

COMPARISON
OF
HANSEN'S TABLES
WITH
OBSERVATIONS OF THE MOON
MADE AT THE
ROYAL OBSERVATORY, GREENWICH
FROM
JANUARY, 1851 TO DECEMBER, 1922.

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The regular observation of the position of the Moon has been carried out at Greenwich since the foundation of the Observatory in 1675. The results have been compared with successive theories of the Moon and have been continuously used for the verification and improvement of these theories and in the formation of new and better theories. Airy, in 1848, published in two volumes the reduction of the lunar observations from 1750–1830, which superseded previous reductions by their uniform treatment and the care with which instrumental errors were corrected. The same lunar theory was used throughout the whole period for the computation of tabular places with which the observations were compared. This great work was supplemented in 1859 by a similar reduction of the observations made in the period 1831–50. In the introduction to this latter work, Airy remarks: "We may hope before the completion of these reductions to receive the lunar tables on which Professor Hansen is engaged. We should then have arrived at a time at which one good old theory may with propriety be abandoned and another better new theory be taken up. The connection of one set of results with the other, when they are referred to theories which are presented in their natural form, is a matter of trifling difficulty."

A similar situation is presented at the present time. Ephemerides based on Hansen's theory and tables have been given in the *Nautical Almanac* from 1862 to 1922, and with these the observations have been compared. The comparison of the observations for the interval 1847 to 1861 with Hansen's tables was made under Adams' direction and published in the *Monthly Notices of the Royal Astronomical Society*, Vol. 50. There is thus a long period of 72 years for which the observations with one instrument may be compared with one theory. From the beginning of 1923 the Ephemerides of the Moon given in the *Nautical Almanac* are derived from the new and more accurate theory and tables of Professor Brown, which have superseded those of Hansen as his superseded previous theories. The present time is therefore a suitable occasion for publishing in a concise and uniform manner a comparison between the results of observation and Hansen's theory of the Moon.

The present publication might not have been made, and certainly would not have been presented in the same manner, had it not been for the researches made by Dr. Cowell at Greenwich. The results of these investigations are given in a series of papers in the *Monthly Notices of the Royal Astronomical Society* extending from November, 1903, to June, 1905. In the course of this work Dr. Cowell collected from Greenwich volumes the tabular errors of the Moon in longitude and latitude from the beginning of 1851 to June 18, 1901. These he arranged in a form which made it easy to apply a number of corrections which were known to be required by Hansen's tables. In the manuscript formed by Dr. Cowell there are 40 lines to the page, the lines corresponding to successive transits of the Moon over the Meridian of Greenwich. On days when no observation is made a blank is left opposite the number. The advantages

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arising from this arrangement are explained in Dr. Cowell's papers in the *Monthly Notices*. The same method was pursued in the collection of the observations from June, 1901, to December, 1922.

From the year 1883 onwards the tabular positions of the Moon given in the Nautical Almanac have contained a correction determined by Newcomb for a long inequality in the movement of the Moon as yet unaccounted for by theory. In addition, the erroneous Venus-term of Hansen was omitted, and the mean motion and secular acceleration were altered. For uniformity Newcomb's formula was applied by Cowell to the observations before 1883. Cowell also corrected an error of sign in Hansen's tables, which was not put right in the Ephemerides till 1883. He also applied the following corrections to the tabular places :—

$$\begin{aligned}
 &+ 1''.562 \sin D \\
 &- 0.893 \sin (g + 2\varpi - 2J) \\
 &- 0.676 \sin (g + 2\varpi + 3V - 5E) \\
 &- 0.548 \sin g \\
 &- 0.246 \sin (2D - g) \\
 &+ 0.55 \sin g^1 \\
 &- 0.55 \sin (g - D) \\
 &+ 0.316 \sin (g + 2\varpi - 3J + 7^\circ) \\
 &+ (N + \Delta g + 4''.06 \sin \Omega) 2e \cos g.
 \end{aligned}$$

Where g, g^1 = are the mean anomalies of the Moon and Sun.

ϖ = the mean longitude of the Moon's Perigee.

D = is the mean elongation of the Moon from the Sun.

V, E, J = are the mean longitudes of Venus, Earth, Jupiter.

The numerical values of these quantities and the reasons for applying the terms to Hansen's tabular longitudes are given by Cowell in the *Monthly Notices*, March, 1904. Hansen's Tabular Semi-diameter was diminished by $0''.4$ from 1851 to 1901 June 10. Since then analysis has shown that this correction is no longer required and it has not been applied.

In the last term, N denotes Newcomb's correction to Hansen's mean longitude of the Moon. It is taken as zero since 1883, being included in the tabular positions published by the Nautical Almanac. The quantity Δg is a correction to the mean anomaly determined by Cowell. Its value is :—

$$\Delta g = + 4''.63 - 13''.99T + 4''.743T^2, \text{ when } T \text{ is reckoned in centuries from } 1800.0. \quad 2e = 0.1098.$$

These same formulæ were applied to give corrections to the tabular longitudes from 1901 June to the end of 1922.

In addition to these corrections to Hansen's tabular positions, the observed right ascensions and declinations have been corrected so as to bring them as far as possible to a uniform system, and the corrections carried through to the longitudes and Ecliptic North Polar Distances. This applies to the whole period from 1851 to 1923.

(1) The right ascensions have been reduced to the system of Newcomb's Fundamental Catalogue. This involved the determination of the systematic corrections required by the different annual catalogues to bring them to Newcomb's system.

The corrections required to bring the annual catalogues to accord with the General Greenwich Catalogues, of which they are component parts, were combined with the systematic corrections of the general catalogues determined by Newcomb.

(2) The declinations have been corrected by the quantities given by Newcomb in *American Ephemeris Papers*, 2, 450–2. Since 1887 these corrections have been made by direct comparison of successive Greenwich Catalogues with Newcomb's Fundamental Catalogue.

