

## British Association for the Advancement of Science.

*Circular No. 10, issued by the Seismological Committee, Professor J. W. JUDD, C.B., F.R.S. (Chairman), MR. JOHN MILNE, F.R.S., Slide, 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 nine circulars and in the Reports of the Association, 1896 to 1899.

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*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 Slide, 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 Slide, 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. Pendulum A is the type instrument. It records E W motion, has a period of 17 seconds, and the boom carries 243 gms. It stands on its own pier. B and C are on the same stand and on the same pier. The period of B has been kept at 30 seconds, and it carries 394 gms. The period for C has remained at 20 seconds, and it carries 404 gms. :—

No.	Date	P.T. Commence		Max.	Max. Amplitude	Duration	Remarks	
<b>1904.</b>								
803	January 3	H. 20	M. 58·5	H. 21	M. 9·9	MM. 0·3	H. M. 0 15	C. B shows max. only. Not on A.
804	" 7	15	40·2	16	40·0	0·5	1 20	A. B and C not working.
805	" 10	4	8·6	3	58·1	0·5	0 60	A. C. Not on B.
806	" 20	15	4·9	{ 15 33·4 15 43·6 }		3·0	—	A. Pts. 8m.
807	" 20	15	4·9	15	43·6	4·0	3 0	B. " "
	" 29	15	4·9	15	43·6	1·7	2 20	C. " "
	" 29	0	43·3	—	—	—	—	A just visible.
808	" 29	0	47·9	1	26·9	0·3	0 45	B.
	" 29	0	47·9	1	18·5	0·5	0 50	C.
	" 30	6	13·3	—	—	0·2	0 5	B. Not on A and C.
809	Feb. 2	13	23·8	—	—	—	—	Slight on B and C. Not on A. Also about 14·30 on C.

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

No.	Date	P.T. Commence		Max.		Max. Amplitude	Duration	Remarks
		H.	M.	H.	M.			
809b	Feb. 3	11	26.5	—	—	—	—	Thickening on B and C.
810	" 4	21	8.6	21	30.1	1.0	0 50	B. On C amp. is 5mm. Not on A.
811	" 5	7	41.8	—	—	—	—	B and C slight. Just visible on A.
812	" 5	15	27.3	—	—	—	—	A also at 13.38. B and C slight.
	" 5	15	19.5	—	—	—	—	13.45 and 15.30 to 15.50. Slight on A.
813	" 9	0	0.2	—	0.5	0.5	0 5	A. On B tremors. C just visible.
814	" 13	18	59.1	—	0.5	0.5	0 5	A. B tremors. C amp. 2mm.
815	" 16	15	36.9	—	—	—	—	Slight on B. Not on A and C.
816	" 17	11	36.9	—	0.5	0.5	0 5	Slight on B. Not on A and C.
817	" 22	14	34.6	—	1.0	1.0	0 25	C. On B amp. 0.75mm. Not on A.
818	" 23	15	13.8	—	0.2	0.2	0 5	B. Not on A and C.
819	" 25	48	59.7	—	0.2	0.2	0 5	A. Not on B and C.
820	Mar. 1	17	29.9	—	0.2	0.2	0 22	A.
	" 1	17	8.4	—	1.0	1.0	0 35	B and C.
821	" 2	14	36.4	—	—	—	—	Intermittent tremors on B only until after 16h.
822	" 3	12	1.5	—	—	—	—	Slight on A only.
823	" 4	10	47.5	—	0.2	0.2	0 40	A.
	" 4	10	45.7	—	0.7	0.7	0 50	B and C, with max. on B 10h. 47.5m.
824	" 17	12	50.0 (about)	—	—	—	0 35	Slight on B only, with similar movements for next 3 hrs. Slight on B only.
825	" 18	14	0.0 (about)	—	—	—	0 50	Slight on B only.
826	" 19	6	53.5	7	27.1	0.7	1 50	A.
	" 19	6	38.3	7	23.1	3.0	2 30	B.
	" 19	6	45.6	7	23.1	3.0	2 15	C.
827	" 19	11	30.0	—	—	—	—	B only, sudden movements.
	" 19	13	0.0	—	—	—	—	
	" 19	15	0.0	—	—	—	—	
828	" 20	13	51.8	—	0.2	0.2	0 8	B only.
829	" 20	17	35.5	—	0.2	0.2	0 15	
830	" 21	7	45.6	—	0.2	0.2	0 6	B. Not on A.
	" 21	7	39.0	—	0.2	0.2	0 15	C.

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

No.	Date	P.T. Commence		Max.		Max. Amplitude	Duration	Remarks
		H.	M.	H.	M.			
831	Mar. 28	15	0.0	—	—	—	—	
	" 28	15	45.0	—	—	0.2	0 5	B only.
	" 28	16	40.0	—	—	—	—	
		(about)		—	—	—	—	
832	" 31	2	31.9	3	0.2	2.5	0 58	A.
	" 31	2	27.5	2	55.4	3.0	?	B.
	" 31	2	27.5	2	55.4	6.0	3 0	C.
833	" 31	6	29.7	6	30.0	0.5	0 6	A.
	" 31	6	25.1	—	—	0.5	—	B tremors.
	" 31	6	25.1	—	—	1.2	—	C tremors.
834	April 4	10	5.9	—	—	> 3.5	3 50	B and C. A not working.
835	" 5	10	56.7	—	—	3.5	0 45	C. On B amp. 1mm. A not working.
836	" 10	9	56.7	10	3.4	0.7	0 24	A.
	" 10	8	57.6	9	4.1	1.5	0 30	C. Tremors on B.
837	" 11	15	18.1	—	—	—	0 6	A. Very slight.
	" 11	15	13.9	—	—	—	—	B and C. Very slight.
838	" 12	19	18.9	19	30.1	0.2	0 25	B.
	" 12	19	15.9	19	32.4	0.5	0 43	C. Not on A.
839	" 14	2	4.8	2	13.8	0.5	0 35	A.
	" 14	2	6.5	2	10.6	0.5	0 25	B.
	" 14	2	0.8	2	10.6	1.0	0 33	C.
		{ 2 16.8 }		—	—	—	—	
840	" 19	18	24.0	—	—	0.2	0 10	A.
	" 19	18	23.6	—	—	—	—	Thickening on C and B.
841	" 24	7	27.1	—	—	1.0	0 36	—
	" 24	7	21.1	7	24.4	0.5	0 15	B. On C amp. 0.7mm.
842	" 28	19	50.0 (about)	—	—	—	—	A only and slight.
843	" 28	23	41.8	—	—	—	—	B only and slight.
844	" 29	{ 0 22.9 }		—	—	—	—	B only and slight.
		{ 2 40.1 }		—	—	—	—	
845	May 1	8	4.6	—	—	0.2	0 56	A.
	" 1	7	58.5	8	3.8	0.5	0 38	C. B just visible.
846	" 1	12	38.6	—	—	0.5	0 21	A.
	" 1	12	37.3	—	—	—	—	B and C thickening.
847	" 1	15	55.9	{ 16 36.0 }		1.0	2 20	A.
	" 1	15	55.4	{ 16 47.0 }		3.0	1 55	B and C with amp. for C. 25mm. At 17 h. 39.0m. a second shock on C and slight on B.
		{ 16 29.9 }		—	—	—	—	
848	" 2	0	14.6	0	31.1	0.5	0 37	A.
	" 2	0	20.6	0	24.8	0.5	0 20	B and C.
	" 4	—	—	—	—	—	—	A slight tremors 3 to 8.
849	" 11	18	19.1	18	20.0	0.5	0 15	A.

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

No.	Date	P.T. Commence		Max.	Max. Amplitude	Duration	Remarks
		H.	M.				
850	May 11	23	6.2	—	0.5	0 6	C.
851	" 14	13	55.1	—	—	1 50	A.
	" 14	14	35.1	—	0.5	0 40	B and C with amp. for C. 7mm.
852	" 14	16	24.9	—	—	—	B and C slight thickening.
853	" 16	15	6.2	—	—	0 8	A slight
	" 16	15	5.9	—	—	0 5	B and C.
854	" 21	11	2.9	—	0.2	0 5	C.
855	" 26	15	13.0	—	0.2	0 5	B and C.
856	" 31	7	46.5	—	0.2	0 5	B. For C. amp. 1mm.
857	June 7	8	40.5	—	0.2	0 6	C. B indistinct by tremors.
858	" 24	1	23.6	—	0.2	1 52	A.
	" 24	1	31.5	1 51.9	0.6	1 0	B. For C. amp. 1mm. and duration 50m.
859	" 25	14	44.1	15 40.5	6.5	2 15	A. Duration of 1st pts. 5.7m.
	" 25	14	18.3	15 34.6	6.0	2 42	B. Duration of 1st pts. 4.7m.
	" 25	14	32.5	15 33.0	10.0	2 52	C. Duration of 1st pts. 24m.
860	" 25	20	42.1	21 53.7	8.0	3 16	A. Duration of 1st pts. 12m.
	" 25	20	41.7	21 44.7	6.0	2 42	B. Duration of 1st pts. 29m.
	" 25	20	38.6	21 54.6	15.0	2 48	C. Duration of 1st pts. 33m. B and C repetition at 24h. 59.0m.
861	" 26	11	0.6	11 35.8	1.5	1 24	A.
	" 26	10	59.0	11 24.4	1.0	1 21	B.
	" 26	10	52.9	11 28.5	1.5	1 16	C.
862	" 26	20	12.9	—	0.2	0 38	A.
	" 26	20	40.7	20 57.9	0.4	0 30	B.
	" 26	20	33.6	20 41.7	0.5	0 35	C. Also a max. 20h. 54.9m.
863	" 26	23	41.0	1 3.6 (27th)	4.0	3 49	A.
	" 26	23	48.8	1 5.1 (27th)	5.5	3 52	B. Duration of 1st pts. 33m.
	" 26	23	41.7	0 57.9 (27th)	12.0	4 49	C. Duration of 1st pts. 39m. Repetition 4h. 19.3m.

Register from National Physical Laboratory, Kew Observatory. Director: R. T. GLAZEBROOK, D.Sc., F.R.S.; Superintendent, CHAS. CHREE, LL.D., F.R.S.; Observer, E. G. CONSTABLE.

