0.2	—	" "
98	" 26	7 0	—	—	27d. 12h.	—	—	Air current.
99	" 26	12 39	—	12 46	12 53	0.5	—	Earthquake.
100	Dec. 1	7 22.6	7 26	7 27.8	7 57	0.7	—	—
108	" 5	—	5 32	5 37	?	1.7	—	E.Q. Main part lasted 9m. Record faint.
110	" 10	13 5	—	—	21 0	0.1	15 3	Air current.
111	" 11	8 0	—	—	12 0	0.2	—	" "
112	" 12	5 0	—	—	14 0	0.2	—	" "
113	" 13	23 0	—	—	14d. 5h.	0.1	—	" "
114	" 15	10 0	—	—	12 0	0.2	—	" "
115	" 16	7 0	—	—	12 0	0.1	—	" "
118	" 19	14 0	—	—	16 0	0.2	—	" "
119	" 24	9 47	—	9 53	10 2	0.3	—	Swelling of line. Times not accurate.
120	" 26	11 0	—	—	13 0	0.2	—	Air current.
121	" 27	—	—	—	2 0	0.1	—	" "
122	" 27	11 0	—	—	20 0	0.2	—	" "
123	" 29	16 5	—	—	16 48	0.3	—	Probably not E.Q.
124	" 30	14 3	—	—	15 0	0.1	—	Air current.
No record Dec. 31d. 18.6h. to Jan., 1d. 0.4h.								

Register from the Observatorio de Marina de San Fernando, Spain.
Director, Capitán de Fragata TOMÁS DE ARCÁRATE.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
1903								
212	July 2	H. M. 21 53.0	H. M. —	H. M. —	H. M. 23 18.0	MM. —	H. M. 1 25.0	Small movements.
213	" 4	—	5 6.5	5 8.1	5 22.0	0.75	0 15.5	—
214	" 12	6 35.2	6 49.1	6 53.9	7 36.8	1.0	1 1.4	Approximate time.
215	" 13	1 18.3	1 30.0	1 35.1	1 59.2	0.5	0 40.9	—
216	" 14	12 32.4	—	—	13 1.2	—	0 28.8	Very small movements.
217	" 14	17 53.9	—	—	19 36.8	—	1 42.9	Very small movements at different hours of the day.
218	" 15	—	—	—	—	—	—	Very small movements at different hours of the day.
219	" 16	—	—	—	—	—	—	Very small movements.
220	" 19	0 37.0	—	—	7 32.0	—	6 55.0	Very small movements.
221	" 23	—	23 38.5	23 59.0	23 51.6	1.0	0 13.1	—
222	" 27	10 52.0	10 58.4	10 58.4	11 5.7	0.67	0 13.7	Approximate time.
223	" 27	—	11 18.9	11 20.0	11 21.0	1.0	0 2.1	—
224	{ Aug. 2	—	23 57.1	23 59.1	—	—	—	—
	" 3	—	—	—	0 20.0	0.5	0 22.9	—
225	" 6	4 9.4	4 11.1	4 15.3	4 21.5	0.4	0 12.1	—
226	" 9	—	22 48.5	22 49.5	22 53.1	0.5	0 4.6	—
227	" 11	4 39.2	4 42.8	4 43.8	5 46.6	4.0	1 7.4	Tremor at Lisbon.
228	" 13	16 38.7	16 40.9	16 44.2	17 3.5	1.3	0 24.8	—
229	" 16	—	14 7.1	14 8.8	14 28.9	0.6	0 21.8	—
230	" 19	9 48.8	9 56.1	9 57.4	10 20.6	0.4	0 31.8	—
231	{ Sept. 3	6 7.5	—	6 24.3	7 50.4	0.4	1 42.9	—
232	" 6	23 21.4	Small movements	—	—	—	—	Small movements continuing until the end of the day.
233	" 7	—	9 0.2	9 6.3	9 35.3	1.25	—	Small movements from the beginning of the day onward.
234	" 23	1 37.3	1 47.4	1 49.3	1 59.2	0.6	0 21.9	—
235	{ Oct. 10	17 27.8	17 48.6	17 51.2	17 56.8	0.6	0 29.0	—
236	" 14	7 24.1	7 47.7	7 49.4	8 9.9	0.8	0 45.8	—
237	" 20	4 19.4	4 36.2	4 38.7	4 56.8	1.0	0 37.4	—
238	" 21	10 19.6	10 48.5	10 52.6	12 32.7	4.0	2 19.1	—
239	" 23	2 9.0	—	—	8 30.4	—	6 21.4	Very small movements.
240	" 28	22 30.2	22 30.2	22 31.2	22 32.2	0.6	0 2.0	—
241	" 29	12 17.0	15 54.8	16 0.2	16 39.8	1.1	4 22.8	—
242	{ Nov. 10	18 26.7	—	—	19 19.4	0.6	0 43.7	—
243	" 26	12 17.9	—	—	12 31.7	1.2	0 35.0	—
244	" 30	—	12 30.1	—	12h. 20m. to 24h.	—	—	Extremely small movements.
245	{ Dec. 1	—	—	0h. to 7h. 20m.	—	—	—	Extremely small movements.
	" 6	23 37.8	23 50.1	—	23 52.1	—	—	—
246	" 7	—	—	—	0 11.0	0.7	0 33.2	—
246	" 7	15 7.9	15 49.2	15 51.3	16 7.1	0.7	0 59.2	—
247	" 10	17 12.7	17 36.7	17 48.8	19 4.9	1.9	1 52.2	Very small movements before and after the earthquake.
248	" 15	—	—	—	—	—	—	Extremely small movements.
249	" 28	3 20.5	4 14.5	4 15.1	5 2.9	0.9	1 42.4	—
250	" 29	1 45.8	—	—	3 13.5	—	1 27.7	Very small movements.