(3) For the obliquity of the Ecliptic a uniform system has been used, Newcomb's values given in *American Ephemeris Papers*, 9, 47, being adopted.

(4) The parallax of the Moon used in the reduction of declinations has been increased by $0''.40$ (*American Ephemeris Papers*, 9, 44).

(5) For the period 1862 to 1883 a correction has been applied to correct for the erroneous tabular mean time used in forming the Ephemeris at transit. This correction had already been applied before 1862 and from 1884 onwards.

These corrections are generally small and do not in the aggregate amount to much in any single observation. They are, however, of a systematic character. Thus a difference in the equinox correction in a clock star list is carried through into all observations of the Moon's right ascension. Similarly, changes in the refraction tables employed are carried through into all the declinations.

The observations from 1851, when the transit circle was brought into use, were all made with that instrument till 1901 June 10. From 1901 June 21 meridian and extra-meridian observations made with the new altazimuth, erected in 1899, are included, and when made on the same day combined with those made with the transit circle. The separate results may be found in the annual Greenwich volumes.

From the year 1905 observations have been made of the crater Mösting A, as well as of the limbs, when possible. These have been combined with the observations of the limbs.

The observations from 1851 to 1854 March were made by eye and ear. The method of registering the times of the transit over fixed wires on a chronograph by the observer completing an electric circuit by means of a tapping-piece was introduced in 1854 March 27, and superseded by a moving wire micrometer in 1913 for the altazimuth and 1915 for the transit circle.

For convenience in facilitating analysis, the lunar day as well as the date is given for each observation. The quantities given are in the sense "Tabular—Observed" where "Tabular" denotes the position derived from Hansen's tables, corrected as explained above.

The annual means derived from the above tables are given in the following table. The third column gives the difference of the observed longitude (Tab.—Obs.) from Hansen's tables with Newcomb's correction. The fourth column gives the mean difference between Brown and Hansen with Newcomb's corrections (B.—H.N.). The next column δT gives the correction to change from the secular acceleration as derived from gravitational theory, used by Brown, to that derived from early total eclipses by Cowell and corrected by Fotheringham from these and other ancient astronomical observations.

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The correction B.—H.N. is derived from two papers by Professor Brown; in the *Monthly Notices of the Royal Astronomical Society*, Vol. 73, up to 1910, and in *Astronomical Journal*, No. 799, for subsequent years.

The correction δT , including besides a correction to the secular acceleration consequential changes in the mean motion and the long inequality, is taken from a paper by Dr. J. K. Fotheringham in the *Monthly Notices*, Vol. 79.

In addition to the papers already cited, special reference should be made to two by Professor Brown in the *Monthly Notices of the Royal Astronomical Society*, Vol. 73, No. 9 (Longitude), and Vol. 74, No. 3 (Latitude).

The residuals in longitude in the following table have been analysed in a paper in the *Monthly Notices*, Vol. 83, No. 6. The analysis is extended to include the observations between 1750 and 1850.

ANNUAL MEANS of the OBSERVED DIFFERENCES of the MOON'S LONGITUDE and ECLIPTIC NORTH POLAR DISTANCE from the TABULAR VALUES.