No.	Date	Commencement	Max.	Max. Amplitude	Duration	Remarks
<b>1904.</b>						
515	Jan. 7	15 50.4	16 15.6	0.5	1 3	Commencement indefinite
516	" 10	4 0.7	4 15.2	0.25	0 27	—
517	" 11	14 19.2	14 20.5	0.4	0 5	Seismic character doubtful.
518	" 20	15 8.2	15 37.0	2.6	1 58	—
During February 4-6 the floor of Seismograph Room was under water to a depth of 6-7 inches.						
519	Feb. 13	18 56.7	—	0.25	0 4	—
520	" 22	14 37.2	14 49.1	0.4	0 14	—
521	Mar. 4	11 13.0	—	0.25	0 5	—
	" 19	Trace lost		—	—	—
522	" 26	11 22.7	—	0.4	0 11	Seismic character doubtful.
523	" 31	2 42.8	2 44.4	2.5	0 44	—
524	" 31	6 24.2	—	0.4	0 9	—
525	Apr. 4	10 5.9	10 37.5	> 17.0	2 8	Traces overlap.
526	" 5	11 0.0?	—	0.5	0 27	Time of commencement uncertain.
527	" 8	11 59.4	12 15.5	1.0	0 39	—
528	" 10	10 4.7	10 5.8	0.9	0 6	Movement began suddenly.
529	" 12	19 39.1	—	0.25	0 16	—
530	" 13	0 3.2	—	0.25	0 5	—
	" 13	From 12h. 11m. to 13h. 41m. a series of small movements, but character doubtful.				
531	" 14	2 7.7	2 16.3	0.3	0 17	—
532	" 18	14 7.4	14 9.6	0.5	0 14	—
533	" 24	7 28.9	—	0.4	0 14	—
534	May 1	8 5.0	8 14.7	0.3	0 27	—
535	" 1	15 58.8	16 34.6	1.6	1 54	—
536	" 2	0 22.4	—	0.4	0 20	—
537	" 6	18 30.8	—	0.5	0 7	—
538	" 14	14 29.8	—	0.4	0 35	—
539	" 24	10 31.7	—	0.25	0 8	—
540	June 24	1 48.4?	1 55.2?	0.6	0 36	Times somewhat uncertain.
541	" 25	15 7.2	15 35.2 15 33.4	7.1	1 44	—
542	" 25	20 41.8	—	0.25	0 8	—
543	" 25	21 19.2	21 50.3	8.1	2 37	—
544	" 26	11 17.8	11 29.8	1.1	0 45	—
545	" 26	20 41.5	—	0.2	0 18	Merely a broadening of the line.
546	" 26	23 46.6	—	0.2	0 6	Merely a broadening of the line.
547	" 27	0 21.3	0 58.6	7.2	3 5	—

Mean scale value 1mm. = 0''54 taken throughout.

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

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
<b>1904.</b>								
474	Jan. 2&3	H. M. 23 15	H. M. —	H. M. 2 20	H. M. —	MM. —	H. M. —	Probably A.T.
475	" 3	—	21 42.6	21 46.5	21 56.0	—	0 13	Slight.
476	" 7	—	15 30.0	16 7.3	17 40.0	1.0	2 10	—
477	" 10	—	3 57.2	4 23.1	5 30.0	0.5	1 9	—
478	" 17	—	14 26.0	—	14 36.9	—	0 11	Small.
479	" 20	15 2.3	15 11.0	15 33.1	17 24.5	3.7	2 22	Small and df.
480	" 29	—	19 22.0	—	19 49.0	—	—	Small.
481	" 31	—	—	20 55.0	—	—	—	—
Instrument under repair Feb. 4-9.								
482	Feb. 13	—	2 30.0	—	3 30.0	—	—	Possibly A.T.
483	" 20	—	—	17 20.0	—	—	—	Small.
484	" 22	—	14 39.7	14 50.2	15 10.1	0.3	0 30	—
485	Mar. 1	—	16 21.6	17 39.9	18 1.3	0.4	1 49	—
488	" 2	—	22 34.4	22 42.0	23 13.8	0.2	0 39	—
487	" 4	—	1 18.7	1 23.5	1 30.9	0.3	0 11	—
488	" 4	—	10 45.0	11 13.3	11 43.8	0.6	0 59	—
489	" 7	—	—	19 32.0	—	—	—	Small and short.
490	" 16	—	8 11.9	8 18.7	8 27.2	0.4	0 15	—
491	" 18	—	14 2.0	14 33.4	15 3.0	0.3	1 0	Small.
492	" 19	—	—	0 35.0	—	—	—	—
493	" 19	6 50.0	7 13.2	7 23.7	9 3.4	2.0	2 13	—
494	" 21	—	7 34.7	7 40.1	7 57.0	0.2	0 22	—
495	" 24	—	—	6 30.0	—	—	—	Trace indistinct.
496	" 29	—	14 25.0	—	15 10.0	—	0 45	—
497	" 31	2 33.8	2 50.0	3 3.3	3 49.7	1.7	1 16	—
498	" 31	—	6 23.2	6 31.4	6 46.7	0.3	0 24	—
499	Apr. 4	—	10 5.0	10 38.3	12 49.2	14.2	2 40	—
500	" 4	—	13 38.0	13 46.1	14 5.2	0.3	0 37	—
501	" 5	10 40.1	10 48.8	11 4.0	11 58.9	1.2	1 17	—
502	" 10	—	8 57.2	9 7.0	9 22.3	0.6	0 25	Perhaps accidental disturbance.
503	" 11	—	15 8.0	15 28.6	16 17.9	0.4	1 10	—
504	" 11	—	19 13.2	19 43.0	21 33.3	0.5	2 20	—
505	" 13	—	2 3.4	2 6.8	2 39.7	0.4	0 27	—
506	" 20	—	12 23.8	12 29.0	12 39.7	0.2	0 15	—
507	" 22	—	20 42.2	20 46.0	20 56.2	0.3	0 14	—
508	" 24	—	7 21.6	7 29.8	7 57.0	0.6	0 35	—
509	May 1	—	7 50.6	8 21.9	8 50.8	0.4	1 0	—
510	" 1	15 57.0	16 14.2	16 39.9	17 20.0	1.8	1 23	—
511	" 1	—	17 36.7	17 46.3	18 4.2	0.5	0 27	—
512	" 2	—	0 23.7	0 33.0	0 52.9	0.4	0 29	—
513	" 2	—	11 53.0	12 0.8	12 13.9	0.3	0 21	—
514	" 7	—	12 40.6	12 44.2	12 53.0	—	0 12	Small.
515	" 7	—	20 8.4	20 17.6	20 29.3	—	0 18	Small.
516	" 14	—	14 47.0	15 20.0	16 36.0	0.6	1 49	Time uncertain.
517	" 14	—	17 31.0	—	17 42.0	—	0 11	Time uncertain; Small.
518	" 15	—	21 47.0	21 51.0	22 6.0	—	0 19	Time uncertain; Small.
519	" 21	—	16 27.0	—	16 40.0	—	0 13	Time uncertain; Small.
520	" 29	—	0 31.8	0 41.0	1 18.3	0.5	0 47	—
521	June 1	—	—	14 7.0	—	—	—	Possibly A.T.
522	" 6	—	0 51.3	0 54.2	1 1.0	—	0 10	Small.
523	" 7	—	8 35.5	8 41.0	9 8.3	0.2	0 33	—
524	" 15	—	—	20 0.0	—	—	—	Possibly insect.
525	" 18	—	6 56.7	7 3.1	7 17.4	0.3	0 21	—
526	" 22	—	11 47.8	11 57.2	12 15.0	0.2	0 27	—
527	" 24	1 22.6	1 33.0	1 32.3	2 31.7	0.6	1 9	—
528	" 25	—	3 6.0	—	3 17.0	—	0 11	Small.
529	" 25	14 57.1	15 7.3	15 29.2	17 45.0	4.1	2 48	—
530	" 25	20 37.0	21 21.4	21 44.4	23 59.5	6.2	3 23	—
531	" 26	—	0 56.9	1 6.7	1 12.0	0.3	0 16	—
532	" 26	—	11 1.2	11 19.5	11 59.8	0.6	0 49	—
533	" 26	—	20 15.2	20 41.7	21 5.0	0.4	0 50	—
534	" 26-27	23 48.0	0 20.5	0 57.3	2 26.0	3.5	2 38	—
535	" 27	—	4 14.0	—	4 22.0	—	—	Small.

1 mm. = 0''55.

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
<b>1904.</b>								
249	Jan. 7	H. M. 16 11.0	H. M. 16 17.0	H. M. 16 24.0	H. M. 17 8.5	MM. 0.4	H. M. 1 7.5	—
250	" 12	22 0.0	—	—	—	—	—	Occasional A.T.'s.
251	" 20	15 3.5	15 13.5	15 15.0	17 18.0	—	1.8 2 14.5	—
252	Feb. 4	21 9.0	—	21 10.0	21 52.5	0.4	0 43.5	—
253	" 8	—	—	22 42.0	—	—	0.2 0 1.5	—
254	" 13	3 0.0	—	—	—	—	—	Large number of well-marked A.T.'s.
255	" 15	—	—	—	18 30.0	—	—	—
255	Mar. 16	8 19.0	—	8 19.5	8 21.0	0.3	0 2.0	—
256	" 19	6 56.0	7 24.5	7 32.5	8 13.0	1.3	1 17.0	—
257	" 21	2 43.5	2 52.0	2 55.2	3 30.5	1.6	0 47.0	—
258	" 31	6 24.0	—	6 25.0	6 38.0	0.3	0 14.0	—
259	Apr. 4	10 8.0	10 12.2	10 39.5	13 3.5	>1.0	2 55.5	—
260	" 5	10 57.5	—	11 3.5	11 34.0	0.9	0 36.5	—
261	" 10	9 2.0	9 5.5	9 8.5	9 19.0	1.0	0 17.0	—
262	" 12	13 34.0	—	13 49.8	20 8.0	0.3	0 34.0	—
263	" 24	7 25.0	—	7 36.5	7 46.0	0.5	0 21.0	—
264	May 1	8 25.0	—	—	8 39.5	0.2	0 14.5	—
265	" 1	15 58.5	—	16 33.5	17 14.0	0.6	1 15.5	—
266	" 14	14 34.0	—	14 53.5	15 14.0	0.25	0 40.0	—
267	June 7	8 39.7	—	8 40.0	8 46.5	0.35	0 5.8	Very slight tremors up to 9h. 22.0m.
268	" 24	1 25.0	—	1 53.5	2 28.0	0.3	1 3.0	—
269	" 25	14 58.0	15 16.5	15 30.0	17 28.0	2.0	2 28.0	—
270	" 25-26	21 12.5	21 22.0	21 44.5	20 30.0	4.6	3 17.5	—
271	" 26	11 2.0	—	11 33.0	12 32.5	0.6	1 30.5	—
272	" 26	20 45.5	—	20 53.0	21 1.5	0.2	0 15.0	—
273	" 27	0 20.0	0 30.5	0 54.3	3 22.0	1.9	3 2.0	—

1904, Jan. 7. 1° of foot-screw = 3.53mm. at end of boom.

" May 9. 1° = 3.55 mm. " "

" June 20. 1° " = 3.50 mm. " "

Mean = 3.53 mm.

∴ 1 mm. amplitude at end of boom = 0''54 tilt of pillar.