1mm = 0".34.

Register from Ponta Delgada, St. Miguel, Açores.
Director, Dr. F. A. CHAVES.

No.	Date	Commencement (G.M.T.)	Max.	Max. Amplitude	Duration	Remarks
1903.						
33	{ July 27	H. M. 10 52.2	H. M. 10 56.5	MM. 0.3	H. M. 0 45	I. of the Mercalli's scale.
	" 27	12 48.5	12 49.4	0.2	0 5	" " "
	{ Aug. 6	6 43.1	6 45.4	1.1	0 15	" " "
34	" 7	21 12.7	—	0.05	22 44	I. of the Mercalli's scale. Thickening of line during that time, but not continuously.
35	Register lost from	21h. 15m. on Aug. 10	—	—	to 21h. 34.6m. on Aug. 13.	I. of the Mercalli's scale.
36	Aug. 16	14 0.6	—	0.05	0 6	Thickening of line.
39	Sept. 7	7 28.6	7 46.5	0.3	0 36	I. of the Mercalli's scale.
40	" 13	15 35.1	15 35.9	0.7	0 30	" " "
	" 13	19 4.3	—	0.05	0 10	" " "
45	{ Oct. 21	10 27.2	10 54.7	0.5	1 4	I. of the Mercalli's scale.
	" 23	2 25.6	—	0.05	0 4	Thickening of line.
46	" 28	22 22.1	22 22.6	0.6	0 15	I. of the Mercalli's scale.
	" 29	14 44.1	15 1.1	0.2	0 56	" " "
	" 30	4 25.2	—	3.05	0 30	" " "
49	Nov. 19	17 30.1	18 31.3	0.1	0 20	I. of the Mercalli's scale.
50	" 26	12 37.6	12 45.4	0.4	0 31	" " "
	" 28	10 58.8	—	0.05	0 3	Thickening of line.
51	Dec. 5	5 42.6	—	0.05	0 32	" " "
	" 7	14 39.4	—	0.05	0 21	" " "
52	" 10	16 19.1	17 53.4	0.9	1 41	I. of the Mercalli's scale.
	" 11	1 37.8	—	0.05	0 5	" " "
53	" 17	—	—	—	—	Thickening of line. III. of the Mercalli's scale at 1h. 6m. and 2h. 37m. approximate.
54	{ " 23	1 31.2	1 51.5	0.3	0 44	I. of the Mercalli's scale.
	" 23	19 12.7	—	0.05	9 30	" " "

1 mm. = 0".48.

Register from the Royal Observatory, Cape of Good Hope, South Africa.
Director, Sir DAVID GILL, K.C.B., F.R.S.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Semi Amplitude	Duration	Remarks
1903.								
215	July 1	H. M. 4 35.0	H. M. —	H. M. —	H. M. —	"	H. M. 8 25	? Air tremors.
216	" 2	2 39.5	3 30.0	3 35.8	4 1.0	0.05	1 21	Frequent minute oscillations, dying out very gradually. Slight tremors till 7h. 50m.

Register from the Royal Observatory, Cape of Good Hope, South Africa—continued.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Semi Amplitude	Duration	Remarks
217	July 3	H. M. 1 45.0	H. M. —	H. M. —	H. M. —	—	H. M. 6 8	Frequent minute tremors.
218	" 4	4 59.5	—	5 0.8	—	0.06	0 12	Dying away very gradually.
219	" 4	5 30.0	—	—	—	—	2 0	? Air tremors.
220	" 9	—	10 5.8	—	—	0.22	0 7.5	Sudden jerk distinctly felt. (See separate note).
221	" 12	5 37.0	6 22.5	6 23.5	6 28.0	0.05	0 51	Dying out very gradually.
222	" 12	7 7.0	7 19.8	7 21.9	7 27.0	—	0 20	—
223	" 20	21 30.0	—	—	—	—	9 0	? Air tremors.
224	" 23	22 50.0	—	—	—	—	9 22	" "
225	" 26	2 40.0	—	—	—	—	5 55	" "
226	Aug. 5	7 30.0	—	—	12 15.0	—	4 45	Frequent minute tremors, 2 air tremors.
227	" 6	4 26.6	4 27.6	4 29.4	4 39.7	0.10	0 13.1	—
228	" 6	7 31.0	—	—	7 43.0	—	0 12	Slight tremors.
229	" 11	4 52.9	5 6.6	5 9.8	—	0.48	0 40	Dying away very gradually.
230	" 12	7 30.0	—	—	17 30.0	—	10 0	? Air tremors, very small.
231	" 13	3 0.0	—	—	17 40.0	—	14 40	? Air tremors, frequent, very small.
232	" 19	8 58.6	9 17.6	9 19.7	9 22.8	0.10	0 38	—
233	Sept. 7	8 15.8	—	8 26.7	8 33.0	0.12	0 17	—
234	" 8	5 25.0	5 34.0	5 36.1	5 43.0	0.35	0 18	—
235	" 12	7 30.0	—	—	18 15.0	—	—	Frequent very slight disturbances.
236	" 13	5 25.0	—	—	18 38.0	—	—	—
237	" 14	17 20.4	—	—	17 24.4	—	—	Slight thickening.
238	" 14	18 28.0	—	—	18 47.3	0.12	—	—
239	" 14	20 10.3	—	—	—	—	10 58.6	Very long series of frequent disturbances, very gradually dying away. Seismic origin doubtful.
	" 15	—	—	0 11.0	7 8.8	0.22	—	—
240	" 15	18 51.9	—	—	—	0.36	13 44.8	Similar to No. 238.
241	" 16	—	—	2 50.2	8 36.7	—	6 7.0	Frequent very slight disturbances.
242	" 17	1 23.8	—	—	7 30.8	—	—	Sudden very slight change of level.
243	" 18	7 31.2	—	—	—	—	—	—
244	" 25	9 28.7	—	—	—	—	—	—
245	Oct. 21	10 3.0	10 7.5	10 9.7	11 2.0	0.39	0 59	—
246	" 21	1 10.0	1 14.0	1 15.7	1 29.5	0.07	0 19.5	—
247	" 29	—	—	15 32.5	—	—	0 26.0	Slight vibrations which appear to reach a maximum at time noted.
248	" 30	4 45.0	—	—	5 25.0	—	0 40	Slight tremors.
249	Nov. 26	12 48.0	12 51.0	12 53.2	13 2.0	0.09	0 14	—
250	Dec. 6	22 54.5	22 58.0	23 0.0	23 10.0	0.08	0 15.5	—
251	" 7	15 4.0	—	—	15 33.0	—	0 29	Series of very slight vibrations.
252	" 10	17 19.0	17 28.0	17 35.0	18 19.0	0.62	0 53	—
	" 23	1 30.0	—	—	—	—	1 9	Series of very slight vibrations.

