

British Association for the Advancement of Science.

230

Circular No. 27, issued by the Seismological Committee, Professor
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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 twenty-six circulars and in the Reports of the Association, 1896 to 1899.

If observers will kindly send a copy of their register, together with copies of their more important seismograms, to the Secretary of the Seismological Investigation Committee, Shide, Newport, Isle of Wight, England, 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 0.1 millimetre refer to the thickening of the line or minute ripples, 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 (secs. of arc), 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. In each register this quantity should be stated.

Records only obtained at a single station have been excluded.

* In Circulars 1 to 25, 1mm. should read 0.1mm.

II. *Registers.*

The Register from Shide, Newport, Isle of Wight, England. 50°41'N. 1°17'W.
JOHN MILNE; Assistants, MESSRS. S. HYROTA, J. H. BURGESS, AND
J. HORIKAWA.

The following entries refer to three pendulums, A, B, and C. The pendulums B and C, given to the Shide Observatory by Mr. A. F. Yarrow in 1901, respectively record E.W. and N.S. motion. A records E.W. motion. The records are photographic.

A. With multiplying lever:

Jan. 1 to June 30 18 secs. period. 1mm. amp.=0.14.

B. Period 18 seconds. 1° turn=5mm.

C. Jan. 1 to June 30 18 secs. period. 1° turn=6mm. amp. ca.

Ats.=air tremors. P₂ refers to the commencement of the second phase of motion. d.=duration. a.=amplitude. If this is less than 0.1mm. or with Ats., d. is not given.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1912						
3359	July 1	H. M. 1 6	H. M. 1 13	MM. 1.5	H. M. 0 45	A.
3360	" 1	1 6	1 13	0.3	0 45	B.C. Max. for C 1-12.
		—	8 35.5	0.1	—	A.
		—	8 32.5	0.1	—	B.C.
3361	" 2	—	4 25	0.1	—	B. Max. for C 4-28.
3362	" 6	—	17 27.5	0.2	—	A.
		—	17 28	0.1	—	B.
3363	" 7	8 8.5	8 25	3.0	5 0	A. 3rd and 4th Max. off the scale.
		—	8 36	10.5	—	
		—	8 55	—	—	
		—	9 14.5	—	—	

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

No.	Date	Com- mence- ment		Max.	Max. Ampli- tude	Dura- tion	Remarks
		H. M.	M. M.				
3363	July 7	8	8	8 25.5	1.5	5 0	B. C not working.
				8 37	2.5		
				8 39	3.0		
				8 55.5	2.5		
3363a	" 7	22	55	23 13	2.0	2 20	A. P ₂ 23-1.
		22	56	23 13	0.5	2 18	B.
3364	" 8	16	20	16 45	0.2	—	A. End in Ats.
		16	21	16 45	0.1	—	B.
3365	" 8	17	24.3	17 29	2.0	—	A. "
		17	26	17 39	0.5	1 30	B. C not working.
3366	" 8	19	9	19 25	0.2	—	B.
3367	" 8	22	4.5	22 32.5	3.0	3 40	A. P ₂ 22-11.
		22	3.7	22 33.5	0.7	3 42	B. P ₂ 22-13.5.
3368	" 9	8	31.5	8 53.5	1.5	—	A. End in Ats.
		8		8 56	2.0	—	B.
3369	" 10	8	28.5	8 55.5	0.4	—	B. End in Ats.
		20	40.5	21 0	0.1	—	A. B.
3370	" 11	7	23	7 26.3	0.5	0 29	C.
		15	22	15 27.5	0.2	—	A. End in Ats.
3371	" 13	15	22	15 27.5	0.2	—	C.
		15	21.5	15 31.5	0.1	1 12	A.
3372	" 14	9	15.5	9 32	0.5	1 30	C.
		9	16	9 35	0.2	—	B.
3373	" 16	1	22.5	1 57.5	0.2	1 50	A.
		—		1 57	0.1	—	B.C.
3374	" 17	20	57	21 18	0.3	1 30	A.
		—		21 18.5	0.1	—	B.
3375	" 18	21	47.5	22 30.5	0.2	—	B.C. End in Ats.
		14	5.5	14 16	0.1	—	B.
3376	" 20	14	5	14 15	0.1	1 20	C. 2nd Max. 14-29.
		10	31.5	10 37.5	0.2	0 48	B.C.
3377	" 22	16	6	16 46	0.1	2 0	A.
		16	4	16 46	0.1	1 51	B.
3378	" 23	12	4.5	12 22.5	6.0	3 40	A. P ₂ 12-12.5. B.C.
		12		12 47.5	2.5	—	not working.
3379	" 24	12		12 51.7	2.6	—	B.
		13	4.5	13 4.5	3.5	—	C.
3380	" 24	—		22 46	0.1	—	A.
		—		22 55	0.1	—	B.
3381	" 24	23	46	0 19	0.2	1 30	A. 2nd Max. 0-26.
		23	46	0 19	0.1	1 15	B.
3382	" 25	23	45.5	0 25	0.1	1 15	A.
		—		23 31.2	1.0	—	C. End in next quake.
3383	" 26	23	24.5	23 52	0.7	—	B.
		—		23 31	0.2	—	" "
3384	" 26	—		23 52	0.2	—	C.
		—		23 30.5	0.2	—	" "
3385	" 26	—		23 47	0.2	—	A.
		—		0 14	1.2	—	B.
3386	" 26	—		0 22	1.7	—	C.
		—		0 25.7	1.7	—	" "
3387	" 26	—		0 14	0.2	—	A.
		—		0 22	0.5	—	B.
3388	" 26	—		0 27.5	0.5	—	C.
		—		0 16	0.5	—	" "
3389	" 26	—		0 28.5	0.5	—	A.
		—		3 40.5	0.5	—	B.
3390	" 26	—		3 38	.6	—	C.
		—		8 51.5	0.3	—	B.C. End at 10-50.
3391	" 26	—		8 58.5	0.4	—	" "
		—		—	—	—	" "

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

No.	Date	Com- mence- ment		Max.	Max. Ampli- tude	Dura- tion	Remarks
		H. M.	M. M.				
3386	July 28	—	—	1 36	0.1	—	A.B.C.
3387	" 30	—	—	5 11	0.1	—	B.
		—	—	5 20	0.1	—	"
		—	—	5 35	0.1	—	"
		—	—	5 10	0.1	—	C.
3388	" 30	—	—	5 25	0.1	—	"
		—	—	5 35	0.1	—	"
3389	" 31	—	—	16 11	0.2	—	A. B.C. not working.
		—	—	8 40	0.2	—	A.
3390	" 31	8 19	10 7	8 39	0.1	—	B.
		10 7	10 47	8 40	0.1	—	C.
3391	" 31	—	—	10 47	0.5	3 0	A.
		—	—	10 58	1.7	—	"
3392	Aug. 1	—	—	10 46	0.2	2 55	B.
		—	—	10 58	0.5	—	"
3393	" 1	—	—	10 58	0.2	2 55	C.
		—	—	20 25	0.2	—	B.
3394	" 1	—	—	20 27	.1	—	C.
		—	—	9 17.5	0.3	—	A. End in Ats.
3395	" 2	9 12.5	9 10.5	9 23.5	0.3	—	B.
		—	—	9 17	0.1	—	C.
3396	" 3	—	—	9 23.5	0.1	—	A. End in Ats.
		—	—	9 18	0.1	—	B.C.
3397	" 3	—	—	9 18	0.1	—	"
		—	—	9 25	0.1	—	C.
3398	" 4	11 52	11 48	11 57.5	0.3	—	A. End in Ats.
		—	—	11 57.5	0.1	—	B.C.
3399	" 4	—	—	19 10	0.1	—	"
		—	—	16 39.5	0.1	—	A.B.
3400	" 5	—	—	16 37	0.1	—	C.
		—	—	4 38.5	0.5	—	A.
3401	" 5	—	—	4 4	0.1	—	B.
		—	—	4 40	0.2	—	C.
3402	" 6	9 34	9 33	9 53	0.1	1 7	B.
		—	—	9 52	0.1	1 7	C.
3403	" 6	—	—	19 28	0.1	—	A.
		—	—	19 32	0.1	—	B.C.
3404	" 6	21 51	21 51	22 17	1.6	—	A. P ₂ 21-58.7.
		—	—	22 17.5	0.5	—	B.
3405	" 6	—	—	22 16	1.0	—	C. P ₂ 21-56.
		—	—	6 6.5	0.2	—	A.B.C.
3406	" 6	—	—	13 59	0.1	—	A.B.C.
		—	—	11 50.5	0.2	—	A.
3407	" 7	—	—	11 50.5	0.1	—	B.C.
		—	—	13 51.2	0.3	—	A. Com. and end in Ats.
3408	" 9	—	—	14 24	0.6	—	"
		—	—	14 27.5	0.6	—	"
3409	" 9	—	—	14 29.5	0.3	2 15	B.
		—	—	13 34.5	0.1	2 15	C.
3410	" 9	—	—	14 22	0.5	—	"
		—	—	18 40	0.2	—	B.
3411	" 9	—	—	18 39.5	0.3	—	C.
		—	—	21 26	0.2	—	B.
3412	" 9	—	—	21 58.5	0.2	—	"
		—	—	21 53.5	0.5	—	C.
3413	" 9	—	—	22 28	0.3	—	B.
		—	—	22 28	0.5	—	C. End at 0-5.
3414	" 9	—	—	22 42.5	0.6	—	"
		—	—	20 2	—	—	B. Max. and end lost
3415	" 9	—	—	20 1.5	—	—	C. changing paper
		—	—	1 34	1 42	> 40.0	A. P ₂ 1-39.
3416	" 9	—	—	1 43	13.0	8 15	B. P ₂ 1-38.5.
		—	—	1 47	> 20.0	—	"

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

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
3408	Aug. 9	H. M. 1 35.5	H. M. 1 43 1 47 2 2	MM. 22.0 22.0 16.0	H. M. 8 15	C. P ₂ 1-39.
3409	" 9	14 8.3	14 16.5	0.1	—	A.
3410	" 9	14 9	14 16	0.1	1 0	B.C.
3411	" 10	18 37	18 46	0.1	0 49	B.C.
		9 29	9 37.5	5.5	2 15	A. P ₂ 9-33.
		9 29	9 37.5	2.0	2 7	B. P ₂ 9-33.5.
		9 29.5	9 37.5	2.2	2 7	C. P ₂ 9-33.5.
			9 40.5	3.0	—	—
3412	" 10	18 36.5	18 44	0.6	0 47	A.
		18 35	18 44	0.2	0 47	B.
		18 36	18 43.5	0.2	0 47	C.
3413	" 10	22 37.5	23 15	0.3	—	A. End in Ats.
			23 28.5	0.6	—	—
		22 38	23 17	0.3	2 35	B.
			23 28	0.2	—	—
		22 37	23 14.5	0.7	2 35	C.
3414	" 11	—	7 31	0.1	—	A.B.
			7 32.5	0.2	—	C.
3415	" 14	—	4 24.5	0.1	—	B.C. With Ats.
3416	" 15	13 57	14 23.5	0.1	1 48	A.
		13 57	14 23.5	0.1	—	B.
		13 56.5	14 22.5	0.1	—	C.
3417	" 17	—	19 48	1.5	—	A. P ₂ 19-31.5.
			20 26.5	> 12.0	—	—
			20 36	11.0	—	—
			19 48	0.5	—	B. P ₂ 19-31.5.
			20 26	4.5	—	—
			19 50	0.5	—	C. P ₂ 19-31.5.
			20 26	4.2	—	—
3418	" 18	1 17.5	1 48.5	0.2	—	A.
		1 15.5	1 48.5	0.1	—	B.C.
3419	" 18	3 4.5	3 27	0.2	1 17	A.
		3 2.5	3 27	0.1	—	B.
		3 3.5	3 29	0.1	—	C.
3420	" 18	8 0	8 56	0.5	2 25	A.
		8 0	8 55	0.1	—	B.
		8 0	8 58	0.1	2 25	C.
3421	" 18	13 40	13 55.5	0.4	2 55	A.
		13 43	13 55	0.1	2 52	B.
			13 55.5	0.1	—	C.
3422	" 18	—	19 12	0.1	—	A.
3423	" 18	20 13.3	21 32	0.1	—	B.
		20 11	21 32	0.1	—	C.
3424	" 18	—	22 32	0.3	—	A.
			22 39	0.4	—	—
			22 32	0.5	—	B.
			22 25	0.3	—	C.
3425	" 19	—	16 51.5	0.3	—	A.
			16 50	0.1	—	B.C.
3426	" 19	—	17 6.5	0.2	—	A.
			17 5	0.1	—	B. Max. for C. 17-4.
3427	" 19	—	18 3.5	0.1	—	A. With Ats.
			18 5	0.2	—	B.C. a. for C 0.1mm.
3428	" 20	—	11 47	0.1	—	A. With Ats.
			11 35	0.2	—	B.
3429	" 21	—	5 22	0.1	—	C.
			5 18	0.2	—	B.
3430	" 21	17 55	18 41	0.4	—	B. End in Ats.
		17 55	18 40	0.2	—	C.

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

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
3431	Aug. 23	H. M. 14 4 14 4 14 4	H. M. 14 38.5 14 35.5 14 35.5	MM. 6.5 2.2 0.7	H. M. — — —	A. End in Ats. B. " C. "
			14 40	1.0	—	—
3432	" 23	21 51	22 7.5	0.3	—	A. "
		—	22 5.5	0.2	—	B. "
		21 52	22 20.5	0.2	—	—
			22 6	0.2	—	C. "
			22 17	0.2	—	—
3433	" 24	1 29	2 0	0.1	—	B.
		1 31	2 1	0.1	—	C.
3434	" 25	1 27.5	1 41	0.2	1 20	B.C.
3435	" 25	5 10	5 18.5	0.1	—	B.C.
3436	" 29	6 1.5	6 27	0.1	—	B. With Ats.
3437	" 30	18 42	—	—	—	C.
3438	" 31	14 23	14 25.5	0.1	—	C.
3439	" 31	22 36.5	23 21	1.0	3 25	C
3440	Sept. 1	4 39	4 32.5	0.5	—	A.
			4 55.5	0.2	—	—
			5 2.5	0.2	—	—
		4 29.5	4 32	0.1	3 20	C.
			5 7	0.2	—	—
3441	" 1	14 8	14 26	0.1	1 30	C.
3442	" 4	—	9 42.5	0.1	—	A.
3443	" 5	—	19 32.5	0.1	—	A.
			19 31	0.1	—	B.C.
3444	" 10	16 21.5	16 39	0.1	1 29	C.
3445	" 11	—	1 52	0.5	—	A. With Ats.
		1 10	1 54	0.4	—	B.C. "
3446	" 12	6 13.5	6 35	0.2	1 45	A.
		6 13	6 33	0.1	—	B.C.
3447	" 13	23 36	23 46.5	21.0	2 40	A. P ₂ 23-40.
			23 48.5	40.0	—	—
			23 46.5	2.5	2 25	B. P ₂ 23-40.5.
			23 48	3.0	—	—
			23 46	2.5	2 25	C. P ₂ 23-40.5.
			23 48	4.0	—	—
3448	" 16	20 18	20 26.5	0.1	0 40	B.C.
3449	" 16	21 15.5	21 17.5	0.1	0 20	B
		21 15	21 16.5	0.1	0 10	C.
3450	" 17	—	19 34	0.5	—	B.
			19 32	0.5	—	C.
3451	" 20	21 53.5	22 6	0.1	0 50	B. Com. for C 21-54.5.
3452	" 22	4 52	5 51.5	0.1	—	B.C. With Ats.
3453	" 25	18 42	18 50	0.3	0 50	A.
			18 48.5	0.1	—	C. B not working.
3454	" 26	—	0 23	0.1	—	A.C.
3455	" 26	19 49.5	20 45	0.1	—	B.C. Max. for A 20-4.
3456	" 28	13 0	13 8.3	0.1	—	A. End in Ats.
		13 0	13 7.3	0.2	—	C.
3457	" 29	21 6	21 21.5	4.0	—	A. End in next eqke.
		21 6	21 21.5	1.1	—	B.C. "
3458	" 29	—	22 2.5	> 15.0	—	A.
			22 18.5	10.5	—	—
			22 2.5	> 12.0	—	B.
			22 3	6.5	—	C.
			22 8.5	8.0	—	—
3459	" 30	5 43	6 9	1.2	—	A. End in Ats.
		5 42.5	6 9.2	0.5	—	B.
		5 43	6 5.5	0.8	—	C.

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

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
3460	Oct. 1	H. M. 6 4	H. M. 6 38.5	MM. 0.3	H. M. —	B.
		6 4.5	6 36	0.1	—	C.
3461	" 8	21 40	21 58.3	0.1	1 17	B.
		21 38	21 57.7	0.1	1 17	C.
3462	" 10	—	19 26.5	0.1	—	A.C. Beginning and
		—	19 31.5	0.1	—	B. (end lost.)
3463	" 11	—	2 17.5	0.4	—	A.
		2 4.5	2 17	0.1	—	B.C.
3464	" 12	15 40?	16 20	1.0	—	B. End at 18-55.
		—	16 35	0.5	—	—
		—	16 17	0.6	—	C. End at 18-30.
		—	16 22.5	0.6	—	—
		—	16 29	0.8	—	—
		—	16 40	0.8	—	—
3465	" 12	—	20 17	0.3	—	A. End at 21-10.
		—	20 15	0.2	—	B. " 21-33.
		—	20 11.5	0.1	—	C. " 21-33.
3466	" 16	—	13 25.7	0.1	—	A.
3467	" 17	10 52	11 16	0.1	1 20	A.
		10 53.5	11 16	0.2	1 5	B.
		10 53	11 15	0.1	1 5	C.
3468	" 18	—	12 17.5	1.0	—	A. End in next eqke.
		—	12 17.5	0.2	—	B.
		—	12 17	0.2	—	C.
3469	" 18	—	12 48.7	2.0	—	A.
		—	12 51.2	2.0	—	—
		—	12 49	1.5	—	B.
		—	12 51	1.0	—	C.
		—	12 56.5	1.0	—	—
3470	" 20	—	11 10	0.1	—	C. With Ats.
3471	" 22	—	9 6	0.2	—	B.
3472	" 22	—	10 48	0.1	—	A. With Ats.
3473	" 22	—	20 29.7	0.1	—	A.
3474	" 25	—	13 9	0.2	—	A. With Ats.
		—	13 6.5	0.1	—	B.
		—	13 7.5	0.1	—	C.
3475	" 26	9 19.2?	9 20.7	0.2	—	A. End at 10-50.
		—	9 31.2	0.2	—	—
		—	10 45	0.5	—	—
		—	9 30.5	0.1	—	B. With Ats.
		—	10 6.5	0.2	—	—
		—	9 31	0.1	—	C. With Ats.
3476	" 29	—	10 4.5	0.1	—	A.
		—	5 50.5	0.2	—	With Ats.
		—	6 28.5	0.2	—	—
		—	7 18.5	0.3	—	—
		—	5 53	0.1	—	B. With Ats.
		—	7 15	0.3	—	—
		—	5 51.5	0.1	—	C. With Ats.
		—	7 15	0.3	—	—
3477	" 31	12 8.5	12 33	4.5	2 40	B. P ₂ 12-29.
		12 6.5	12 32	2.0	2 20	C P ₂ 12-30.3.
3478	" 31	17 53	18 33.3	1.7	—	B With Ats.
		—	18 35	4.0	—	—
		—	18 34	0.7	—	C. With Ats.
		—	18 41	0.5	—	—
3479	Nov. 1	—	6 26.5	0.2	—	C. With Ats.
3480	" 1	—	19 46.5	1.0	—	A.
		—	19 48	0.3	—	B.
		—	19 48.5	0.1	—	C.
3481	" 2	—	3 26.5	1.0	—	A.
		—	3 30	0.7	—	B.
		—	3 30.2	0.5	—	C.

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

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
3482	Nov. 2	H. M. —	H. M. 4 35.5	MM. 0.3	H. M. —	B. With Ats.
		—	4 32.5	0.3	—	C.
3483	" 2	—	21 59	0.5	—	B.C.
3484	" 3	—	7 6	1.0	—	A.
		—	7 5	0.5	—	C.
3485	" 7	7 44.7	8 2	4.0	4 25	B. P ₂ 7-52.5.
		—	8 13	2.5	—	—
		—	7 45	3.0	4 25	C. P ₂ 7-52.5.
		—	8 13.7	1.5	—	—
3486	" 7	16 56.5	17 31.5	2.0	—	B. P ₂ 17-26.5.
		16 56.7	17 36	0.5	—	C. P ₂ 17-28.
3487	" 7	—	18 16.7	3.0	—	B. P ₂ 18-11.5.
		—	18 21.5	0.7	—	C. P ₂ 18-13.
3488	" 8	8 34.5	8 51	0.1	—	B. With Ats.
		8 31	8 52	0.1	1 44	C.
3489	" 14	17 40	17 50.5	1.0	1 15	A.
		17 46	17 49.7	0.1	—	B.
		17 45.7	17 51	0.1	—	C.
3490	" 17	—	12 21.5	0.5	—	B. End at 14-56.
		—	12 18	0.1	—	C. " 14-50.
3491	" 19	—	14 23.7	1.5	—	A.
		—	14 34.2	1.5	—	—
		—	14 48	3.5	—	—
		—	14 59.2	3.0	—	—
		—	14 24.5	0.5	—	B.
		—	14 34.7	0.5	—	—
		—	14 44.5	0.7	—	—
		—	14 59.2	0.5	—	—
		14 3.5?	14 19	0.1	—	C.
		—	14 36.2	0.1	—	—
		—	14 37.2	0.5	—	—
		—	14 57.7	0.5	—	—
3492	" 22	—	1 34	0.1	—	A. With Ats.
3493	" 25	—	9 47	0.1	—	C.
3494	" 27	—	10 24	0.2	—	B.C.
3495	" 28	—	21 25	0.1	—	C.
3496	" 30	—	3 28.5	0.5	—	B. With Ats.
		—	3 30.7	0.1	—	C.
3497	Dec. 1	—	9 24.7	2.0	—	B. P ₂ 9-18 With Ats.
		—	9 26.5	3.7	—	—
3498	" 5	—	13 7.5	0.2	—	A. 2nd Max. 13-14.5.
		—	13 9	0.2	—	B. 2nd Max. 13-17.
		—	13 14.7	0.1	—	C.
3499	" 5	18 9.6	18 41	0.2	—	A. With Ats.
		—	18 35.7	0.1	—	B.
		—	18 41	0.1	—	C.
3500	" 6	—	15 49.5	0.5	—	A. End at 16-55.
		—	15 51.7	0.5	—	B. " 16-54.5.
		—	15 45	0.1	—	C.
3501	" 7	22 56	23 13.7	2.9	—	A. 2nd Max. at 23-20.3.
		22 55.5	23 13.5	0.5	—	B.
		—	23 34	0.7	—	—
		—	23 15.5	0.5	—	C. 2nd Max. at 23-19.7.
3502	" 9	0 1.2	0 46	1.5	—	B. P ₂ 0-13.
		—	0 51.5	1.0	—	—
		—	0 2	0.6	—	C.
		—	0 2.3	0.6	—	—
3503	" 9	—	9 24	13.0	—	A. P ₂ 0-12.7.
		—	9 23	5.0	—	A. With Ats.
		—	8 34.7	9 23	—	B. P ₂ 8-55.5.
		—	8 34.2	9 25.5	—	C. With Ats.
3504	" 9	—	15 24	0.2	—	B.
		—	15 20	0.1	—	C.