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
<b>1904.</b>								
146	Jan. 1	H. M. 19 20.5	H. M. 19 30	H. M. 19 31	H. M. —	MM. —	H. M. —	Thickening.
147	" 7	18 8	—	—	17 7	—	1 0	" doubtful.
148	" 8	22 17	—	—	23 50	—	1 33	" "
149	" 20	15 3	15 12.2	15 44	17 41	1.6	2 38	—
150	" 28	—	—	14 38	—	—	—	Faint.
151	Feb. 4	21 8.5	—	—	22 0	—	0 51	Thickening.
152	" 10	2 40.7	—	2 46	—	—	—	—
153	" 13	—	—	13 57	—	—	—	Thickening.
154	" 24	16 27	16 56	—	17 6	—	—	Three jerks.
155	Mar. 4	11 6	11 7.5	11 17	—	—	—	—
156	" 19	6 57	7 24	7 29.6	8 57	1.7	2 0	—
157	" 20	3 51.5	—	—	7 0	—	3 8.5	Thickening.
158	" 31	2 45.5	2 54	2 59	3 20	2.0	0 34.5	—
159	April 3	18 29.3	—	19 20	20 26	0.3	1 36	—
160	" 4	10 8	10 12	10 40	13 2	>1.0	2 54	First max. = 6.5 mm. at 10h. 19m.
161	" 5	10 55	11 1	11 8	11 30	0.5	0 35	—

Register from the Coats Observatory, Paisley—continued.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
162	April 10	H. M. 9 1	H. M. 9 5	H. M. 9 7.5	H. M. 9 25	MM. 0.8	H. M. 0 24	
163	" 10	Further movement	at 10 18	12 4	13 3.5	13 9.		Faint.
164	" 12	19 18	—	—	20 35	—	1 17	
165	" 24	7 27.5	—	7 35	7 47	0.2	0 20	
166	" 28	Continuous faint	movements	from 14 hr. to 19 hr.	Max. at 8, 12, and 16 hr.	—	—	
167	May 1	15 8	15 30	15 40.2	17 25	4.0	2 19	
168	June 25	21 20	21 36	21 48.5	?	5.5	?	
169	" 26	11 16	11 27	11 28.5	12 29	0.8	1 13	
170	" 26	0 36	0 53	0 55	?	?	?	

Tremors very frequent during May.  
Tremors are frequent during June.  
A 4° turn of the calibrating screw = 14 mm. displacement of boom.  
1 mm. displacement = 0°55.

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

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Remarks
<b>1904.</b>							
496	Jan. 3	H. M. 21 34.0	—	—	21 40.0	0.05	Mere thickening.
497	" 7	about 15 43.0	—	16 4.0	16 31.0	1.0	Small.
498	" 20	15 1.8	15 5.0	15 17.2	17 3.0	5.2	Moderate, extended, and well marked.
499	Feb. 4	20 59.7	—	21 11.5	about 21 46.0	0.5	Small and well marked.
500	" 16	17 13.0?	—	—	about 17 54.0	0.1	Number of small oscillations.
501	" 28	10 41.8	—	—	10 48.0	0.16	Brief thickening.
502	Mar. 1	16 41.0	—	—	about 18.0	0.1	Prolonged thickening.
503	" 4	Masked by air C.	10 40.0	—	—	—	A disturbance noted (Peru).
504	" 19	No P.T.'s	6 9.7	6 50.7	about 7 10.0	0.2	Very small, no P.T.'s.
505	" 21	7 34.0	—	—	7 36.0	0.05	Minute thickening.
506	" 24	6 0.0	—	—	6 9.5	0.05	Mere thickening.
507	" 24	7 3.5?	—	—	—	0.05	Barely noticeable.
508	" 31	3 17.0	—	—	about 3 33.0	0.05	Slight thickening.
509	April 4	10 28.1	10 43.7	11 11.2	12 17.0	2.3	Medium and extended (Macedonia).
510	" 5	11 28.0	—	—	11 37.0	0.05	Mere thickening.
511	" 12	19 7.5	—	—	20 32.0	0.3	Very small and extended.
512	" 12	23 26.0	—	23 35.0	23 50.0	0.2	Marked thickening.
513	May 1	12 6.0	—	—	12 29.2	0.05	Mere thickening.
514	" 14	No P.T.'s	14 13.2	14 36.5	15 23.0	0.8	Very small and well marked.
515	" 19	2 58.0	—	—	3 28.0	0.2	Gradual thickening.
516	" 26	No P.T.'s	6 33.2	—	6 42.0	0.4	Small, began abruptly, no P.T.'s.
517	" 28	4 50.0	—	—	4 50.5	0.05	Momentary thickening.
518	" 29	0 25.0	—	—	0 45.0	0.1	Mere thickening.
519	June 7	No P.T.'s	8 41.0	—	8 57.0	0.3	Very small, double shock, no P.T.'s.
520	" 24	1 24.2	—	1 51.0	2 22.0	0.3	Very small, but decided.
521	" 24	21 38.0	—	—	21 58.0	0.05	Momentary thickening, began suddenly.
522	" 25	1st decided movement.	15 5.8	15 32.7	17 28.0	1.0	Moderate and very active.
523	" 25	Not visible L.W.	16 14.8	21 52.2	23 48.5	6.0	Large and extended, double max.
524	" 26	11 2.0	—	—	12 7.8	0.3	Very small.
525	" 26	20 33.6	—	—	20 39.9	0.05	Thickening.
526	" 27	0 21.1	0 45.2	0 52.6	2 40.5	4.0	Moderate and extended, very active.

Vibration of boom taken as 14.3 sec. 1 mm. = 0°73.

++++-3

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

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Remarks
<b>1904.</b>							
503	Jan. 3	H. M. 21 42.5	H. M. —	H. M. —	H. M. 21 55.0	MM. 0.4	Small and well defined.
504	" 7	15 29.0?	—	16 2.0	16 47.0	0.15	Very small.
505	" 20	No P.T.'s	Beginning 15 1.6	15 36.9	17 11.0	2.0	Medium, lasting long time.
506	Feb. 4	20 55.0	—	21 6.0	22 16.0	0.3	Very small and extended.
507	Mar. 1	15 48.0	—	17 4.5	about 17 48.0	0.5	" but prolonged.
508	" 4	No P.T.'s	Beginning 10 43.3	10 44.3	11 17.0	0.2	" and extended (Peru).
509	" 17	4 19.3	—	—	4 20.0	0.1	Brief thickening; earthquake felt at Victoria, B.C.
510	" 19	6 52.3	—	7 19.0	about 8 41.0	0.7	Small and extended.
511	" 21	7 19.5	—	—	about 7 48.0	0.1	Marked thickening.
512	" 23	5 58.9	—	—	6 0.0	0.15	Very small.
513	" 24	7 11.9	—	—	7 15.5	0.20	"
514	" 26	23 56.8	—	—	24 4.0	0.15	Marked thickening.
515	" 31	3 10.0	—	3 21.5	about 3 28.0	0.2	"
516	April 4	10 25.5	10 55.0	11 19.3	12 30.5	2.8	Moderate and extended, very small.
517	" 5	11 14.0	—	—	11 49.0	0.2	Marked thickening.
518	" 12	18 58.7	—	19 12.2	20 5.0	0.8	Moderate and active dis.
519	" 12	23 31.2	23 32.5	23 36.7	23 54.0	1.0	Moderate, lasting but a short time.
520	May 1	12 16.0	—	—	12 29.0	0.5	Small and well marked, gradual commencement.
521	" 7	12 17.2	—	—	12 25.0	0.2	Very small.
522	" 8	20 41.0	—	—	20 43.0	0.05	Mere thickening.
523	" 13	No P.T.'s	14 0.5	—	15 6.0	0.3	Small and well marked.
524	" 19	2 49.2	—	—	2 50.0	0.1	Mere thickening.
525	" 28	4 38.3	—	Switching of booms.	—	0.05	—
526	" 29	0 11.2	—	—	1 0.0	0.1	Very small and extended.
527	June 7	8 37.3	—	—	8 48.3	0.05	Thickenings.
528	" 9	7 34.0	—	—	7 57.0	0.1	Marked thickening.
529	" 24	1 20.4	—	—	2 15.0	0.4	Very small and well marked.
530	" 25	14 54.3	1st decided movement. L.W. 15 2.5	15 10.5	about 17 2.6	2.0	Medium and very active.
531	" 25	21 9.2	21 18.8	21 30.2	24 3.5	5.0	Large, continued for a long time.
532	" 26	10 55.5	—	11 19.3	12 8.3	0.3	Small and well defined.
533	" 26	20 18.8	—	—	20 23.8	0.05	Thickening.
534	" 27	0 18.1	0 24.8	0 32.2	3 12.3	3.4	Moderate and active dis.

Period of vibration, 15 seconds. 1 mm. = 0°76.

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
<b>1904.</b>								
521	Jan. 20	H. M. 15 9.2	H. M. 15 19.3	H. M. 15 20.9	H. M. 15 21.6	MM. 0.9	H. M. 0 40.6	—
	" 30	18 0.0	—	—	—	—	—	Small movements during the rest of the day.
	" 31	—	—	—	—	—	—	Small movements all day.
522	Feb. 1	—	—	—	—	—	—	Continuous small movements marked at 21h. 30m. to the end of the day.
	" 1	—	—	—	—	—	—	Continuous with the above to 11h. 0m.
	" 2	—	—	—	—	—	—	Small movements to the end of the day.
523	" 8	18 0.0	—	—	—	—	—	Continuation of the small movements to 11h. 0m.
	" 9	—	—	—	—	—	—	—

Register from the Observatorio de Marina de San Fernando, Spain—continued.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	
254	Feb. 17	23 43.4	—	—	11 3.1	0.6	11 24.7	Small movements.
"	" 18	—	—	—	—	—	—	
"	" 18	22 57.0	—	—	—	—	9 44.8	Very small movements.
"	" 19	—	—	—	8 42.4	—	—	
256	" 22	14 36.4	14 38.9	14 41.9	14 43.5	0.6	0 14.2	—
"	" 27	13 36.4	—	—	—	—	14 48.8	Small movements.
257	" 28	—	—	—	10 25.2	0.7	—	
"	Mar. 2	22 25.3	—	—	—	—	11 0.0	Very small movements.
258	" 3	—	—	—	9 25.3	—	—	
"	" 4	10 46.1	11 2.9	11 6.5	11 7.5	1.5	0 46.3	—
260	" 15	2 55.0	—	—	7 25.0	—	4 30.0	Tremors.
261	" 19	1 35.8	7 11.9	7 20.0	7 28.6	6.0	7 40.2	—
"	" 21	21 25.5	—	—	—	—	8 0.0	Small movements.
262	" 22	—	—	—	5 25.5	—	—	
"	" 25	23 15.0	—	—	—	—	10 42.1	—
263	" 26	—	—	—	9 54.1	0.5	—	—
264	" 28	4 13.3	—	—	8 16.3	—	4 3.0	Very small movements.
"	" 31	9 25.6	9 56.6	3 1.2	3 2.7	0.8	1 15.2	—
266	April 4	10 8.7	10 36.4	10 40.5	10 84.3	>17.5	4 31.8	—
267	" 5	11 2.9	11 6.0	11 8.1	11 17.4	1.25	0 44.5	—
268	" 7	0 25.7	—	—	8 25.7	—	8 0.0	Very small movements.
"	" 10	8 59.7	9 3.2	9 4.2	8 7.2	1.25	0 14.0	—
270	" 12	19 11.2	19 56.7	19 40.2	18 43.7	0.6	0 47.5	—
271	" 12	23 34.7	23 34.7	23 56.7	23 37.7	0.6	0 7.9	—
272	" 14	2 12.3	2 19.8	2 20.8	2 24.3	1.0	0 25.5	—
"	" 14	15 0.0	—	—	—	—	—	—
273	" 15	—	—	—	—	—	—	Tremors.
"	" 16	—	—	—	—	—	—	—
"	" 17	—	—	—	17 0.0	—	—	—
274	" 24	2 11.0	—	—	16 43.9	—	8 39.0	Small movements.
275	" 25	1 42.0	—	—	8 28.0	—	6 56.0	—
276	" 26	3 58.1	—	—	9 0.1	—	5 8.0	—
277	" 27	3 49.1	—	—	8 25.1	—	4 36.0	—
278	" 28	2 32.2	—	—	9 2.2	—	6 30.0	—
279	" 29	2 33.2	—	—	8 25.2	—	5 52.0	Tremors.
280	" 30	1 5.2	—	—	5 52.2	—	5 27.0	—
281	May 14	14 25.7	14 40.7	14 41.9	14 43.2	0.8	0 36.0	—
282	" 23	1 25.2	—	—	8 6.2	—	6 41.0	Tremors.
283	" 28	1 10.4	—	—	8 2.4	—	6 52.0	—
284	" 29	0 35.5	0 47.5	0 50.9	0 53.5	0.8	0 22.0	—
285	June 7	9 0.0	9 9.0	9 12.2	9 20.4	0.9	3 26.0	—
286	" 18	6 54.9	6 54.9	6 56.1	6 57.2	0.4	0 5.0	—
287	" 24	1 28.4	1 56.8	1 59.9	2 8.0	1.7	1 5.0	—
288	" 25	15 0.9	15 11.1	15 41.3	16 35.5	>17.5	2 24.4	—
289	" 25	20 48.5	21 34.9	21 57.2	22 49.7	>17.5	3 43.8	—
290	" 26	11 4.3	11 23.8	11 35.8	11 40.3	1.5	1 3.0	—
291	" 26	20 36.3	—	—	21 11.3	—	1 25.0	Small movements.
292	" 26	23 52.3	—	—	—	—	3 13.0	—
"	" 27	—	0 34.3	1 6.3	1 53.3	8.5	—	—