NOTE, July 9, 1903:

At 11h. 47m. 6s. A.M. Cape M.T. (9h. 47m. 6s. G.M.T. A.M.) a slight sudden shock was felt, accompanied by a rumbling noise like distant thunder, lasting only for a second or two. It appeared to come from N.N.W., passing away to S.S.E.

At 12h. 6m. 10s. P.M. C.M.T. (10h. 6m. 10s. A.M. G.M.T.) a much stronger shock was felt from the same direction, and lasting five or six seconds. It felt like a sudden jolt, which passed very quickly into a trembling of the earth, accompanied by underground rumblings, dying away to S.S.E. as before. The shock was strong enough to rattle windows, &c.

At 8h. 28m. P.M. C.M.T. (6h. 28m. P.M. G.M.T.) another slight shock occurred exactly similar to the first at 11h. 47m. 6s. A.M. C.M.T.

The only one registered by the Seismograph is the one at 12h. 6m. P.M.

Register from Alipore Observatory, Calcutta.
G. W. KÜCHLER, Assistant Meteorological Reporter.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
1903								
247	July 1	H. M. 7 55.5	H. M. —	H. M. —	H. M. 8 13.3	MM. —	H. M. 0 17.8	Thickening of line. Sensibility 1° = 4 mm.
The roller did not drive the paper from about 10h. of 3rd to 2h. of July 4, 1903.								
248	" 23	22 49.9	—	22 59.5	23 15.3	0.75	0 25.4	—
249	Aug. 5	8 56.3	—	9 17.6	10 9.5	0.50	1 13.2	Doubtful.
250	" 13	16 6.5	16 16.5	16 31.2	16 45.5	1.00	0 39.2	Thickening of line.
251	" 16	5 28.6	—	—	6 9.3	—	0 40.7	—
252	" 16	7 49.0	—	—	8 21.5	—	0 32.5	—
253	" 16	10 59.5	—	—	11 1.7	—	0 11.2	Doubtful.
254	" 19	10 4.3	—	10 55.1	10 33.5	—	0 29.0	Thickening of line.
255	Sept. 1	15 11.4	—	15 13.0	15 25.2	1.75	0 13.8	—
256	" 3	11 4.4	—	—	11 13.5	0.50	0 9.1	Doubtful.
257	" 7	7 34.9	—	—	8 26.8	—	0 51.9	Thickening of line.
Air tremors from 2h. to 4h. G.M.T. on September 10, 1903. 1h. 30m. to 3h. G.M.T. on September 25, 1903. 2h. to 4h. G.M.T. on October 8, 1903.								
258	Oct. 10	17 3.6	17 5.7	17 6.7	17 20.9	0.75	0 17.3	Sensibility 1° = 4 mm.
259	" 14	3 35.4	—	—	4 4.4	—	0 29.0	Thickening of line.
260	" 14	4 22.7	—	—	4 34.9	—	0 12.2	" "
261	" 15	9 15.5	—	—	9 39.4	—	0 23.9	" "
262	" 16	9 11.3	—	9 32.7	—	0.75	—	Doubtful.
263	" 18	10 23.8	—	—	11 11.4	—	0 47.6	Thickening of line.
264	" 19	3 15.4	—	—	3 54.0	—	0 39.6	" "
265	" 21	10 19.1	—	10 45.5	11 14.0	1.00	0 54.9	" "
266	Noy. 24	13 52.2	13 55.7	13 57.8	14 39.5	1.25	0 47.3	Sensibility 1° = 4.5 mm.
267	" 26	12 6.0	—	12 9.5	12 55.8	3.50	0 49.8	—
268	" 26	17 11.1	—	17 14.1	17 31.4	2.00	0 20.3	—
269	Dec. 3	9 18.6	—	—	9 24.7	—	0 8.1	Thickening of line.
270	" 3	21 28.1	—	21 32.1	22 1.6	6.50	0 35.5	—
271	" 5	5 52.0	—	—	5 53.5	1.25	0 13.2	Sensibility 1° = 4.5 mm.
272	" 7	15 30.8	—	—	15 45.5	—	0 14.7	Thickening of line.
273	" 7	16 5.9	16 11.0	16 14.0	16 53.7	0.75	0 46.8	—
274	" 10	17 10.0	17 15.6	17 23.3	18 34.4	4.50	1 24.4	—
275	" 18	12 37.9	12 40.4	12 50.6	12 59.8	0.50	0 21.9	Sensibility 1° = 5 mm.
276	" 23	8 59.7	—	9 3.3	9 8.9	0.75	0 9.2	—