Year.	Days of observation.	Long.	Br—H.N.	δ T.	Tabular—Observed.		Year.	Days of observation.	Long.	Br—H.N.	δ T.	Tabular—Observed.	
					Corrected Long.	E. N. P. D.						Corrected Long.	E. N. P. D.
1851	109	-2.71	-0.33	-0.58	-3.62	+0.33	1888	74	+0.47	+1.92	+0.53	+2.92	0.00
52	109	-2.32	-0.32	-0.58	-3.22	+0.49	89	81	-0.29	+2.09	+0.60	+2.40	+0.33
53	104	-3.01	+0.26	-0.58	-3.33	+0.66	90	96	-0.16	+1.68	+0.67	+2.19	-0.09
54	121	-3.40	+0.20	-0.58	-3.78	+0.61	91	80	+0.95	+1.53	+0.75	+3.23	+0.30
55	93	-2.80	-0.43	-0.57	-3.80	+0.64	92	100	+0.71	+2.21	+0.82	+3.74	+0.55
56	93	-3.32	+0.10	-0.56	-3.78	+0.66	93	128	0.00	+2.96	+0.89	+3.85	+0.31
57	114	-4.25	+1.27	-0.55	-3.53	+0.25	94	89	-0.92	+3.41	+0.97	+3.46	+0.11
58	128	-4.68	+1.78	-0.54	-3.44	+0.64	95	129	-1.33	+3.56	+1.06	+3.29	+0.24
59	125	-5.17	+2.16	-0.54	-3.55	+0.48	96	111	-1.67	+4.19	+1.15	+3.67	+0.69
60	104	-6.22	+2.55	-0.53	-4.20	+0.55	97	95	-2.46	+4.66	+1.24	+3.44	+0.47
61	113	-6.25	+3.17	-0.52	-3.60	+0.72	98	103	-2.58	+3.98	+1.32	+2.72	+0.60
62	85	-6.20	+2.02	-0.50	-4.68	+0.30	99	116	-2.07	+3.22	+1.41	+2.56	+0.41
63	115	-5.30	+0.91	-0.48	-4.87	+0.24	1900	114	-2.54	+3.10	+1.51	+2.07	+0.30
64	110	-4.12	+0.55	-0.46	-4.03	+0.29	01	117	-2.49	+2.94	+1.61	+2.06	+0.47
65	109	-3.72	+0.46	-0.44	-3.70	+0.08	02	112	-3.36	+2.73	+1.71	+1.08	+0.45
66	107	-2.65	-0.03	-0.42	-3.10	+0.26	03	145	-3.11	+2.71	+1.81	+1.41	+0.56
67	89	-1.80	-0.36	-0.40	-2.56	+0.57	04	128	-4.07	+3.29	+1.92	+1.14	+0.87
68	125	-1.87	-0.14	-0.38	-2.39	+0.60	05	129	-5.42	+3.54	+2.03	+0.15	+0.65
69	92	-2.17	+0.56	-0.35	-1.96	+0.20	06	140	-5.55	+3.13	+2.14	-0.28	+0.71
70	102	-2.06	+0.54	-0.32	-1.84	+0.26	07	121	-5.56	+2.75	+2.25	-0.56	+0.42
71	105	-0.57	-0.04	-0.30	-0.91	+0.43	08	125	-5.98	+3.00	+2.36	-0.62	+0.53
72	109	-0.66	+0.14	-0.27	-0.79	+0.39	09	140	-6.53	+3.46	+2.48	-0.59	+0.34
73	94	-0.25	+0.77	-0.24	+0.28	+0.31	10	117	-7.97	+3.67	+2.60	-1.70	+0.11
74	117	+0.37	+0.98	-0.20	+1.15	+0.55	11	135	-8.40	+3.97	+2.72	-1.71	+0.22
75	94	+0.29	+1.28	-0.15	+1.42	+0.12	12	112	-9.89	+4.92	+2.85	-2.12	-0.13
76	82	+0.01	+1.71	-0.11	+1.61	+0.72	13	107	-11.71	+5.80	+2.99	-2.92	+0.30
77	103	-1.16	+2.54	-0.07	+1.31	+0.56	14	122	-12.55	+5.88	+3.12	-3.55	+0.52
78	89	-2.18	+3.87	-0.03	+1.66	+0.59	15	116	-12.66	+5.71	+3.25	-3.70	+0.60
79	84	-1.55	+3.30	+0.02	+1.77	+0.65	16	104	-13.64	+5.95	+3.38	-4.31	+0.59
80	100	-1.75	+3.23	+0.07	+1.55	+0.55	17	122	-14.02	+5.92	+3.52	-4.58	+0.35
81	100	-1.95	+3.24	+0.12	+1.41	+0.22	18	106	-13.21	+5.47	+3.67	-4.07	+0.35
82	103	-0.99	+2.48	+0.18	+1.67	-0.30	19	103	-12.52	+5.10	+3.82	-3.60	+0.40
83	98	-0.08	+1.85	+0.23	+2.00	-0.17	20	114	-13.01	+5.05	+3.97	-3.99	+0.43
84	97	-0.06	+2.05	+0.28	+2.27	-0.07	21	118	-13.08	+4.81	+4.11	-4.16	+0.63
85	99	-0.21	+2.34	+0.34	+2.47	+0.24	22	105	-13.13	+4.63	+4.25	-4.25	+0.52
86	91	+0.10	+2.30	+0.41	+2.81	+0.27							
87	103	+0.13	+1.85	+0.47	+2.45	+0.19							

It should be noted that the quantity Br—H.N. does not contain all the periodic terms in Brown's tables, but only those of fairly long period. The one year for which a complete comparison between the two Tables is available is 1923, for which Br—H.N. is +5".04 (M.N.R.A.S. Vol. 79, No. 5.)