To February 13: Period of boom, 18s. 1 mm. = 0"34.  
From February 14 to June 30: Period of boom, 28s. 1 mm. = 0"20.

Register from Ponta Delgada, St. Miguel, Azores.  
Director, Major F. A. CHAVES.

No.	Date	Commence-ment (G.M.T.)	Max.	Semi-Amplitude	Duration	Remarks
		H. M.	H. M.	M.M.	H. M.	
58	Jan. 20	15 5.1	15 11.4	0.30	0 47	I. of the Morcalli's scale.
60	Feb. 4	20 57.2	—	0.05	0 21	Idem—Thickening of line.
69	Apr. 4	10 11.7	10 51.5	5.40	1 47	Idem.
78	June 7	8 40.7	—	—	0 29	Idem—Thickening of line.
80	" 25	15 1.4	—	0.50	1 18	Idem—Idem.
80	" 25	21 16.0	21 25.8	0.70	1 31	Idem.

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	Max. Amplitude	Duration	Remarks	
1902.									
		H. M.	H. M.	H. M.	H. M.	M.M.	H. M.		
253	Jan. 2	—	—	12 7.0	12 10.0	1.5	0 3	Sudden sharp disturbance.	
254	" 5	23 43.5	23 44.0	23 45.0	23 47.0	1.5	0 3.5	Doubtful.	
255	" 7	4 33.0	4 34.5	4 36.0	4 38.0	0.5	0 5	—	
256	" 7	15 45.0	—	—	15 55.0	—	0 10	Thickening of line.	
257	Mar. 11	14 40.0	—	—	—	—	—	Sudden change of level.	
258	" 19	6 52.0	—	—	8 20.0	—	1 28	Shortly after earthquake started the instrument was disturbed for winding of watch and insertion of new film. L.W., Max., and Amplitude uncertain.	
259	" 20	9 8.0	—	—	—	—	—	Sudden change of level.	
260	" 25	8 43.0	—	—	—	—	—	Sudden change of level; timeappr.; watch stopped.	
261	" 27	16 42.0	—	—	16 45.0	0.5	0 3	Sudden vibrations.	
262	" 31	2 56.0	3 4.0	3 9.0	3 41.0	0.6	0 4.5	—	
263	Apr. 2	2 30.0	—	—	6 39.0	—	4 9	Air tremors.	
264	" 4	10 19.0	10 44.0	11 9.5	13 28.0	5.5	3 9	—	
265	" 5	11 4.0	11 7.0	11 12.5	11 28.0	0.5	0 24	—	
266	" 11	15 10.0	—	—	16 13.5	15 18.0	0.4	0 6	—
267	" 12	20 24.0	—	—	20 29.0	20 45.0	—	0 21	Slight vibrations.
268	May 1	15 34.0	16 9.0	16 12.0	17 35.0	1.5	2 1	Slight tremors following this until May 2—5h. 30.0m.	
269	" 2	11 6.0	—	11 12.0	11 24.0	0.5	0 18	—	
270	" 8	22 50.0	—	—	—	—	3 0	Slight tremors.	
271	" 14	12 25.0	—	—	12 32.0	—	0 7	Slight thickening.	
272	" 14	15 34.0	—	—	15 51.0	—	0 17	—	
273	" 16	1 12.0	—	—	7 40.0	—	6 28	Slight tremors.	
274	" 21	3 40.0	—	—	5 50.0	—	2 10	Tremors.	
275	" 21	15 17.0	—	—	—	—	—	Slight change of level.	
276	" 24	7 3.0	—	7 4.0	7 11.0	2.5	0 8	—	
277	June 2	0 0.0	—	—	6 40.0	—	6 40	Tremors.	
278	" 8	21 15.0	—	—	5 40.0	—	8 25	Slight tremors.	
279	" 20	6 20.0	—	—	8 40.0	—	2 20	Tremors.	
280	" 24	2 25.0	—	2 42.5	3 4.0	—	0 39	Slight vibrations.	
281	" 25	15 5.0	16 6.0	16 23.0	17 11.0	4.0	2 6	—	
282	" 25	21 20.9	22 20.0	22 38.0	0 10.0	5.8	2 50	—	
283	" 26	11 58.0	—	12 22.0	12 36.0	0.5	0 38	—	
284	" 27	0 28.0	1 32.0	—	2 54.0	4.5	2 28	—	
285	" 29	4 0.0	—	—	7 10.0	—	3 10	Tremors.	

Feb. 6, 1 mm. of boom motion = 0"20 boom period = 25 seconds.  
Mar. 26, " " " = 0"14 " " = 25 " "  
Apr. 23, " " " = 0"18 " " = 24 " "  
May 21, " " " = 0"17 " " = 25 " "  
June 18, " " " = 0"16 " " = 25 " "

Register from Alipore Observatory, Calcutta.  
Director, G. T. WALKER, F.R.S.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
<b>1902.</b>								
		H. M.	H. M.	H. M.	H. M.	MM.	H. M.	
277	Jan. 16	9 12.4	—	9 18.0	9 21.5	1.00	0 9.1	Period of full swing of the boom, 18s.
278	" 20	15 26.4	16 22.8	16 46.7	17 18.3	1.25	1 51.9	Sensibility 1 mm. = 0 <sup>u</sup> 42 of tilt.
279	Mar. 7	11 5.6	—	11 9.0	12 4.5	0.50	0 59.0	Doubtful. Period of full swing of the boom, 17s.
280	" 31	2 20.6	—	2 29.1	3 28.8	16.50(a)	1 8.2	Sensibility 1 mm. = 0 <sup>u</sup> 42 of tilt. (a) As the boom moved through the entire width of the trace, the maximum amplitude has been measured from the base line.
281	" 31	5 52.1	—	5 53.2	6 24.7	4.00	0 32.6	—
282	Apr. 4	10 21.4	10 47.4	11 8.2	12 18.4	5.00	1 57.0	—
283	" 5	10 20.9	—	10 30.0	11 15.8	9.00(b)	0 54.9	(b) Measured from the top line. Period of full swing of the boom, 17s. Sensibility 1 mm. = 0 <sup>u</sup> 42 of tilt.
284	" 9	5 34.9	—	5 37.6	5 42.5	0.75	0 7.6	Period of full swing of the boom, 17s.
285	" 12	19 1.8	19 33.4	19 35.4	20 19.1	0.50	1 17.3	Sensibility 1 mm. = 0 <sup>u</sup> 42 of tilt.
286	May 1	15 37.9	15 47.5	15 50.1	16 52.2	5.25	1 14.3	Doubtful.
287	June 17	19 34.9	—	19 35.6	20 3.2	1.00	0 3.2	(c) Measured from the base line.
288	" 24	1 32.4	1 40.5	1 45.6	2 10.9	3.00	0 37.4	Period of full swing of the boom, 18s.
289	" 24	4 14.1	—	4 15.1	4 19.2	0.75	0 5.1	Sensibility 1 mm. = 0 <sup>u</sup> 38 of tilt.
290	" 25	14 56.0	15 14.3	15 27.0	17 40.8	17.25(c)	2 44.8	—
291	" 25	20 31.9	—	20 36.0	20 40.0	0.75	0 8.1	—
292	" 25	21 11.6	21 36.0	21 38.0	24 0.4	8.50	2 48.8	—
293	" 26	10 59.4	11 16.7	11 17.7	12 1.4	1.50	1 2.9	—
294	" 27	0 19.0	0 41.3	0 43.4	1 22.0	5.00	1 3.0	—

Register from the Government Observatory, Bombay.  
Director, N. A. F. MOOS.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
<b>1904.</b>								
		H. M.	H. M.	H. M.	H. M.	MM.	H. M.	
43	Jan. 20	16 12.7	—	16 42.7	17 14.5	0.9	1 1.8	—
159	Mar. 19	6 49.2	—	7 57.2	8 26.5	1.0	1 47.3	—
187	" 21	2 23.6	—	2 26.1	3 9.8	10.2	0 46.3	—
188	" 31	5 54.6	—	5 56.3	6 16.8	5.3	0 22.2	—
200	Apr. 4	10 11.4	—	10 52.2	14 23.6	5.5	4 12.2	—
203	" 5	10 25.7	—	10 37.0	11 14.5	2.0	0 48.8	—
205	" 9	5 30.0	—	5 31.0	5 33.4	0.6	0 3.4	—
209	" 12	19 34.9	—	19 44.4	20 12.2	0.5	0 37.3	—
232	" 24	7 4.7	—	7 10.9	7 21.9	0.6	0 17.2	—
249	May 1	—	—	16 6.5	16 36.5	1.5	—	* Lost in shifting time.
313	June 24	1 33.3	—	1 47.0	2 14.8	0.8	0 29.5	—
316	" 26	15 7.1	†	15 34.5	16 41.7	11.1	1 34.6	† Lost in shifting time.
319	" 25	21 12.0	21 41.4	21 50.4	23 40.7	8.5	2 27.7	—
321	" 26	11 20.1	—	11 22.5	11 51.9	1.2	0 31.3	—
323	" 27	0 31.6	0 51.8	1 0.8	1 56.7	3.5	1 25.1	—

Between January 1 and June 30 1.0 mm. of amplitude = 0<sup>u</sup>44.