Register from Irkutsk Magnetical and Meteorological Observatory.
Director, A. V. VOZNESSENSKY.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. $\frac{1}{2}$ Amplitude	Duration	Remarks
1903.								
		H. M.	H. M.	H. M.	H. M.	MM.	H. M.	
373	July 8	8 43.0	—	—	3 49.6	—	0 06.6	—
374	" 8	11 33.5	—	—	11 35.7	—	0 02.1	—
375	" 11	11 48.0	—	11 49.9	11 56.4	0.2	0 08.4	—
376	" 12	5 13.1	—	5 41.3	6 50.0	0.3	1 36.9	—
382	" 23	22 49.0	22 55.9	22 57.2	23 38.4	1.9	0 49.4	—
385	Aug. 2	23 12.6	23 21.2	23 21.9	23 59.5	1.2	0 46.9	—
386	" 6	4 07.7	—	—	4 28.0	—	0 20.3	—
388	" 11	4 40.5	4 56.3	5 10.7	5 36.8	0.3	0 50.3	—
390	" 13	15 58.1	16 05.0	16 05.8	17 06.5	1.8	1 08.4	—
393	" 16	3 11.4	—	3 18.8	3 40.6	0.3	0 29.2	—
394	" 16	14 45.0	—	14 48.1	15 09.2	—	0 24.2	—
395	" 17	17 44.2	—	17 45.0	17 49.6	0.2	0 05.4	—
397	" 20	10 23.1	—	10 28.5	—	—	0 05.4	—
398	" 25	10 21.1	—	10 21.6	10 24.5	—	0 03.4	—
403	Sept. 1	15 23.5	—	—	15 27.3	—	0 03.8	—
404	" 3	6 12.1	—	6 36.3	7 05.4	0.3	0 53.2	—
405	" 7	7 31.8	7 32.4	7 39.3	8 52.2	0.7	1 20.4	—
407	" 10	4 43.1	—	4 44.4	4 53.0	0.4	0 09.9	—
408	" 10	9 01.8	—	9 03.7	9 08.1	0.3	0 06.3	—
410	" 10	14 20.4	—	14 28.3	14 34.1	0.2	0 13.7	—
415	" 17	12 55.9	—	12 58.5	12 58.4	0.2	0 02.5	—
420	" 27	15 41.0	—	—	16 00.7	—	0 19.7	—
421	" 28	15 52.8	—	15 53.3	16 00.3	0.6	0 07.5	—
424	Oct. 10	16 51.7	16 59.4	17 00.2	17 13.6	0.9	0 21.9	—
425	" 14	3 32.3	—	3 46.7	3 57.5	—	0 25.2	—
430	" 19	3 15.8	—	3 16.4	3 48.6	0.2	0 32.8	—
434	" 20	3 15.7	—	3 17.2	3 20.3	—	0 04.6	—
436	" 21	10 24.4	—	11 07.8	11 48.8	—	1 24.4	—
438	" 23	2 40.3	—	2 40.4	>2 55.3	4.4	>0 15.0	—
440	" 23	13 58.9	14 03.8	14 04.7	14 11.6	1.4	0 12.7	—
441	" 25	22 42.3	—	—	22 45.8	—	0 03.5	—
449	" 29	14 42.6	—	15 47.1	16 14.6	0.9	1 32.0	—
450	" 30	5 16.8	—	5 21.5	5 37.6	0.5	0 20.8	—
454	Nov. 9	0 56.0	—	0 57.6	1 05.2	0.4	0 09.2	—
455	" 10	17 59.9	—	18 09.7	18 27.9	0.1	0 28.0	—
457	" 17	20 39.5	—	20 57.1	21 06.0	0.2	0 26.5	—
458	" 18	15 53.2	—	15 54.0	16 02.2	0.5	0 09.9	—
461	" 24	13 54.4	14 06.4	14 12.9	14 39.2	0.6	0 44.8	—
463	" 26	11 49.2	—	11 50.2	11 52.4	>17.4	0 03.2	—
464	" 26	—	12 44.2	—	13 00.9	—	0 16.7	—
469	" 26	16 21.3	—	16 21.4	16 24.2	0.4	0 02.9	—
470	" 28	17 23.6	—	17 24.4	17 31.1	0.2	0 07.5	Baikal earthquake.
475	" 27	—	—	7 39.2	—	—	—	—
476	" 27	—	—	10 00.2	—	—	—	—
477	" 27	—	—	10 58.2	—	—	—	—
478	" 27	14 31.4	—	14 35.3	14 40.3	0.2	0 08.9	—
480	" 27	19 03.6	—	19 03.8	19 07.3	0.6	0 03.7	—
489	" 29	1 04.7	—	1 04.9	1 06.2	0.3	0 01.5	—
493	Dec. 1	7 02.1	7 12.6	7 14.6	7 40.5	0.8	0 38.4	—
494	" 1	14 35.5	—	14 42.2	14 45.0	0.8	0 09.5	—
495	" 2	3 49.5	—	—	3 54.9	—	0 04.5	—
498	" 3	9 03.0	—	9 11.5	9 18.7	0.4	0 15.7	—
499	" 3	21 40.0	—	21 40.7	22 03.2	1.7	0 23.2	—
503	" 5	5 25.7	5 34.2	5 38.0	6 00.3	1.1	0 34.6	—
505	" 5	21 25.3	—	21 29.7	21 34.9	0.4	0 11.6	—
508	" 7	16 08.8	16 10.7	16 14.3	16 46.2	0.6	0 37.4	9-11th out of order.
515	" 18	12 40.6	—	12 50.8	13 00.2	0.6	0 19.6	—
517	" 23	1 21.7	1 26.6	1 28.8	2 30.7	0.6	0 08.3?	—
518	" 23	9 07.6	—	9 12.1	9 16.8	0.4	0 09.2	—
519	" 27	22 27.5	—	22 43.2	22 58.6	0.3	0 31.1	—
521	" 28	3 12.3	3 22.6	3 25.3	4 18.0	2.5	1 06.0	—

1 mm. = 0^u.44.