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

No.	Date	Com-mence-ment			Max. Amplitude	Dura-tion	Remarks
		H. M.	H. M.	MM.			
3505	Dec. 17	—	11 18.7	0.1	—	A.	
		—	11 20.7	0.2	—	C.	
3506	" 22	—	9 41	0.3	—	B. With Ats.	
		—	9 43	0.1	—	C.	
3507	" 24	0 16	0 25.7	1.0	—	A.	
			1 1.5	1.5	—		
			1 16.3	1.5	—		
		0 17	0 31	0.5	—	B.	
			1 1	0.5	—		
			1 18	0.7	—		
3507	" 24	0 19	0 31	0.2	—	C. End at 2-50	
			1 0.7	1.0	—		
			1 12.5	0.7	—		
			1 20.5	0.5	—		
3508	" 24	18 33.5	19 5	1.0	—	A. 2nd Max. at 19-7.5.	
		18 41.5	19 8.3	0.7	—	C.	
3509	" 28	8 55.5	9 6.7	2.0	—	B. P ₂ 8-57.5.	
		8 55	9 6	1.0	—	C. P ₂ 8-57.	
3510	" 29	—	22 43.7	0.1	—	A.	
		—	22 39	0.1	—	B.	
		—	22 42	0.1	—	C.	

Register from M.O. Central Observatory, Kew Observatory, Richmond.
51°28'N. 0°19'W.Director, DR. W. N. SHAW, F.R.S.; Superintendent, DR. C. CHREE, F.R.S.;
Observer, E. G. CONSTABLE.

B.O.T. = merely a broadening of the trace.

No.	Date	Com-mence-ment			Max. Amplitude	Dura-tion	Remarks
		H. M.	H. M.	MM.			
1912							
1427	July 7	8 11.8	8 40.7	2.0	>3 0	End lost changing sheet, etc.	
1428	" 7	23 10.7	23 12.0	0.3	0 22	—	
1429	" 8	?	17 39	0.3	?	Spoilt by Ats.	
1430	" 8	22 11.8	22 36.3	0.4	1 8	—	
1431	" 9	8 48.2	8 56.0	0.3	0 30	—	
1432	" 11	—	7 28	—	—	B.O.T.	
1433	" 14	—	9 25	—	—	—	
1434	" 18	22 17.8	22 29.5	0.3	0 25	Ill-defined.	
1435	" 20	14 12.5	14 31.0	0.3	0 23	—	
1436	" 24	12 12.2	12 27.3	0.6	1 20	—	
1437	" 25-26	23 30.5	0 14.5	0.4	1 38	—	
1438	" 26	3 32.5	3 45.7	0.4	1 5	—	
1439	" 26	?	8 58.5	0.3	?	Com. spoilt by Ats.	
1440	" 30	—	16 26	—	—	B.O.T.	

Register from M.O., Central Observatory, Kew Observatory—continued.

No.	Date	Com-mence-ment			Max. Amplitude	Dura-tion	Remarks
		H. M.	H. M.	MM.			
1441	July 31	—	10 45	—	—	B.O.T.	
1442	Aug. 4	22 — 6.2	22 18.0	0.3	0 25	—	
1443	" 5	—	14 8	—	—	B.O.T.	
1444	" 6	14 10.0	14 38.2	0.3	1 10	Ill-defined.	
1445	" 6	18 51.8	18 52.7	0.2	0 5	—	
1446	" 6	21 38.0	22 41.5	0.3	1 40	—	
1447	" 7	—	17 54	—	—	B.O.T.	
1448	" 9	1 34.0	1 43.2	>17.0	3 52	Max. repeated at 1-45.1 and 1-46.5.	
1449	" 10	9 32.8	9 38.9	1.1	0 43	—	
1450	" 10	—	23 12	—	—	B.O.T.	
1451	" 17	19 31.1	20 20.0	3.4	2 36	—	
1452	" 18	—	8 53	—	—	B.O.T.	
1453	" 18	22 17.8	22 25.0	0.3	0 15	—	
1454	" 19	—	17 57	—	—	B.O.T.	
1455	" 21	18 25.0	18 27.5	0.3	0 28	Ill-defined.	
1456	" 23	14 16.5	14 38.3	0.8	1 4	—	
1457	" 23	21 49.7	22 3.2	0.4	0 32	—	
1458	" 25	—	1 40	—	—	B.O.T.	
1459	" 30	—	19 15	—	—	"	
1460	" 31	23 6.5	23 15.7	0.6	0 42	—	
1461	Sept. 1	—	4 51	—	—	B.O.T.	
1462	" 4	—	7 29	—	—	"	
			9 50	—	—	"	
1463	" 10	—	16 38	—	—	"	
1464	" 11	1 44.6	1 53.2	0.5	0 38	—	
1465	" 12	—	6 30	—	—	B.O.T.	
1466	" 13	23 35.8	23 48.3	4.6	1 16	—	
1467	" 16	—	15 2	—	—	B.O.T.	
1468	" 20	—	22 6	—	—	"	
1469	" 22	—	5 53	—	—	"	
1470	" 25	—	19 31	—	—	"	
1471	" 26	—	19 53	—	—	"	
1472	" 29	21 11.0	22 3.6	7.0	2 52	—	
1473	" 30	5 56.7	6 8.6	0.3	0 23	—	
1474	Oct. 1	—	6 59	—	—	B.O.T.	
1475	" 8	—	21 58	—	—	"	
1476	" 12	15 59.4	16 18.3	0.5	0 41	—	
1477	" 12	—	20 16	—	—	B.O.T.	
1478	" 16	—	13 21	—	—	"	
1479	" 18	12 25.7	12 49.5	0.8	1 10	—	
1480	" 20	—	11 10	—	—	B.O.T.	
1481	" 22	—	9 8	—	—	"	
1482	" 25	—	13 7	—	—	"	
1483	" 26	—	9 30	—	—	"	
1484	" 26	—	10 1	—	—	"	
1485	" 29	—	6 30	—	—	"	
1486	" 31	12 27.3	12 34.7	1.0	0 21	—	
1487	" 31	17 53.0	18 38.2	1.7	1 16 ?	Duration uncertain. Ats.	
1488	Nov. 1	—	6 33	—	—	B.O.T.	
1489	" 2	—	3 28	—	—	"	
1490	" 2	—	4 34	—	—	"	
1491	" 2	—	22 0	—	—	"	
1492	" 3	—	7 5	—	—	"	
1493	" 5	—	11 30	—	—	"	
1494	" 7	7 54.0	8 2.5	2.3	2 35	—	
1495	" 7	17 8.1	17 33.2	0.6	1 57	—	
			18 19.1	0.8	—	—	
1496	" 8	—	8 59	—	—	B.O.T.	
1497	" 14	—	17 50	—	—	"	
1498	" 17	12 15.0	12 23.8	0.3	0 17	—	
1499	" 19	?	14 44.5	0.7	?	Com. lost in Ats.	

Register from M.O. Central Observatory, Kew Observatory—continued.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1500	Nov. 22	H. M.	H. M.	MM.	H. M.	B.O.T.
1501	" 25	—	9 50.2	—	—	"
1502	" 27	—	10 25	—	—	"
1503	" 28	—	21 12	—	—	"
1504	" 30	—	3 24	—	—	"
1505	Dec. 1	8 59.2	9 24.8	1.9	0 48	—
1506	" 5	—	13 11	—	—	B.O.T.
1507	" 5	—	18 37	—	—	"
1508	" 6	—	15 44	—	—	"
1509	" 7	23 8.4	23 15.5	0.3	1 30	—
1510	" 9	0 12.0	0 39.4	0.7	1 14	—
1511	" 9	8 43.0	9 22.5	5.0	2 1	Ill-defined; light rather weak.
1512	" 9	—	15 25	—	—	B.O.T.
1513	" 17	—	1 5	—	—	"
1514	" 24	0 24.9	1 6.9	0.2	1 57	—
1515	" 24	18 55.8	19 1.6	0.8	0 34	—
			19 5.8	0.4		
1516	" 28	8 27.0	9 4.6	0.6	1 26	—
1517	" 29	22 35.3	22 45.2	0.1	0 33	Ill-defined.

Imm. displacement = 0".53 of arc.
Period = 18secs.

Register from Woodbridge Hill, Guildford, England. 51°15'N. 0°35'W.
Owner and Observer, F. EDWARD NORRIS. Assistant, E. SMART.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1912						
432	July 1	H. M.	H. M.	MM.	H. M.	N. P ₂ 1-10.6.
434	" 7	8 8.3	8 39.2	2.6	3 18	W. P ₂ 8-16.3.
435	" 7	23 1	23 31	0.15	1 6.5	N. P ₂ 23-11.3.
436	" 8	17 2.2	17 37.8	0.35	0 54.5	N. P ₂ 17-11.7.
437	" 8	22 4.5	22 45.4	1.7	1 43.5	N. P ₂ 22-10.6. Dou- ble eqke.
438	" 9	8 36.3	8 57.3	3.5	1 19.3	N. P ₂ 8-42.7.
439	" 10	—	21 2.7	0.3	—	N.
440	" 11	7 20.7	7 26.5	5.25	0 40	N. P ₂ 7-22.6.
441	" 13	14 46.3	15 28.5	0.05	—	N. P ₂ 14-56.9.
442	" 13	—	21 53	0.1	—	N.
443	" 14	—	9 29.7	0.2	—	N.
444	" 17	—	13 36	0.1	—	W.
445	" 22	—	10 39.8	0.02	—	W.
446	" 23	16 7.5	16 39.2	0.03	—	N. P ₂ 16-14.7.
447	" 24	12 12.6	12 44.1	0.7	2 18	W. P ₂ 12-23.1.
448	" 24	—	17 53.4	0.05	—	W.
450	" 24	—	22 40.3	0.05	—	W.
451	" 25	—	23 9.9	0.05	—	W.
452	" 25	23 26.3	0 15.6	1.0	4 0	W. P ₂ 23-37.7.
453	" 26	3 7	3 42.8	0.6	2 10	W. P ₂ 3-13.7.
454	" 26	—	8 56.7	0.25	—	W.

Register from Woodbridge Hill, Guildford, England—continued.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
455	July 30	H. M.	H. M.	MM.	H. M.	N.
456	" 31	10 39	10 59.1	1.15	—	N. P ₂ 10-46.2.
457	Aug. 1	18 40	19 9	0.1	0 51	N. P ₂ 18-45.
458	" 2	—	16 53.3	0.25	—	N.
459	" 3	—	4 47	0.3	—	N.
460	" 4	—	19 21	0.25	—	N.
461	" 4	21 50.2	22 16.3	1.05	1 18	N. P ₂ 21-59.
462	" 5	—	6 31.6	0.3	—	N.
463	" 6	11 34.2	11 52.3	0.25	—	N. P ₂ 11-39.5.
464	" 6	13 40	14 27.7	0.25	1 24	N. P ₂ 13-49.4.
465	" 6	18 50.3	18 54.8	2.8	0 42	N. P ₂ 18-51.8.
466	" 6	21 22.7	22 37.2	0.5	2 12	W.
467	" 9	18 16.8	18 48.4	0.05	1 10	W. P ₂ 18-25.1.
468	" 10	9 28.4	9 38.4	15.0	0 52	W. P ₂ 9-32.4.
469	" 10	18 39.5	18 47.4	1.75	0 34	W.
470	" 10	22 48	23 14.9	0.25	1 2.5	W. P ₂ 22-55.3.
471	" 11	—	7 32.2	0.3	—	W.
472	" 15	14 *36.3	14 43.3	0.03	—	N. *P ₃ .
473	" 17	—	15 19.2	0.1	—	N.
474	" 17	19 26.7	20 17.1	2.6	2 55	N. P ₂ 19-37.6.
475	" 17	23 *36	23 37	0.03	—	N. *P ₃ .
476	" 18	—	1 34.7	0.05	—	N.
477	" 18	8 6.2	8 48	0.05	21 7	W.
478	" 18	18 54.3	19 33.3	0.06	—	N. P ₂ 19-2.2.
479	" 18	21 43.3	22 20.8	0.4	2 10	N. P ₂ 21-53.8
480	" 19	16 36.2	16 59.2	0.25	—	W. P ₂ 16-43.9.
481	" 19	17 *27.4	17 41	0.1	—	N. *P ₃ .
482	" 21	17 52	18 35	0.3	1 23	N. P ₂ 18-1.9.
483	" 23	—	8 37	0.2	—	N.
484	" 23	14 16.3	14 40.2	3.0	1 21	W. P ₂ 14-22.8.
485	" 23	21 50.4	22 11.6	1.8	0 55	N. P ₂ 21-58.2.
486	" 24	—	1 25.3	0.15	—	N.
487	" 24	—	2 5.1	0.3	—	N.
488	" 25	—	1 24	0.07	—	N.
489	" 30	18 24.2	19 10	0.05	1 16	N. P ₂ 18-35.3.
490	" 31	—	14 1.3	0.1	—	N.
491	" 31	22 36.6	23 18	0.6	1 24	N. P ₂ 22-46.
492	Sept. 1	4 1.7	4 18.4	0.02	—	N.
493	" 1	14 28.1	5 15.3	0.1	1 26	N. P ₂ 4-36.9.
494	" 1	—	14 23.8	0.03	—	N.
495	" 10	16 7.8	16 37.5	0.15	—	W. P ₂ 16-14.9.
496	" 11	1 2.1	1 46	0.3	—	N. P ₂ 1-11.6.
497	" 13	23 36.8	23 45.8	—	1 37	W. P ₂ 23-40.6.
498	" 15	2 3	2 4.2	0.95	0 5.5	N. P ₂ 2-3.2.
499	" 16	21 12	21 16.6	1.6	0 13	N. P ₂ 21-13.6.
500	" 26	—	0 57.5	0.1	—	N.
501	" 29	21 5.5	21 39.2	0.7	—	W.
502	" 29	—	22 3.1	5.95	—	W.
503	Oct. 12	15 24.7	15 24.7	0.3	0 2	N.
504	" 12	15 33.8	16 12.5	0.65	1 44	N. P ₂ 15-43.8.
505	" 12	20 0.5	20 19.8	0.8	0 34	N.
506	" 16	—	13 25.8	0.4	—	N.
507	" 17	—	11 5.8	0.25	2 4	N.
508	" 18	12 7	12 56	0.9	—	N. P ₂ 12-16.4.
509	" 22	—	10 50.3	0.8	—	N.
510	" 25	—	13 6.1	0.1	—	N.
511	" 26	9 13.3	9 59.5	0.2	—	N. P ₂ 9-24.3.
512	" 31	12 20.7	12 35	12.8	1 24	W. P ₂ 12-25.3.
513	" 31	17 42	18 30	0.85	1 28	W. P ₂ 17-52.5.
514	Nov. 1	—	6 51.5	0.5	—	W.
515	" 1	19 *39.6	19 44.2	0.05	—	N. *P ₃ .
516	" 2	3 14.7	3 28	1.0	—	W.
517	" 2	—	4 42	0.2	—	W.

Register from Woodbridge Hill, Guildford, England—continued.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
518	Nov. 2	H. M. —	H. M. 21 57.3	MM. 0.3	H. M. —	W.
519	" 7	7 51.5	8 18.5	2.8	3 7	W. P ₂ 8-0.7.
520	" 7	—	17 26.4	0.4	—	W.
	" 8	—	18 11.1	0.5	—	W.
521	" 8	8 16	8 49.3	0.05	1 5	W. P ₂ 8-24.
522	" 14	17 49	17 54.2	0.2	0 10	W.
523	" 19	13 55	14 36.2	2.0	—	W. With Ats.
524	Dec. 1	18 44.7	9 22.2	1.6	—	W.
525	" 5	12 39.7	13 5	0.15	—	N.
526	" 6	—	15 34.3	1.4	—	N.
527	" 7	22 57.3	23 32.6	0.2	—	N.
528	" 9	0 3.9	0 41.7	0.7	—	N. P ₂ 0-13.
529	" 9	8 15.6	9 19.2	2.5	1 50	N. P ₂ 8-27.
530	" 17	—	11 17.6	1.6	—	N.
531	" 21	—	8 25	0.2	—	N.
532	" 24	10 23.2	0 58.2	0.35	—	W. P ₂ 10-31.4.

Register from Frensham Hall, Haslemere, Surrey, England. 51°5'N. 0°43'W.
Observer, SAML. KEVAN.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1912						
576	July 1	H. M. —	H. M. 1 12	MM. 0.4	H. M. 0 5	—
577	" 3	—	18 26.7	0.4	0 4	—
	" 4	—	1 50.6	0.1	0 3	—
	" 7	8 15.2	8 46.3	3.5	2 12	P ₂ 8-23.2.
	" 7	10 40.4	11 49.6	1.0	0 40	—
578	" 8	—	17 39	0.3	0 8	—
	" 8	22 12.3	22 35.7	0.7	1 7	—
	" 9	—	8 55	0.7	0 2	—
	" 11	—	7 26.4	0.3	0 4	—
579	" 13	—	14 39	0.4	0 9	—
	" 13	—	15 25	0.1	0 5	—
	" 14	—	9 30.8	0.2	0 6	—
580	" 16	—	1 58	0.3	0 4	—
	" 17	—	13 36.3	0.1	0 7	—
	" 17	—	21 18.8	0.1	0 4	With Ats.
581	" 20	—	4 43	0.3	0 10	—
	" 20	14 7.7	14 12.2	0.8	0 27	—
	" 22	—	10 33.2	0.7	0 15	—
	" 23	—	16 45.3	0.3	0 7	—
582	" 24	12 12.2	12 47	1.0	1 25	P ₂ 12-22.
	" 25	—	0 19	0.2	0 4	—
	" 25	23 29.7	0 15.8	0.9	—	—
	" 26	—	3 45.8	0.8	—	—
583	" 26	8 41	8 50.3	0.4	—	—
	" 30	—	5 20	0.2	—	—
	" 30	—	16 12	0.1	—	—
	" 31	—	8 40.5	0.2	—	—
	" 31	—	10 56.6	0.3	—	—
	" 31	—	20 25.5	0.2	—	—

Register from Frensham Hall, Haslemere, Surrey, England—continued.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
584	Aug. 1	H. M. —	H. M. 9 17	MM. 0.1	H. M. —	—
	" 1	—	11 57	0.1	—	—
	" 2	—	16 23.8	0.3	—	—
	" 4	—	22 16	0.9	—	—
	" 5	—	6 8	0.1	—	—
585	" 6	—	11 35.9	0.4	—	—
	" 6	—	13 51	0.2	—	—
	" 6	—	14 24	0.3	—	—
	" 6	—	18 51.2	0.5	—	—
	" 6	—	21 53.3	0.4	—	—
	" 6	—	22 50	0.5	—	—
	" 9	1 34.2	1 43.7	15.0	6 0	P ₂ 1-34.8.
	" 9	—	1 47.7	16.0	—	—
	" 9	—	1 52.8	15.0	—	—
	" 9	—	1 58.6	12.5	—	—
586	" 9	—	14 16	0.1	—	—
	" 9	—	18 45	0.2	—	—
	" 10	—	9 37.9	1.5	—	P ₂ 9-36.6.
	" 10	—	23 14	0.3	—	—
	" 11	—	7 32	0.2	—	—
587	" 14	—	4 26	0.2	—	—
	" 15	—	14 23	0.1	—	—
588	" 17	19 30	20 15.8	6.0	2 30	P ₂ 19-40.
	" 18	1 46	1 48	0.1	0 5	—
	" 18	—	3 26.5	0.2	—	—
	" 18	8 52	8 54	0.3	0 7	—
	" 18	13 50	13 53	0.2	0 4	—
	" 18	22 16.2	22 19.8	0.8	0 26	—
	" 19	18 5.4	18 20.2	0.7	0 20	—
	" 20	—	11 49	0.4	—	—
	" 21	—	5 22	0.3	—	—
	" 21	—	18 40	0.3	—	—
589	" 23	14 18.4	14 36.3	1.3	0 42	—
	" 23	—	21 13.8	0.1	—	With Ats.
	" 23	—	22 7	0.2	—	—
	" 25	—	1 40.8	0.1	—	—
590	" 29	—	6 26.6	0.1	—	—
591	" 30	—	19 14	0.1	—	—
	" 31	—	23 10.8	0.8	—	—
592	Sept. 1	—	5 3	0.1	—	—
	" 4	—	9 45	0.1	—	—
	" 5	—	19 29.8	0.2	—	—
593	" 11	—	1 51.5	0.4	—	With Ats.
594	" 13	23 37	23 47	3.0	1 22	P ₂ 23-44.
595	Oct. 1	—	6 40	0.1	—	—
597	" 10	—	19 25.3	0.2	—	—
	" 11	—	2 17	0.2	—	—
598	" 16	—	13 25.2	0.3	—	—
599	" 17	10 19	—	0.1	—	—
	" 18	—	12 43.3	1.0	—	With Ats.
600	" 22	—	9 7	0.3	—	—
	" 22	—	10 48.6	0.3	—	—
601	" 25	—	13 8.4	0.2	—	—
	" 26	—	9 20	0.5	—	Also at 9-30 & 10-4.
602	" 29	—	5 52	0.4	—	—
	" 29	—	6 28.7	0.3	—	—
	" 29	—	7 16	0.1	—	—
	" 31	12 27.5	12 32.2	1.	—	—
	" 31	—	18 33.2	1.4	—	P ₂ 18-22.3.
603	Nov. 1	—	6 25.5	0.4	—	—
	" 1	—	19 46.2	0.1	—	—
	" 2	—	3 20.4	0.4	—	—
	" 2	—	4 34.6	0.3	—	—

Register from Frensham Hall, Haslemere, Surrey, England—continued.