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1851				1851				1851-2			
Jan. 8	35401	- 21	+ 9	July 7	35575	- 47	+ 4	Nov. 16	35703	- 40	- 19
9	402	- 10	+ 11	10	578	- 32	+ 4	17	704	+ 7	- 20
18	411	- 47	- 22	12	580	- 21	+ 15	22	14 ^h ●		
21	414	- 49	- 9	14	582	- 8	- 13	29	35715	- 80	- 15
22	415	+ 11	- 7	15	583	- 31	+ 5	30	716	- 27	- 19
24	417	- 27	- 20	17	585	- 37	+ 27	Dec. 2	718	- 23	+ 19
26	419	- 27	+ 50	18	586	+ 6	+ 7	5	721	- 62	- 56
31	18 ^h ●			20	588	- 1	+ 11	7	723	- 27	- 2
				21	589	+ 16	- 1	8	724	- 67	- 6
Feb. 8	35431	- 6	- 4	28	3 ^h ●			10	726	- 14	+ 6
10	433	- 54	- 59					11	727	- 39	+ 11
11	434	- 50	0	Aug. 3	35601	- 42	+ 8	22	4 ^h ●		
13	436	- 14	+ 12	5	603	+ 5	- 2	30	35745	- 41	+ 2
14	437	- 34	+ 35	7	605	- 59	- 2	Jan. 3	749	- 30	+ 9
15	438	- 25	- 5	8	606	- 18	+ 3	4	750	- 23	- 3
16	439	- 25	+ 26	11	609	- 10	+ 2	5	751	- 39	+ 3
21	444	- 40	+ 10	12	610	- 29	- 8	6	752	- 34	+ 13
22	445	- 20	- 1	13	611	- 10	+ 24	7	753	- 20	+ 9
				15	613	+ 2	+ 21	9	755	- 33	- 7
March 2	13 ^h ●			18	616	- 21	+ 13	11	757	- 35	+ 17
11	35461	- 63	- 2	20	618	+ 5	- 14	20	19 ^h ●		
13	463	- 11	+ 6	26	10 ^h ●			25	35770	- 29	- 5
14	464	- 55	+ 21	31	35628	- 52	- 5	26	771	- 20	+ 32
16	466	- 15	+ 25					28	773	- 28	+ 3
18	468	- 21	- 8	Sept. 3	631	- 8	+ 2	29	774	- 19	- 11
20	470	- 52	+ 20	8	636	- 43	+ 9	30	775	- 24	- 9
				9	637	- 24	+ 15				
April 1	7 ^h ●			10	638	- 21	+ 13	Feb. 1	777	- 34	- 15
9	35489	- 30	- 1	11	639	- 53	- 5	2	778	- 27	+ 52
10	490	- 59	+ 11	12	640	+ 8	+ 28	3	779	- 32	+ 17
12	492	- 37	+ 4	13	641	+ 14	+ 20	6	782	- 8	- 6
13	493	- 45	+ 18	14	642	- 4	+ 19	9	785	- 17	- 9
14	494	- 5	- 8	15	643	- 68	+ 7	11	787	- 34	0
17	497	- 28	+ 18	17	645	- 63	- 6	19	13 ^h ●		
18	498	- 8	+ 29	24	18 ^h ●			25	35800	- 21	- 7
20	500	- 41	+ 10	30	35657	- 20	- 29	27	802	- 30	- 6
30	21 ^h ●			Oct. 2	659	+ 1	- 29	29	804	- 46	- 5
				3	660	- 25	- 11				
May 8	35517	- 36	+ 7	4	661	- 9	- 3	Mar. 2	806	+ 1	+ 35
10	519	- 36	- 10	5	662	- 29	- 9	3	807	- 31	+ 16
13	522	- 42	+ 20	8	665	- 28	+ 33	4	808	- 12	+ 4
14	523	- 26	+ 30	10	667	+ 31	+ 29	5	809	- 14	+ 13
15	524	+ 1	+ 6	11	668	+ 8	+ 10	6	810	- 34	+ 22
19	528	- 31	+ 31	14	671	- 15	- 21	20	7 ^h ●		
22	531	- 23	+ 6	15	672	- 88	- 5	28	35831	- 45	+ 1
23	532	- 8	- 60	16	673	- 60	+ 24	30	833	+ 32	- 13
30	9 ^h ●			17	674	+ 1	- 8				
				18	675	- 54	+ 16	Apr. 1	835	- 32	+ 23
June 13	35552	- 10	- 6	24	3 ^h ●			2	836	- 7	- 3
14	553	- 21	+ 32	30	35686	- 29	- 12	3	837	- 9	+ 14
16	555	- 31	+ 12	Nov. 1	688	- 28	- 6	4	838	- 14	+ 38
17	556	- 26	+ 11	2	689	- 22	+ 13	5	839	- 24	+ 31
18	557	- 13	- 14	3	690	- 29	+ 10	18	24 ^h ●		
20	559	- 9	+ 22	4	691	- 16	+ 21	26	35859	- 52	- 3
22	561	- 25	- 4	6	693	- 29	- 6	27	860	- 61	+ 5
28	18 ^h ●			7	694	- 41	- 3				
				14	701	- 23	- 1	May 1	864	- 30	+ 7
July 3	35571	- 70	- 11	15	702	- 75	+ 9	2	865	- 24	+ 39

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1852				1852-3				1853			
May 3	35866	- 21	+ 28	Oct. 24	36034	- 20	+ 15	Mar. 23	36179	- 36	+ 19
4	867	- 42	- 6	25	035	- 15	+ 2	24	180	- 2	+ 18
7	870	- 26	+ 8	26	036	- 17	+ 30	25	181	- 32	+ 14
18	15 ^h ●			28	038	- 19	+ 5	26	182	- 51	- 14
24	35886	- 46	- 3	29	039	- 17	+ 8	27	183	- 34	+ 18
31	893	- 23	0	31	041	- 24	- 11	28	184	- 55	+ 26
								29	185	- 60	+ 10
June 4	897	- 35	- 17	Nov. 2	043	- 43	+ 4	30	186	- 26	+ 16
17	5 ^h ●			3	044	- 37	- 15	31	187	- 11	- 45
22	35914	- 55	- 28	11	5 ^h ●						
26	918	- 42	- 14	17	36057	- 77	- 12	Apr. 1	188	- 43	+ 56
27	919	- 47	+ 2	18	058	- 49	+ 12	7	24 ^h ●		
29	921	- 33	+ 6	24	064	- 13	+ 15	17	36203	- 16	- 2
				26	066	- 27	- 8	20	206	- 52	+ 20
July 1	923	- 37	+ 6	27	067	- 33	- 13	23	209	- 50	+ 18
2	924	- 26	+ 38	28	068	- 35	+ 6	26	212	- 50	0
3	925	- 54	+ 23	29	069	- 31	+ 15	27	213	- 27	- 6
4	926	+ 3	+ 14	30	070	- 41	+ 2				
6	928	0	+ 8								
8	930	- 2	+ 9	Dec. 2	072	- 16	+ 10	May 7	16 ^h ●		
9	931	- 15	- 8	10	16 ^h ●			14	36229	- 17	- 6
10	932	- 12	+ 10	15	36084	+ 2	- 17	16	231	- 32	+ 14
16	16 ^h ●			17	086	- 12	+ 4	18	233	- 40	+ 14
23	35944	- 40	- 3	18	087	- 27	+ 17	19	234	- 55	+ 16
27	948	- 4	- 3	20	089	- 45	- 3	20	235	- 36	- 3
30	951	- 48	0	21	090	- 4	+ 6	21	236	- 51	+ 33
31	952	- 25	+ 20	27	096	- 37	- 3	22	237	- 32	+ 24
				28	097	- 46	+ 25	23	238	- 61	+ 33
Aug. 2	954	+ 1	- 4	30	099	- 34	+ 17	25	240	- 21	+ 20
3	955	- 7	+ 21					26	241	- 46	+ 33
4	956	+ 28	+ 21	Jan. 3	103	- 56	+ 2				
7	959	+ 35	- 38	4	104	- 51	+ 15	June 6	8 ^h ●		
9	961	- 26	+ 4	9	4 ^h ●			14	36259	- 35	+ 4
15	2 ^h ●			15	36114	- 7	+ 6	16	261	- 38	+ 2
22	35973	- 39	- 7	18	117	- 12	+ 1	17	262	- 22	+ 4
26	977	+ 17	+ 7	20	119	- 6	- 7	18	263	- 44	- 8
28	979	- 16	+ 17	21	120	- 35	- 10	21	266	- 49	+ 8
29	980	- 15	+ 15	22	121	- 47	- 2	23	(268)	(+ 3)	(- 74)
30	981	- 5	+ 10	23	122	- 7	+ 7	28	273	- 26	+ 10
31	982	- 7	+ 6	26	125	- 55	+ 9				
				30	129	- 78	- 15				
Sept. 1	983	- 2	+ 22	31	130	- 60	+ 49	July 5	23 ^h ●		
2	984	+ 4	+ 15					11	36285	- 17	+ 8
13	11 ^h ●			Feb. 7	18 ^h ●			12	286	- 44	+ 3
23	36004	- 13	- 8	14	36143	+ 9	+ 2	15	289	- 75	+ 12
24	005	- 29	- 11	15	144	- 21	- 29	17	291	- 60	+ 27
25	006	- 30	+ 34	16	145	- 1	- 6	19	293	- 4	+ 4
29	010	+ 9	+ 18	19	148	- 4	+ 13	22	296	- 19	+ 24
				21	150	- 4	- 4	24	298	- 10	+ 32
Oct. 2	013	- 15	- 1	23	152	- 40	+ 19	28	302	- 5	- 16
3	014	+ 9	- 17	27	156	- 58	+ 1				
4	015	- 21	- 10	28	157	- 45	0	Aug. 4	12 ^h ●		
6	017	- 23	- 16					9	36313	- 23	+ 14
12	19 ^h ●			Mar. 9	8 ^h ●			10	314	- 32	+ 9
18	36028	- 63	- 11	18	36174	- 35	+ 3	11	315	- 28	+ 4
19	029	- 18	- 18	19	175	- 19	- 2	13	317	- 18	- 3
20	030	- 4	- 23	20	176	- 11	+ 12	17	321	- 17	+ 17
23	033	- 10	+ 11	22	178	- 36	+ 19	18	322	- 59	- 9