Register from Perth Observatory, Western Australia.
Director, W. E. COOKE, M.A., F.R.A.S., &c.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Remarks	
1903.								
		H. M.	H. M.	H. M.	H. M.	MM.		
56	Aug. 12	—	0 53.7	1 1.6	1 11.8	0.55	—	
57	" 13	—	2 36	—	2 42	—	Very slight thickenings.	
58	" 13	—	5 36	—	5 43	—	" "	
59	" 13	—	5 50	—	5 58	—	" "	
60	" 14	—	Very slight thickenings throughout the day.				—	" "
61	" 20	—	13 25	13 28	13 33	0.35	—	
62	" 26	—	13 17	13 28	13 45	0.25	—	
63	Sept. 3	6 7.6	6 14.6	6 18.8	6 51.8	4.8	—	
64	" 7	7 20.1	7 27.9	7 42.6	8 26.7	3.9	—	
65	" 8	—	5 24.4	5 27.2	5 40.1	1.2	—	
66	Oct. 14	3 20.3	3 23.7	3 29.4	3 51.4	1.1	—	
67	" 16	—	17 53.7	18 3.1	18 11.0	0.55	—	
68	" 17	—	1 42.9	1 49.1	2 5.3	0.55	—	
69	" 19	3 24.8	3 31.4	3 33.8	3 42.4	0.3	—	
70	" 20	3 6.8	3 18.5	3 21.7	3 48.4	1.3	—	
71	" 21	—	10 14.1	10 21.1	11 21.0	8.1	—	
72	" 30	3 53.4	4 12.6	4 28.3	5 13.1	5.2	—	
73	" 30	15 14.6	15 22.7	15 26.1	15 44.8	0.7	—	
74	Nov. 24	13 50.9	13 56.8	14 3.9	14 29.6	1.7	—	
75	Dec. 6	23 18.3	23 20.4	23 22.0	23 42.9	1.0	—	
76	" 10	17 25.1	17 36.1	17 47.1	18 53.3	4.3	—	
77	" 13	19 9.7	19 22.6	19 26.0	19 41.8	1.0	—	
78	" 23	1 13.5	*	1 40.4	2 10.7	2.6	—	
79	" 24	9 19.5	to	9 31.9	—	—	Small tremors.	
80	" 28	—	3 16.5	3 25.7	3 48.1	1.9	—	
81	" 31	13 28.4	13 44.8	13 49.6	14 10.4	1.25	—	

* The watch was wound here, and so time could not be obtained.
1 mm. = 0^u.47. Boom period 16.6s. to 17.5s.

Register from the Royal Alfred Observatory, Mauritius.
Director, T. F. CLAXTON, F.R.A.S.

No.	Date	P.T. Commence (G.C.T.)	L.W. Commence (G.C.T.)	Max. (G.C.T.)	End	Max. $\frac{1}{2}$ Amplitude	Value of 1 mm. (in arc.)	Remarks
1903.								
		H. M.	H. M.	H. M.	H. M.	MM.	"	
50	July 2	21 37.1	22 14.8	22 16.1	22 31.8	0.35	0.30	—
51	" 4	5 17.0	5 21.1	5 25.2	5 36.0	0.35	0.30	—
52	" 12	5 40.6	—	6 15.9	6 44.7	0.20	0.30	—
53	" 14	—	—	8 34.3	—	—	—	—
				8 57.1	—	—	—	—
54	Aug. 11	4 53.2	—	4 54.3	?	0.50	0.57	Tremors till 14h.
				5 17.4	—	0.45	—	—
55	Sept. 3	3 51.8	—	4 2.7	4 45.7	—	—	—
56	" 3	6 41.5	—	6 44.6	7 2.1	—	—	—
				6 50.8	—	—	—	—
57	" 6	13 25.8	—	14 3.4	14 15.5	—	0.30	—
58	" 7	7 27.7	8 6.9	8 13.7	8 41.3	1.0	0.30	—
59	" 8	6 20.8	—	6 27.0	6 3.1	—	0.30	—
<i>Doubtful movements.</i>								
		P. H.	P. H.	P. H.	P. H.			
		September	3 23 to 4 24	Probably A.T.s.				
		"	1 21 " 5.5	"				
		"	9 21 " 10.2	"				

Register from the Botanical Department, St. Clair, Trinidad.
Director, J. H. HART, F.L.S.