No.	Date	Comme- ment		Max.		Max. Ampli- tude	Dura- tion	Remarks
		H. M.	H. M.	H. M.	MM.			
604	Nov. 2	21	58	—	—	—	—	—
	" 3	—	—	7	7	0.5	—	—
	" 7	—	—	8	1.3	2.5	—	—
	" 7	—	—	17	26.8	1.8	—	—
606	" 7	—	—	18	12	3.0	—	—
	" 8	—	—	8	49.7	0.3	—	—
	" 14	—	—	17	50	0.1	—	—
607	" 17	—	—	12	15.6	0.8	—	—
	" 19	14	20	14	43.5	0.9	1 0	—
608	" 22	—	—	1	34	0.1	—	—
	" 25	—	—	9	45	0.2	—	—
609	" 27	—	—	10	24	0.6	—	—
	" 28	—	—	21	25	0.1	—	—
611	" 30	—	—	3	28	0.5	—	—
	Dec. 5	—	—	13	7.7	0.2	—	—
612	" 9	0	12.4	23	35	0.5	—	—
	" 9	—	—	0	38.8	1.5	1 0	P ₂ 9-14.
615	" 9	—	—	9	16.6	3.0	—	—
	" 9	—	—	15	23	0.1	—	—
616	" 22	9	23	—	—	—	—	—
	" 24	0	1	—	—	—	—	—
617	" 24	18	51.5	19	2.4	1.0	0 25	—
	" 28	8	48	—	—	—	—	—
617	" 29	—	—	22	35	0.2	—	—
	" 31	—	—	14	22	0.2	—	—

Period = 22secs.
1° turn = 8.5mm.

Register from Stonyhurst College Observatory. 53°50'N. 2°28'W.
Director, REV. W. SIDGREAVES, S.J.

No.	Date	Comme- ment		Max.		Max. Ampli- tude	Dura- tion	Remarks
		H. M.	H. M.	H. M.	MM.			
1912								
572	July 1	—	—	1	13	—	—	—
	" 7	8	12.5	8	35.1	4.1	3 30	P ₂ 8-16.4; P ₂ 8-23.3.
	" 7	23	11.5	23	34	0.2	0 50	—
	" 8	17	28.5	17	39	0.2	0 28	—
576	" 8	—	—	17	43	0.1	—	—
	" 8	22	12.1	22	34	0.8	0 52	—
577	" 9	8	36.3	22	42	0.5	—	—
	" 9	—	—	8	54.5	0.5	1 7	—
578	" 11	—	—	9	1	0.2	—	—
	" 13	—	—	7	28.5	—	—	—
580	" 13	—	—	15	21.5	—	—	—
	" 17	—	—	21	20	—	—	—
581	" 18	21	49.5	22	22.5	0.4	2 9	—
	" 20	14	7.5	14	27	0.5	0 56	—
583	" 22	—	—	10	35.5	—	—	—
	" 24	12	13.6?	12	50	1.7	2 43	P ₂ 12-23.5.
585	" 24	—	—	18	17.5	—	—	—

Register from Stonyhurst College Observatory—continued.

No.	Date	Comme- ment		Max.		Max. Ampli- tude	Dura- tion	Remarks
		H. M.	H. M.	H. M.	MM.			
586	July 25	23	31	24	24.2	1.4	2 36	P ₂ 23-45; P ₂ 24-9.5.
	587	" 26	3	0.5	3	39	0.4	2 17
588	" 26	8	20.4	8	57	0.3	1 40	—
	589	Aug. 1	—	—	19	11.8	—	—
590	" 4	22	6.0	22	17	0.5	0 46	—
591	" 6	21	34.5	22	30.7	0.6	2 20	—
592	" 9	1	35.5	1	44	>30.0	4 20	Max. indicated on magnetogram at 1-44
				1	45	>30.0		
				1	47.5	30.0		
				1	50	30.0		
				1	56.5	28.0		
				1	59.5	27.0		
593	" 10	9	24.4	9	44.5	1.1	1 18	P ₂ 9-34.4; P ₂ 9-38.
594	" 10	18	40.7	—	—	<0.1	0 20	—
595	" 10	22	58	23	15	0.5	1 47	—
596	" 17	19	31.4	20	21.8	10.5	3 25	P ₂ 19-40.6; P ₂ 20-10.
	597	" 18	8	41.3	8	50.7	0.1	0 30
598	" 18	19	25.4	19	33	0.1	0 24	—
599	" 18	22	17.1	22	22.7	0.5	0 26	—
600	" 19	16	45.5	17	43	<0.1	1 54	—
601	" 20	—	—	14	20	—	—	—
602	" 23	14	19.8	14	37.2	1.0	1 20	P ₂ 14-34.2.
				14	43.7	1.0		
603	" 25	—	—	1	40	—	—	—
604	" 30	18	43.6	19	11	0.1	1 0	P ₂ 19-5.7.
605	" 31	22	44.6	23	16	0.4	1 30	P ₂ 23-3.6.
606	Sept. 1	4	31.4	4	43.6	0.1	1 40	—
				5	30.7	0.1		
607	" 1	—	—	14	25	—	—	—
608	" 5	—	—	19	39.5	0.1	—	—
609	" 10	16	33	16	37	0.1	0 16	—
610	" 11	1	11.9	1	49.6	0.5	2 17	—
611	" 12	—	—	6	29.5	—	—	—
612	" 13	23	37.3	23	46	6.0	2 17	—
				23	48.4	5.8		
				23	51.5	4.1		
				23	52.5	4.2		
613	" 22	5	47	5	52	<0.1	0 47	—
				6	30	<0.1		
614	" 29	21	5.5	21	33	2.5	4 35?	P ₂ 21-10.9.
				22	2	11.7		
615	" 30	5	57.1	6	8	0.4	0 26	—
616	Oct. 11	—	—	2	15	—	—	—
617	" 12	15	38	16	6.7	0.5	1 56	P ₂ 15-43.
				16	14.5	0.5		
618	" 12	20	1	20	11.3	0.2	0 33	—
619	" 17	10	20.7	11	6	0.2	?	—
620	" 18	12	16.3	12	51.6	0.6	3 4	—
				12	54.5	0.6		
621	" 25	—	—	13	5	—	—	—
622	" 26	9	19	—	—	—	1 45	—
623	" 31	12	21.5	12	32.1	0.6	1 24	—
624	" 31	17	44.7	18	35	1.6	2 14	—
				18	38.7	1.6		
625	Nov. 2	3	27.6	3	30.8	0.4	0 30	—
				3	36	0.4		
626	" 2	4	33.8	4	42.5	0.1	0 26	—
627	" 2	21	58.5	22	5	0.1	0 12	—
628	" 3	6	50.5	6	56	0.3	0 21	—
				7	3	0.3		

Register from Stonghurst College Observatory—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude		Dura-tion	Remarks
		H. M.	H. M.		MM. 2A.	H. M.		
629	Nov. 7	7	51.5	8	0.7	4.1	3 45	P ₂ 7-54.8; P ₃ 8-0.3.
		8	5	2.9	6.1			
		8	10.3	1.2	2.0			
630	" 7	17	7	18	16	2.0	2 33	—
		12	21.5	0.5	?			
631	" 17	?					?	Beginning and end in Ats.
632	" 30	3	12.8	3	27.5	—	0 25	—
633	Dec. 1	8	59	9	22	4.0	1 0	Times approx.
634	" 4	—		6	13	—	—	—
635	" 5	12	47.5	13	12	0.1	2 30	—
636	" 5	18	27.8	18	41.5	<0.1	0 28	—
637	" 6	15	17.5	15	39.5	<0.1	0 34	—
638	" 7	22	59	23	15	0.5	1 42	—
639	" 9	0	11.3	0	38	0.6	1 20	—
640	" 9	8	43.5	9	19.5	3.0	3 0	—
641	" 17	—		1	48	—	—	—
642	" 24	0	21	1	3	0.5	2 10	—
643	" 24	?		1	10.7	0.5	?	High wind.
		18	59	19	6	0.6	1 40	—
644	" 28	8	25	9	5	0.6	1 40	—
645	" 29	?		22	49.5	0.1	?	With Ats.

July-Aug. Period, 19 seconds. Imm.=0°.41.
 September " 18 " Imm.=0°.44.
 October " 18.6 " Imm.=0°.42.
 Nov.-Dec. " 18 " Imm.=0°.44.

Register from Liverpool Observatory, Bidston. 53°24'N. 3°4'W.
 Director, W. E. PLUMMER.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude		Dura-tion	Remarks
		H. M.	H. M.		MM.	H. M.		
1912								
1997	July 1	1	6.4	1	11.7	0.2	0 16	—
1998	" 7	8	8.3	8	40.5	2.6	3 57	P ₂ 8-16.2.
1999	" 7	23	11.1	23	29.7	0.1	0 46	—
2000	" 8	17	26.2	17	39	0.3	0 33	—
2001	" 8	22	15	22	30.7	0.2	1 37	—
2002	" 9	8	35.4	8	57.2	0.3	1 27	—
2003	" 11	7	25	7	26.7	0.2	0 7	—
2004	" 14	9	17.2	9	31.7	0.2	0 23	—
2005	" 17	13	30	13	37.7	0.1	0 35	—
2006	" 18	21	45	22	4	0.2	0 52	Changing paper.
2007	" 20	14	7.9	14	23.2	0.2	0 40	—
2008	" 23	16	34.8	16	43	0.1	0 42	—
2009	" 24	12	12.4	12	48.7	1.1	2 40	P ₂ 12-24.1.
2010	" 24	23	48.4	0	17.2	0.1	0 50	—
2011	" 25	23	29.5	0	24.1	0.7	2 22	—

Register from Liverpool Observatory, Bidston—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude		Dura-tion	Remarks
		H. M.	H. M.		MM.	H. M.		
2012	July 26	2	56.7	3	25.6	0.6	2 13	—
2013	" 26	8	11.6	8	51	0.5	2 11	—
2014	" 30	—		5	26	—	—	Very small.
2015	" 31	10	43.7	10	55.2	0.1	0 23	—
2016	Aug. 4	22	1.8	22	20.6	0.2	0 48	—
2017	" 6	14	10.1	14	19.6	0.2	0 59	—
2018	" 6	18	51.2	18	54.6	0.3	0 17	—
2019	" 6	21	32.3	22	29.5	0.3	2 12	—
2020	" 9	1	34.5	1	48.7	14.9	4 13	P ₂ 1-38.6.
2021	" 10	9	27.6	9	42.4	1.3	1 8	P ₂ 9-32.
2022	" 10	22	55.7	23	9	—	0 55	Very small.
2023	" 15	14	39.2	14	41.7	0.1	0 11	—
2024	" 17	19	25.6	20	16.1	4.6	4 26	P ₂ 19-30.2.
2025	" 18	7	38	7	44.7	0.1	0 30	—
2026	" 18	22	15.6	22	23.2	0.3	0 32	Several other maxima near.
2027	" 21	17	53.2	18	30.7	0.4	2 1	—
2028	" 23	14	11.6	14	42.1	1.6	1 45	—
2029	" 23	21	50.2	22	5.8	0.4	1 3	—
2030	" 30	19	1.4	19	13.7	0.1	0 34	—
2031	" 31	22	45.4	23	16.3	0.6	1 30	—
2032	Sept. 1	4	30.7	4	44.3	0.2	1 47	—
2033	" 4	1	19.7	1	23.4	—	0 7	With Ats.
2034	" 5	19	22.3	19	26.2	0.1	0 37	—
2035	" 7	—		18	4	—	—	—
2036	" 10	16	30	16	32.3	0.1	0 16	—
2037	" 12	6	18.5	6	24.7	0.1	0 14	—
2038	" 13	23	36.4	23	51.4	3.7	2 6	P ₂ 23-41.2.
2039	" 16	20	20.7	20	27.4	0.1	0 18	—
2040	" 16	21	16.2	21	19.5	0.1	0 10	—
2041	" 17	19	31.8	19	36.2	0.2	0 22	—
2042	" 20	21	57.1	22	3.3	0.1	0 28	—
2043	" 22	5	48.3	5	52	0.2	1 3	—
2044	" 25	13	30.8	13	36.1	0.1	0 24	—
2045	" 25	18	41.3	18	47.7	—	0 19	Amp. very small.
2046	" 26	20	4.9	20	23.7	—	0 48	—
2047	" 28	13	2.7	13	8.6	—	0 15	" "
2048	Oct. 1	6	32.5	6	37.3	0.1	0 14	" "
2049	" 10	19	20	19	21.7	0.2	0 5	—
2050	" 11	2	13.1	2	15.4	0.1	0 9	—
2051	" 16	13	20	13	25	0.1	0 17	—
2052	" 17	10	53.2	11	10.8	0.3	1 11	—
2053	" 18	12	16.1	12	28.3	0.7	2 22	P ₂ 12-23.
2054	" 20	11	4.0	11	10.6	0.2	0 30	—
2055	" 22	9	10	9	49	0.1	0 9	—
2056	" 22	20	25	20	28.7	0.1	0 12	—
2057	" 25	13	3.8	13	5.4	0.1	0 6	—
2058	" 26	9	24.2	9	31.5	0.2	0 26	—
2059	" 26	9	58.8	10	3.7	0.2	0 35	—
2060	" 31	12	27.8	12	34	1.1	0 38	P ₂ 12-29.1.
2061	" 31	17	46.4	18	35.1	1.8	2 23	P ₂ 17-52.5.
2062	Nov. 1	6	24	6	27.2	0.1	0 10	—
2063	" 1	—		19	39.7	—	—	Very small.
2064	" 2	3	18.1	3	30	0.1	0 22	—
2065	" 2	4	71.8	4	40.1	0.1	0 20	—
2066	" 2	21	58.5	22	2.6	0.1	0 10	—
2067	" 3	6	53.7	6	56.4	0.2	0 22	—
2068	" 7	7	51.2	8	11.4	2.6	3 33	P ₂ 7-56.7.
2069	" 7	17	6.8	17	30.5	2.7	2 51	—
2070	" 7	—		23	25	—	—	With Ats.
2071	" 8	8	40.5	8	53.4	0.2	0 44	—
2072	" 13	2	2.4	2	7.3	0.2	0 12	—
2073	" 14	17	46.5	17	50.8	—	—	With Ats.

Register from Liverpool Observatory, Bidston—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
2074	Nov. 17	H. M.	H. M.	MM.	H. M.		
		12 9.4	12 18.7	0.6	0 42		
2075	" 19	14 17.9	14 44	0.8	2 6		P ₁ 14-23.4.
2076	" 22	1 30.7	1 33.7	0.1	0 7		
2077	" 25	9 37.3	9 43	0.1	0 30		
2078	" 27	10 17.4	10 30	—	—		With Ats. —
2079	" 28	21 15.6	21 20.4	0.1	0 22		
2080	" 30	3 22.6	3 28.5	0.1	0 15		
2081	Dec. 1	9 0	9 24.4	1.8	1 8		
2082	" 4	6 17.8	6 21.9	0.1	0 10		
2083	" 5	12 47.7	13 7.9	0.2	1 22		
2084	" 5	18 29.6	18 35.8	0.1	0 17		
2085	" 6	15 32.7	15 41.5	0.1	0 32		Time uncertain.
2086	" 7	23 5.8	23 14.6	0.3	1 40		
2087	" 9	0 12	0 41	0.6	1 22		P ₂ 0-17.5.
2088	" 9	8 44.1	9 21.3	2.3	2 40		P ₂ 8-54.2.
2089	" 17	0 57.8	1 11.6	0.1	0 34		
2090	" 17	11 9.6	11 15	—	0 14		Max. very small.
2091	" 20	21 1.4	21 7.3	—	0 17		
2092	" 22	9 27.7	9 36.8	0.1	0 18		" "
2093	" 24	0 24.8	0 57.7	0.7	1 31		
2094	" 24	18 54.9	19 0	1.1	0 41		
2095	" 28	8 27.2	9 6.4	—	1 22		Max. small.
2096	" 29	22 32.3	22 43.5	0.1	0 30		

Register from Eskdalemuir Observatory. 55°19'N. 3°12'W.
Superintendent, GEORGE W. WALKER, M.A., A.R.C.Sc.
Professional Assistant, L. SOUTHERNS, B.A., B.Sc.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
1912							
476	July 1	H. M.	H. M.	MM.	H. M.		N.S.
		1 9	1 12.5	0.4	0 21		
		1 5.5	1 12.5	0.1	0 27.5		E.W.
477	" 1	8 30	8 33	0.1	0 6.5		N.S.
478	" 3	18 31	18 34	0.1	0 16		N.S.
		18 29	18 34	0.1	0 11.5		E.W.
479	" 4	1 42	1 47	0.1	0 8		N.S.
		1 44.5	1 50.5	0.1	0 9		E.W.
480	" 7	8 7.5	8 44.5	1.5	3 22.5		N.S.
		8 7.5	8 51	1.1	3 4		E.W.
481	" 7	23 0.5	23 12.5	0.1	0 57.5		N.S.
		23 0.5	23 11	0.1	0 48		E.W.
482	" 8	?	17 38	0.1	?		N.S.
		?	17 39	0.1	?		E.W.
483	" 8	22 3.5	22 35	0.5	2 3		N.S.
		22 3.5	22 37.5	0.3	1 51.5		E.W.
484	" 9	8 30	8 59.5	0.5	?		N.S.
		8 29	8 56.5	0.1	?		E.W.
485	" 11	7 25.5	7 31	0.1	0 15.5		N.S.
		7 25	7 30	0.1	0 19		E.W.
486	" 13	14 56	14 57	0.1	0 7		N.S.
487	" 14	9 20	9 20.5	0.1	0 52		N.S.
		9 20	9 20.5	0.1	0 36		E.W.
488	" 16	1 54.5	2 0	0.1	0 20.5		N.S.

Register from Eskdalemuir Observatory—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
489	July 17	H. M.	H. M.	MM.	H. M.		
		21 12.5	21 25	0.1	0 36		N.S.
490	" 18	21 58	22 42	0.1	1 32		N.S.
491	" 20	?	14 21	0.1	?		N.S.
492	" 24	12 12	12 22.5	0.5	2 20.5		N.S.
		12 12	12 22.5	0.4	1 12.5		E.W.
493	" 24	18 16.5	18 20	0.1	0 5.5		N.S.
494	" 24	23 39.5	23 46.5	0.1	0 17.5		N.S.
495	" 25-26	23 28	23 39	0.2	1 50		N.S.
		?	0 21	0.1	?		E.W.
496	" 26	2 50	3 40	0.1	2 8.5		N.S.
		3 30	3 43	0.1	?		E.W.
497	" 26	8 5	8 54	0.1	1 55		N.S.
		?	8 56	0.1	?		E.W.
498	" 31	8 34	8 37	0.1	?		N.S.
499	" 31	10 42	10 55.5	0.3	1 14		N.S.
		10 43.5	10 55.5	0.1	0 25.5		E.W.
		17 50	17 56.5	0.1	0 12		E.W.
500	Aug. 1	9 14	9 15.5	0.1	0 10.5		N.S.
501	" 1	9 31.5	9 33.5	0.1	0 10.5		N.S.
502	" 1	11 53.5	11 55.5	0.1	0 5.5		N.S.
503	" 3	4 30	4 31	0.1	0 5		N.S.
504	" 4	19 23.5	19 25.5	0.1	0 9.5		N.S.
505	" 4	21 53	22 32.5	0.2	1 9		N.S.
		?	22 35	0.1	?		E.W.
506	" 6	13 51	13 51.5	0.1	0 45.5		N.S.
		13 50.5	14 32.5	0.2	1 39.5		E.W.
507	" 6	18 48	18 59	0.1	0 24		N.S.
		18 48.5	18 55.5	0.2	0 55		E.W.
508	" 6	21 33.5	21 34	0.1	1 9.5		N.S.
		21 33.5	21 53	0.2	2 33		E.W.
509	" 7	20 2	20 24	0.1	0 54		E.W.
510	" 9	1 34.5	1 51.5	15.0	4 50		N.S.
		1 34.5	1 55	11.0	4 48		E.W.
511	" 10	9 30	9 44	1.0	1 44.5		N.S.
		9 29	9 41	1.2	1 50		E.W.
512	" 10	18 39.5	18 52	0.1	0 21.5		N.S.
		18 40	18 41	0.1	0 26		E.W.
513	" 10	22 39.5	23 22	0.1	1 20.5		N.S.
		22 50	23 15	0.2	1 8.5		E.W.
514	" 11	7 33.5	7 34.5	0.1	0 12.5		N.S.
		7 33.5	7 35	0.1	0 12.5		E.W.
515	" 14	4 22	4 26.5	0.1	0 16.5		N.S.
		4 19	4 24.5	0.1	0 20		E.W.
		7 12.5	7 14	0.1	0 18.5		N.S.
		?	7 12.5	0.1	?		E.W.
516	" 17	19 26.5	20 23.5	6.8	4 35		N.S.
		19 26.5	20 17	3.9	4 30.5		E.W.
517	" 18	1 34	1 39.5	0.1	0 16		N.S.
		1 33	1 40	0.1	0 29		E.W.
518	" 18	3 12.5	3 25	0.1	0 31.5		N.S.
		3 12	3 19.5	0.1	0 46		E.W.
519	" 18	?	8 51	0.2	?		N.S.
		?	8 47.5	0.2	?		E.W.
520	" 18	13 47.5	14 35.5	0.1	?		N.S.
		13 47.5	13 48	0.1	?		E.W.
521	" 18	18 52	19 35.5	0.2	1 21		N.S.
		18 51.5	19 29	0.1	1 23.5		E.W.
522	" 18	21 14.5	21 29	0.1	?		N.S.
		21 17	21 24.5	0.1	?		E.W.
523	" 18	?	22 29	0.2	?		N.S.
		?	22 20	0.2	?		E.W.
524	" 19	16 44	18 28.5	0.1	2 12		N.S.
		16 44.5	18 5	0.2	2 22.5		E.W.

Register from Eskdalemuir Observatory—continued.