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1853-4				1854				1854			
Aug. 23	36327	- 44	- 11	Feb. 12	36494	- 38	0	July 13	36640	- 22	+ 2
24	328	- 12	+ 18	13	495	- 36	+ 20	17	644	- 23	+ 15
25	329	- 19	- 13	17	499	- 24	+ 7	18	645	- 42	- 10
26	330	- 33	- 5	18	500	- 39	+ 12	24	15h ●		
27	331	- 25	- 13	26	17h ●						
Sept. 2	24h ●			Mar. 2	36511	- 39	+ 53	Aug. 6	36663	- 44	+ 20
10	36344	- 62	+ 24	3	512	- 23	+ 12	8	665	- 30	- 4
13	347	- 27	- 26	5	514	- 41	+ 1	10	667	- 22	- 7
16	350	- 15	+ 5	6	515	- 38	+ 3	11	668	- 40	- 2
17	351	- 30	- 14	9	518	- 57	- 10	12	669	- 13	- 1
18	352	- 33	0	10	519	- 47	- 5	13	670	- 12	- 5
20	354	+ 18	+ 39	11	520	- 34	+ 13	14	671	- 34	- 11
21	355	- 12	+ 14	12	521	- 28	- 9	23	6h ●		
23	357	- 45	+ 2	13	522	- 37	- 14	29	36685	- 59	- 17
25	359	- 48	+ 4	16	525	- 31	+ 18	Sept. 1	688	- 67	+ 23
Oct. 2	10h ●			17	526	- 26	+ 35	2	689	- 43	- 2
9	36372	- 30	+ 8	19	528	- 43	+ 22	3	690	- 49	- 3
14	377	+ 12	+ 10	28	5h ●			4	691	- 22	- 8
15	378	- 13	+ 2	Apr. 1	36540	- 44	+ 21	5	692	- 21	+ 9
16	379	- 13	+ 22	4	543	- 39	+ 8	6	693	- 17	+ 33
18	381	- 44	- 8	5	544	- 36	0	9	696	- 22	+ 1
20	383	- 30	+ 4	6	545	- 43	- 12	10	697	- 29	+ 29
23	386	- 64	+ 8	7	546	- 25	- 3	11	698	- 9	+ 18
24	387	+ 1	- 2	8	547	- 31	- 4	21	20h ●		
25	388	- 54	+ 19	9	548	- 50	+ 10	28	36714	- 111	- 40
26	389	+ 20	+ 1	10	549	- 16	+ 30	29	715	- 94	- 4
31	21h ●			11	550	- 43	+ 18	30	716	- 66	+ 2
Nov. 9	36402	- 2	+ 28	13	552	- 26	+ 14	Oct. 1	717	- 58	- 6
10	403	- 22	- 1	14	553	- 56	+ 31	2	718	- 42	+ 18
11	404	- 5	+ 20	15	554	- 34	+ 34	3	719	- 54	+ 11
16	409	- 3	- 4	17	556	- 37	+ 7	4	720	- 67	+ 45
17	410	- 44	0	18	557	- 2	+ 27	7	723	- 49	- 12
18	411	- 39	- 3	26	18h ●			8	724	- 21	- 4
19	412	- 30	+ 9	May 4	36572	- 45	- 11	9	725	- 20	- 27
20	413	- 52	- 16	5	573	- 43	- 27	11	727	- 19	- 2
21	414	- 41	- 28	6	574	- 44	- 16	12	728	- 65	+ 14
30	7h ●			7	575	- 85	- 6	21	9h ●		
Dec. 8	36430	- 3	- 1	8	576	- 30	+ 4	28	36743	- 49	+ 1
12	434	- 18	+ 15	10	578	- 29	- 7	29	744	- 28	- 1
25	447	- 28	+ 20	11	579	- 65	+ 17	30	745	+ 3	+ 11
29	18h ●			12	580	- 43	+ 19	31	746	- 35	+ 7
Jan. 5	36457	- 37	+ 11	15	583	- 21	+ 9	Nov. 2	748	- 45	- 4
8	460	- 35	- 15	18	586	- 2	+ 53	3	749	- 19	+ 8
19	471	- 4	+ 22	19	587	- 34	- 7	5	751	- 20	+ 3
20	472	- 17	+ 18	26	9h ●			6	752	- 39	+ 12
21	473	- 54	+ 21	June 1	36599	- 35	+ 8	9	755	- 17	+ 38
22	474	- 33	+ 5	3	601	- 52	+ 4	19	22h ●		
28	5h ●			8	606	- 67	+ 8	29	36774	- 24	+ 24
Feb. 2	36484	- 15	+ 4	10	608	- 63	- 3	Dec. 1	776	- 45	+ 15
3	485	- 15	- 11	12	610	- 28	+ 39	2	777	+ 13	+ 15
7	489	- 47	+ 1	17	615	- 30	- 1	3	778	- 37	- 6
9	491	- 15	- 5	25	oh ●			5	780	- 34	+ 8
11	493	- 9	0	July 6	36633	- 33	0	6	781	+ 2	+ 1
				12	639	+ 25	- 27	7	782	- 12	+ 4
								8	783	+ 1	+ 30