No.	Date	P.T. Commence	Max.	End	Max. Amplitude	Duration	Remarks
1903.							
179	July 1	H. M. 12 19	H. M. 12 33 13 26 14 1 14 36 15 18 16 28	H. M. 17 4	MM. 2	H. M. 4 45	{ Long series of tremors with six maxima.
180	" 4	14 5	14 8	14 12	1.5	0 7	—
181	" 7	13 32	—	13 34	—	0 2	Thickening of line.
182	" 8	17 53	17 58	18 0	0.5	0 5	—
183	" 11	19 10	—	19 13	—	0 3	Thickening of line.
184	" 12	0 38	several	1 30	1	0 52	—
185	" 18	21 35	—	21 40	1	0 2	—
186	" 20	16 12	—	17 34	1	1 22	Series of tremors.
187	" 25	1 12	1 14	1 19	2	0 7	—
188	" 25	16 8	16 11	16 15	1	0 7	—
189	" 25	17 57	18 47	19 3	13	1 6	—
190	" 25	22 57	—	23 3	—	0 6	Thickening of line.
191	" 27	14 53	15 18	16 40	1	0 47	—
192	" 27	19 26	—	19 28	—	0 2	Thickening of line.
193	" 29	18 51	18 53	18 59	8	0 8	—
194	Aug. 26	19 19	—	19 22	—	0 3	Thickening of line.
195	" 26	19 37	—	20 1	1	0 24	Several tremors.
196	" 27	11 16	11 17	11 32	1	0 16	—
197	" 27	18 0	18 43	18 47	1.5	0 47	—
198	Sept. 8	12 50	—	15 17	—	2 27	Series of small tremors.
199	" 8	18 53	19 8	19 27	1	0 29	—
200	" 9	14 30	—	14 34	—	0 4	—
201	" 9	14 53	14 58	15 21	1	0 28	Thickening of line.
202	" 9	16 23	—	16 28	—	0 5	Thickening of line.
203	" 10	18 44	—	19 4	—	0 20	—
204	" 14	10 56	boom moved gradually to 4 mm. out of position, which point was reached at 12h. 17m., then gradually returned, reaching original position at 2h. 6m. on the 15th.				
205	" 15	16 31	16 32	16 39	1	0 8	—
206	" 25	14 52	14 52	14 58	—	0 6	Thickening of line.
207	" 25	18 33	19 4	19 39	3	1 6	—
208	Oct. 6	14 31	—	14 41	—	0 10	Thickening of line.
209	" 13	15 44	—	15 46	—	0 2	—
210	" 17	17 39	18 1	18 40	1	1 2	Two maxima.
211	" 17	19 31	—	19 35	—	0 4	Thickening of line.
212	" 19	13 1	—	13 4	—	0 3	" "
213	" 27	17 52	—	17 54	—	0 2	" "
214	" 30	14 18	—	14 20	—	0 2	" "
215	Nov. 29	1 4	—	1 9	—	0 5	" "
216	Dec. 7	17 6	17 16	17 24	1	0 18	" "
217	" 23	14 25	14 26	14 29	4	0 4	—

Register from the Tiflis (Caucasus) Physikalisches Observatorium.
Director, P. STELLING.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Remarks
1903.							
90	Aug. 2	H. M. ?	H. M. 23 12.7	H. M. 23 50.4	H. M. ?	MM. 1.6	—
91	" 6	?	3 49.1	3 49.6	?	14.0	—
92	" 11	—	4 37.1	4 41.7	ca. 6.40	5.4	—
93	" 13	15 57.4	16 24.7	16 33.7	ca. 18.55	2.0	—
94	" 16	?	14 41.7	14 53.2	?	0.4	—
95	" 27	14 48.3	14 49.8	14 50.2	?	0.2	—
96	Sept. 6	?	?	0 37.6	0 45	0.2	—
97	" 7	?	7 32.3	7 45.7	?	0.3	—
98	" 13	15 53.4	15 57.0	16 1.3	16 35	0.6	—
99	" 25	?	1 23.1	1 27.7	?	1.0	—
100	" 26	?	?	3 28.3	6 35	0.1	—
101	Oct. 10	17 18.1	17 22.4	17 21.8	18 5	1.1	—
102	" 21	10 13.7	10 19.3	10 47.8	?	1.9	—
103	" 23	2 51.0	2 54.6	3 1.7	?	1.3	—
104	" 23	?	14 17.4	14 24.6	?	0.4	—
105	" 27	?	4 33.1	4 34.3	?	3.2	—
106	" 29	14 41.9	14 45.1	15 40.8	?	1.0	—
107	" 30	?	4 19.4	5 35.5	6 35	0.3	—
108	Nov. 2	?	22 13.5	22 13.6	22 20	0.7	—
109	" 4	?	4 53.3	4 24.9	?	0.2	—
110	" 6	?	1 17.9?	?	5 5	1.1	—
111	" 9	?	?	?	?	?	—
112	" 10	?	17 33.9?	17 38.0	?	0.3	—
113	" 10	?	?	21 12.9	?	0.2	—
114	" 24	?	14 1.4	14 3.7	14 55	0.3	—
115	" 26	11 56.9	12 6.5	12 15.7	13 15	4.4	—
116	" 29	?	17 23.7	17 24.5	17 30	0.3	—

* Lamp burning badly.

Register from Magnetic Observatory, Christchurch, New Zealand.
Observer, C. COLERIDGE FARR, D.Sc., &c.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
1903.								
111	Jan. 4	H. M. 5 12.1	H. M. 5 15.2	H. M. 5 18.8	H. M. —	MM. 1.8	H. M. —	—
		—	—	5 23.8	—	3.3	—	—
		—	—	5 23.7	—	3.2	—	—
		—	—	5 31.2	—	2.5	—	—
112	" 9	1 46.9	2 01.9	5 35.6	5 36.7	2.5	2 08.5	—
113	" 14	2 06.4	2 36.4	2 02.9	2 04.9	1.5	0 41.4	Origin N.E. of Marquesa Islands?
		—	—	2 44.8	3 12.5	3.5	3 10.9	—
114	" 17	16 53.0	16 58.1	17 02.1	17 07.7	5.0	2 50.0	—
115	" 26	2 20.8	—	2 21.0	—	0.6	0 7.2	—
116	Feb. 10	3 11.4	3 24.6	3 28.5	3 28.5	1.5	—	—
117	" 21	—	—	8 09.3	—	0.1	—	Tremors lasting two or three minutes each.
		—	—	8 10.7	—	0.1	—	—
		—	—	8 18.1	—	0.1	—	—
		—	—	8 26.0	—	0.1	—	—
		—	—	8 29.3	—	0.2	—	—
		—	—	8 33.4	—	0.1	—	—
		—	—	8 36.3	—	0.1	—	—
118	" 26	5 57.9	6 04.0	—	—	0.3	0 26.3	—
119	" 27	0 54.6	—	1 26.7	—	4.8	—	—
		—	—	1 31.4	—	7.5	—	—
		—	—	—	1 37.4	6.0	4 10.4	—
120	Mar. 26	8 54.7	—	9 06.2	—	2.0	0 42.3	—
121	" 30	3 38.6	3 53.8	4 01.1	4 10.0	1.5	2 05.1	—

Register from the Magnetic Observatory, Christchurch, New Zealand—continued.