Register from the Solar Physics Observatory, Kodaikānal, Madras.  
Director, C. MICHE SMITH.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
<b>1904.</b>								
		H. M.	H. M.	H. M.	H. M.	MM.	H. M.	
1	Mar. 2	4 59.3	4 59.9	5 02.9	5 29.8	4 = 2.2	0 30.5	E.Q. ?
2	" 28	3 49.5	—	3 49.5	3 12.3	3 1.4	—	Slight displacement.
3	" 31	2 29.7	2 29.3	2 29.9	2 29.9	3 1.8	0 46.6	—
4	" 31	5 56.4	5 59.5	6 00.6	6 22.1	1.8	0 25.7	—
5	Apr. 4	10 21.9	10 50.3	10 56.5	11 46.3	1 0.6	1 2.4	Many maxima.
6	" 5	10 26.4	10 26.4	10 44.6	11 18.1	0.8	0.5	—
7	" 9	5 33.4	—	5 33.2	5 48.6	0.5	0.2	—
8	" 24	7 10.9	—	7 12.0	7 14.9	—	—	Slight.
9	May 1	15 42.0	15 46.2	15 52.9	16 17.9	0.6	0.4	Felt at Quetta ?
10	June 1	9 33.9	—	—	—	—	—	Thickening of line.
11	" 4	8 43.2	—	—	—	—	—	—
12	" 7	2 02.8	—	—	2 54.6	—	—	—
13	" 7	5 35.2	—	—	6 11.7	—	—	—
14	" 7	8 28.0	8 38.2	8 36.8	9 05.6	0.8	0.4	0 37.6
15	" 7	10 35.4	—	—	—	—	—	Thickening of line.
16	" 16	19 54.3	—	—	20 04.6	—	—	—
17	" 18	22 22.1	—	—	22 35.9	—	—	—
18	" 24	1 64.3	—	—	2 01.6	—	—	—
19	" 25	15 07.7	15 28.0	15 34.4	16 15.4	2 1.3	1 07.7	—
20	" 25	21 22.1	21 22.2	21 51.3	23 05.2	1.8	0.9	1 43.1
21	" 28	11 59.2	11 33.4	11 34.3	12 03.6	0.5	0.3	0 58.4
22	" 27	0 30.8	0 32.3	1 10.3	1 59.5	1.5	0.9	1 28.7
23	" 27	4 49.5	—	—	4 56.2	—	—	Thickening of line.
24	" 27	5 45.5	—	—	—	—	—	—
25	" 29	2 27.6	—	—	3 54.2	—	—	—

Register from Batavia Royal Magnetical and Meteorological Observatory.  
Director, DR. S. FIGEE.

No.	Date	Commencement	Duration P.T.	Max.	Amplitude Double	Total Duration
<b>1904.</b>						
		H. M.	M.	H. M.	MM.	M.
541	Jan. 1	3 44.1	—	3 44.2	1.4 = 0.4	5
542	" 10	3 3.3	—	3 18.1	1.4	0.4
543	" 20	15 17.1	—	15 42.0	2.9	0.9
	" 20	—	—	44.3	3.1	0.9
	" 20	—	—	16 41.0	2.8	0.9
544	" 21	17 23.2	—	17 23.7	1.0	0.5
545	" 27	20 36.5	—	20 46.2	0.9	0.3
546	" 29	0 10.2	—	0 29.7	1.3	0.4
547	" 30	6 19.8	—	6 20.7	1.2	0.4
548	Feb. 4	21 19.2	—	22 32.9	0.8	0.3
549	" 6	7 59.7	—	8 6.3	2.2	0.7
550	" 22	13 38.0	—	14 2.7	1.0	0.3
551	" 24	15 23.7	—	15 26.3	0.5	0.2
552	March 2	21 33.7	—	21 51.9	1.9	0.3
553	" 3	3 6.0	—	3 9.8	10.0	3.1
554	" 4	11 6.7	—	11 14.7	0.6	0.2
555	" 13	12 43.7	—	12 45.7	0.6	0.2
556	" 16	7 55.7	—	8 10.2	0.6	0.2
557	" 19	6 49.0	—	7 57.7	1.3	0.4
557 bis	" 31	2 24.2	—	2 45.3	2.5	0.8
558	" 31	6 3.2	—	6 10.2	1.4	0.4
559	April 4	10 25.7	20.0	11 23.7	9.5	2.8
560	" 5	10 27.4	2.3	10 33.7	12.0	3.6
561	" 8	6 42.2	—	6 44.1	1.0	0.3
562	" 9	5 58.1	—	6 15.7	0.6	0.2
563	" 10	5 45.6	—	6 02.6	0.6	0.2
564	" 11	14 13.7	—	14 32.7	2.0	0.6
565	" 12	19 11.7	—	19 17.9	0.6	0.2
566	" 14	1 19.0	—	1 30.2	0.6	0.2
567	" 17	8 41.7	—	8 52.7	0.5	0.2
568	" 17	10 31.7	—	10 33.2	2.2	0.7
569	" 21	0 51.5	—	0 53.7	1.1	0.3
570	" 24	3 35.9	—	3 41.4	1.2	0.4
571	" 24	23 38.5	—	23 39.0	0.8	0.2

Register from Batavia Royal Magnetical and Meteorological Observatory—cont.

No.	Date	Com- mence- ment	Dura- tion P.T.	Max.	Ampli- tude Double	Total Duration
572	April 27	H. M. 18 55.1	M. —	H. M. 1 0 0.3	MM. —	M. 51
573	May 1	7 3.6	—	7 23.7	2.0 0.6	69
574	" 1	15 33.8	4.7	15 33.8	2.0 5.7	100
575	" 1	23 27.4	4.2	23 33.8	2.8 0.5	40
576	" 2	5 51.3	—	5 51.7	0.6 0.2	1
577	" 2	10 54.4	—	11 3.2	0.7 0.2	30
578	" 10	12 34.2	—	12 35.1	1.0 0.3	5
579	" 14	12 16.5	—	12 16.5	0.9 0.3	25
580	" 14	14 17.7	—	14 19.2	0.5 0.2	10
581	" 16	5 17.6	—	5 18.7	0.8 0.2	20
582	" 19	0 10.4	—	?	?	?
583	" 19	6 48.5	—	6 50.7	0.5 0.2	4
584	" 19	15 58.3	—	16 7.6	2.2 0.6	30
	" 19	—	—	9.8	2.0 0.6	—
585	" 20	10 31.9	—	10 33.2	0.7 0.2	7
586	" 26	21 33.6	—	21 34.3	0.8 0.3	30
587	" 28	23 43.9	—	23 54.7	1.0 0.3	30
588	June 1	9 7.6	—	9 8.7	0.8 0.3	6
589	" 7	5 11.3	—	5 17.9	1.2 0.4	35
590	" 7	8 33.6	—	8 37.7	1.2 0.4	30
591	" 15	16 27.4	—	16 31.0	2.1 0.6	?
592	" 18	7 6.7	—	7 15.7	1.0 0.4	30
593	" 22	11 16.1	—	11 18.6	0.7 0.3	20

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

No.	Date	P.T. Com- mence	L.W. Com- mence	Max.	End	Ampli- tude	Remarks
1904.							
1	Jan. 7	H. M. 15 1.1	H. M. 15 13.3	H. M. 15 18.2	H. M. 16 9.7	MM. 2.4	—
2	" 10	3 3.4	3 12.3	3 14.7	3 52.2	2.35	—
3	" 16	—	15 16.2	15 17.4	15 21.8	0.85	—
4	" 20	15 35.1	16 10.7	16 37.9	17 47.8	1.75	—
5	" 29	0 17.5	0 21.5	0 32.5	0 58.5	1.25	—
6	Mar. 29	—	9 52.3	9 59.4	10 32.8	2.85	—
7	Apr. 4	10 58.8	11 21.0	11 43.2	12 47.1	1.05	—
8	" 5	10 41.2	10 46.7	10 53.2	11 15.2	1.0	—
9	" 6	—	—	—	5 15.7	—	Lost through adjustments.
10	" 11	14 9.9	14 21.6	14 27.2	15 11.4	3.75	—
11	" 14	1 35.3	1 38.3	1 39.6	1 49.3	0.5	—
12	" 28	—	0 54.7	0 55.5	1 8.4	0.35	—
13	May 1	7 0.4	7 7.5	7 11.7	7 39.7	1.3	—
14	" 1	15 35.9	15 40.3	15 56.5	17 19.7	3.0	—
15	" 1	23 33.7	23 41.2	23 44.3	0 14.7	1.5	—
16	" 2	—	10 49.5	10 55.0	11 23.0	1.2	—
17	" 19	0 14.3	0 16.1	0 17.8	0 27.6	0.5	—
18	" 29	23 42.1	23 50.1	23 54.6	0 41.9	1.5	—
19	June 18	6 49.2	6 54.0	7 10.2	7 33.7	0.8	—
20	" 19	10 57.5	11 0.6	11 1.5	11 4.5	0.5	—
21	" 25	15 11.0	15 46.5	16 13.0	17 23.5	1.0	—
22	" 25	21 24.7	21 31.3	22 44.0	24 23.0	0.8	—
23	" 26	20 6.5	20 11.3	20 49.3	20 34.3	0.5	—
24	" 27	0 33.9	—	1 26.7	2 19.7	1.1	Lost through adjustments.

Up to 1904, April 5, 1mm. = 0".48.  
" " May 7, 1mm. = 0".56.  
" " June 30, 1mm. = 0".50.

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

No.	Date	P.T. Com- mence	L.W. Com- mence	Max.	End	Max. Ampli- tude	Dura- tion	Remarks
1904.								
218	Jan. 12	H. M. 1 54	H. M. —	H. M. —	H. M. 1 56	MM. —	H. M. 0 2	Thickening of line.
219	" 12	2 38	—	2 38	2 46	Full swing	0 8	—
220	Feb. 12	4 3	—	—	4 5	—	0 2	Thickening of line.
221	Mar. 4	10 33	10 35	10 42	10 46	2	0 13	—
222	" 8	20 54	—	—	21 4	—	0 10	Thickening of line.
223	" 19	7 38	—	—	8 13	2	0 35	—
224	" 21	16 0	—	—	15 4	—	0 4	Thickening of line.
225	" 29	14 52	—	14 53	14 57	1	0 5	—
226	" 31	8 22	—	8 22	8 24	1.5	0 2	—
227	April 2	13 10	—	—	13 26	—	0 7	Thickening of line.
228	" 15	17 11	—	17 13	17 21	1.5	0 10	—
229	" 22	19 52	—	19 54	19 58	1	0 6	—
230	May 23	16 46	—	16 53	17 2	4	0 16	—
231	June 25	13 48	—	13 48	13 53	3	0 5	Nil.
232	" 25	21 36	—	22 17	22 36	1	1 0	—
233	" 26	11 16	—	—	11 48	—	0 32	Thickening of line.