No.	Date	Com-mence-ment		Max.	Max. Amplitude	Dura-tion	Remarks
		H.	M.				
525	Aug. 20	11	22	11 35.5	0.1	0 27.5	N.S.
		11	33	11 35	0.1	0 8	E.W.
526	" 21	?	?	18 38.5	0.6	?	N.S.
		?	?	18 31.5	0.4	?	E.W.
527	" 23	14	14	14 38.5	0.6	?	N.S.
		14	11	14 45.5	0.8	?	E.W.
528	" 23	21	58	22 3	0.5	1 23	N.S.
		21	51	22 15.5	0.3	1 20	E.W.
529	" 24	?	?	2 7.5	0.1	?	N.S.
		?	?	2 7.5	0.1	?	E.W.
530	" 25	1	33	1 40	0.1	0 22	N.S.
		1	33.5	1 40.5	0.1	0 18.5	E.W.
531	" 25	5	19	5 20	0.1	0 2	N.S.
		5	18	5 21	0.1	0 6.5	E.W.
532	" 30	18	26.5	19 11.5	0.2	1 25.5	N.S.
		18	22	19 9.5	0.2	1 43.5	E.W.
533	" 31	14	25	14 31	0.1	0 25	N.S.
		14	9	14 27.5	0.1	0 55	E.W.
534	" 31	21	3	21 6.5	0.1	0 9.5	N.S.
		21	3.5	21 7.5	0.1	0 10.5	E.W.
535	" 31	22	35	23 15	0.5	2 47.5	N.S.
		22	37	23 16	0.6	2 48	E.W.
536	Sept. 1	4	26	4 59	0.2	?	N.S.
		4	27	4 48.5	0.2	?	E.W.
537	" 1	?	?	14 25.5	0.1	?	N.S.
		?	?	14 31	0.1	?	E.W.
538	" 10	14	44.5	14 59	0.1	?	N.S.
		14	41.5	14 58.5	0.1	0 38	E.W.
539	" 10	16	7	16 35.5	0.1	1 12	N.S.
		16	26	16 36	0.2	0 51	E.W.
540	" 11	1	12	1 47.5	0.3	2 37	N.S.
		1	12	1 57.5	0.3	2 36.5	E.W.
541	" 12	6	23	6 28	<0.1	0 29	N.S.
		6	21	6 31	0.1	0 13	E.W.
542	" 13	23	37	23 48.5	5.3	1 30	N.S.
		23	37	23 43.5	5.0	1 30	E.W.
543	" 16	—	—	15 37	—	—	N.S.
		—	—	15 36.5	—	—	E.W.
544	" 16	20	0.5	20 31	0.1	0 41	N.S.
		20	13.5	20 31	0.1	0 29	E.W.
545	" 16	—	—	21 19	0.1	—	N.S.
		—	—	21 18	0.1	—	E.W.
546	" 20	—	—	22 1.5	0.1	—	N.S.
		—	—	22 2.5	0.1	—	E.W.
547	" 21	—	—	12 18	—	—	N.S.
		—	—	12 17	—	—	E.W.
548	" 22	—	—	5 59	0.1	0 20	N.S.
		—	—	5 58	0.1	0 20	E.W.
549	" 25	—	—	1 9	—	—	N.S.
		—	—	1 9	—	—	E.W.
550	" 25	—	—	18 43.5	—	—	N.S.
		—	—	18 45.5	—	—	E.W.
551	" 26	—	—	18 24.5	—	—	N.S.
		—	—	18 22.5	—	—	E.W.
552	" 26	19	46	20 33	0.1	—	N.S.
		19	40	20 32	0.1	—	E.W.
553	" 28	—	—	13 8	0.1	—	N.S.
		—	—	13 8.5	0.1	—	E.W.
554	" 29	21	5.5	22 3	5.0	4 0	N.S.
		21	6.0	22 1	4.9	4 0	E.W.
555	" 30	5	56	6 10	0.2	0 42	N.S.
		5	56	6 5.5	0.2	0 50	E.W.

Register from Eskdalemuir Observatory—continued.

No.	Date	Com-mence-ment		Max.	Max. Amplitude	Dura-tion	Remarks
		H.	M.				
556	Oct. 3	—	—	17 17	<0.1	—	N.S.
		—	—	17 16	<0.1	—	E.W.
557	" 10	—	—	19 27.5	<0.1	—	N.S.
		—	—	19 26.5	<0.1	—	E.W.
558	" 11	—	—	2 18	<0.1	—	N.S.
		—	—	2 14.5	<0.1	—	E.W.
559	" 12	15	32.5	16 12.5	0.4	3 0	N.S.
		15	36	16 7	0.4	3 0	E.W.
560	" 12	20	2.5	20 11.5	0.5	0 36	N.S.
		20	2.5	20 10.5	0.3	0 30	E.W.
561	" 13	—	—	2 46	0.1	—	N.S.
		—	—	2 45	<0.1	—	E.W.
562	" 17	10	11	11 17	0.1	2 0	N.S.
		10	11	11 18.5	0.1	2 0	E.W.
563	" 18	12	16	13 1	0.6	1 30	N.S.
		12	16	12 44	0.7	1 30	E.W.
564	" 20	—	—	11 17.5	0.1	—	N.S.
		—	—	11 8	0.1	—	E.W.
565	" 21	—	—	23 55	—	—	N.S.
		—	—	23 56.5	—	—	E.W.
566	" 22	—	—	9 12	—	—	N.S.
		—	—	9 6	—	—	E.W.
567	" 22	—	—	10 57	—	—	N.S.
		—	—	10 53	—	—	E.W.
568	" 22	—	—	20 26	—	—	N.S.
		—	—	20 26	—	—	E.W.
569	" 25	—	—	13 4.5	—	—	N.S.
		—	—	13 5	—	—	E.W.
570	" 26	—	—	9 29	—	—	N.S.
		—	—	9 31.5	—	—	E.W.
571	" 31	12	24	12 33	1.5	0 20	N.S.
		12	24	12 32.5	0.5	0 22	E.W.
572	" 31	17	52.5	18 35	1.0	2 0	N.S.
		17	52.5	18 34	1.2	2 0	E.W.
573	Nov. 1	—	—	6 29	—	—	N.S.
		—	—	6 31	—	—	E.W.
574	" 1	—	—	19 43.5	—	—	N.S.
		—	—	19 43.5	—	—	E.W.
575	" 2	3	15	3 30	0.3	—	N.S.
		3	11	3 35	0.1	2 0	E.W.
576	" 2	—	—	4 35	0.1	—	N.S.
		—	—	4 33	<0.1	—	E.W.
577	" 2	—	—	14 48.5	—	—	N.S.
		—	—	14 48.5	—	—	E.W.
578	" 2	—	—	21 59	0.1	0 25	N.S.
		—	—	22 4	0.1	0 30	E.W.
579	" 3	—	—	7 2.5	0.2	—	N.S.
		—	—	6 56	0.1	—	E.W.
580	" 7	7	51.5	8 1	1.5	2 0	N.S.
		7	51.5	8 1	2.0	2 0	E.W.
581	" 7	?	?	17 33	0.1	—	N.S.
		?	?	17 36	0.5	—	E.W.
582	" 7	?	?	18 17.5	0.2	—	N.S.
		?	?	18 20	0.5	—	E.W.
583	" 8	—	—	8 54.5	0.1	—	N.S.
		—	—	8 59.5	<0.1	—	E.W.
584	" 10	—	—	3 32	<0.1	—	N.S.
		—	—	3 20.5	<0.1	—	E.W.
585	" 14	—	—	17 47.5	<0.1	—	N.S.
		—	—	17 47.5	<0.1	—	E.W.
586	" 17	?	?	12 20	<0.1	—	N.S.
		11	56	12 22	0.4	1 ?	E.W.

Register from Eskdalemuir Observatory—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H.	M.				
587	Nov. 19	—	—	H. 14	M. 41	MM. 0.3	N.S.
		—	—	14	43.5	0.6	E.W.
588	" 22	—	—	1	34	<0.1	N.S.
		—	—	1	33	0.1	E.W.
589	" 27	—	—	10	24	—	N.S.
		—	—	10	25	—	E.W.
590	" 28	—	—	21	20	—	N.S.
		—	—	21	19	—	E.W.
591	" 30	—	—	3	26	0.1	N.S.
		—	—	3	25	0.1	E.W.
592	" 30	—	—	11	31	0.4	N.S.
		—	—	11	31	0.4	E.W.
593	Dec. 1	—	—	9	23	1.9	N.S.
		—	—	9	23	1.6	E.W.
594	" 6	—	—	15	49	0.1	N.S.
		—	—	15	46	0.2	E.W.
595	" 7	23	4	?	?	0.1	N.S.
		23	4	?	?	0.2	E.W.
596	" 9	0	11	0	47	0.6	N.S.
		0	11	0	40	0.8	E.W.
597	" 9	8	54	9	22	1.2	0 59 N.S.
		8	54	9	21	3.4	0 59 E.W.
598	" 24	0	21	1	10	0.4	2 17 N.S.
		0	22	1	8	0.5	2 13 E.W.
599	" 24	18	43	19	6	0.5	0 40 N.S.
		18	41	18	58	0.8	0 40 E.W.
600	" 26	—	—	0	50	0.1	N.S.
		—	—	0	43	<0.1	E.W.
601	" 26	—	—	8	29	<0.1	N.S.
		—	—	8	29	0.1	E.W.
602	" 28	8	47	9	1	0.8	1 17 N.S.
		8	44	9	3	0.5	1 14 E.W.
Period:—		N.S.		E.W.			
	July 1	16.7	"	15.0	"	.447.	.520.
	" 8	17.14	"	15.0	"	.428.	.520.
	" 15	16.7	"	15.0	"	.447.	.520.
	" 22	16.2	"	15.0	"	.468.	.520.
	" 29	16.88	"	15.0	"	.439.	.520.
	Aug. 5	?	"	17.14	"	?	.428.
	" 12	17.14	"	18.75	"	.428.	.359.
	" 19	16.88	"	18.0	"	.439.	.391.
	" 26	17.14	"	18.75	"	.428.	.359.
	Sept. 2	16.7	"	18.0	"	.447.	.391.
	" 9	16.7	"	18.5	"	.447.	.370.
	" 16	17.1	"	17.7	"	.429.	.404.
	" 23	17.1	"	18.0	"	.429.	.390.
	" 30	17.1	"	17.7	"	.429.	.404.
	Oct. 7	17.1	"	17.7	"	.429.	.404.
	" 14	16.8	"	17.1	"	.443.	.429.
	" 21	16.9	"	17.1	"	.438.	.429.
	" 28	16.8	"	17.1	"	.443.	.429.
	Nov. 4	17.0	"	17.7	"	.433.	.404.
	" 11	17.1	"	18.0	"	.429.	.391.
	" 18	17.3	"	17.65	"	.419.	.406.
	" 25	17.1	"	19.0	"	.429.	.348.
	Dec. 4	17.1	"	19.1	"	.429.	.343.
	" 9	16.9	"	18.8	"	.438.	.357.
	" 16	16.7	"	18.8	"	.447.	.357.
	" 23	16.9	"	18.8	"	.438.	.357.
	" 30	16.7	"	18.8	"	.447.	.357.

Register from Royal Observatory, Edinburgh. 55°55'N. 3°11'W.
Director, R. A. SAMPSON, D.Sc., F.R.S.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H.	M.				
1912							
1079	July 1	—	—	1	11.1	—	0
1080	" 1	—	—	8	29.6	—	000
1081	" 3	—	—	18	33.2	—	000
1082	" 7	8	9.9	8	33.5	1.6	4 27.1
				8	40.0		
1083	" 7	—	—	23	1.7	—	000
1084	" 7	23	10.9	23	12.4	0.2	0 57.8
1085	" 8	—	—	17	3.5	—	00
1086	" 8	17	25.7	17	36.6	0.1	0 36.9
1087	" 9	8	36.5	8	57.6	0.3	1 41.5
1088	" 11	7	25.6	7	28.9	0.1	0 13.1
1089	" 14	—	—	9	26.4	—	0
1090	" 17	—	—	13	39.0	—	00
1091	" 17	—	—	21	25.4	—	000
1092	" 18	21	49.0	22	28.9	0.2	2 0.5
1093	" 20	14	7.8	14	21.7	0.1	0 48.5
1094	" 22	—	—	10	35.2	—	00
1095	" 23	—	—	16	51.5	—	0
1096	" 24	12	12.3	12	22.9	0.4	2 51.4
1097	" 25-26	23	28.5	24	21.6	0.2	2 30.7
				24	29.2		
1098	" 26	2	55.8	3	42.8	0.2	2 34.9
1099	" 26	5	14.3	8	56.3	0.1	1 5.7
1100	" 30	—	—	5	28.0	—	00
1101	" 31	—	—	8	35.5	—	0
1102	" 31	10	41.5	10	54.0	0.1	0 34.8
1103	" 31	—	—	17	55.0	—	0
1104	" 31	19	13.3	—	—	—	0 24.7
1104a	" 31	—	—	20	26.2	—	000
1105	Aug. 1	—	—	9	20.0	—	00
1106	" 1	—	—	11	54.4	—	00
1107	" 1	—	—	19	4.3	—	00
1108	" 1	—	—	19	17.7	—	000
1109	" 4	21	54.8	22	19.3	0.2	1 12.5
1110	" 5	—	—	13	57.5	—	000
1111	" 6	13	49.8	14	27.4	0.1	1 27.6
1112	" 6	18	52.3	18	55.5	0.1	0 24.3
1113	" 6	21	33.9	22	47.4	0.2	2 29.8
1114	" 7	—	—	20	12.0	—	0
1115	" 9	1	34.5	1	48.5	10.3	4 35.0
				1	57.3	9.5	
1116	" 10	9	33.7	9	40.0	0.5	1 24.2
1117	" 10	18	40.2	18	47.8	0.1	0 16.7
1118	" 10	23	6.8	23	20.2	0.1	0 48.5
1119	" 11	—	—	7	34.5	—	0
1120	" 14	—	—	4	26.7	—	000
1121	" 15	—	—	14	9.7	—	000
1122	" 15	—	—	14	41.5	—	000
1123	" 17	19	26.5	20	25.0	2.7	3 42.5
1124	" 18	—	—	1	43.5	—	000
1125	" 18	—	—	3	25.7	—	00
1126	" 18	—	—	8	54.5	—	0
1127	" 18	—	—	13	54.3	—	00
1128	" 18	—	—	19	27.5	—	00
1129	" 18	—	—	21	30.5	—	000
1130	" 18	21	49.4	22	28.6	0.1	0 56.1
1131	" 19	16	54.0	18	3.5	0.1	1 58.4
1132	" 20	—	—	11	35.6	—	0
1133	" 21	—	—	11	44.8	—	0
1134	" 21	17	53.4	18	39.9	0.1	2 14.2

Register from Royal Observatory, Edinburgh—continued.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1135	Aug. 23	H. M. 14 15.6	H. M. 14 38.5	MM. 0.4	H. M. 1 58.0	—
1136	" 23	21 50.4	22 19.6	0.2	1 7.4	—
1137	" 24	—	2 2.4	—	—	00
1138	" 25	—	1 41.0	—	—	0
1139	" 30	—	19 13.5	—	—	0
1140	" 31	—	14 28.6	—	—	000
1141	" 31	22 44.5	23 13.1	0.1	1 38.5	—
1142	Sept. 1	—	4 47.6	—	—	0
1143	" 1	—	5 13.6	—	—	00
1144	" 1	—	14 24.2	—	—	000
1145	" 4	—	1 22.0	—	—	000
1146	" 5	—	19 35.5	—	—	00
1147	" 10	—	14 55.9	—	—	00
1148	" 10	16 32.3	16 36.1	0.1	0 33.0	—
1149	" 11	1 10.7	1 52.5	0.1	2 14.9	—
1150	" 12	—	6 28.8	—	—	00
1151	" 13	23 36.9	23 46.6	2.8	2 7.4	—
			23 52.5	3.1	—	—
1152	" 16	—	20 32.0	—	—	00
1153	" 16	—	21 17.7	—	—	0
1154	" 17	—	19 36.1	—	—	00
1155	" 20	—	22 2.6	—	—	0
1156	" 25	—	13 32.9	—	—	00
1157	" 26	—	19 42.1	—	—	00
1158	" 26	—	20 31.0	—	—	0
1159	" 28	—	11 23.8	—	—	00
1160	" 28	—	13 9.2	—	—	00
1161	" 29	21 6.1	22 2.8	3.1	4 25.8	—
1162	" 30	5 56.1	6 5.1	0.2	0 45.9	—
1163	Oct. 1	—	6 37.6	—	—	0
1164	" 8	—	21 53.6	—	—	000
1165	" 10	—	19 29.0	—	—	0
1166	" 12	15 34.0	16 7.2	0.2	3 45	—
1167	" 12	20 3.2	20 14.0	0.1	0 52.3	—
1168	" 16	—	13 24.5	—	—	0
1169	" 17	—	10 3.0	—	—	0
1170	" 17	—	11 6.3	—	—	0
1171	" 18	12 11.2	12 52.3	0.5	3 12.2	—
1172	" 20	11 1.7	11 17.6	0.1	0 52.0	—
1173	" 22	—	9 5.7	—	—	0
1174	" 22	—	10 49.7	—	—	00
1175	" 22	—	20 32.8	—	—	000
1176	" 25	—	13 5.6	—	—	00
1177	" 26	9 23.0	10 8.9	0.1	1 14.5	—
1178	" 31	12 28.5	12 34.5	0.7	1 23.5	—
1179	" 31	17 52.0	18 32.3	0.4	2 41.1	—
1180	Nov. 1	—	6 32.0	—	—	000
1181	" 1	—	19 41.0	—	—	00
1182	" 2	3 18.0	3 30.2	0.1	1 39.3	—
1183	" 2	—	22 1.3	—	—	00
1184	" 3	6 51.0	7 2.5	0.1	0 33.4	—
1185	" 7	7 51.5	8 0.6	1.5	3 50.8	—
			8 9.2	1.1	—	—
1186	" 7	16 56.7	17 34.7	0.5	3 26.1	—
			18 20.0	0.6	—	—
1187	" 8	8 36.7	8 51.0	0.1	1 1.8	—
1188	" 14	—	17 46.0	—	—	00
1189	" 17	12 6.5	12 21.0	0.1	0 44.7	—
1190	" 19	14 12.0	14 32.3	0.1	1 24.9	—
1191	" 22	—	1 33.0	—	—	0
1192	" 25	9 40.3	9 48.0	0.1	0 32.7	—
1193	" 27	—	10 23.3	—	—	0

Register from Royal Observatory, Edinburgh—continued.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1194	Nov. 28	H. M. 21 11.3	H. M. 21 17.7	MM. 0.1	H. M. 0 29.0	—
1195	" 30	—	3 25.3	—	—	0
1196	Dec. 1	8 41.8	9 22.5	1.5	2 0.7	—
1197	" 4	—	6 16.8	—	—	000
1198	" 5	12 46.8	13 6.4	0.1	1 34.4	—
1199	" 5	—	18 37.9	—	—	0
1200	" 6	—	15 44.8	—	—	0
1201	" 7	23 2.3	23 15.5	0.1	2 18.0	—
			23 46.3	—	—	—
1202	" 9	0 5.0	0 44.6	0.3	2 32.0	—
1203	" 9	8 44.5	9 20.8	3.1	3 14.7	—
1204	" 22	—	9 35.8	—	—	00
1205	" 24	0 15.9	1 3.4	0.1	2 33.6	—
1206	" 24	18 31.8	18 58.5	0.5	1 14.6	—
1207	" 28	8 17.9	9 5.8	0.2	1 42.3	—
1208	" 29	—	22 6.4	—	—	00
1209	" 29	—	22 37.8	—	—	0

Period of Pendulum = 17 seconds. 1mm. = 0°.54.
For records below 0.1mm. of amplitude the intensity is denoted by 0, 00, and 000, in decreasing order of magnitude.

Register from the Coats Observatory, Paisley. 55°50'N. 4°26'W.
Observer, DONALD MACLEAN, F.R.A.S.
Convener of Committee, JOHN WOODROW, F.R.A.S.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1912						
1305	July 3	H. M. —	H. M. 18 35	MM. —	H. M. —	Very small.
1306	" 7	8 11.5	8 36	2.8	3 18	—
1307	" 8	—	16 45.5	—	—	—
1308	" 8	17 25	17 37.5	0.2	0 30	—
1309	" 9	8 34	8 59	0.5	1 16	—
1310	" 11	—	7 27	0.1	—	—
1311	" 13	—	15 27	—	—	—
1312	" 20	14 8	14 19	0.3	1 7	—
1313	" 24	12 11.5	12 22	0.7	2 39.5	—
1314	" 26	8 16	8 57	0.2	1 34	—
1315	" 30	—	16 10.5	—	—	—
1316	" 31	—	8 39	—	—	—
1317	" 31	10 35	10 53.7	0.3	1 7	—
1318	Aug. 1	—	11 56.5	—	—	—
1319	" 3	—	9 53	0.1	—	—
1321	" 4	—	19 26.7	0.1	—	—
1322	" 4	22 4.5	22 17	0.4	0 51	—
1323	" 5	13 43	14 17	0.3	1 30	—
1324	" 6	—	13 51	0.1	—	—
1325	" 6	14 21	14 31	0.3	0 50	—

Register from the Coats Observatory, Paisley—continued.

No.	Date	Com- mence- ment		Max.	Max. Ampli- tude	Dura- tion	Remarks
		H. M.	H. M.				
1326	Aug. 6	—	—	18 55	0.2	—	—
1327	" 6	21 33.5	22 29.5	—	0.5	2 17	—
1328	" 9	1 32.8	1 44.5	—	—	4 50	Max. beyond range of paper.
1329	" 9	—	17 3	—	—	—	—
1330	" 10	9 20	9 45	1.5	—	1 25	—
1331	" 10	18 39	18 50.5	0.2	—	0 26	—
1332	" 11	—	7 31	—	—	—	—
1333	" 14	—	4 24	0.2	—	—	—
1335	" 17	19 25	20 22	5.8	—	—	End lost in Ats.
1336	" 18	8 38	8 49.5	0.2	—	0 42	—
1337	" 18	—	13 55	—	—	—	—
1338	" 19	—	16 3	0.1	—	—	—
1339	" 19	—	16 51	0.1	—	—	—
1340	" 19	—	18 3.5	0.1	—	—	—
1341	" 20	—	14 19	—	—	—	—
1345	" 23	14 15	14 39	0.6	—	1 30	—
1346	" 23	—	22 19.5	0.2	—	—	—
1347	Sept. 1	4 30	4 43.5	0.2	—	1 24	—
1349	" 13	23 37	23 45.5	3.2	—	—	End lost in a storm of Ats.
1350	" 19	—	20 8	—	—	—	End lost in Ats.
1351	" 25	18 48	20 9.5	0.5	—	—	—
1353	" 28	—	13 10.5	—	—	—	—
1354	" 29	21 8	22 4.5	3.4	—	4 16	—
1355	" 30	5 55	6 10	0.3	—	0 45	—
1356	Oct. 1	—	6 39	0.1	—	—	—
1357	" 12	15 36	16 15	0.4	—	1 54	—
1358	" 12	20 5	20 12.5	0.2	—	0 33	—
1359	" 16	—	13 25.5	0.1	—	—	—
1360	" 17	—	11 13	0.1	—	—	—
1361	" 18	12 6	12 47.5	0.8	—	3 11	—
1362	" 29	—	5 50	0.1	—	—	—
1363	" 31	12 25	12 34.5	1.1	—	1 15	—
1364	" 31	17 45	18 32	0.8	—	2 14	—
1365	Nov. 2	3 10	3 33	0.3	—	0 54	—
1366	" 2	—	4 36	0.1	—	—	—
1367	" 3	6 30	7 2	0.3	—	0 50	—
1368	" 5	—	11 30.5	—	—	—	—
1369	" 7	7 50.5	8 1	2.0	—	3 40	—
1370	" 7	17 4	17 34	0.8	—	2 46	2nd Max. 18-19.5.
1371	" 14	—	17 46	0.1	—	—	—
1372	" 17	12 5	12 21	0.4	—	1 10	—
1373	" 19	14 16	14 24.5	0.3	—	1 7	—
1374	" 22	1 13	1 33.5	0.2	—	0 52	—
1375	Dec. 1	—	9 22	0.9	—	—	Com. and end lost in Ats.
1376	" 4	—	6 30	0.1	—	—	—
1377	" 5	12 40	13 6.5	0.2	—	1 40	—
1379	" 6	15 14	15 35	0.2	—	0 50	—
1380	" 7	22 55	23 52	0.8	—	1 58	—
1381	" 9	—	0 39	0.6	—	—	Com. lost in Ats.
1383	" 9	8 44	9 20	3.1	—	3 9	—
1384	" 9	—	15 23.5	0.1	—	—	—
1387	" 24	0 21.5	1 9.5	0.3	—	2 5	—
1388	" 24	—	19 6	0.6	—	—	—
1389	" 28	8 27	9 5	0.6	—	1 35	—

Period of pendulum = 17 seconds.
Imm. of amplitude = 0°.47.