No.	Date	P.T. Commence		L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
		H. M.	M. M.						
122	April 1	2 48.1	—	—	2 54.7	0.2±	0 6.6	Local; felt by Mr. Skey at Pigeon. Begun 2.51.50m., ended 2h. 58.10m. Sudden and short.	
123	" 1	3 00.7	—	—	—	0.1±	—	—	
124	" 29	4 10.8	4 17.6	4 19.6	4 31.9	7.5	2 8.3	—	
125	" 29	—	—	13 17.6	—	8.5	—	Beginning and end obscured.	
126	May 8	4 32.5	—	—	4 42.0	2.0	0 32.1	—	
127	" 13	6 42.4	6 49.0	7 01.7	7 27.9	13.0	2 36.0	—	
128	" 19	8 14.0	—	—	—	1.0	0 16.5	—	
129	" 27	23 40.6	—	—	—	0.8	0 2.1	—	
130	" 29	23 01.5	—	—	—	0.5	3 1	—	
131	June 8	5 34.5	5 43.3	5 48.5	—	2.0	1 54.4	—	
132	" 9	11 13.8	11 18.1	11 18.7	11 23.2	1.4	0 48.3	—	
133	" 10	16 48.7	16 52.2	17 02.3	17 13.4	3.0	—	Doubtful. Minute thickening for some hours. More than 35m. Minute irregularities for considerable time before and after.	
134	" 15	22 18.1	22 21.3	22 22.9	—	2.1	—	—	
135	" 21	7 43.9	—	—	—	0.3	0 33.4	—	

1 mm=0^u.43. Boom Period 16^s.The Seismological Institute, Imperial University, Tokyo (Japan).
Director, Dr. F. ŌMORI. Observer, A. IMAMURA.

No.	Date	P.T. Commence		L.W. Commence	Max.	Max. Amplitude	Duration	Remarks
		H. M.	M. M.					
1902.								
299	Dec. 31	5 39.1	—	—	—	—	—	Boom swing off scale.
1903.								
300	Jan. 5	22 4.4	22 6.6	22 8.2	—	1.8	—	End portion obscured by A.C.
301	" 14	2 3.0	2 17.0	2 19.0	—	1.0	2 40.0	—
302	" 15	7 2.3	—	7 6.3	—	0.3	0 14.0	—
303	" 18	0 0.5	—	—	—	0.2	0 4.0	—
304	" 24	12 25.2	12 25.5	12 26.3	—	0.4	0 4.0	—
305	" 26	12 0.8	—	12 16.1	—	0.5	1 30.0	—
306	" 26	15 32.6	—	—	—	0.5	0 1.3	—
307	" 30	4 44.6	—	—	—	0.4	0 2.0	—
308	" 30	4 56.6	—	—	—	0.5	0 4.0	—
309	" 30	6 11.3	—	—	—	0.4	0 4.0	—
310	" 30	8 28.0	—	—	—	0.4	0 3.0	—
311	Feb. 1	9 31.8	9 46.4	9 53.5	—	6.0	1 30.0	—
312	" 3	12 14.0	12 14.6	12 18.3	—	2.0	0 18.0	—
313	" 6	7 46.0	7 49.5	7 50.9	—	3.9	0 50.0	—
314	" 8	20 9.9	20 10.6	20 13.1	—	0.6	0 20.0	—
315	" 10	2 58.9	3 3.1	3 5.9	—	7.2	0 30.0	—
316	" 11	4 57.3	4 39.3	4 59.7	—	0.7	0 7.0	—
317	" 26	1 30.5	1 31.1	1 31.1	—	0.3	0 5.0	—
318	" 27	1 28.0	1 33.5	1 41.2	—	7.4	3 0.0	—
319	" 27	6 59.7	7 0.4	7 0.4	—	0.3	0 6.0	—
320	" 28	1 44.0	—	—	—	0.2	0 6.0	—
321	" 28	1 56.6	—	—	—	0.3	0 3.0	—
322	Mar. 9	6 54.0	—	—	—	0.5	0 8.0	—
323	" 11	6 13.5	—	—	—	0.6	0 5.0	—
324	" 13	4 11.5	—	—	—	0.1	0 1.0	—
325	" 15	6 14.4	—	—	—	0.5	0 8.0	—
326	" 21	10 39.9	10 40.9	10 40.9	—	1.7	—	End portion obscured by A.C.

Register from Tokyo (Japan)—continued.

No.	Date	P.T. Commence		L.W. Commence	Max.	Max. Amplitude	Duration	Remarks
		H. M.	M. M.					
327	Mar. 26	11 23.1	11 23.9	11 23.9	—	1.0	0 9.0	—
328	" 31	7 2.5	—	—	—	0.3	0 4.0	—
329	" 31	14 14.5	—	—	—	0.2	0 5.0	—
330	Apr. 15	10 25.7	—	—	—	0.3	0 4.0	—
331	" 16	2 59.3	—	—	—	0.4	0 5.0	—
332	" 19	10 49.3	10 49.7	10 49.7	—	1.9	0 9.0	—
333	" 22	7 21.5	7 22.2	7 22.2	—	1.2	0 9.0	—
334	" 28	6 17.6	—	—	—	0.6	0 5.0	—
335	May 5	12 57.0	—	—	—	0.3	0 1.0	—
336	" 5	23 51.2	—	—	—	0.4	0 2.0	—
337	" 7	15 2.6	—	—	—	0.4	0 1.5	—
338	" 13	6 43.7	6 44.8	6 47.5	—	1.4	0 25.0	—
339	" 15	11 53.6	11 54.8	11 56.4	—	1.1	—	End portion obscured by A.C.
340	" 18	2 17.2	—	—	—	0.4	0 3.0	—
341	" 23	22 16.6	22 18.3	22 19.3	—	0.5	0 30.0	—
342	" 24	1 12.9	—	—	—	0.6	0 2.5	—
343	" 29	4 46.1	—	—	—	0.8	0 4.0	—
344	June 2	9 54.9	—	—	—	0.4	0 2.5	—
345	" 2	13 25.6	13 33.1	13 34.5	—	1.8	0 42.0	—

1 mm. of amp.=0^u.6.