Register from the Magnetic Observatory, Christchurch, New Zealand.  
Director, C. COLERIDGE FARR, D.Sc., &c.; Observer, H. F. SKEY, B.Sc.

No.	Date	P.T. Com- mence	L.W. Com- mence	Maximum From To	End	Max. Ampli- tude	Dura- tion	Remarks
1903.								
136	July 2	H. M. 21 21.6	H. M. 21 28.9	H. M. 21 30.5	H. M. 21 34.9	MM. 1.4	H. M. 22 13.3	Thickening of line merely.
137	" 9	4 52.2	—	5 19.3	—	—	5 28.7	—
138	" 10	4 11.4	—	4 15.0	—	—	4 36.6	(? Origin New Britain.)
139	" 12	4 28.3	4 37.5	4 46.7	4 52.3	2.5	5 19.0	Thickening of line merely.
140	" 19	13 10.5	—	13 16.0	—	—	13 23.1	Thickening of line merely.
141	" 28	4 35.0	—	—	—	—	4 47.0	Tremors (shocks felt in Hawkes Bay Province.)
142	Aug. 1	10.4	—	—	—	—	20.4	—
143	" 7	7 54.2	—	7 56.9	—	0.3	8 01.4	—
144	" 19	9 43.6	—	9 59.0	—	0.5	10 15.7	—
145	" 24	7 29.7	—	7 36.4	—	—	7 53.8	Thickening of line merely.
146	Sept. 3	6 05.3	6 25.3	6 26.5	6 39.4	1.2	7 24.3	Thickening of line merely.
147	" 5	5 45.2	—	5 49.4	—	—	5 57.6	—
148	" 7	7 17.0	7 24.2	7 38.9	7 47.2	14.0	8 12.0	—
149	" 8	5 23.4	—	5 36.9	—	0.4	6 31.7	—
150	" 23	0 17.0	—	0 21.7	—	0.8	0 32.0	—
151	" 23	7 19.1	—	7 23.2	7 31.5	0.5	7 50.0	—
152	" 26	6 15.0	6 17.2	6 17.8	6 18.0	1.3	6 39.4	—
153	Oct. 4	5 02.4	5 04.1	5 05.7	5 12.0	1.0	5 29.5	—
154	" 13	22 04.1	—	22 10.4	—	0.5	22 14.5	—
155	" 14	3 32.2	—	3 32.8	—	0.8	4 09.3	—
156	" 17	—	—	—	—	—	2 09.0	In progress while attending to instrument.
157	" 20	14 48.9	14 52.0	14 51.0	14 58.7	2.2	15 38.6	Obscured by night tremors.
158	" 20	Indefinite	14 29.9	14 26.5	—	11.5	—	Attending to instrument during maximum.
159	" 30	3 30.1	4 05.1	Max. between 4h. 10m. and 4h. 20m.	4 30.2	6.0+	6 29.9	—
160	" 30	12 00.4	15 07.0	15 07.3	15 12.4	1.3	21 00.4	—
161	Nov. 1	18 02.5	—	18 07.7	—	1.0	18 36.2	—
162	" 2	3 00.0	—	3 01.7	—	0.6	3 08.3	—



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

No.	Date	P.T. Commence	L.W. Commence	Maxima		End	Max. Amplitude	Duration	Remarks
				From	To				
		H. M.	H. M.	H. M.	H. M.	H. M.	MM.	H. M.	
163	Nov. 10	17 23.0	17 23.6	17 29.2	—	17 46.5	3.5	18 20.5	—
164	" 10	20 58.3	21 02.2	21 04.3	—	21 07.0	1.8	21 23.4	—
165	Dec. 23	—	1 12.3	1 19.3	1 20.0	1 25.2	3.6	2 13.3	—
166	" 23	23 45.0	—	23 51.3	23 55.4	—	0.6	24 08.0	—
167	" 24	21 28.0	—	21 32.2	—	—	—	21 40.4	—
168	" 28	3 07.0	—	3 35.7	—	—	1.0	4 12.1	—
169	" 31	Indefinite	14 10.7	14 13.8	—	14 24.1	4.5	Indefinite	Obscured by night tremors.
<b>1904.</b>									
170	Jan. 2	0 05.8	—	0 10.0	—	—	1.0	0 41.8	—
171	" 7	Indefinite	2 52.7	2 54.8	—	3 19.8	7.5	Indefinite	P.T. and A.T. obscured by night tremors.
172	" 10	3 01.8	3 12.4	3 13.0	—	3 19.0	2.9	4 13.0	—
173	" 20	Indefinite	15 49.8	15 52.5	—	16 08.0	4.5	Indefinite	P.T. and A.T. obscured by night tremors.
174	" 25	—	—	—	—	3 53.0	—	4 06.7	In progress while attending to instrument.
175	" 29	0 12.3	—	0 41.0	—	—	0.9	1 09.2	—
176	Feb. 4	10 31.4	10 35.0	10 35.3	—	11 03.4	1.0	11 03.4	—
177	" 8	5 47.5	—	5 51.1	5 54.2	—	0.8	6 05.1	—
178	" 18	5 59.9	6 03.1	6 03.9	—	6 05.0	2.0	6 16.2	—
179	" 20	10 15.0	—	10 19.0	—	—	0.8	10 30.0	—
180	" 22	Indefinite	1 29.7	1 31.0	—	1 32.7	1.8	2 05.3±	—
181	" 28	5 42.8	—	6 00.5	—	6 45.3	0.5	—	—
182	Mar. 1	Indefinite	3 22.2	3 23.7	—	3 29.9	2.5	Indefinite	P.T. and A.T. obscured by night tremors.
183	" 1	—	4 26.0	4 30.1	—	4 39.9	4.0	—	—
184	" 2	9 09.9	9 13.0	9 15.0	—	9 31.5	2.5	9 49.±	—
185	" 3	8 49.1	—	8 50.7	—	—	0.5	8 56.4	—
186	" 3	11 02.8	11 11.7	11 20.4	—	11 30.4	1.3	11 52.9	—
187	" 15	7 50.1	—	7 59.4	—	—	0.5	8 18.5	—
188	" 25	Indefinite	15 08.9	15 11.0	—	15 15.6	4.5	Indefinite	P.T. and A.T. obscured by night tremors.
189	" 28	10 07.8	10 20.3	10 21.8	—	10 23.9	1.0	Indefinite	—

Register from Helwan Observatory, Cairo, Egypt. Director, Captain H. E. LYONS, R.E.; Superintendent, E. B. H. WADE, M.A.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
<b>1903.</b>								
155	July 1	H. M.	H. M.	H. M.	H. M.	MM.	H. M.	Traceslightly tremulous.
156	" 2	—	—	15 45	—	—	—	—
157	" 4	—	—	14 00	—	—	—	Trace tremulous.
158	" 5	—	—	14 00	—	—	—	Trace slightly tremulous.
159	" 6	17 08	17 12	17 24	17 29	0.6	0 21	Doubtful.
160	" 19	6 09	—	6 16	6 21	0.4	0 12	Minute tremor.
161	" 29	—	—	12 02	—	—	—	Trace tremulous.
162	" 30	—	—	12 25	—	—	—	Isolated thickening.
163	Aug. 3	—	—	14 45	—	—	—	—
164	" 4	—	—	17 20	—	—	—	—
165	" 6	3 52	—	4 00	4 09	0.6	0 17	Slight tremor.
166	" 10	—	—	19 43	—	—	—	Trace tremulous, probably air tremors.
167	" 11	4 33.5	4 35.5	4 42	5 25.5	2.5	0 52	Large tremor, felt locally.
168	" 13	—	—	12 45	—	—	—	—

Register from Helwan Observatory, Cairo, Egypt—continued.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
		H. M.	H. M.	H. M.	H. M.	MM.		
169	Aug. 24	—	—	12 25	—	—	—	Trace slightly tremulous.
170	" 25	—	—	12 00	—	—	—	" "
171	" 28	—	—	12 15	—	—	—	" "
172	" 29	—	—	12 15	—	—	—	" "
173	Sept. 1	—	—	10 55	—	—	—	Trace tremulous. Air tremors.
174	" 2	—	—	0 30	—	—	—	Trace tremulous slightly.
175	" 5	—	—	12 00	—	—	—	" "
176	" 13	—	—	11 30	—	—	—	" "
177	" 20	—	—	5 54	—	—	—	Disturbance.
178	Oct. 21	10 16	10 35	10 37	11 36	2.2	1 20	Distinct tremor.
179	Nov. 1	—	—	8 47	—	—	—	Trace tremulous. Air tremors.
180	" 2	—	—	8 45	—	—	—	Trace tremulous. Air tremors.
181	" 5	—	—	14 00	—	—	—	Trace tremulous.
182	" 6	—	—	12 30	—	—	—	" "
183	" 7	—	—	10 30	—	—	—	" "
184	" 8	—	—	8 15	—	—	—	" "
185	" 10	—	—	10 00	—	—	—	" "
186	" 11	—	—	7 30	—	—	—	" "
187	" 16	—	—	11 15	—	—	—	" "
188	" 17	—	—	10 30	—	—	—	" "
189	" 18	—	—	11 00	—	—	—	" "
190	" 19	—	—	11 15	—	—	—	" "
191	" 20	—	—	13 15	—	—	—	" "
192	" 27	—	—	4 00	—	—	—	" "
193	" 28	—	—	9 45	—	—	—	" "
194	Dec. 6	23 52	23 34	23 34	24 02	1.5	0 30	Distinct tremor felt locally.