Register from University College, Cork. 51°53'N. 8°28'W.

Observer, JAMES J. LALOR.

Director, I. SWAIN, B.A., A.R.C.Sc.I.

No.	Date	Com- mence- ment		Max.	Max. Ampli- tude	Dura- tion	Remarks
		H. M.	H. M.				
1912							
9	Aug. 9	1 34	1 45	18.0	—	1 43	With Ats.
10	" 17	20 9	20 25	2.0	—	0 39	—
11	Sept. 13	23 35	23 47	5.0	—	0 42	Ats. present.
12	Nov. 7	7 51	8 5	2.5	—	3 9	With Ats.
13	" 7	17 5	8 10	—	—	2 18	—
14	Dec. 1	9 10	17 26	—	—	1 50	—
15	" 9	8 43	18 14	1.5	—	—	End in Ats.
15	" 9	8 43	9 19	4.0	—	—	—

Period = 15 seconds. 1° turn = 4mm.

Register from Ponta Delgada, St. Miguel, Azores. 37°44'N. 25°41'W.

Director, Colonel F. A. CHAVES.

No.	Date	Com- mence- ment		Max.	Max. Ampli- tude	Dura- tion	Remarks
		H. M.	H. M.				
1912							
498	July 1	1 12.1	—	—	—	0 04.9	I. of Mercalli's scale.
499	" 7	8 10.3	8 44.5	2.8	—	1 43.6	Thickening of line.
500	" 8	22 18.1	—	—	—	0 46.9	I. ditto.
500	" 9	8 56.0	—	—	—	0 17.6	I. ditto. Thickening of line.
502	" 24	12 10.4	12 24.7	2.0	—	1 07.6	I. ditto.
502	" 25	23 28.0	—	—	—	0 19.0	I. ditto. Thickening of line.
503	Aug. 4	21 59.1	22 02.7	2.4	—	0 37.4	I. ditto.
504	" 6	21 33.0	—	—	—	0 38.2	I. ditto. Thickening of line.
504	" 9	1 38.0	1 57.6	8.6	—	1 41.5	I. ditto.
504	" 10	9 52.5	—	—	—	0 10.1	I. ditto. Thickening of line.
505	" 17	19 34.4	—	—	—	1 01.0	I. ditto.
507	Sept. 1	4 31.1	—	—	—	0 17.4	I. ditto.
509	" 13-14	23 42.8	—	—	—	0 53.4	I. ditto.
511	" 29	21 12.3	—	—	—	1 24.3	I. ditto.
514	Oct. 18	12 18.9	—	—	—	0 22.8	I. ditto.
515	" 22	8 54.7	—	—	—	0 05.5	I. ditto.
516	" 31	12 20.3	12 22.8	8.6	—	0 50.1	I. ditto.
517	Nov. 7	7 52.9	8 06.5	1.4	—	1 14.4	I. ditto.
519	" 19	14 13.0	—	—	—	0 16.4	I. ditto. Thickening of line.
520	" 27	9 37.8	—	—	—	0 03.7	I. ditto.
521	Dec. 3	6 39.9	—	—	—	0 03.3	I. ditto.
521	" 7	22 58.7	—	—	—	0 38.7	I. ditto.
521	" 9	8 45.9	—	—	—	0 36.8	I. ditto.

Mean scale value, 1mm. = 0°.49.

Register from the Observatorio de Marina de San Fernando.

36°27'N. 6°12'W.

Director, Rear-Admiral T. DE AZCARATE.

Pendulum A (new model) records N.-S. motion.
Pendulum B (old model) records E.-W. motion.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1912						
154	July 7	H. M. 8 19.5 8 19	H. M. 8 45 8 53.5	MM. 8.0 7.0	H. M. 2 50 2 59	A. B.
155	" 8	22 21.5 22 26	22 40 22 41.5	1.5 1.2	0 48 1 0	A. B.
156	" 9	8 38	8 51.2	2.3	0 26	A. c. for B. 8-37.5.
158	" 11	7 18 7 17.5	7 18.5 7 19	1.5 1.5	0 14 0 10	A. B. With Ats.
160	" 14	9 16 9 15.4	9 23 9 22	0.6 0.5	0 34 0 21	A. B.
164	" 18	22 15 22 17.5	22 23.8 22 32.3	0.5 0.4	1 20 1 20	A. B.
165	" 20	14 4.8 14 6.3	14 22 14 22	0.5 0.4	0 33 0 31	A. B.
167	" 23	16 23.6 16 22.4	16 35 16 34.5	0.6 0.5	0 42 0 41	A. B.
168	" 24	12 11.2 12 12.4	12 27.7 12 24.6	1.5 2.0	2 39 2 23	A. B.
169	" 25	23 26.6 23 27	— —	— —	— —	A. B.
169	" 26	— —	0 41.4 0 40.4	2.0 1.4	2 3 2 3	A. B.
170	" 26	3 41 3 41.4	3 53.4 3 51.4	1.0 0.6	— —	A. B.
171	" 26	8 51.4 8 52	9 0.4 8 56.4	0.6 0.5	1 3 1 1	A. B.
172	" 30	— —	5 4 —	— —	— —	A. A.
174	Aug. 4	21 50.1	22 6.7 22 9	1.8 1.5	0 53 0 28	A. B.
176	" 6	13 43 14 14	14 27.5 14 29	0.5 0.5	2 3 0 59	A. B.
177	" 6	18 48 18 49.5	18 49.8 18 51	0.8 0.5	0 29 0 24	A. B.
178	" 6	21 31 21 32	22 42.6 22 45.6	2.5 2.0	1 53 2 5	A. B.
180	" 9	1 35 1 35	1 44.8 1 45.5	>14.0 >18.0	6 0 4 6	A. B.
181	" 10	9 34 9 34.5	9 41.5 9 40.5	2.0 1.7	1 1 0 48	A. B.
182	" 10	22 35 22 59.5	23 3 23 4	1.2 1.0	— 0 30	A. B.
185	" 17	19 32 19 33	20 36 20 35	7.0 6.5	2 53 2 55	A. B.
186	" 19	16 45.5 16 45.5	17 51 17 53.7	0.6 0.5	1 55 1 37	A. B.
188	" 21	— —	5 11.5 —	— —	— —	A. A.
189	" 21	17 58.5 18 12.5	18 48.5 18 48.5	0.5 0.4	1 56 0 56	A. B.
190	" 23	14 17.5 14 25.5	14 47 14 47	1.2 1.0	1 53 1 13	A. B.
191	" 23	21 56 21 59	22 10.5 22 9	0.4 0.3	0 44 0 39	A. B.
193	" 25	— —	1 51.2 —	— —	— —	A. A.
196	" 29	— —	6 26.2 —	— —	— —	A. A.
199	" 31	22 46.5 22 48	23 20 23 23.2	1.0 0.8	1 35 1 4	A. B.

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

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
204	Sept. 11	H. M. 1 11.5 1 11	H. M. 1 48.5 1 51.5	MM. 1.0 0.8	H. M. 1 57 1 55	A. B.
206	" 13	23 36.5 23 42.5	23 48.5 23 49.5	5.1 4.6	2 11 2 5	A. B.
212	" 22	5 32.8 5 40.4	5 44.6 5 48	0.4 0.5	0 34 0 18	A. B.
216	" 26	0 2	—	—	—	A.
220	" 29	21 11.5 21 12	22 10.5 22 11.5	11.4 10.0	3 36 3 38	A. B.
227	Oct. 12	15 37.5 15 41	16 19.5 16 21.5	1.2 1.5	2 38 2 28	A. B.
228	" 12	20 4.7 20 8	20 15.7 20 15.2	0.8 0.6	0 32 0 22	A. B.
233	" 17	— —	11 17.5 —	— —	— —	A. A.
235	" 18	12 17.5 12 19	12 56 12 54	3.5 2.5	2 49 2 21	A. B.
243	" 26	9 25.8 9 33	10 21 10 12	0.5 0.5	2 6 1 8	A. B.
246	" 31	12 22.5 12 28	12 35.7 12 31	1.0 3.5	1 29 1 22	A. B.
247	" 31	17 45.5 17 50	18 43.5 18 45	2.4 2.0	2 17 2 15	A. B.
249	Nov. 2	— —	3 34 —	— —	— —	A. A.
250	" 2	14 38 14 43	14 51.5 14 54	0.4 0.3	0 58 0 47	A. B.
251	" 3	— —	7 1 —	— —	— —	A. A.
255	" 7	7 52 7 52	8 35 8 31.5	4.5 4.2	3 16 3 2	A. B.
256	" 7	17 6 17 7	18 12.5 18 12	2.5 1.7	2 9 2 10	A. B.
257	" 7	19 15	—	—	—	A.
257	" 8	— —	8 44 8 44	— —	— —	A. A.
262	" 13	— —	6 56 —	— —	— —	A. A.
267	" 17	12 0.5 12 8.5	12 17 12 20.5	0.5 0.4	1 13 0 31	A. B.
269	" 19	14 6.8 14 18.5	14 46 14 49	0.7 1.5	1 27 1 23	A. B.
272	" 22	— —	1 52 —	— —	— —	A. A.
276	" 27	— —	10 16.5 —	— —	— —	A. A.
279	Dec. 1	9 22 9 23	9 30.5 9 29	1.0 1.0	0 59 0 42	A. B.
281	" 3	— —	6 49 —	— —	— —	A. A.
283	" 5	12 49.5 15 37.5	13 24.5 —	0.7 —	1 12.5 —	A. A.
284	" 6	— —	— —	— —	— —	A. A.
285	" 7	22 50 22 58	23 13 23 14	1.0 0.6	1 54 1 45	A. B.
286	" 9	0 5.8 0 6	0 53.3 0 55	3.5 1.6	1 5 1 8	A. B.
287	" 9	8 54.5 8 55.5	9 16.5 9 18	2.4 2.3	3 0 2 39	A. B.
298	" 24	0 22 0 22	1 10.6 1 11	0.6 0.5	1 34 1 32	A. B.
300	" 24	19 2.5 19 2	19 14.5 19 14	0.6 0.5	0 29 0 30	A. B.
303	" 28	9 3 9 3.5	9 13.5 9 12	0.8 0.8	1 27 0 48	A. B.
304	" 29	21 48.8	—	—	—	A.

Pendulum A Period = 20 seconds. 1mm. = 0".25.
Pendulum B Period = 19 seconds. 1mm. = 0".28.

Register from Rio Tinto Mines, Huelva, Spain. 37°46'N. 6°38'W.
Observer, W. A. JENKIN.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1912						
		H. M.	H. M.	MM.	H. M.	
563	July 7	8 14	8 55	3.0	2 48	—
566	" 9	8 34	8 50	1.0	0 35	—
580	" 23	16 28	16 37	0.5	0 28	—
581	" 24	12 9	12 21	1.0	1 45	—
592	Aug. 4	21 52	22 6	0.5	0 30	—
594	" 6	14 18	14 25	0.5	0 42	—
" 6	" 21	32	22 39	0.5	1 50	—
596	" 9	1 31	1 49	12.0	3 57	—
598	" 10	9 30	9 37	0.7	0 36	—
" 10	" 22	56	23 0	0.5	0 19	—
605	" 17	19 22	20 33	2.5	2 46	—
606	" 18	22 22	22 26	0.5	0 14	—
611	" 23	14 21	14 40	0.5	0 41	—
619	" 31	22 58	23 15	0.6	0 31	—
629	Sept. 11	1 39	1 49	0.5	0 50	—
632	" 13	23 37	23 50	2.0	0 58	—
648	" 29	21 8	22 10	11.0	2 52	—
661	Oct. 12	15 53	16 21	0.7	1 11	—
667	" 18	12 16	12 51	1.0	1 20	—
680	" 31	12 20	12 28	1.5	0 36	—
" 31	" 17	44	18 42	2.5	2 5	—
686	Nov. 7	7 47	7 49	3.7	2 38	—
687	" 7	17 2	17 25	1.5	1 49	—
697	" 17	12 9	12 17	0.6	0 28	—
699	" 19	14 16	14 48	0.5	1 13	—
710	Dec. 1	9 19	9 27	0.6	0 23	—
717	" 7	23 5	23 15	0.5	0 45	—
718	" 9	0 12	0 52	1.0	1 17	—
719	" 9	8 41	9 13	1.5	1 25	Other max. 9-16, 9-20
734	" 24	19 3	19 10	0.4	0 23	—
Period = 19 seconds. 1° turn = 0°.47.						

Register from the University, Valetta, Malta. 35°54'N. 14°31'E.
Observer, C. LEACH.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1912						
		H. M.	H. M.	MM.	H. M.	
493	July 7	8 21.5	8 43.3	2.0	—	—
494	" 9	8 15.5	8 45.5	1.5	1 5	—
495	" 18	21 54	22 33.7	1.5	1 37	—
496	" 24	—	12 54.5	2.5	—	End at 13-30.
497	Aug. 6	13 50	14 14.7	0.5	1 0	—
498	" 6	21 30	—	—	1 58	—
499	" 9	1 32	1 37.5	17.0	4 7	—
500	" 10	9 27.5	9 33	1.0	1 0	—
501	" 10	22 56	23 12	0.5	—	—

Register from the University, Valetta, Malta—continued.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
		H. M.	H. M.	MM.	H. M.	
502	Aug. 17	19 27.7	19 47.8	1.5	3 3	—
503	Sept. 11	1 11.2	1 28.5	1.0	1 37	—
504	" 13	23 45	23 51	4.0	—	—
505	" 29	21 7	22 5.5	2.5	4 39	—
506	Oct. 12	15 49	16 21	0.5	2 46	—
507	" 26	9 19.7	10 13.5	0.5	2 2	—
508	" 31	12 24.5	12 42	1.0	1 14	—
509	" 31	17 45	18 39.5	1.0	2 23	—
510	Nov. 19	14 19.2	14 48.8	0.7	1 16	—
511	Dec. 1	8 42	9 25	0.5	1 10	—
512	" 7	23 3.6	23 21.7	1.0	1 25	—
513	" 9	0 19.5	0 51.7	1.0	1 13	—
514	" 9	8 53	9 30	2.0	2 55	—
515	" 24	0 22.2	0 27.5	0.5	1 22	—
516	" 28	8 18	8 54	2.0	2 13	—

Register from Helwan Observatory, Cairo, Egypt. 29°51'N. 31°20'E.
Director, B. F. E. KEELING.

A records E.W. motion.
B records N.S. motion.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1912						
		H. M.	H. M.	MM.	H. M.	
1823	July 1	1 35	—	0.1	0 19	B.
1823a	" 1	3 47	—	0.1	0 12	A. only.
1824	" 1	8 51	—	0.1	1 5	A.
" 1	" 9	13	—	0.1	0 20	B.
1825	" 2	4 37	—	0.1	0 15	A. only.
1830	" 4	1 9	1 12	0.1	3 51	A.
" 4	" 1	6	1 13	0.2	0 24	B.
1831	" 4	7 5	7 10	0.1	0 10	A. d. for B. 13m.
1832	" 6	21 13	—	0.1	0 23	A.
" 6	" 21	16	—	0.1	0 35	B.
1834	" 7	4 15	—	0.1	0 12	A.
" 7	" 4	8	—	0.1	0 22	B.
1835	" 7	8 10	9 14	1.4	6 1	A.
" 7	" 8	10	9 8	1.9	5 54	B.
1836	" 7	14 56	—	0.1	1 17	B. only.
1837	" 7	23 13	23 50	0.2	2 38	A.
" 7	" 23	14	23 55	0.1	1 52	B.
1838	" 8	17 1	17 34	0.1	2 30	A. d. for B. 1-6.
1839	" 8	22 11	23 28	0.1	3 9	A.
" 8	" 22	6	—	0.1	3 18	B.
1840	" 9	8 26	8 34	2.6	2 33	A.
" 9	" 8	25	8 37	2.5	2 26	B.
1841	" 10	3 33	—	0.1	0 39	A.
" 10	" 3	43	—	0.1	0 26	B.
1843	" 10	20 40	20 50	0.1	0 27	A.
" 10	" 20	44	20 50	0.1	0 24	B.
1847	" 11	17 40	—	0.1	0 20	B. only.

Register from Helwan Observatory, Cairo, Egypt—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Duration	Remarks
		H. M.	H. M.				
1849	July 13	14 57	15 33	0.1	1 8	A.	
		14 57	15 30	0.1	0 47	B.	
1851	" 14	9 15	9 30	0.2	1 3	A.	
		9 15	9 34	0.2	1 11	B.	
1853	" 16	1 29	1 34	0.1	0 50	A.	
		1 15	1 39	0.1	0 52	B.	
1857	" 17	12 29	—	0.1	2 14	B. only.	
1858	" 17	13 4	—	0.1	1 6	A. only.	
1860	" 17	21 5	21 21	0.2	0 58	A.	
		21 4	21 24	0.1	1 2	B.	
1861	" 17	23 59	—	0.1	0 6	A. only.	
1862	" 18	21 39	22 46	0.8	2 30	A.	
		21 51	22 45	0.3	2 36	B.	
1866	" 20	13 40	14 29	0.3	2 3	A.	
		13 45	14 28	0.2	2 15	B.	
1871	" 23	15 35	16 38	0.4	2 6	B.	
1872	" 23	16 5	16 36	0.4	1 49	A.	
1874	" 24	12 15	13 8	1.0	3 16	A.	
		12 17	13 9	1.2	3 46	B.	
1875	" 24	21 51	—	0.1	0 8	A.	
		21 52	21 53	0.1	0 7	B.	
1876	" 24	23 45	—	0.1	0 27	A.	
		23 46	—	0.1	0 42	B.	
1878	" 25	23 26	—	9.3	7 32	A.	d. for B. 7-30.
1879	" 26	8 0	—	0.1	2 53	A.	
		7 54	8 56	0.2	3 0	B.	
1880	" 26	11 54	—	0.1	0 15	A. only.	
1887	" 30	5 12	—	0.1	1 47	A.	
		5 7	—	0.1	0 58	B.	
1892	" 31	7 46	—	0.1	0 9	A.	
		8 3	—	0.1	0 26	B.	
1893	" 31	11 6	—	0.1	0 29	A.	
		11 1	—	0.1	0 32	B.	
1894	" 31	18 44	19 31	0.1	2 16	A.	
		19 18	19 31	0.1	1 42	B.	
1895	Aug. 1	9 10	—	0.1	0 10	A.	
		9 13	—	0.1	0 3	B.	
1896	" 1	19 4	19 10	0.1	0 24	A.	
		19 3	—	0.1	0 18	B.	
1898	" 3	9 32	9 45.6	0.4	1 0	A.	
		9 37	9 46.6	0.3	0 28	B.	
1899	" 3	17 57	18 2	0.2	0 18	A.	
		17 58	—	0.1	0 10	B.	
1902	" 4	20 12	—	0.1	1 12	A.	
		20 33	—	0.1	0 51	B.	
1903	" 4	21 59.1	22 11.8	0.5	1 55	A.	2nd max. 22-17.4
		21 59.1	22 12.2	0.6	1 24	B.	2nd max. 22-13.4
1905	" 5	13 44	—	0.1	0 18	A.	d. for B. 0-10.
1905a	" 6	5 3	—	0.1	0 33	A.	c. for B. 5-6.
1906	" 6	6 4	—	0.2	0 8	A.	d. for B. 0-6. a. 0.1mm.
1907	" 6	13 42	14 8.4	2.0	3 22	A.	
		13 46	14 5.9	1.2	2 49	B.	2nd max. 14-8.5.
1908	" 6	18 52	19 2	0.3	0 40	A.	
		18 52.5	19 0	0.6	0 45	B.	
1909	" 6	21 32	21 54	0.4	3 37	A.	2nd max. 21-56.
		21 32	21 54	0.3	2 47	B.	
1910	" 9	20 4	20 17	0.2	0 53	A.	
		20 4	—	0.2	0 53	B.	2nd max. 20-47.
1911	" 9	1 33.1	1 39	>15.0	4 53	B.	Many maxima.
1912	" 10	9 26.7	9 34.8	1.5	1 35	B.	
1913	" 10	18 40	18 42	0.2	0 19	B.	
1914	" 10	22 34.4	23 44.7	1.0	1 41	B.	
1915	" 13	23 44	—	0.1	0 13	A.	d. for B. 6m.