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1854-5				1855				1855-6			
Dec. 9	36784	— 24	— 4	June 2	36953	— 17	+ 28	Dec. 2	37130	— 35	+ 8
10	785	— 32	+ 16	5	956	— 24	+ 11	8	22 ^h ●		
11	786	— 32	+ 2	9	960	— 71	— 4	18	37145	— 31	+ 6
12	787	— 28	+ 18	14	2 ^h ●			19	146	— 11	+ 10
14	789	— 18	— 6	20	36970	— 20	— 1	20	147	— 33	— 27
19	10 ^h ●			21	971	— 36	— 5	21	148	— 56	+ 52
25	36799	— 31	— 1	24	974	— 21	+ 17	24	151	— 16	— 10
26	800	— 20	+ 2	26	976	— 37	— 10	26	153	— 44	+ 24
27	801	— 39	+ 6	27	977	— 47	+ 8	27	154	— 34	— 18
28	802	— 27	+ 17	28	978	— 24	+ 23	29	156	— 21	— 50
29	803	— 52	— 3	30	980	— 22	+ 3	30	157	— 86	+ 19
30	804	— 20	— 4								
31	805	— 52	+ 12	July 4	36984	— 20	+ 18	Jan. 7	11 ^h ●		
				13	16 ^h ●			12	37169	— 50	— 6
Jan. 3	808	— 24	— 8	25	37004	— 24	+ 13	13	170	— 29	— 2
4	809	— 20	— 11	27	006	— 6	+ 5	14	171	— 10	— 6
17	21 ^h ●			28	007	— 17	+ 9	15	172	— 30	— 10
27	36831	— 18	+ 14	31	010	— 14	— 6	18	175	— 43	+ 4
								19	176	— 32	— 9
Feb. 3	838	— 2	+ 34	Aug. 2	012	— 43	+ 40	24	181	— 21	+ 28
9	844	— 61	+ 11	4	014	— 2	+ 4	25	182	— 21	+ 20
16	7 ^h ●			12	7 ^h ●			27	184	— 41	+ 24
20	36854	— 39	+ 3	18	37027	— 14	+ 9	28	185	— 28	+ 21
22	856	— 36	— 15	21	030	— 25	+ 23	29	186	— 31	+ 15
23	857	— 23	+ 15	25	034	— 33	+ 12				
				26	035	— 24	+ 11	Feb. 5	23 ^h ●		
Mar. 1	863	— 28	+ 1	27	036	— 20	+ 6	14	37201	— 19	+ 5
2	864	— 26	+ 11	28	037	+ 6	— 3	15	202	— 24	+ 15
3	865	— 18	— 2	29	038	— 19	+ 14	16	203	— 13	— 4
4	866	— 6	+ 15	30	039	— 38	— 22	24	211	— 26	+ 29
5	867	— 28	+ 36					25	212	— 43	+ 19
6	868	0	+ 27	Sept. 1	041	— 23	+ 10	26	213	— 33	+ 13
8	870	— 18	+ 20	2	042	— 23	— 1				
17	17 ^h ●			6	046	— 10	+ 26	Mar. 6	9 ^h ●		
25	36886	— 15	+ 2	10	23 ^h ●			13	37228	— 52	+ 2
26	887	— 9	— 15	20	37059	— 40	— 6	14	229	— 26	+ 8
30	891	— 36	— 2	21	060	— 50	+ 13	22	237	— 32	+ 9
31	892	— 35	+ 9	22	061	— 52	+ 25	26	241	— 77	+ 33
				23	062	— 37	— 1	28	243	— 23	+ 2
April 1	893	— 49	+ 12	24	063	— 33	+ 12	29	244	— 27	+ 2
4	896	— 18	+ 24	25	064	— 24	+ 10				
7	899	— 55	— 19	26	065	— 20	+ 7	April 4	18 ^h ●		
16	3 ^h ●							9	37254	— 56	+ 40
22	36913	— 22	+ 2	Oct. 5	074	— 14	+ 11	12	257	— 23	+ 1
23	914	— 40	+ 1	10	15 ^h ●			13	258	— 31	— 7
25	916	— 26	— 10	18	37086	— 62	— 15	15	260	— 24	— 22
27	918	— 62	— 42	19	087	— 32	— 1	16	261	— 71	+ 5
				24	092	— 38	+ 10	20	265	— 47	+ 21
May 1	922	— 13	+ 7	26	094	— 7	+ 10	21	266	— 59	+ 28
2	923	— 18	+ 25	31	099	— 48	— 15	22	267	— 37	+ 19
4	925	— 28	+ 36					27	272	— 63	— 3
5	926	— 18	+ 26	Nov. 3	102	— 22	— 2	May 4	3 ^h ●		
8	929	— 16	+ 12	9	8 ^h ●			10	37284	— 19	— 10
15	14 ^h ●			15	37113	— 15	— 5	11	285	— 46	+ 3
23	36943	— 36	+ 8	16	114	— 15	— 19	13	287	— 38	+ 1
25	945	— 14	— 7	22	120	— 26	— 4	14	288	— 33	+ 13
26	946	— 11	+ 24	25	123	— 27	+ 3	17	291	— 18	+ 11
				26	124	— 24	+ 14	18	292	— 32	— 6
June 1	952	— 41	+ 16	29	127	— 70	+ 10	19	293	— 34	+ 10