On December 1, the Observatory seismograph was transferred from Abbasia to Helwan.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration	Remarks
<b>1904.</b>								
195	March 30	H. M.	H. M.	H. M.	H. M.	MM.	H. M.	Trace slightly tremulous.
196	" 31	2 33	2 37	2 45	3 15	1.2	0 42	Distinct tremor.
197	" 31	—	—	6 25	—	—	—	Isolated slight tremor.
198	April 4	10 07	10 16	10 18	12 20	—	2 13	Very well marked (Jambala earthquake).
"	" 4	—	—	10 21	—	—	—	—
"	" 4	—	—	10 27	—	—	—	—
"	" 4	—	—	10 33	—	—	—	—
"	" 4	—	—	10 37	—	—	—	—
"	" 4	—	—	10 39	—	—	—	—
"	" 4	—	—	10 40	—	—	—	—
"	" 4	—	—	10 42	—	—	—	—
"	" 4	—	—	10 45	—	—	—	—
"	" 4	—	—	10 48	—	—	—	—
"	" 4	—	—	10 51	—	—	—	—
"	" 4	—	—	10 54	—	—	—	—
"	" 4	—	—	10 59	—	—	—	—
"	" 4	—	—	11 26	—	—	—	—
199	" 5	—	—	10 59	—	—	—	Slight thickening.
"	" 5	—	—	11 02	—	—	—	—
200	" 26	4 41	4 51	4 54	5 22	—	0 40	Distinct tremor.
"	" 26	—	—	5 00	—	0.6	—	—
201	" 29	—	—	14 52	—	—	—	Slight thickening.
"	" 29	—	—	15 15	—	—	—	—
202	" 30	From 0h. 55m. till	9h. 30m.	—	—	—	—	Thickening and trace tremulous.
203	May 1	15 56	16 25	16 31	17 11	—	1 15	Minute tremor.
"	" 1	—	—	16 37	—	—	—	—
"	" 1	—	—	16 40	—	0.6	—	—

## Register from Helwan Observatory, Cairo, Egypt—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.	
204	May 2	—	—	11 48	—	—	—	Slight thickening.
205	" 7	—	—	17 20	—	—	—	" "
206	" 14	From 9h. 35m. till 21h. 56m.	—	17 38	—	—	—	Thickening and trace tremulous.
207	" 15	—	—	10 39	—	—	—	Slight thickening.
208	" 15	—	—	22 13	—	—	—	" "
209	June 25	14 49.6	15 3.6	—	—	—	—	" "
	" 25	—	—	15 05.5	—	—	—	" "
	" 25	—	—	15 08.8	—	—	—	" "
	" 25	—	—	15 12.3	—	—	—	" "
	" 25	—	—	15 16.0	—	—	—	" "
	" 25	—	—	15 53.0	—	—	—	" "
	" 25	—	—	16 00.3	—	—	—	" "
	" 25	—	—	16 11.4	—	3.4	1 50	At 15h. 30m. spool changed.
210	" 25	21 24	21 44.5	—	—	—	—	" "
	" 25	—	—	21 45.0	—	—	—	" "
	" 25	—	—	22 00.0	—	7.3	—	" "
	" 25	—	—	22 09.3	—	—	—	" "
	" 25	—	—	22 19.5	—	—	—	" "
	" 25	—	—	22 33.0	—	—	2 14	" "
211	" 26	11 37	—	—	—	0.6	0 17.5	Thickening.
212	" 27	0 28.0	3 01	—	—	—	—	" "
	" 27	—	—	1 02	—	—	—	" "
	" 27	—	—	1 06.5	—	—	—	" "
	" 27	—	—	1 08.5	—	2.5	—	" "
	" 27	—	—	1 11.0	—	—	—	" "
	" 27	—	—	1 16.0	—	—	—	" "
	" 27	—	—	1 24.0	—	—	2 2	" "
213	July 23	—	—	16 51	—	0.4	—	Thickening.
214	" 24	11 42.5	—	11 45	12 06	0.6	23 5	Distinct tremor.
215	" 27	—	—	5 48	—	0.4	—	Thickening.

In January and February no earthquakes or tremors were recorded.

Register from Cordoba, Argentine Republic, South America.  
Director, WALTER G. DAVIS; Observer, T. G. RECTOR.

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.	
<b>1903.</b>								
868	July 1	—	—	21 32.0	21 40.2	—	—	Slight thickening.
869	" 2	20 43.0	—	—	—	—	42 00	T. slight.
870	" 5	0 appr.	—	11h.-12h.	—	—	16 00	T. and C.I.M.
871	" 6	4 "	—	—	—	—	21 00	" and " slight.
872	" 8	4 "	—	—	—	—	12 00	" and "
873	" 8	13 59.5	—	14 0.8	—	1.0	0 50	T. and C.I.M., resembling true E.Q. movement.
874	" 9	1 appr.	—	8 appr.	—	—	16 00	T. and C.I.M.
875	" 9	23 13.3	23 20.9	23 22.9	23 29.0	0.6	0 10.7	Small but well defined E.Q.
876	" 10	4 appr.	—	—	—	—	13 00	T. and C.I.M. slight.
877	" 14	4 "	—	—	—	—	11 00	T. slight.
878	" 14	9 9.2	—	—	—	—	0 29	> Dislocation to E.
879	" 15	4 appr.	—	—	—	—	12 00	T. very slight.
880	" 16	2 "	—	—	—	—	13 00	T. and C.I.M.
881	" 17	6 "	—	—	—	—	9 00	T. very slight.
882	" 18	7 "	—	—	—	—	7 00	T. and C.I.M. slight.
883	" 19	9 "	—	—	—	—	5 00	" and " very slight.
884	" 28	4 "	—	—	—	—	10 00	T. very slight.
885	" 29	4 "	—	—	—	—	10 00	T. and C.I.M. very slight.
886	" 30	2 "	—	—	—	—	13 00	T. and C.I.M. slight.
887	" 31	0 "	—	11h.-12h.	—	—	16 00	" and "
888	Aug. 1	0 "	—	11h.-12h.	—	—	16 00	" and "

## Register from Cordoba, Argentine Republic, South America—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.	
890	Aug. 2	4 appr.	—	—	—	—	10 00	T. very slight.
890	" 4	7 56.3	—	7 57.0	7 58.5	0.4	0 2.2	Very small bead.
891	" 6	15 appr.	—	11h.-12h.	—	—	24 00	T. and C.I.M.
892	" 8	4 "	—	—	—	—	10 00	T. very slight.
893	" 9	8 "	—	—	—	—	6 00	" "
894	" 9	18 46.2	—	—	18 42.3	0.1	0 2.1	Slight thickening of line.
895	" 10	4 appr.	—	11h.-12h.	—	—	10 00	T. and C.I.M.
896	" 13	2 22.9	2 23.9	2 24.9	2 33.6	1.5	0 10.7	Caused considerable damage in Mendoza.
897	" 14	4 appr.	—	—	—	—	11 00	T. and C.I.M.
898	" 15	6 "	—	—	—	—	8 00	T. very slight.
899	" 17	7 appr.	—	—	—	—	7 00	T. and C.I.M. very slight.
900	" 17	16 9.2	—	18 10.2	18 28.5	0.1	0 19.3	Series of cigar-shaped thickenings.
901	" 19	5 appr.	—	9 0.0	—	—	10 00	T. and C.I.M.
902	" 21	—	—	4 35.6	—	0.2	0 1.0	Very slight thickening.
903	" 21	7 appr.	—	—	—	—	7 00	T. very slight.
904	" 23	—	—	3 43.7	—	1.0	0 8.1	>
905	" 23	—	—	6 31.0	—	0.5	0 6.1	Carrot-shaped.
906	" 27	4 appr.	—	—	—	—	0 00	T. very slight.
907	" 27	21 "	—	0h.-1h.	—	—	17 00	T. and C.I.M.
908	" 29	15 20.9	—	15 24.4	15 38.6	1.6	0 17.7	True E.Q.; felt in Cordoba, also in Tinogasta, 14h. 43m.
909	" 30	3 53.4	—	—	4 12.2	0.2	0 18.8	> Small.
910	" 30	4 15.0	—	—	—	—	8 00	T. and C.I.M. slight.
911	Sept. 3	2 appr.	—	4h.-7h.	—	—	10 00	T. and C.I.M.
912	" 6	8 3.6	8 5.6	8 17.8	8 17.8	0.6	0 14.2	True E.Q.
Observations lost from 14h. on the 6th to 14h. on the 7th.								
913	" 8	0 appr.	—	5h.-5h.	—	—	10 00	T. and C.I.M.
914	" 9	5 15.8	—	5 17.3	5 31.0	0.6	0 16.2	True E.Q.
915	" 9	5 58.3	—	—	—	—	—	> Slight dislocation to W.
916	" 9	7 appr.	—	—	—	—	7 00	T. and C.I.M.
Observations lost from 23h. 45m. on the 9th to 14h. on the 10th.								
917	" 18	7 39.6	—	7 41.4	7 48.3	0.2	0 5.7	Mere thickening.
918	" 20	9 appr.	—	—	—	—	8 00	T. and C.I.M. slight.
919	" 20	22 "	—	7h.-8h.	—	—	16 00	" "
920	" 22	0 "	—	3 45.0	—	—	10 00	" and "
921	" 24	6 28.4	—	—	—	—	—	> Slight dislocation W.
922	" 24	6 34.6	—	—	—	0.3	0 5.0	> Slight.
923	" 26	0 appr.	—	—	—	—	14 00	T. and C.I.M.
924	" 26	23 "	—	—	—	—	15 00	T. and C.I.M. sometimes resembling E.Q.
925	" 28	1 "	—	—	—	—	8 00	" "
926	" 29	7 40.7	—	—	—	0.2	0 5.0	> Small.
927	" 30	5 appr.	—	—	—	—	7 00	T. very slight.
928	Oct. 1	12 12.7	—	12 13.2	—	0.5	0 2.0	Small, time uncertain.
929	" 4	1 appr.	—	8 24.3	—	0.5	13 00	T. and C.I.M. resembling true E.Q.
Photo. indistinct from 3h. to 14h. on the 5th.								
930	" 8	1 appr.	—	—	—	—	8 00	T. slight.
931	" 8	—	—	11 12.2	—	0.5	0 27.4	True E.Q., well defined.
				11 16.3	—	—	—	" "
				11 22.4	—	—	—	" "
932	" 9	4 appr.	—	—	—	—	8 00	T. slight.
933	" 10	4 "	—	—	—	—	8 00	T. and C.I.M. slight.
934	" 12	4 "	—	—	—	—	6 00	T. slight.
935	" 13	—	—	7 23.4	—	0.2	0 5.0	Slight thickening.
936	" 13	14 appr.	—	—	—	—	24 00	T. and C.I.M.
937	" 14	23 "	—	6 00	—	—	15 00	T. and C.I.M.