Register from Helwan Observatory, Cairo, Egypt—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Duration	Remarks
		H. M.	H. M.				
1917	Aug. 15	14 3	—	0.1	0 55	A.	d. for B. 51m.
1918	" 15	18 3	—	0.1	0 22	A.	
		17 53	—	0.1	0 36	B.	
1919	" 17	19 25.2	20 16.3	2.3	4 19	A.	P ₂ 19-36.1.
		19 25.5	20 16.4	1.2	—	B.	P ₂ 19-36.8.
1919a	" 18	1 35	—	0.1	0 10	A.	
		1 32	—	0.1	0 3	B.	
1920	" 18	3 3	—	0.1	0 19	A.	only.
1921	" 18	8 4	8 46	0.2	1 27	A.	a. for B. 0.1mm.
1922	" 18	13 38	—	0.2	1 3	A.	
		13 44	—	0.2	0 50	B.	
1923	" 18	18 49	—	0.1	1 8	A.	d. for B. 53m.
1924	" 18	21 50	—	0.1	2 3	A.	
		21 52	—	0.2	1 49	B.	
1926	" 19	15 55	—	0.1	0 10	A.	
		15 56	—	0.1	0 15	B.	
1927	" 19	16 40	—	0.2	2 31	A.	
		16 44	—	0.2	2 37	B.	
1928a	" 21	5 33	—	0.1	0 7	A.	only.
1930	" 21	17 42	18 33.5	0.3	2 38	A.	2nd max. 18-35.5
		17 44	18 30	0.3	2 30	B.	
1931	" 22	8 39	—	0.1	0 18	A.	
		8 41	8 46.2	0.2	0 16	B.	
1932	" 23	14 7	14 33.2	0.9	3 14	A.	
		14 6	14 29	1.0	2 16	B.	2nd max. 14-31.
1933	" 23	21 49	—	0.4	1 28	A.	d. for B. 1-22.
1934	" 24	1 33	1 41	0.5	0 50	A.	
		1 41	—	0.2	0 55	B.	
1935	" 24	12 40	—	0.1	0 32	A.	
		12 45	—	0.1	0 4	B.	
1936	" 25	1 25	—	0.1	0 25	A.	
		1 18	1 28	0.2	0 23	B.	
1936a	" 25	5 16	—	0.1	0 6	A.	
		5 13	—	0.1	0 3	B.	
1938	" 26	19 50	—	0.1	0 17	A.	
		19 52	—	0.1	0 7	B.	
1939	" 27	8 14	8 17	0.2	0 47	A.	c. for B. 8-15.
1941	" 30	18 35	—	0.2	1 11	A.	
		18 34	—	0.1	1 16	B.	
1943	" 31	20 54	—	0.1	0 24	A.	
		20 57	—	0.1	0 10	B.	
1944	" 31	22 38	—	0.2	3 7	A.	
		22 44	—	0.3	2 58	B.	
1945	Sept. 1	4 30	4 49	0.3	>2 30	A.B.	
1946	" 1	14 16	14 18	0.1	0 12	A.	d. for B. 15m.
1947	" 1	23 53	—	0.1	0 18	A.	
		23 52	—	0.1	0 7	B.	
1949	" 4	0 49	—	0.1	0 53	A.	
		0 50	—	0.1	0 44	B.	
1952	" 5	18 40	—	0.1	2 54	A.	
		19 3	—	0.1	2 18	B.	
1954	" 10	0 35	—	0.1	0 14	A.	
		0 45	—	0.1	0 8	B.	
1955	" 10	14 28	14 52	0.2	0 57	A.	
		14 30	14 53	0.2	0 57	B.	
1956	" 11	0 52	1 30.6	2.6	3 15	A.	P ₂ 3-8.1.
		1 7	1 30	1.4	2 52	B.	
1957	" 12	6 27	—	0.1	0 13	A.	c. for B. 6-28.
1958	" 12	12 53	—	0.1	0 24	A.	
		12 57	—	0.1	0 13	B.	
1961	" 13	23 35	23 43.8	10.8	3 58	A.	
		23 33.3	23 42.7	6.8	3 53	B.	

Register from Helwan Observatory, Cairo, Egypt—continued.

No.	Date	Com- mence- ment		Max.	Max. Ampli- tude	Dura- tion	Remarks
		H. M.	H. M.				
1962	Sept. 14	20 58	—	0.1	0 23	A.	
		21 0	—	0.1	0 18	B.	
1963	" 16	20 15	20 37	0.2	1 20	A.	
		20 18	20 28	0.2	1 11	B.	
1964	" 17	19 11	—	0.1	1 47	A.	
		19 17	—	0.1	1 36	B.	
1965	" 26	0 40	—	0.1	0 16	A.	c. for B. 0-42.
1966	" 26	19 36	20 6	0.2	2 1	A.	
		19 46	—	0.2	1 30	B.	
1967	" 28	10 44	11 18	0.2	1 13	A.	
		10 43	11 23	0.2	1 8	B.	
1968	" 28	13 0	13 5	0.2	0 16	A.	a. for B. 0.1mm.
1969	" 29	21 5.1	22 0.5	1.4	4 13	A.	
		21 6	22 2.4	1.4	4 9	B.	
1970	" 30	5 47	—	0.1	0 40	A.	
		5 49	6 1.0	0.2	0 45	B.	
1971	Oct. 1	6 29	—	0.1	0 10	A.	c. for B. 6-30.
1971a	" 1	22 29	22 31	0.1	0 10	A.B.	
1973	" 3	11 39	—	0.1	0 9	A.	d. for B. 14m.
1978	" 8	22 0	—	0.1	0 20	A.	
		22 5	—	0.1	0 14	B.	
1979	" 10	9 16	—	0.1	0 17	A.	
		9 19	—	0.1	0 14	B.	
1980	" 10	19 22	19 33	0.2	0 34	A.	
		19 17	19 34	0.2	0 48	B.	
1986	" 12	15 38	16 30	0.4	3 57	A.	
		15 39	16 27.5	0.3	3 28	B.	
1987	" 12	19 56.6	20 4.3	0.5	1 5	A.	
		19 55.1	19 58.6	0.6	0 56	B.	
1988	" 13	2 33	—	0.1	0 14	A.	
		2 31	—	0.1	0 8	B.	
1989	" 16	13 24	—	0.1	0 30	A.	
		13 29	13 35	0.2	0 16	B.	
1990	" 17	10 7	—	0.1	3 12	A.	
		10 22	—	0.1	2 27	B.	
1992	" 18	12 12	12 51.1	0.6	3 31	A.	2nd max. 13-2.3.
		12 12	13 0.5	0.7	3 7	B.	
1997	" 20	10 13	—	0.2	2 2	A.	
		10 27	—	0.2	1 49	B.	
1999	" 21	9 38	9 41	0.2	0 14	A.	
		9 37	—	0.1	0 13	B.	
2003	" 22	8 52	9 5	0.2	0 43	A.	
		8 53	9 7	0.2	0 49	B.	
2003a	" 22	10 38	10 47	0.1	0 13	A.	
		16 42	—	0.1	0 17	B.	
2003b	" 22	20 22	—	0.1	0 13	A.	
		20 20	—	0.1	0 16	B.	
2005	" 24	22 54	—	0.1	0 3	A.	d. for B. 5m.
2007	" 26	9 12	9 35	0.2	2 31	A.	
		9 18	—	0.2	2 16	B.	
2008	" 27	16 59	—	0.1	0 34	A.	d. for B. 26m.
2011	" 29	5 31	—	0.1	0 52	A. only.	
2015	" 31	12 32	12 58	0.3	1 47	A.	
		12 33	12 54.6	0.5	2 3	B.	
2016	" 31	17 41	18 32	0.4	3 12	A.	
		17 44	18 34	0.4	3 19	B.	
2017	Nov. 1	19 22	—	0.2	0 17	A.	
		19 19	19 23	0.3	0 21	B.	
2018	" 2	3 4	3 10	2.6	3 9	B.	P ₂ 3-6.5.
		3 11	—	2.5	—	—	
		3 15.6	—	2.5	—	—	

Register from Helwan Observatory, Cairo, Egypt—continued.

No.	Date	Com- mence- ment		Max.	Max. Ampli- tude	Dura- tion	Remarks
		H. M.	H. M.				
2019	Nov. 2	7 51	—	0.1	0 4	A.	
		13 45	—	0.1	2 25	A.	
		20 34	—	0.1	0 11	A.	
		21 35	21 38.5	0.5	1 39	A.	
2023	" 3	3 58	4 0.9	0.2	0 22	A.	
		7 55	8 5.5	2.0	3 55	A.	2nd max. 8-7.8. a. 1.6mm.
2024	" 7	7 53	8 7.1	1.2	3 54	B.	2nd max 8-11.7. a. 1.0mm.
		17 3	—	0.4	3 38	A.	
2024a	" 7	17 13	18 35	0.4	3 34	B.	
		22 40	—	0.1	0 14	A.	
2024b	" 7	22 41	22 42	0.1	0 17	B.	
		23 38	—	0.1	0 33	A.	
2025	" 8	23 33	—	0.1	0 38	B.	
		8 18	—	0.2	1 28	A.	
2027	" 11	8 9	—	0.2	1 32	B.	
		21 13	—	0.1	0 7	A.	
2034	" 17	21 8	—	0.1	0 9	B.	
		12 1	—	0.2	1 53	A.	
2035	" 19	12 29	—	0.2	1 23	B.	
		14 21	—	0.3	2 50	A.	
2038	" 25	14 18	—	0.3	2 52	B.	
		10 7	—	0.1	1 10	A.	
2044	" 28	9 55	—	0.1	1 29	B.	
		21 2	21 18	0.2	0 45	A.	
2047	" 30	21 2	—	0.2	0 35	B.	
		3 5	3 16	0.2	2 2	A.	
2051	Dec. 1	3 5	3 17	0.2	0 29	B.	
		8 37	8 49	0.2	2 48	A.	Other max. 9-18, 9-39.
2053	" 3	8 37	8 48	0.2	2 37	B.	2nd max. 9-19.
		6 53	—	0.2	>0 30	A.	
2055	" 4	6 54	—	0.2	>0 30	B.	
		6 10	—	0.1	1 28	A.	
2056	" 5	6 14	—	0.1	1 25	B.	
		12 53	—	0.2	2 41	A.	
2057	" 5	12 50	—	0.2	2 47	B.	
		18 53	—	0.1	0 35	A.	
2058	" 6	19 1	—	0.1	0 27	B.	
		14 53	—	0.2	2 31	A.	
2061	" 7	15 6	—	0.2	2 12	B.	
		23 1	—	0.4	2 16	A.	
2062	" 9	23 4	—	0.4	3 6	B.	
		0 2	0 46.5	0.4	3 0	A.	P ₂ 0-11.6.
2063	" 9	0 2	0 52.6	0.5	—	—	
		8 47	0 45.8	0.4	3 21	B.	P ₂ 0-12.8.
2069	" 16	0 54	0 3	0.3	—	—	
		9 55.7	9 51.5	0.9	3 31	A.	P ₂ 9-1
2070	" 19	8 52	10 5	0.5	3 24	B.	
		23 47	—	0.1	1 13	A.	
2072	" 20	23 55	—	0.1	1 30	B.	
		8 10	—	0.1	0 20	A.	
2073	" 22	8 14	—	0.1	0 19	B.	
		20 25	20 45	0.2	1 13	A.	
2075	" 24	20 22	20 44	0.2	1 13	B.	
		9 5	9 53	0.2	1 19	A.	
2077	" 24	9 9	9 53	0.2	0 59	B.	
		0 5	1 0.9	0.5	7 45	A.	
2077	" 24	0 15	—	0.3	9 15	B.	
		18 24	—	0.3	1 32	A.	
		18 30	—	0.3	1 27	B.	

Register from Helwan Observatory, Cairo, Egypt—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.				
2079	Dec. 25	20 18	—	0.1	0 13	A.	
		20 21	—	0.1	0 27	B.	
2080	" 26	0 44	—	0.1	0 13	A. only.	
2081	" 26	8 23	—	0.1	0 9	A.	
2082	" 28	8 13	9 4.8	0.5	3 7	A.	
		8 13	9 2.8	0.4	2 35	B.	
2083	" 29	22 5	—	0.1	0 11	A.	
		22 5	—	0.1	0 7	B.	
2084	" 29	22 33	22 45	0.2	0 49	A. 2nd max. 22-49.	
		22 26	22 45	0.2	1 19	B.	
2092	" 31	14 52	—	0.1	0 9	A. only.	

Period—A. = 18.2 seconds.
B. = 17.8 "

Register from Syrian Protestant College, Beirut, Syria. 33°54'N. 35°28'E.
Director, ALFRED H. JOY, M.A., F.R.A.S.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.				
1912							
533	July 7	8 19.5	8 53.5	1.9	1 31.5	—	
534	" 7	10 19.0	10 37.5	0.8	0 40.0	—	
535	" 8	8 32.0	8 35.5	1.3	0 36.0	—	
538	" 23	16 28.5	16 37.5	0.5	0 26.0	—	
539	" 24	12 22.5	12 28.5	—	1 48.0	Thickening.	
540	" 25	23 26.0	23 43.5	—	1 39.0	"	
541	Aug. 4	21 58.5	22 21.5	0.5	0 31.0	—	
542	" 5	6 4.0	6 4.5	—	0 4.0	Thickening.	
543	" 5	13 50.5	14 5.0	0.5	0 40.5	—	
544	" 6	21 29.5	21 46.0	0.6	1 51.0	—	
545	" 7	20 46.0	20 48.0	—	0 8.0	Thickening.	
546	" 9	1 30.5	1 34.0	—	2 50.0	Swings entirely across paper for 15.5m.	
			1 49.5	—	—	—	
547	" 9	4 28.0	4 42.0	0.6	1 1.0	—	
548	" 10	9 26.5	9 29.5	2.6	0 44.0	—	
549	" 10	22 56.0	23 3.5	0.6	0 13.0	—	
550	" 17	19 25.0	19 44.5	1.6	2 51.0	—	
551	" 22	14 16.0	14 29.0	0.6	0 55.5	—	
553	" 23	21 53.5	21 56.5	0.5	0 33.0	—	
554	Sept. 11	1 8.5	1 28.0	0.9	1 23.0	—	
558	" 29	21 7.0	21 34.5	1.6	3 7.0	—	
			22 3.0	—	—	—	
559	Oct. 12	19 53.0	19 55.0	2.0	0 28.0	—	
561	Nov. 2	3 4.5	3 10.0	1.1	0 29.5	—	
562	" 2	4 13.5	4 16.0	0.8	0 16.0	—	
563	" 2	21 37.0	21 39.5	0.6	0 15.0	—	
564	" 3	3 59.5	4 0.5	—	0 5.0	Thickening.	
566	" 7	8 1.0	8 4.5	2.5	—	End lost.	
567	" 19	15 4.5	15 12.0	0.4	0 30.0	? 14h.	
569	Dec. 9	0 21.0	0 40.0	0.5	1 0.0	—	

Pendulum period, 18 seconds.

Register from Government Observatory, Bombay. 18°53'N. 72°48'E.
Director, N. A. F. MOOS.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.				
1912							
241	July 7	8 21.3	8 56.2	5.8	2 49	—	
255	" 24	12 9	12 18.7	0.7	—	—	End in next quake
256	" 24	—	13 27	0.5	—	—	Com. in previous quake.
258	" 25	23 19.5	23 59.2	0.5	1 21	—	
274	Aug. 6	13 33.1	13 41.9	1.5	0 47	—	
279	" 9	1 37.3	—	—	3 24	—	Traces overlap.
296	" 17	19 21.1	19 34.6	4.4	2 3	—	
302	" 17	48.8	18 4.8	0.4	0 30	—	
306	" 23	14 6.6	14 12.2	1.3	0 39	—	
307	" 23	21 48.4	21 48.8	1.1	0 43	—	
316	" 31	23 5.4	23 10.9	0.7	0 30	—	
325	Sept. 11	0 58.8	1 5.5	2.5	0 48	—	
331	" 13	23 45.4	23 58.7	1.0	—	—	End in ats.
342	" 26	19 42.5	19 44.4	0.5	0 8	—	
346	" 29	21 2.9	21 34.6	1.5	1 45	—	
347	" 29-30	23 21.7	23 41	0.5	0 41	—	
359	Oct. 12	16 3.1	16 12.7	0.5	0 41	—	
372	" 18	12 25.8	12 41.3	2.3	0 49	—	
387	" 31	17 43.5	18 7.6	0.2	0 48	—	
399	Nov. 7	8 5	8 41.6	2.6	1 20	—	
426	" 28	21 2.3	—	—	—	—	Phases ill-defined.
447	Dec. 9	—	0 28.9	1.0	—	—	With Ats.
448	" 9	8 54	10 10.9	0.5	2 4	—	
468	" 24	0 7.5	0 31.6	0.3	—	—	End in Ats.
470	" 24	18 26.5	18 5.7	0.3	0 25	—	
476	" 28	8 6.9	8 34.6	0.8	1 2	—	

July 1 to July 23, 1mm. = 0°.40.
July 23 to Dec. 3, 1mm. = 0°.37.
Dec. 4 to Dec. 31, 1mm. = 0°.35.

Register from the Solar Physics Observatory, Kodakanal, Madras.
10°14'N. 77°27'E.
Director, J. EVERSHED.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.				
1912							
48	July 7	8 21.4	8 58.5	5.5=2.6	2 46	—	P ₃ 8-46.8.
49	" 8	22 32	22 49.2	0.8=0.4	0 56	—	P ₃ 22-47.6.
50	" 24	12 12.3	12 17.4	1.9=0.3	1 52	—	P ₃ 12-13.6.
			13 37.3	0.6=0.2	—	—	
52	Aug. 3	—	9 18.5	0.6=0.2	0 12	—	P ₃ 9-16.
53	" 6	13 28.2	13 38.4	4.8=2.0	1 58	—	P ₃ 13-36.3.
54	" 6	21 23.6	—	—	1 14	—	Widening of line.
55	" 9	1 38.7	2 6.2	17.0=7.3	3 40	—	P ₃ 1-46.4.
56	" 10	22 54	—	—	0 23	—	Widening of line.

Register from the Solar Physics Observatory, Kodaikanal, Madras—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude		Dura-tion	Remarks
		H. M.	H. M.		MM.	H. M.		
57	Aug. 17	19 20.8	19 48.1	5.5=2.4	3 7		P ₃ 19-28.2.	
58	" 21	17 42.8	19 50.4	5.2=2.3	0 37		Widening of line.	
59	" 23	14 8.2	14 13.5	4.5=1.9	1 2		P ₃ 14-12.3.	
60	" 23	21 51.3	21 57.4	1.0=0.4	0 22		P ₃ 21-53.1.	
62	Sept. 11	0 52.3	1 0.8	3.8=1.6	1 1		P ₃ 0-58.5.	
63	" 13-14	23 48.5	0 9.8	0.9=0.4	1 2		P ₃ 0-1.3.	
64	" 26	19 32	—	—	0 24		Widening of line.	
65	" 29	21 1	21 31.5	2.6=1.0	—		P ₃ 21-9.1.	
67	Oct. 12	15 44.9	—	—	1 22		Widening of line.	
69	" 31	17 41.3	—	—	1 3		"	
70	Nov. 7	7 57.8	8 45.3	2.2=1.1	2 31		P ₃ 8-33.8. "	
71	Dec. 1	8 39.2	8 54.5	0.7=0.3	0 41		"	
72	" 9	0 21.3	0 34.4	0.5=0.2	0 42		"	
73	" 9	9 54.1	10 30.3	0.6=0.3	0 54		"	
75	" 20	20 12.6	—	—	0 32		"	
77	" 24	0 2.8	0 32	0.7=0.3	0 51		"	
78	" 24	18 30	18 38	0.5=0.2	0 23		"	
81	" 28	8 9	8 32	0.7=0.3	0 59		"	

Register from Colombo Observatory. 6°56'N. 79°50'E.
Acting Superintendent, A. J. BAMFORD.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude		Dura-tion	Remarks
		H. M.	H. M.		MM.	H. M.		
1912								
230	July 7	8 22.7	9 2.9	5.4	2 39		P ₂ 8-32.6.	
231	" 8	16 52.5	17 9	0.3	0 23		—	
231a	" 8	22 49	22 53.8	0.5	0 31		—	
232	" 9	8 48	8 51	0.4	0 9		—	
	" 10	3 36	—	—	0 5		—	
233	" 11	7 46.5	7 50	0.2	0 9		—	
236	" 16	0 30	1 51	0.2	—		—	
238	" 18	22 32	—	—	0 40		—	
240	" 20	14 33.6	—	—	0 9		—	
241	" 24	12 11	12 15.2	2.2	1 54		—	
			13 36.9	1.1	—		—	
244	" 25	—	23 51	0.6	—		—	
	" 26	—	2 52	0.5	—		—	
250	Aug. 3	9 14.4	9 16.5	0.8	0 6		—	
	" 3	17 31	—	—	—		—	
251	" 6	13 20.1	13 38	5.8	0 51		—	
252	" 6	21 28.5	22 15.5	0.4	1 22		—	
253	" 9	1 48.3	2 8.1	11.8	5 27		With Ats.	
254	" 10	9 58	10 4	0.4	0 19		—	
	" 10	22 58	—	—	0 6		—	
256	" 15	6 5	—	—	0 11		—	
262	" 17	19 19.4	19 43.1	10.0	3 3		—	
268	" 19	16 44	—	—	0 11		—	
271	" 21	—	5 28	0.4	—		—	
272	" 21	17 41	17 59	0.6	0 35		—	
275	" 23	14 9.2	14 14.5	1.0	0 33		P ₂ 14-10.6.	
276	" 23	21 52.6	21 55	0.5	0 19		—	
	" 24	1 35	—	—	0 21		—	

Register from Colombo Observatory, Ceylon—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude		Dura-tion	Remarks
		H. M.	H. M.		MM.	H. M.		
278	Aug. 27	11 34	12 1	0.3	0 32		—	
284	" 30	18 36	18 39.5	0.2	0 5		—	
286	" 31	23 10.5	23 19	0.4	0 30		—	
287	Sept. 1	4 30.1	4 31	0.5	0 24		—	
294	" 10	0 35	—	—	—		—	
295	" 11	0 54.6	0 59.1	7.0	1 18		—	
299	" 13-14	23 54.5	0 11.4	1.0	1 20		—	
306	" 26	19 32.5	19 40	0.2	0 26		—	
308	" 29	20 0.7	20 34	2.6	4 0		—	
309	" 30	—	6 20	0.4	—		—	
317	Oct. 10	—	9 42	0.3	—		—	
318	" 11	1 27	1 59	0.2	—		—	
320	" 12	14 21	15 56	0.3	0 33		—	
321	" 18	12 45	12 55	0.6	0 35		—	
322	" 26	9 38	—	—	0 22		—	
323	" 31	17 41.9	18 2.5	0.5	0 51		—	
324	Nov. 2	3 17.5	3 28.6	0.2	0 17		—	
325	" 7	7 59	8 50.8	1.2	2 22		—	
326	" 11	20 47	20 48.4	0.2	0 4		—	
327	Dec. 9	10 8.5	10 26	0.4	0 37		—	
328	" 20	20 11	20 12.5	0.7	0 12		—	
329	" 24	0 11.3	0 25.5	0.6	0 45		—	
330	" 24	18 31.4	18 40	0.4	0 22		—	
331	" 28	8 7.1	8 32	1.0	0 41		—	
		July, August	Period, 17.5 seconds.	1mm.=0°.50.				
		Sept.-October	" 16.5 "	1mm.=0°.53-0°.49.				
		November	" 16 "	1mm.=0°.54-0°.57.				
		December	" 16.5 "	1mm.=0°.45.				

Register from Mahé, Seychelles, Indian Ocean. 4°5'S. 55°5'E.
Superintendent, G. U. SCOTT. Assistant, G. E. ATKINSON.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude		Dura-tion	Remarks
		H. M.	H. M.		MM.	H. M.		
1912								
57	Sept. 11	1 0	1 13	2.5	0 26		—	
64	Oct. 7	8 8	—	—	1 52		—	
67	Dec. 5	11 39	12 4	1.5	0 40		—	
		Period, 18 seconds.						
		1° turn = 6.5mm.						