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1856				1856-7				1857			
May 20	37294	- 19	+ 8	Dec. 2	37483	- 36	- 9	May 8	37635	- 67	+ 9
22	296	- 65	- 3	7	488	- 45	- 17	11	638	- 70	- 4
26	300	- 37	+ 19	9	490	- 60	- 11	13	640	- 36	+ 7
				13	494	- 21	+ 11	14	641	- 49	- 7
June 2	12 ^h ●			14	495	- 27	+ 14	17	644	- 24	- 6
10	37314	- 44	+ 24	15	496	- 49	+ 1	23	3 ^h ●		
11	315	- 40	+ 25	16	497	- 19	+ 12	27	37653	- 22	- 10
14	318	- 26	+ 1	17	498	- 18	+ 14	31	657	- 27	+ 3
15	319	- 38	+ 16	18	499	- 19	+ 8				
17	321	- 28	- 50	26	21 ^h ●			June 1	658	- 51	+ 32
20	324	- 32	+ 3					2	659	- 23	0
25	329	- 21	+ 20	Jan. 2	37513	- 39	- 1	4	661	- 43	+ 4
26	330	0	- 19	3	514	- 19	+ 7	5	662	- 63	+ 1
				11	522	- 32	+ 18	8	665	- 64	+ 15
July 1	22 ^h ●			13	524	- 48	- 1	9	666	- 31	+ 3
16	37349	- 15	- 9	14	525	- 30	+ 1	10	667	- 39	+ 6
17	350	- 25	+ 25	15	526	- 58	+ 13	12	669	- 49	+ 2
18	351	- 20	+ 9	16	527	- 16	+ 30	13	670	+ 1	- 3
22	355	- 27	+ 21	25	11 ^h ●			14	671	+ 4	- 12
25	358	- 37	0	31	37541	- 51	- 9	15	672	- 8	- 12
31	9 ^h ●							21	10 ^h ●		
Aug. 5	37368	- 37	- 2	Feb. 4	545	- 46	- 2	25	37681	- 1	+ 13
6	369	- 51	- 2	7	548	- 28	+ 7	26	682	- 34	+ 12
7	370	- 29	+ 31	8	549	- 28	+ 3	27	683	- 57	+ 13
10	373	- 34	+ 16	10	551	- 42	- 0	28	684	- 64	+ 13
12	375	- 54	+ 3	11	552	- 47	- 1	29	685	- 40	+ 1
13	376	- 58	+ 4	12	553	- 26	- 4				
14	377	- 43	+ 5	13	554	- 28	+ 26	July 6	692	- 39	- 24
15	378	- 32	+ 5	15	556	- 53	+ 49	7	693	- 45	- 6
22	385	- 11	- 9	16	557	- 60	- 19	9	695	- 13	+ 11
29	23 ^h ●			23	24 ^h ●			11	697	- 7	+ 9
								12	698	- 13	+ 10
Sept. 12	37405	- 40	+ 13	Mar. 5	37573	- 25	- 13	20	18 ^h ●		
14	407	- 42	+ 6	6	574	- 47	- 8	31	37716	- 50	+ 10
15	408	- 32	+ 3	7	575	- 43	- 15				
16	409	- 16	+ 3	8	576	- 28	0	Aug. 2	718	- 43	+ 14
18	411	- 35	+ 6	12	580	- 23	+ 10	3	719	- 75	- 6
19	412	+ 5	+ 7	15	583	- 45	+ 15	4	720	- 57	- 25
21	414	- 6	+ 12	16	584	- 65	- 33	9	725	- 22	+ 10
23	416	- 17	+ 17	17	585	- 46	- 10	19	4 ^h ●		
28	16 ^h ●			25	10 ^h ●			25	37740	- 78	+ 38
				31	37598	- 62	+ 21	29	744	- 67	- 6
Oct. 12	37434	- 64	- 4	Apr. 2	600	- 46	- 3	30	745	- 60	- 5
13	435	- 43	+ 7	3	601	- 24	- 8	31	746	- 36	- 10
16	438	- 25	- 7	6	604	- 53	+ 14				
21	443	+ 21	- 10	8	606	- 55	0	Sept. 1	747	- 54	- 2
28	10 ^h ●			9	607	- 34	+ 5	4	750	- 13	+ 8
				14	612	- 66	- 10	5	751	- 3	0
Nov. 4	37456	- 52	+ 3	18	616	- 25	+ 26	6	752	- 20	+ 1
6	458	- 27	+ 15	23	19 ^h ●			11	757	- 30	+ 32
8	460	- 58	+ 17					17	18 ^h ●		
10	462	- 53	- 12	May 1	37628	- 23	- 1	28	37773	- 57	- 8
11	463	- 49	+ 3	3	630	- 23	- 3	29	774	- 41	+ 9
14	466	- 28	+ 6	4	631	- 41	+ 12	30	775	- 63	+ 2
15	467	- 39	+ 24	5	632	- 47	- 2				
16	468	- 8	+ 26	6	633	- 30	+ 8	Oct. 1	776	- 61	- 6
27	4 ^h ●			7	634	- 39	+ 20	2	777	- 71	- 1
								6	781	- 35	- 24