Appendix to the preceding Register.

No.	Date	Met. Obs.	Time of Commencement	Intensity	Character
1902.					
299	Dec. 31	Yokohama	H. M. S. 5 37 23	Strong.	Duration long.
		Macbashi	5 39 18	Strong (rather weak).	Windows rattled.
		Tokyo	5 39 8	Weak.	—
		Mito	5 39 16	"	Sharp; accompanied by vertical movement; houses shaken.
		Kanayama	5 39 58	"	Sharp; houses shaken.
		Utsunomiya	5 43 55	"	Accompanied by vertical movement; houses shaken.
		Kumagaya	5 38 5	Weak (rather slight).	Houses shaken.
		Yokosuga	5 39 10	"	Duration long.
		Kofu	5 39 17	"	Houses shaken.
		Fukushima	5 39 20	"	"
		Mera	5 39 52	"	Windows rattled.
		Choshi	5 38 50	Slight.	—
		Iida	5 38 43	"	Duration long.
		Niigata	5 38 49	"	Gentle.
		Ishinomaki	5 41 17	"	Duration long.
		Takayama	5 40 8	Slight (unfelt).	—
Tsu	5 40 35	"	—		
Akita	5 40 56	"	—		
Aomori	5 41 5	"	—		

Tokyo (Japan)—continued.

No.	Date	Met. Obs.	Time of Commencement	Intensity	Character
1903.					
300	Jan. 5	Fukuoka .	H. M. S. 22 1 10	Slight (unfelt).	Duration long.
		Kagoshima .	22 4 22	"	Gentle.
312	Feb. 3	Kumamoto .	22 4 42	"	"
		Tokushima .	12 12 13	Weak (rather slight).	Duration short.
		Wakayama .	12 14 24	Slight.	Gentle.
		Kyoto .	12 15 34	"	"
		Matsuyama .	12 14 58	Slight (unfelt).	"
		Kanayama .	12 14 4	Weak.	Duration long.
		Mito .	12 14 0	Slight.	Windows rattled.
		Miyako .	12 14 5	"	—
		Kinkasan .	12 14 7	"	Gentle.
		Tokyo .	12 14 7	"	—
		Hikone .	12 14 25	"	Sharp.
		Utsunomiya .	12 14 29	"	Gentle.
		Niigata .	12 15 0	Slight.	—
		Nagano .	12 13 57	Slight (unfelt).	Gentle.
		Choshi .	12 0 22	"	—
		Matsumoto .	12 13 47	"	—
		Maebashi .	12 13 57	"	—
		Kumagaya .	12 13 58	"	—
		Akita .	12 14 0	"	—
		Ishinomaki .	12 14 49	"	—
		Tsu .	12 17 23	"	Duration long.
		Aomori .	12 18 0	"	Gentle.
		Iida .	12 13 13	"	—
326	March 21	Fukushima .	12 14 2	"	—
		Kure .	10 36 10	Strong.	Bottles overturned.
		Ashisurisaki .	10 35 0	Strong (rather weak).	Sharp; houses shaken.
		Oita .	10 35 38	"	Accompanied by vertical movement; clocks stopped.
		Murotosaki .	10 35 40	"	Houses shaken.
		Niihama .	10 36 6	"	Duration long.
		Hiroshima .	10 36 25	"	Windows rattled.
		Miyazaki .	10 37 0	"	Sharp; houses shaken.
		Tadotsu .	10 41 58	"	Accompanied by vertical movement; houses shaken.
		Hamada .	10 32 0	Weak.	Houses shaken.
		Adino .	10 32 3	"	Clocks stopped.
		Kochi .	10 35 7	"	Duration long.
		Matsuyama .	10 35 50	"	Accompanied by vertical movement; houses shaken.
		Sakai .	10 36 0	"	Houses shaken.
		Besshi .	10 36 0	"	Accompanied by earthquake sound; houses shaken.

Tokyo (Japan)—continued.

No.	Date	Met. Obs.	Time of Commencement	Intensity	Character
326	March 21	Okayama .	H. M. S. 10 36 25	"	Houses shaken.
		Kyoto .	10 37 10	Weak (rather slight).	Gentle.
		Kumamoto .	10 37 6	"	Duration long.
		Miyatsu .	10 37 10	"	"
		Fukuoka .	10 37 20	"	"
		Saga .	10 37 25	"	Windows rattled.
		Shimonoseki .	10 37 32	"	Accompanied by vertical movement; houses shaken.
		Tokushima .	10 37 0	Slight.	—
		Kagoshima .	10 37 4	"	Gentle.
		Fukui .	10 37 15	"	Duration long.
		Hikone .	10 36 35	Slight (unfelt).	Sharp.
332	April 19	Osaka .	10 37 17	"	Gentle.
		Choshi .	10 41 0	Slight.	Duration long.
		Kumagaya .	10 48 12	"	—
		Tokyo .	10 48 23	"	—
		Mito .	10 48 25	"	Sharp.
		Yokohama .	10 48 35	Slight (unfelt).	Gentle.
		Maebashi .	10 48 52	"	Accompanied by vertical movement.
		Fukushima .	10 42 57	"	—
		Yokosuga .	10 48 35	"	—
		Osaka .	10 49 20	"	—