Register from Royal Alfred Observatory, Mauritius. 20°6'S. 57°33'E.
Director, A. WALTER, F.R.A.S.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.				
1912							
1041	Jan. 1	23 40.5	23 42	—	—	0 5	E.W. Uncertain in N.S.
1042	" 3	—	11 13.5	—	—	—	E.W.
1043	" 4	3 46	3 54.4	0.6	—	0 30	E.W.
1044	" 4	3 46	3 55.8	0.8	—	0 23	E.W.
1045	" 4	16 6.3	12 30.7	—	—	1 46	E.W.
1046	" 5	16 5.3	8 5.4	—	—	1 45	N.S. Slight thickening.
1049	" 20	4 12.8	4 50.2	0.8	—	0 53	E.W.
1051	" 26	—	0 20.3	—	—	—	E.W. Time approx.
1052	" 26	—	15 16.5	—	—	—	E.W.
1056	" 31	13 10.1	13 14.2	0.4	—	0 12	E.W.
1057	" 31	2 50.1	21 25.2	0.5	—	1 21	E.W.
1062	Feb. 20	—	13 19.6	—	—	—	E.W.
1063	" 22	13 36.6	13 38.2	—	—	0 4	N.S.
1064	" 29	15 7.5	15 15.5	—	—	0 17	E.W.
1068	Mar. 24	12 38.1	12 39.6	—	—	0 4	E.W. Time approx.
1069	" 25	5 14.9	5 18	—	—	0 38	E.W.
1071	April 14	23 18.3	23 23.1	—	—	0 10	E.W.
1072	" 15	16 29	16 52.1	0.5	—	0 28	E.W.
1073	" 16	13 57.1	14 55.6	0.2	—	1 4	N.S.
1075	" 20	1 56.7	2 20.5	1.2	—	2 2	E.W.
1076	" 22	17 13.7	17 14.7	—	—	0 4	N.S.
1078	" 27	—	4 12.8	—	—	—	E.W.
1080	" 30	14 17.6	14 18.6	0.5	—	0 3	E.W.
1081	May 1	23 39	23 40.9	0.5	—	1 46	E.W.
1083	" 6	23 39.3	23 39.8	—	—	1 14	N.S.
1084	" 8	19 33.2	19 56.8	0.5	—	0 43	E.W.
1085	" 11	19 28.5	20 8.1	0.5	—	0 51	N.S.
1090	" 16	—	11 18.3	—	—	—	E.W.
1091	" 17	—	17 32	—	—	0 25	E.W. 2nd Max. 17-35.6.
1092	" 19	3 37.3	3 38	0.2	—	0 5	E.W.
1094	" 21	8 47.1	3 39.1	—	—	—	N.S.
1095	" 23	2 31.7	3 38	0.5	—	0 24	E.W.
1099	" 28	13 8.5	3 38	—	—	3 6	E.W.
1101	June 2	12 27.3	13 35.7	0.5	—	0 44	E.W.
1103	" 5	11 47.5	12 34.4	—	—	0 18	E.W. Times approx.
1105	" 7	11 2.2	11 8.3	0.5	—	0 13	E.W.
1106	" 7	10 55.5	11 21.4	0.4	—	3 26	E.W. 2nd Max. 11-46.1.
1108	" 8	18 50.2	18 53.1	—	—	1 42	N.S.
1109	" 8	18 50.4	18 53	—	—	1 42	E.W.
1110	" 8	—	8 48.2	1.5	—	—	N.S.
1111	" 10	14 2.2	8 54.5	0.6	—	—	E.W.
1112	" 12	12 30	10 0.2	—	—	—	N.S.
		17 13.1	10 6.3	—	—	—	E.W.
		17 12	14 12.2	0.6	—	0 54	E.W.
		12 29.4	17 20.1	0.7	—	0 57	E.W.
			17 28.4	0.7	—	0 56	E.W. 2nd Max. 17-33.2.
			14 2.4	0.2	—	2 18	E.W.
			14 4	—	—	2 11	N.S.

Register from Royal Alfred Observatory, Mauritius—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.				
1113	June 14	16 15	16 30.5	—	—	—	E.W.
1114	" 15	16 14.9	16 24.4	—	—	0 21	N.S.
1117	" 18	12 0.1	12 3.7	—	—	2 31	E.W.
			12 10.3	—	—	—	E.W.
			12 22.3	—	—	—	N.S.
			11 58.8	—	—	2 35	N.S.
1120	" 26	17 10	17 16.3	0.5	—	0 22	E.W.
1123	" 29	17 9.5	17 16.6	1.0	—	0 22	N.S.
1124	" 29	—	8 48.8	—	—	—	E.W.
			8 51.4	—	—	—	N.S.
1131	July 7	20 7.5	20 9.2	—	—	0 3	N.S.
			20 7.9	—	—	—	E.W.
			8 58.7	—	—	2 49	E.W. P ₂ 8-55.6.
			9 11.6	—	—	—	
			9 18.9	—	—	—	
1133	" 7	8 19.9	9 15.3	—	—	1 58	N. ;
1134	" 8	17 14.5	17 17.2	—	—	0 6	E.W.
1136	" 9	8 33.2	8 36.8	0.5	—	0 14	E.W.
			8 37.3	—	—	—	N.S.
1137	" 14	9 32.5	9 35.3	0.5	—	0 4	E.W.
1138	" 16	—	1 11.5	—	—	—	E.W.
1139	" 17	13 8.3	—	—	—	0 5	E.W.
1140	" 17	21 24.3	—	—	—	0 4	E.W.
1141	" 23	16 5.6	—	—	—	0 3	E.W.
1142	" 24	12 19.9	13 11.7	0.9	—	1 45	E.W. P ₂ 12-27.5.
			13 9.7	—	—	1 40	N.S.
1144	" 25	23 30.9	23 57.4	0.9	—	2 5	E.W.
			23 59.3	—	—	1 58	N.S.
1145	" 26	2 49.8	3 15.3	0.6	—	1 3	E.W.
			3 13.5	—	—	0 54	N.S.
1146	" 26	—	8 29.7	0.5	—	—	E.W. End 8-48.2.
			8 21.4	—	—	—	N.S.
1147	Aug. 4	22 18.6	22 24.5	—	—	0 14	E.W.
			22 18.6	—	—	—	N.S.
1149	" 6	13 41.8	13 47.9	0.5	—	0 31	E.W.
			13 47.9	—	—	0 28	N.S.
1150	" 6	21 27.4	22 9.3	1.1	—	1 19	E.W.
			22 9.1	—	—	1 0	N.S.
1152	" 9	1 46.3	—	—	—	3 9	E.W. P ₂ 1-49.2.
			1 41.2	—	—	3 2	N.S. P ₂ 1-49.4.
1153	" 10	9 45	—	—	—	0 40	E.W.
1154	" 10	22 33.7	22 36.1	0.6	—	0 10	E.W.
			22 36	—	—	0 13	N.S.
1156	" 17	19 14.4	19 52.1	—	—	2 12	E.W. P ₂ 19-49.1.
			19 51.5	—	—	1 57	N.S. P ₂ 19-32.8.
1157	" 18	—	8 21.4	—	—	—	E.W.
			8 19.4	—	—	—	N.S.
1159	" 19	16 49.2	16 51.3	—	—	0 51	E.W.
1160	" 21	—	11 8.2	—	—	—	E.W.
1161	" 21	17 42.4	18 7.1	0.5	—	0 45	E.W.
			17 44	—	—	0 32	N.S.
1162	" 23	14 21.9	14 29.2	0.5	—	0 24	E.W.
			14 29.4	—	—	0 17	N.S.
1163	" 23	22 0.4	22 8.9	0.3	—	0 19	E.W.
			22 0.7	—	—	0 20	N.S.
1164	" 24	—	1 29.5	—	—	—	E.W.
1166	Sept. 1	4 31.9	4 34.7	—	—	0 37	E.W.
1167	" 11	1 2.2	1 9.9	2.0	—	0 57	E.W.
			1 10.9	—	—	1.0	N.S.
1168	" 13	23 56.9	0 13	0.5	—	0 53	E.W.
1169	" 22	4 44.6	4 54.8	0.5	—	0 18	E.W.

Register from Royal Alfred Observatory, Mauritius—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H.	M.	H.	M.	MM.	H. M.
1170	Sept. 29	21	3.9	21	36.4	1.5	E.W.
		21	3.9	21	32.4	0.8	N.S.
1175	Oct. 12	15	54	16	35	—	E.W.
1176	" 12	—	—	20	23.7	—	E.W.
		—	—	20	23.2	—	N.S.
1183	" 31	17	46.3	18	14.6	—	E.W.
1184	Nov. 2	3	23	3	28	—	E.W.
1185	" 2	—	—	14	21.6	—	E.W.
1186	" 7	—	—	9	3.3	1.0	E.W. P ₂ 8-55.7.
		—	—	9	1.5	2.7	N.S.
1187	" 7	17	58.8	18	8.8	0.5	E.W.
1192	" 17	11	25	11	25.9	—	E.W.
1193	" 17	12	51	12	54.1	—	E.W.
1194	" 19	15	19.3	15	25	0.5	E.W.
1199	" 27	9	34	—	—	0.26	E.W.
1200	Dec. 1	8	59.5	9	4.7	1.0	E.W.
1201	" 5	13	45.6	—	—	0.4	E.W.
1202	" 7	23	11.9	23	17.6	0.5	E.W.
		23	11.7	23	18.5	0.5	N.S.
1203	" 9	8	50.8	9	55.4	1.5	E.W.
		9	10	9	55.3	—	N.S.
1204	" 17	—	—	0	31.5	—	E.W.
1206	" 24	0	18	0	35	1.0	E.W. P ₂ 0-32.
		—	—	0	39	—	—
		—	—	0	31	—	N.S.

Scale Values:—

January 1 to February 2	E.W.	N.S.
February 3 to February 20	0°.27.	0°.15.
February 20 to February 29	0°.23.	0°.14.
February 20 to February 29	0°.17.	0°.08.
March 1 to March 14	0°.22.	0°.08.
March 15 to March 31	0°.15.	0°.28.
April	0°.23.	0°.15.
May	0°.23.	0°.17.
June	0°.25.	0°.16.
July and August	0°.25.	0°.14.
September	0°.14.	0°.27.
October	0°.29.	0°.15.
November	0°.29.	0°.14.
December	0°.27.	0°.15.

Register from Royal Observatory, Cape of Good Hope. 33°56'S. 18°28'E.
Director, S. S. HOUGH, M.A., F.R.S.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H.	M.	H.	M.	MM.	H. M.
1912							
851	July 7	8	48.6	9	43.9	1.0	—
852	" 7	—	—	23	18.7	0.1	—
853	" 9	8	37.1	8	48.6	0.6	—
854	" 16	1	1.3	1	6.7	0.2	—
855	" 23	15	51.0	15	54.3	0.3	—

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

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H.	M.	H.	M.	MM.	H. M.
856	July 24	12	22.6	13	3.0	0.6	—
857	Aug. 9	1	50.4	2	11.5	5.2	—
		—	—	2	14.3	5.6	—
858	" 10	10	4.3	10	5.9	0.4	—
859	" 10	22	19.0	22	23.3	0.3	—
860	" 17	19	37.1	19	55.0	0.2	—
861	" 23	14	55.0	14	58.0	0.3	—
862	" 23	—	—	22	4.6	0.1	—
863	" 24	—	—	1	38.7	0.2	—
864	Sept. 11	1	26.0	1	33.5	0.1	—
865	" 14	0	7.5	0	13.3	1.0	—
866	" 29	21	12.0	21	21.2	0.3	—
867	Oct. 12	—	—	20	32.5	0.2	—
868	" 18	13	9.6	13	26.6	0.2	—
872	Nov. 2	3	36.4	3	45.4	0.3	—
873	" 7	—	—	22	12.2	0.1	—
874	" 7	8	12.3	8	28.3	0.3	—
875	" 7	—	—	18	37.0	0.1	—
876	" 27	—	—	9	34.7	0.2	—
877	Dec. 7	22	56.4	23	29.4	0.6	—
878	" 9	9	1.8	9	46.3	0.3	—

Imm. Boom Motion=0°.27.
Period, 19 seconds.

Register from Ascension Island. 7°57'S. 14°21'W.
F. MARX, Supt. Eastern Telegraph Co.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H.	M.	H.	M.	MM.	H. M.
1912							
65	July 7	8	30	9	6	1.5	—
66	" 9	8	47	8	50	1.5	—
67	" 10	3	13	3	14	2.5	—
68	" 14	9	1	9	2	4.5	—
69	" 17	20	50	20	50.5	2.0	—
70	" 24	12	11	12	21.5	3.5	—
71	Aug. 4	21	45.9	21	46.5	12.0	—
72	" 9	1	45.5	2	6.5	2.7	—
73	Sept. 10	14	14	14	15	1.0	—
74	" 11	1	52	1	56	1.0	—
75	" 16	20	4	20	5	0.5	—
76	" 29	21	10	22	48	2.0	—
77	Oct. 12	16	38	16	57	0.5	—
78	Dec. 3	6	31	6	32	1.0	—
79	" 7	23	3	23	35	—	—
80	" 9	9	21	9	34	—	—

Period, 18.8 seconds.
1° turn=6.5mm.

Register from Fernando Noronha. 3°50'S. 32°25'W.
Superintendent, C. E. HOLMES.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1912						
127	July 16	H. M.	H. M.	MM.	H. M.	—
128	" 17	—	21 23.2	—	—	—
129	" 19	—	21 3	0.9	1 15	—
130	" 20	—	13 18	0.1	—	—
131	" 23	15 58.5	13 47	0.9	—	End lost changing.
132	" 23	—	16 5	0.1	—	2nd Max. 16-12.2.
133	" 24	12 8.5	22 50	0.1	—	—
134	" 25	23 28	12 29.5	12.5	2 30	—
135	" 26	2 57	23 57	0.6	2 45	—
136	" 26	8 12	3 29	0.2	2 25	—
137	" 30	—	8 29	0.2	—	—
138	" 31	—	18 38.5	0.1	—	—
139	" 31	—	8 42	0.1	—	—
140	" 31	18 30	10 5	0.1	—	—
141	" 31	—	18 44.5	0.5	—	End in next eqke.
142	Aug. 1	—	19 52	0.3	—	End at 20-53.
143	" 2	—	18 49	0.1	—	—
144	" 4	21 39	18 44.5	0.1	—	—
145	" 6	—	21 58	0.5	2 25	—
146	" 6	—	14 21	0.1	—	—
147	" 9	1 41.5	22 19	0.1	—	—
148	" 10	—	2 12.2	4.0	3 0	P ₂ 1-50.2.
149	" 15	—	22 50.5	0.2	—	—
150	" 17	19 31	14 16	0.1	—	—
151	" 17	—	19 45.5	1.0	—	P ₂ 19-35.2.
152	" 18	—	20 6.2	1.2	—	—
153	" 18	—	3 51	0.1	—	—
154	" 18	—	8 30.5	0.1	—	2nd Max. 8-58.
155	" 18	—	13 57.5	0.1	—	—
156	" 18	—	19 12.5	0.1	—	—
157	" 19	—	17 8.5	0.1	—	—
158	" 21	—	11 53	0.1	—	—
159	" 21	—	18 13	0.1	—	—
160	" 22	—	8 46.5	0.1	—	—
161	Sept. 1	—	23 27	0.1	—	—
162	" 11	1 5	4 32.2	0.1	—	Time approx.
163	" 16	—	2 5	0.6	2 40	—
164	" 16	19 41	15 20	0.1	—	—
165	" 16	—	20 2.5	0.2	1 45	—
166	" 25	—	21 35.5	0.1	—	—
167	" 25	—	13 12.7	0.1	—	—
168	" 29	—	21 30.5	1.0	—	—
169	Oct. 1	—	22 38	1.0	—	—
170	" 10	—	6 14.5	0.1	—	—
171	" 12	15 40.5	18 54	0.5	—	P ₂ 18-49.3.
172	" 16	—	16 7	0.2	—	—
173	" 31	12 31	13 41	0.1	—	—
174	Nov. 2	—	12 36	0.7	—	—
175	" 2	—	3 57	1.0	—	—
176	" 22	—	5 3	0.5	—	With Ats.
177	" 25	9 34.5	1 25.5	0.1	—	—
178	" 27	9 28	9 48	0.1	—	End in Ats.
179	Dec. 1	8 20.5	9 47	0.7	1 22	—
180	" 4	—	9 17.5	0.2	—	—
181	" 6	—	6 26.3	0.1	—	—
182	" 7	22 57	15 35	0.1	—	—
183	" 9	0 27.3	23 2.7	2.0	—	End lost in changing paper.
			23 6	4.0	—	—
			23 10	3.0	—	—
			0 41.5	0.2	—	—

Register from Fernando Noronha—continued.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
184	Dec. 9	H. M.	H. M.	MM	H. M.	—
185	" 17	8 47	9 22	1.4	—	—
186	" 24	0 29.3	1 6	0.5	3 8	—
		—	0 15	0.3	—	With Ats.
Earthquakes were recorded on October 20, 21, November 7, 8, and 12, but, owing to the absence of time marks, they cannot be measured. Period, 16 seconds.						

Register from Toronto, Ont. 43°39'N. 79°23'W.
Director, R. F. STUPART, F.R.S.C.

No.	Date	Com- mence- ment	Max.	Max. Ampli- tude	Dura- tion	Remarks
1912						
1164	July 7	H. M.	H. M.	MM.	H. M.	—
1165	" 8	8 5.6	8 24.2	15.0	2 48	P ₂ 8-12.4, P ₃ 8-16.9.
1166	" 9	22 6.6	22 18.3	2.5	1 26	P ₂ 22-10.9, P ₃ 22-14.7.
1167	" 9	23 1.1	—	—	0 6	—
1168	" 19	13 16.3	—	0.2	0 8	—
1169	" 23	22 59.1	—	—	0 4	Peru.
1170	" 24	12 9.8	12 23.5	0.8	1 47	P ₂ 12-14.4.
1171	" 25	23 26.8	—	0.2	0 23	—
1172	" 26	0 2.6	0 6.9	0.3	0 11	P ₃ 23-43.2.
1173	Aug. 6	21 41.3	—	—	—	—
1174	" 6	22 13.4	—	0.2	—	—
1175	" 9	1 42.6	2 16.9	4.5	2 55	P ₂ 1-47.8, P ₃ 1-50.6.
1176	" 17	19 34	—	0.3	1 54	—
1177	" 18	21 21.9	21 26.8	0.8	0 32	P ₂ 21-26.7.
1178	" 23	14 57.7	—	0.2	0 8	P ₃ 15-0.
1179	" 31	23 5.7	—	0.2	0 51	—
1180	Sept. 1	4 41.1	—	0.7	0 32	—
1181	" 10	—	16 18.9	0.3	0 21	—
1182	" 11	2 15.7	—	0.1	0 6	—
1183	" 14	0 1	0 17.4	0.5	0 50	P ₂ 0-12. With Ats.
1184	" 20	21 43.6	21 49.1	0.3	0 27	P ₂ 21-46.8.
1185	" 28	12 30.4	—	—	0 6	—
1186	" 29	21 11.6	22 12.6	4.3	3 30	P ₂ 21-21.2, P ₃ 21-48.1.
1187	Oct. 12	15 32.8	16 1.5	0.8	1 38	P ₂ 15-38.3, P ₃ 15-53.7.
1188	" 17	10 45.9	11 4.0	0.3	1 5	P ₃ 11-1.3.
1189	" 18	12 14.2	12 32.6	2.3	1 43	P ₂ 12-22, P ₃ 12-27.3.
1190	" 20	10 43.8	10 47	0.2	0 18	P ₂ 10-44.8.
1191	" 26	10 6.1	—	—	0 32	—
1192	" 31	18 20.7	18 33.4	0.3	1 58	—
1193	" 7	7 49	8 1	5.4	3 1	P ₂ 7-55.9, P ₃ 7-59.2.
1194	" 7	16 57.3	17 3	0.9	0 40	P ₂ 16-59.8.
1195	" 7	17 42.2	17 48.4	1.5	1 9	P ₂ 17-44.8, P ₃ 17-47.5.
1196	" 13	1 35	—	0.2	0 29	—
1197	" 17	11 51	11 52	0.3	0 20	—

Register from Toronto, Ont.—continued.

No.	Date	Com-mence-ment		Max.		Max. Ampli-tude	Dura-tion	Remarks
		H. M.	N. M.	N. M.	MM.			
1199	Nov. 19	14 1	14 15.1	1.7	1 33	—	—	P ₂ 14-5.9, P ₃ 14-11.1.
1200	" 19	15 59.7	—	—	0 3	—	—	—
1201	" 22	1 12.8	—	0.2	0 18	—	—	Vancouver Island.
1202	" 25	9 11.6	9 18.3	0.5	0 20	—	—	P ₂ 9-17.2.
1203	" 26	6 50.2	—	—	0 4	—	—	—
1204	" 27	9 37.8	9 38.1	0.3	0 19	—	—	—
1205	Dec. 1	9 29	9 43.3	0.5	0 32	—	—	—
1206	" 5	12 38.5	12 48.1	0.4	1 13	—	—	P ₂ 12-43.4, P ₃ 12-47.
1207	" 7	22 55.4	23 6.7	1.2	1 16	—	—	P ₂ 23-6.1.
1208	" 9	0 34	0 44	0.4	—	—	—	P ₂ 0-38.3.
1209	" 9	8 38.2	8 51.7	7.2	2 16	—	—	P ₂ 8-42.6, P ₃ 8-45.
1210	" 17	0 31.4	—	0.3	0 28	—	—	P ₂ 0-35.9.
1211	" 17	10 43.8	—	—	0 10	—	—	—
1213	" 22	21 24.8	—	—	0 9	—	—	—
1214	" 22	23 39	23 42.6	0.3	0 27	—	—	—
1215	" 24	0 25.9	1 17.4	0.3	—	—	—	—
1217	" 28	8 36.4	—	—	0 2	—	—	—
1218	" 28	9 19.7	—	—	0 24	—	—	—

Period, July to September 20, 14.7 seconds.
 " September 20 to December 31, 17.7 seconds.
 1mm. = 0°.41.

Register from Victoria, B.C. 48°23'N. 123°19'W.
 Superintendent, E. BAYNES REID.