## Register from Cordoba, Argentine Republic, South America—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.	
938	Oct. 16	4 approx.	—	—	—	—	8 0-0	T. slight.
939	" 16	—	—	18 49-3	—	—	0 6-0	> Dislocation to W.
940	" 17	13 13-2	—	13 15-3	—	0-5	0 27-9	True E.Q.
941	" 19	6 appr.	—	13 17-8	—	0-5	—	T. and C.I.M.
942	" 20	8 19-3	—	7h.-8h.	—	—	6 0-0	> Slight.
943	" 21	—	10 21-9	—	—	—	1 19-4	A series of very slight shocks.
944	" 24	0 appr.	—	5h.-7h.	—	—	11 0-0	T. and C.I.M.
Observations lost from 18h. 30m. on the 28th to 14h. 30m. on the 29th, and from 15h. on the 30th to 14h. on the 10th of November.								
945	Nov. 13	6	—	—	—	—	6 0-0	T.
946	" 14	13 48-8	—	13 51-9	—	0-1	0 7-0	Very slight thickening; doubtful.
947	" 14	16 13-2	—	—	—	—	0 5-0	> Dislocation to W.
948	" 15	2 appr.	—	—	—	—	12 0-0	T. very slight.
949	" 16	1	—	—	—	—	11 0-0	T.
950	" 17	6	—	—	—	—	6 0-0	T.
951	" 20	8 24-4	—	—	—	—	0 3-0	Thickening of line, slight, doubtful.
952	" 25	15 appr.	—	—	—	—	20 0-0	T. and C.I.M. slight.
953	" 27	3	—	—	—	—	7 0-0	" and "
954	" 28	2	—	—	—	—	8 0-0	" and "
955	Dec. 1	4 45-8	—	—	—	—	0 7-5	Thickening of line.
956	" 1	21 8-2	—	21 10-3	—	0-5	0 8-0	True E.Q.
957	" 2	1 appr.	—	7 45-0	—	—	10 0-0	T. and C.I.M.
958	" 5	From 9h. 30m. to 9h. 45m.	—	—	—	—	—	Series of slight dislocations to E.
959	" 6	3 appr.	—	—	—	—	7 0-0	T. slight.
960	" 6	23 23-3	23 29-0	23 43-2	—	—	—	Series of slight thickenings.
961	" 7	—	—	14 49-0	16 20-9	7-5	—	True E.Q. felt in Tucumán (St. Juan), probably beginning 14h. 47-3m.
962	" 8	0 6-4	—	—	—	0-2	0 3-0	Slight thickening, doubtful.
963	" 9	18 30-0	—	—	—	—	43 30-0	T. and C.I.M.; dislocation E. at 3h. 45m. and 4h. 15m. on 10th.
964	" 12	5 appr.	—	—	—	—	6 0-0	T. and C.I.M. slight.
965	" 14	4	—	—	—	—	10 0-0	T.
966	" 18	0	—	—	—	—	10 0-0	T.
967	" 18	9 21-9	—	—	—	0-2	0 5-0	> with dislocation 1 mm. to E.
968	" 20	18 31-0	—	18 32-0	—	0-2	0 6-0	True E.Q.
969	" 21	11 20-3	—	11 21-9	—	0-2	0 8-0	T.
970	" 22	14 49-0	—	—	—	—	—	> Slight dislocation 1 mm. W.
Register lost from 19h. 30m. to 23h. 30m.								
971	" 23	1 25-1	—	—	—	—	1 10-7	Series of small shocks.
972	" 23	23 31-0	23 33-1	23 33-6	0 11-2	0-1	0 40-2	Series of very slight shocks.
973	" 25	0 appr.	—	4h.-7h.	—	—	17 0-0	T. and C.I.M.
974	" 26	0 2-3	—	—	—	0-1	0 5-0	Slight thickening, doubtful.
975	" 26	4 appr.	—	—	—	—	10 0-0	T. and C.I.M. slight.
976	" 27	3	—	7h.-8h.	—	—	8 0-0	" and "
977	" 28	3 25-3	—	3 40-2	3 55-3	0-2	0 31-0	Series of slight shocks.
978	" 28	23 30-0	—	1h.-2h.	—	—	11 20-0	T. and C.I.M.

The instrument has a period of 14"7; 1 mm. amplitude = 0"84.

## Notes by THOMAS G. RECTOR, Assistant-in Charge of the Cordoba Station.

The earthquake movements registered during the last half-year, although of average frequency, have been, as a rule, very small; indeed, some of them were so minute that a magnifying glass was required to examine them properly, yet they were well-defined earthquake movements. For this reason it is not practicable to sketch but a few of the largest. Even the Mendoza earthquake of August 13 (No. 896),

which caused considerable damage to very many buildings in that city and was felt all over that region, produced a very insignificant photograph here, as you will see from the sketch which accompanies this.

On August 29 a slight, but very distinct, shock was felt in Cordoba. I noted the time, and stepped into the hallway, and found that all the employees who work at the other end of the building had been frightened out of their rooms: while the men in the intermediate rooms, near where the instrument is placed, felt nothing. When the register of the seismograph was developed we expected that very heavy movements would be found; but such was not the case, as will be seen by referring to the sketch of No. 908. At first we thought the smallness of these movements might be due to variation in the sensibility of the instrument, so that this was tested with unusual care from time to time. However, it was found constant and practically the same as in former years. Not only was the period of the pendulum noted, but also the equivalent in seconds of arc corresponding to 1 mm. of amplitude was determined by means of the tilting screw.

On the other hand, the daily variation of the position of the boom on many occasions has been very pronounced; shortly after noon the pendulum commences moving rapidly to the east, and reaches its maximum in this direction about 4 p.m., when it commences to move rapidly to the west.

Since August 23 the door of the room containing the instrument has been opened at 8 p.m. and remained so until about daybreak. This was done to determine what effect a better circulation would have on the tremors and irregular movements. This apparently has not affected their frequency, but the time of their occurrence seems modified, especially that of the irregular movements or greater disturbances. Formerly they commenced usually at midnight and ceased at 10 a.m. (local time), the first and last hours being mere tremors or waves in the line. Since the door has been kept open at night these disturbances commence and stop earlier as a rule. If temperature plays any part in the origin of these movements, it must be something connected with increase of cold.

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

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration
<b>1904.</b>							
526	Jan. 7	H. M.	H. M.	H. M.	H. M.	MM.	H. M.
529	" 13	15 38-6	—	15 42-1	16 02-1	0-3	0 22-5
532	" 20	15 23-4	15 46-9	9 34-4	9 36-0	0-2	0 03-2
542	Feb. 4	21 31-8	—	16 09-1	17 10-0	2-0	1 50-6
548	" 22	14 13-6	—	22 00-0	22 27-4	0-4	0 55-6
552	Mar. 1	16 36-6	—	—	14 19-8	—	0 06-2
553	" 3	3 33-7	—	16 49-6	17 42-2	0-5	1 06-6
554	" 4	0 52-8	—	3 41-9	5 48-5	0-2	0 10-1
555	" 4	11 02-0	—	—	0 59-8	—	0 07-0
556	" 5	5 14-8	—	—	12 26-5	—	1 24-5
557	" 5	20 27-7	—	—	5 20-0	—	0 05-2
568	" 7	18 57-2	—	—	20 32-4	—	0 04-7
563	" 18	13 50-1	13 52-3	18 59-0	19 02-7	0-3	0 05-5
564	" 19	7 51-1	—	14 03-0	14 11-0	0-4	0 20-9
565	" 20	10 17-0	—	8 11-2	8 33-0	0-2	0 44-4
566	" 21	7 13-6	—	—	10 28-9	—	0 09-9
568	" 31	2 26-5 ?	2 29-7 ?	7 26-5	7 40-1	0-2	0 26-5
569	" 31	5 56-4	6 00-1	2 30-6 ?	2 30-6 ?	2-7	1 02-2 ?
570	Apr. 1	3 35-0	—	6 02-5	6 17-2	0-6	0 20-8
571	" 1	12 18-0	—	3 38-7	3 51-4	0-3	0 19-4
573	" 4	10 19-4	10 33-3	—	12 23-6	—	0 07-6
574	" 4	18 59-0	—	—	19 27-5	7-0	2 08-1
575	" 5	10 28-1	10 33-5	—	17 11-2	—	0 12-2
576	" 7	21 52-2	—	11 00-3	11 20-3	2-6	0 52-2
577	" 8	6 54-0	—	—	21 53-0	—	0 05-8
578	" 9	5 50-4	—	—	6 55-4	—	0 01-4
579	" 10	9 22-5	—	5 81-9	6 57-7	0-2	0 05-3
580	" 11	14 14-1	—	9 25-1	9 43-5	0-3	0 21-0
581	" 12	5 17-4	—	—	14 56-9	—	0 42-8
582	" 12	19 04-0	—	—	5 19-5	—	0 02-1
583	" 13	0 18-0	—	19 24-7	19 58-9	0-7	0 52-9
584	" 13	5 55-3	—	—	0 21-4	—	0 03-4
585	" 14	1 21-3	—	—	5 39-7	—	0 03-4
586	" 15	9 48-2	—	1 36-8	1 55-9	0-3	0 04-6
588	" 19	18 47-6	—	9 45-3	9 54-1	0-4	0 05-9
590	" 20	11 54-7	—	—	18 53-3	—	0 05-7
592	" 22	20 09-5	—	11 56-5	12 00-0	0-2	0 05-3
593	" 24	6 55-1	6 56-5	20 10-6	20 15-8	0-3	0 06-3
594	" 26	19 03-3	—	6 57-4	7 13-9	0-8	0 23-8
595	" 27	19 04-5	—	—	19 19-5	—	0 09-2
596	May 1	15 42-9	15 46-4	—	19 09-3	—	0 04-3
597	" 1	23 39-0	—	16 04-4	16 59-6	1-0	1 16-7
598	" 3	7 11-1	—	23 53-3	24 12-4	0-6	0 33-4
601	" 7	19 34-4	—	—	7 16-9	—	0 05-8
602	" 14	14 09-8	—	—	19 42-6	—	0 14-9
603	" 18	9 54-6	9 54-6	—	14 31-9	0-2	0 45-7
604	" 19	<2 30-7	—	—	10 09-6	1-0	0 08-7
					2 58-6	—	>0 27-9

## Register from Irkutsk Magnetical and Meteorological Observatory—continued.

No.	Date	P.T. Commence	L.W. Commence	Max.	End	Max. Amplitude	Duration
605	May 22	H. M. 21 10.5	H. M. —	H. M. 21 11.6	H. M. 21 13.8	MM. 0.2	H. M. 0 03.3
606	" 28	23 48.6	—	—	25 51.9	—	1 45.3
607	" 5	7 40.0	—	7 41.7	7 46.2	0.4	0 06.2
608	June 7	8 28.0	8 34.4	8 39.7	9 19.3	2.0	0 47.8
610	" 10	7 18.1	—	7 16.3	7 20.3	1.4	0 04.2
611	" 14	1 58.9 ?	—	1 58.3 ?	2 10.8 ?	1.8	0 13.9 ?
612	" 15	14 36.5 ?	—	—	14 42.1 ?	—	0 05.6 ?
613	" 17	19 52.6	19 56.9	19 59.3	20 13.3	0.5	0 20.7
614	" 22	11 25.9	—	—	11 35.4	—	0 09.5
616	" 24	1 09.9	1 24.9	1 25.6	7 22.7	1.3	> 1 18.1
619	" 25	?	—	2 45.7 ?	3 08.5	0.5	?
620	" 25	14 52.2	14 53.8	15 07.7	16 59.6	10.9	2 07.4
622	" 25	20 12.1	—	20 16.5	20 24.8	0.4	0 12.7
623	" 25	21 07.0	21 08.9	21 22.5	24 04.6	7.9	2 57.6
624	" 26	2 03.2	—	2 05.5 ?	2 38.5 ?	—	0 35.3
625	" 26	4 53.8	—	—	5 31.7	—	0 34.9
628	" 26	10 48.9	10 53.6	11 09.7	12 18.9	1.5	1 30.0
630	" 26	19 59.3	—	20 18.4	20 46.8	0.4	0 47.5
631	" 26	22 17.2	—	22 22.4	22 31.4	0.2	0 14.2
632	" 26	23 14.8	—	23 19.9	23 26.9	0.3	0 12.1
633	" 27	0 15.9	0 18.0	0 32.4	> 2 23.8	6.8	> 2 12.9
634	" 27	21 29.9	21 30.4	21 30.6	21 51.4	6.7	0 21.5
635	" 28	0 08.2	—	0 09.2	0 17.0	0.3	0 10.8
636	" 28	13 33.6	—	13 42.0	13 55.4	0.2	0 21.8
637	" 29	1 57.0	—	2 01.1	2 11.0	0.4	0 14.0
639	" 30	7 40.6 ?	—	7 46.0	8 01.8	0.3	0 21.2
640	" 30	17 38.3	—	—	17 55.1	—	0 16.8