No.	Date	Com-mence-ment		Max.		Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.	N. M.	MM.			
1912								
1172	July 7	8 1.8	8 11.9	16.0	3 8	—	—	Alaska. P ₂ 8-5.8.
1173	" 8	21 59.3	22 6.7	4.0	1 36	—	—	P ₃ 22-3.9.
1174	" 9	23 1.1	—	—	0 10	—	—	—
1176	" 19	13 4.8	13 5.3	0.3	0 14	—	—	—
1177	" 23	22 58.6	—	—	0 5	—	—	—
1178	" 24	12 9.5	12 18.3	0.3	1 56	—	—	Peru. P ₃ 12-17.7.
1179	" 25	—	23 30.7	0.2	0 42	—	—	P ₃ 23-30.4.
1180	Aug. 6	21 33.7	21 36.1	0.2	0 24	—	—	P ₃ 21-34.6.
1181	" 6	—	22 16	0.1	1 23	—	—	P ₃ 21-59.1.
1182	" 9	1 49.8	2 26	4.0	2 39	—	—	P ₃ 1-52.6.
1184	" 17	19 25.4	19 39.3	0.4	2 13	—	—	P ₂ 19-29.5, P ₃ 19-36.3.
1185	" 18	21 19.1	—	—	0 2	—	—	—
1186	" 23	14 45.7	—	—	0 12	—	—	P ₃ 14-47.
1187	" 31	22 55.3	—	—	0 19	—	—	P ₂ 22-56.8.
1188	Sept. 1	4 31.8	—	0.3	0 52	—	—	—
1189	" 10	16 3.7	16 5.9	2.0	0 21	—	—	—
1190	" 11	2 2.5	—	0.05	0 7	—	—	—
1191	" 13	23 56.9	—	—	0 4	—	—	—
1192	" 14	0 12.	0 28.4	0.3	0 37	—	—	P ₂ 0-18.2.
1193	" 20	21 29.2	—	0.1	0 21	—	—	P ₃ 21-31.9.
1194	" 28	12 32.3	—	—	—	—	—	—

Register from Victoria, B.C.—continued.

No.	Date	Com-mence-ment		Max.		Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.	N. M.	MM.			
1195	Sept. 29	21 3.5	21 39.5	4.0	3 4	—	—	P ₂ 21-8.3, P ₃ 21-15.2.
1196	Oct. 12	15 30.7	15 47.3	0.8	1 38	—	—	P ₂ 15-34.4, P ₃ 15-42.6.
1197	" 18	12 4.5	12 15.7	1.1	1 52	—	—	P ₂ 12-7.7, P ₃ 12-10.9.
1198	" 20	10 34.9	—	—	0 22	—	—	—
1199	" 26	9 50.3	—	—	0 31	—	—	P ₂ 9-53.8.
1200	" 31	17 47.3	18 40	0.1	—	—	—	P ₃ 18-11.
1202	Nov. 2	14 4.5	—	—	0 33	—	—	—
1203	" 7	—	7 49.3	5.3	2 33	—	—	P ₂ 7-44.8, P ₃ 7-48.8.
1204	" 7	17 14.1	17 23.2	1.0	0 39	—	—	P ₂ 17-15.4, P ₃ 17-20.2.
1205	" 7	17 53.4	18 8.5	1.4	1 0	—	—	P ₂ 17-59.6, P ₃ 18-7.7.
1206	" 13	1 25	—	—	1 10	—	—	—
1207	" 17	12 3.4	12 11.1	0.2	0 16	—	—	P ₂ 12-10.3.
1208	" 19	14 1.7	14 14.5	9.2	1 21	—	—	P ₂ 14-3, P ₃ 14-13.6.
1209	" 19	15 51	—	—	—	—	—	—
1210	" 22	0 57.1	0 57.9	0.7	0 9	—	—	P ₃ 0-57.8. Vancouver.
1211	" 25	9 23.2	9 28.2	0.4	0 13	—	—	P ₃ 9-27.3.
1212	" 26	6 30.6	6 39.4	0.2	0 9	—	—	P ₃ 6-32.7.
1213	" 27	9 38.3	—	—	0 15	—	—	—
1214	Dec. 1	9 16.4	—	0.1	0 26	—	—	—
1215	" 5	12 31.9	12 39.4	1.4	0 41	—	—	P ₂ 12-37.2, P ₃ 12-37.9.
1216	" 7	23 6.2	23 13.3	0.4	0 41	—	—	—
1217	" 9	0 8.6	—	0.5	0 9	—	—	—
1218	" 9	0 25.5	0 30.9	0.3	0 14	—	—	—
1219	" 9	8 40.1	8 59.3	4.2	1 57	—	—	P ₂ 8-46.7, P ₃ 8-56.9.
1221	" 17	0 21.2	0 33.2	0.2	0 17	—	—	—
1222	" 17	10 53.3	10 56.4	0.2	0 6	—	—	—
1223	" 22	21 23.9	—	—	0 1	—	—	—
1224	" 28	8 32.4	—	—	0 34	—	—	—
1225	" 28	9 10.9	—	—	0 6	—	—	—

Period, July to September 20, 15 seconds.
 " September 20 to December 28, 18 seconds.
 1mm. = 0°.54.

Register from Adelaide Observatory, South Australia. 34°56'S. 138°35'E.
 Director, G. F. DODWELL, B.A., F.R.A.S.

No.	Date	Com-mence-ment		Max.		Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.	N. M.	MM.			
1912								
58	July 7	8 10	9 4.5	1.5	3 25	—	—	P ₂ 8-22.9.
59	" 17	12 33.6	12 42.1	1.0	0 35	—	—	—
60	" 18	—	22 8.6	0.5	—	—	—	—
61	" 25	23 13.7	23 30.1	3.5	1 47	—	—	—
62	" 26	—	2 46.1	7.2	2 30	—	—	Com. lost in changing.
63	" 26	7 48.3	7 59.6	3.1	1 31	—	—	P ₂ 7-52.9.
64	" 26	10 50.1	11 3.9	0.6	0 44	—	—	—
66	" 31	7 22.6	7 33	0.5	0 33	—	—	—

Register from Adelaide Observatory, South Australia—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.				
67	Aug. 4	19 5	19 20.4	0.8	0 58	—	—
68	" 6	13 46.3	14 12.2	0.5	1 5	—	—
69	" 6	21 17.9	21 36.5	3.2	2 10	P ₂ 21-23.1.	—
70	" 9	1 50.6	2 58.4	4.3	3 30	P ₂ 2-1.7.	—
72	" 15	17 28	17 32	0.5	0 40	—	—
73	" 17	—	19 41	4.2	4 3	P ₂ 19-25.6.	—
74	" 19	16 29.7	16 43.8	2.7	1 35	P ₂ 16-33.8.	—
75	" 21	10 23.9	10 35.1	0.8	1 0	—	—
76	" 21	—	17 56.2	0.7	—	P ₂ 17-44.	—
78	Sept. 1	4 13.5	4 30.1	1.5	2 5	P ₂ 4-21.1.	—
79	" 5	—	18 36	0.7	—	—	—
80	" 11	—	1 35.5	1.0	—	P ₂ 1-15.3.	—
81	" 17	—	19 7.9	0.7	—	—	—
82	" 22	4 42.7	4 53.1	0.6	1 23	—	—
83	" 26	19 23.1	19 35.7	0.6	0 52	—	—
84	" 29	—	20 21.6	0.5	—	2nd Max. 20-25.6.	—
85	" 29	—	21 15	8.0	—	P ₃ 21-5.5.	—
87	Oct. 2	2 27.4	2 38.4	0.7	1 17	—	—
90	" 12	15 45.2	16 22.3	0.8	—	—	—
91	" 17	10 0.3	10 11.5	0.7	—	End lost in changing.	—
92	" 18	—	12 53.5	0.5	—	—	—
93	" 20	9 47.1	9 56.9	1.2	1 20	—	—
95	Nov. 1	—	17 50.8	2.6	5 40	P ₃ 17-40.2.	—
96	" 7	—	18 45.6	0.6	—	—	—
99	" 14	—	18 19.1	0.5	—	—	—
101	" 19	—	15 5.3	0.6	—	—	—
104	Dec. 1	—	9 4.4	0.6	—	—	—
106	" 4	5 8.9	5 16.2	1.0	0 45	—	—
108	" 6	—	14 43.7	2.5	—	With Ats.	—
109	" 9	—	9 41.4	2.4	—	—	—
110	" 9	10 8.8	10 14.1	0.7	0 22	—	—
111	" 16	10 10.5	10 17.8	0.5	0 35	—	—
112	" 16	23 37.3	23 49.9	1.5	2 18	—	—
114	" 19	10 19.1	—	—	—	—	—
115	" 20	20 13.5	20 29	1.1	0 52	—	—
116	" 23	—	16 36	—	—	—	—
117	" 24	0 5.4	0 20.5	3.0	1 48	—	—
120	" 28	—	8 27.2	0.5	—	—	—

Period :
 July 1 to September 23, 16 seconds. 1mm.=0°.48.
 September 23 to November 22, 18.5 " 1mm.=0°.35.
 November 22 to December 23, 19 " 1mm.=0°.32.
 December 23 to December 31, 18 " 1mm.=0°.39.

Register from Sydney Observatory, New South Wales. 33°52'S. 151°12'E.
Director, W. E. COOKE; Observer, W. C. GRAHAM.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.				
1912							
751	July 7	8 16.3	8 53.9	0.9	3 3.8	—	—
752	" 7-8	23 14.7	—	—	—	Ats.	—
753	" 8	16 57.0	17 14.9	0.2	0 43.9	P ₃ 17-13.0.	—

Register from Sydney Astronomical Observatory, New South Wales—continued.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.				
755	July 17	12 34.4	12 39.7	0.6	0 45.3	P ₂ 12-36.7, P ₃ 12-39.0.	—
756	" 18	21 38.2	22 8.6	0.5	1 32.6	P ₃ 21-53.3.	—
757	" 24	12 23.3	13 6.0	0.6	2 5.7	—	—
758	" 25-26	23 13.9	23 27.1	1.0	1 45.2	P ₂ 23-18.3, P ₃ 23-20.9.	—
759	" 26	2 34.2	2 46.6	10.5	2 34.7	P ₂ 2-42.2, P ₃ 2-45.3.	—
761	" 26	7 46.4	8 0.6	5.3	1 29.1	P ₂ 7-53.5, P ₃ 7-59.1.	—
762	" 26	10 56.9	11 3.1	0.6	0 25.2	—	—
763	Aug. 6	13 46.8	14 11.8	0.8	1 29.2	P ₂ 13-55.3, P ₃ 14-8.8.	—
764	" 6	21 0.3	21 22.9	1.5	—	P ₂ 21-16.0, P ₃ 21-20.3.	—
766	" 9	1 51.1	2 51.6	10.1	3 37.0	P ₂ 2-3.2, P ₃ 2-46.6.	—
768	" 15	13 49.3	14 2.6	0.15	0 37.3	—	—
769	" 15	17 35.1	—	0.1	0 55.7	—	—
770	" 17	19 19.9	19 40.8	7.2	3 4.9	P ₂ 19-26.5, P ₃ 19-35.6.	—
771	" 19	16 27.2	16 36.5	0.6	1 35.8	P ₂ 16-59.6, P ₃ 16-35.7.	—
772	" 21	4 48.7	—	—	0 19.2	Ats.	—
773	" 21	10 16.6	10 22.7	0.2	1 9.3	P ₂ 10-21.6.	—
774	" 21	17 40.1	17 55.5	1.0	1 11.0	P ₂ 17-53.5.	—
776	Sept. 1	4 18.4	4 28.9	0.7	1 20.1	P ₂ 4-22.1, P ₃ 4-27.1.	—
778	" 5	18 25.8	18 37.6	0.4	0 48.0	P ₂ 18-34.0.	—
779	" 22	4 46.4	4 55.1	0.6	0 53.7	P ₂ 4-50.9, P ₃ 4-53.9.	—
780	" 26	19 19.7	19 34.2	0.4	0 48.5	—	—
782	" 29	20 50.6	21 17.0	10.5	10 42.1	P ₂ 21-1.3, P ₃ 21-9.4.	—
783	Oct. 12	15 44.5	16 14.3	0.5	1 48.0	—	—
784	" 17	9 58.5	10 5.6	1.5	1 16.3	P ₂ 10-2.6, P ₃ 10-4.7.	—
785	" 31	17 31.6	17 49.8	2.8	1 48.6	P ₂ 17-38.1, P ₃ 17-46.9.	—
787	Dec. 4	5 14.9	5 16.8	0.5	0 31.1	P ₂ 5-16.1.	—
788	" 6	14 39.1	14 47.1	2.0	1 18.9	P ₂ 14-42.3, P ₃ 14-46.6.	—
789	" 9	9 27.7	9 44.0	0.6	2 15.7	P ₂ 9-31.2.	—
791	" 16	10 4.1	10 12.4	0.4	0 26.8	P ₂ 10-7.9, P ₃ 10-10.9.	—

B.P.=20 seconds. D.V., 1mm.=0°.26.

Register from the Magnetic Observatory, Christchurch, N.Z. 43°31'S. 172°37'E.
Superintendent, HENRY F. SKEY.

No.	Date	Com-mence-ment		Max.	Max. Ampli-tude	Dura-tion	Remarks
		H. M.	H. M.				
1911							
1	April 6	9 55.1	10 1.3	0.3	0 14	With Ats.	—
2	" 7	7 33.2	7 36.5	0.2	0 50	2nd Max. 7-41.6.	—
3	" 11	13 40	13 41.9	1.5	0 24	With Ats.	—
4	" 13	10 14.7	10 18.3	1.1	0 19	—	—
5	" 15	4 59.9	5 5	2.5	0 50	P ₂ 5-2.5.	—
6	" 21	2 15.5	2 20.4	1.5	1 17	2nd Max. 2-33.	—
7	" 23	12 43.3	12 50.6	2.1	0 24	With Ats.	—
8	" 26	1 18.3	1 27.5	0.4	0 59	—	—
9	June 3	—	20 39.1	1.5	—	Com. lost in Ats.	—
			20 41.6	2.0	—	—	—
10	" 8	13 5.1	13 6.6	0.5	0 18	2nd Max. 13-12.6.	—
11	" 7	11 17.5	11 31.5	0.7	2 52	3rd Max. 12-9.5.	—
12	" 10	17 0.8	17 7.6	1.1	1 14	—	—

Register from the Magnetic Observatory, Christchurch, N.Z.—continued.

No.	Date	Commencement		Max.	Max. Amplitude	Duration	Remarks
		H. M.	H. M.				
13	June 15	14 36.4	14 46.9	5.5	3 8	—	Several Maxima.
14	" 28	19 57.3	19 40.4	1.5	0 28	—	—
15	July 12	4 19.1	4 38	2.1	3 36	—	P ₂ 4-28.2.
16	" 19	9 2.2	9 5.8	1.2	—	—	2nd Max. 9-7.3.
17	Aug. 6	1 26	1 28.6	0.4	0 17	—	—
18	" 10	0 33.4	0 45.9	0.4	0 31	—	—
19	" 16	22 51.2	23 18.3	9.0	4 40	—	P ₂ 22-59.8.
20	" 19	2 21.8	2 24.8	0.3	0 13	—	Duration approx. With Ats.
21	" 21	16 38	16 41.6	4.0	—	—	—
22	Sept. 6	1 17.9	1 20.7	0.6	1 12	—	—
23	" 12	—	14 7.7	1.5	—	—	With Ats.
24	" 15	13 44.8	13 48.8	2.0	0 11	—	—
25	Oct. 5	7 38.9	7 41.3	1.0	0 55	—	Shock at Hastings, N.Z.
26	Nov. 2	0 56.2	1 1.1	2.1	0 33	—	End uncertain.
27	" 16	11 45.9	11 47.9	1.7	0 11	—	—
28	" 30	10 29.2	10 33.2	11.5	0 27	—	With Ats.
29	Dec. 3	11 50.3	11 52	4.5	0 12	—	—
30	" 23	21 52.4	22 9	1.1	—	—	End in Ats.

After May 11, Period, 16.5 seconds.
Imm.=0°.4.

Register from the Honolulu Observatory. 21°19'N. 158°3'W.
Observer, O. H. GAARDEN.

No.	Date	First P.P. begin	Large waves begin	Max.	End	Max. Amplitude	Remarks
1076	July 7	8 5.9	8 15.5	8 18.0	11 54	17.6	2nd P.T. 8-12.2.
1077	" 7	23 2.0	23 11.3	23 12.2	23 45	0.2	2nd P.T. 23-7.2.
1078	" 8	17 0.4	17 16.5	17 19.0	17 30	0.1	2nd P.T. 17-9.6
1079	" 8	22 8.4	22 11.7	22 14.4	23 54	1.0	—
1080	" 17	12 40.0	12 52.1	12 55.0	13 18	0.4	2nd P.T. 12-47.6.
1081	" 18	21 35.8	22 2.7	22 25.0	23 0	0.1	2nd P.T. 21-47.2.
1082	" 24	12 12.1	12 21.7	12 23.3	15 1	1.2	—
1084	" 25	23 17.3	23 32.7	23 41.0	25 0	2.0	2nd P.T. 23-24.2.
1085	" 26	2 32.8	3 0.1	3 11.7	4 3	1.0	2nd P.T. 2-46.2.
1086	" 26	8 0.0	8 13.8	8 21.8	8 58	0.6	2nd P.T. 8-9.8.
1087	Aug. 1	18 21.2	18 29.6	18 33.6	19 10	0.1	—
1088	" 5	—	18 8.2	18 14.5	18 19	0.1	—
1089	" 6	14 3.0	14 21.0	14 25.0	15 5	0.1	2nd P.T. 14-12.8.
1090	" 6	—	16 50.0	16 55.0	17 5	0.1	—
1091	" 6	21 19.7	21 31.0	21 32.5	22 48	2.7	2nd P.T. 21-26.3.
1092	" 9	1 53.0	2 18.2	2 45.6	6 14	4.8	2nd P.T. 2-3.9.
1093	" 15	—	14 16.0	14 20.8	14 36	0.1	—
1094	" 17	19 23.7	19 48.1	19 58.6	23 7	4.0	2nd P.T. 19-33.3.
1095	" 18	8 2.8	8 15.0	8 20.5	8 52	0.1	—
1096	" 18	—	20 40.8	22 12.6	23 1	0.4	—
1097	" 19	16 30.6	16 45.2	16 52.3	17 29	0.5	2nd P.T. 16-37.6.
1098	" 21	—	10 27.7	10 40.6	11 15	0.3	—
1099	" 21	17 47.4	18 3.0	18 12.8	18 35	0.3	—
1100	" 23	—	14 33.5	14 54.3	15 16	0.2	—

Register from the Honolulu Observatory—continued.

No.	Date	First P.P. begin	Large waves begin	Max.	End	Max. Amplitude	Remarks
1102	Aug. 30	—	13 21.4	19 0.0	19 22	0.1	—
1103	" 31	22 32.9	22 45.0	22 53.3	23 56	0.3	2nd P.T. 22-38.5.
1104	Sept. 1	4 14.5	4 25.9	4 26.5	5 52	0.9	2nd P.T. 4-19.2.
1106	" 5	18 11.8	18 41.6	18 50.0	19 32	0.2	—
1107	" 10	—	16 14.4	16 20.0	16 23	0.1	—
1108	" 14	—	0 8.0	0 50.0	2 14	0.1	—
1109	" 17	—	19 5.4	19 28.0	19 89	0.1	—
1111	" 20	—	21 36.6	21 37.6	21 44	0.2	—
1112	" 22	—	5 27.5	5 39.5	6 15	0.3	—
1113	" 26	—	19 52.7	20 8.0	20 18	0.1	—
1114	" 29	21 2.5	21 20.0	21 28.3	24 4	17.3	2nd P.T. 21-11.2.
1115	Oct. 2	—	2 36.6	2 41.3	3 16	0.1	—
1116	" 12	15 28.3	15 36.0	15 42.9	17 24	2.0	2nd P.T. 15-33.9.
1117	" 3	—	16 15.0	16 15.8	16 22	0.1	—
1118	" 12	2.1	12 10.3	12 17.7	14 4	2.4	2nd P.T. 12-7.7.
1119	" 19	—	1 16.8	1 30.5	1 58	0.1	—
1120	" 26	9 10.8	9 28.4	9 33.4	10 19	0.7	2nd P.T. 9-17.7.
1121	" 29	—	6 44.7	6 51.0	7 12	0.2	—
1122	" 31	—	17 54.9	18 1.4	19 1	1.9	2nd P.T. 17-43.2.
1124	Nov. 2	—	13 31.2	13 50.0	14 30	0.3	—
1125	" 3	—	4 34.9	4 54.2	5 8	0.1	—
1126	" 3	6 25.2	6 39.7	6 46.4	7 12	0.2	—
1127	" 6	—	14 33.1	14 38.0	14 50	0.1	—
1128	" 7	7 47.8	7 53.2	7 56.5	11 32	16.5	—
1129	" 7	16 56.0	17 16.2	17 23.0	—	0.5	2nd P.T. 17-5.4.
1130	" 7	—	18 1.3	18 8.0	20 26	0.5	2nd P.T. 17-49.9.
1131	" 8	—	7 29.0	7 33.5	8 57	0.1	—
1132	" 17	—	12 3.8	12 8.5	12 26	0.1	—
1133	" 19	14 2.5	14 18.4	14 24.1	15 50	1.0	2nd P.T. 14-13.7.
1134	" 25	9 18.6	9 29.3	9 32.5	9 55	0.1	—
1135	" 27	—	9 33.8	—	10 20	0.1	—
1137	Dec. 1	8 46.1	9 2.3	9 7.5	9 42	0.3	2nd P.T. 8-57.5.
1138	" 5	12 38.0	12 42.9	12 43.5	13 37	1.1	2nd P.T. 12-40.9.
1139	" 6	—	14 58.2	15 4.0	15 41	0.4	2nd P.T. 14-45.7.
1140	" 7	—	23 35.3	23 37.7	24 44	0.6	—
1142	" 16	—	10 20.8	10 34.0	10 46	0.2	—
1143	" 16	23 47.8	23 59.3	24 2.2	24 35	0.5	—
1144	" 24	0 11.5	0 32.7	0 40.6	1 40	1.0	2nd P.T. 0-18.4.
1145	" 24	—	18 38.7	18 55.5	19 22	0.1	—
1147	" 28	7 4.5	7 21.6	7 56.7	8 50	0.5	—
1148	" 29	21 59.5	22 6.8	22 18.0	22 59	0.2	—

1076.—Recorded slightly by D variometer of magnetograph.
1078.—End of earthquake doubtful on account of occurring at the time of the daily adjustment of instrument.
1092.—Probable origin: Sea of Marmora.
1117.—Local shock; felt on all the islands; also recorded by D and H variometers of the magnetograph, beginning at 16-15.
1122.—First preliminary tremors obscured by oscillations of pendulums after winding up paper in the morning.
1125.—Phases not distinct.
1129-30.—First preliminary tremors of 1130 and end phases of 1129 confused by overlapping.
1135.—Series of small tremors; no phases.
1140.—Preliminary tremors hidden by oscillations to determine period of pendulum.
No record from December 3, 17-26, to December 4, 4-10.
Period of pendulum, 19 secs to 20 secs.
Sensitiveness, 0°.42 to 0°.46.