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1857-8				1858				1858			
Oct. 8	37783	- 50	+ 12	Feb. 25	37918	- 35	+ 9	July 25	38063	- 32	+ 1
9	784	- 38	+ 21	27	920	- 51	+ 6	26	064	- 28	+ 13
17	10 ^h ●							28	066	- 19	+ 28
25	37799	- 52	- 14	Mar. 6	927	- 65	+ 6	30	068	- 46	- 2
26	800	- 50	- 6	8	929	- 38	- 41	31	069	- 27	- 1
27	801	- 53	+ 3	15	0 ^h ●						
29	803	- 56	- 21	21	37941	- 70	+ 23	Aug. 1	070	- 29	- 2
30	804	- 51	+ 3	22	942	- 36	+ 56	2	071	- 27	- 1
31	805	- 35	- 7	23	843	- 27	- 12	4	073	- 33	- 74
				24	944	- 38	+ 3	8	17 ^h ●		
Nov. 1	806	- 35	- 8	25	945	- 13	+ 15	13	38081	- 61	+ 7
5	810	- 32	+ 8	26	946	- 49	+ 10	19	087	- 7	+ 3
16	4 ^h ●			29	949	- 42	+ 6	20	088	- 35	- 28
22	37826	- 64	- 17					22	090	- 46	- 8
24	828	- 62	+ 9	Apr. 1	952	- 48	+ 8	23	091	- 61	- 1
27	831	- 34	+ 21	3	954	- 52	+ 25	24	092	- 33	+ 7
28	832	- 50	+ 1	13	11 ^h ●			25	093	- 19	- 5
29	833	- 67	- 21	18	37968	- 60	+ 19	27	095	- 22	+ 5
30	834	- 60	- 16	19	969	- 39	- 6	28	096	- 19	+ 13
				20	970	- 31	- 2	30	098	- 74	- 14
Dec. 1	835	- 53	- 7	21	971	- 40	- 5	31	099	- 47	- 12
2	836	- 41	+ 6	22	972	- 35	+ 15				
3	837	- 32	+ 14	23	973	- 34	+ 9	Sept. 1	100	- 56	+ 38
4	838	- 33	+ 13	24	974	- 24	+ 2	7	2 ^h ●		
7	841	- 32	+ 6	25	975	- 51	+ 22	12	38110	- 55	+ 3
10	844	- 37	+ 24	26	976	- 33	+ 47	13	111	- 48	+ 17
15	23 ^h ●			28	978	- 53	+ 50	15	113	- 44	+ 19
25	37858	- 55	+ 5					16	114	- 80	- 15
27	860	- 77	- 3	May 5	985	- 26	+ 16	18	116	- 57	- 9
28	861	- 75	- 8	6	986	- 33	- 2	21	119	- 68	- 33
30	863	- 72	- 1	7	987	- 33	- 10	22	120	- 38	- 8
31	864	- 102	+ 12	12	20 ^h ●			23	121	- 41	- 10
				18	37997	- 60	- 10	24	122	- 29	- 5
Jan. 1	865	- 45	+ 54	19	998	- 46	+ 6	25	123	- 22	+ 2
6	870	- 34	+ 20	22	38001	- 37	- 1	30	128	- 39	+ 42
9	873	- 73	+ 20	23	002	- 78	+ 51				
14	18 ^h ●			25	004	- 37	+ 27	Oct. 2	130	- 27	+ 17
19	37882	- 51	- 2	30	009	- 55	+ 25	6	14 ^h ●		
22	885	- 50	- 18					15	38142	- 61	- 10
23	886	- 73	- 3	June 1	011	- 15	- 72	16	143	- 50	- 31
24	887	- 80	+ 4	3	013	- 27	0	17	144	- 47	+ 4
25	888	- 82	+ 10	11	3 ^h ●			20	147	- 63	- 10
26	889	- 85	+ 2	15	38024	- 89	- 6	22	149	- 22	+ 19
27	890	- 63	- 6	17	026	- 83	+ 9	28	155	- 52	+ 1
28	891	- 65	- 3	18	027	- 40	0	29	156	- 32	+ 32
31	894	- 69	- 3	21	030	- 22	+ 24				
				22	031	- 22	+ 3	Nov. 5	5 ^h ●		
Feb. 1	895	- 50	+ 12	24	033	- 77	+ 25	11	38168	- 32	- 22
3	897	- 78	+ 30	25	034	- 68	- 5	12	169	- 50	- 4
4	898	- 45	+ 15	27	036	- 38	- 21	13	170	- 63	- 16
6	900	- 77	- 20	28	037	- 5	+ 37	15	172	- 60	- 6
7	901	- 52	+ 50					17	174	- 98	- 4
13	10 ^h ●			July 1	040	+ 2	+ 19	18	175	- 50	+ 12
18	37911	- 65	- 3	10	9 ^h ●			20	177	- 65	- 5
19	912	- 54	+ 1	15	38053	- 80	+ 16	21	178	- 66	+ 13
20	913	- 44	- 27	18	056	- 66	+ 5	22	179	- 60	0
21	914	- 56	+ 4	19	057	- 39	+ 6	23	180	- 57	+ 35
22	915	- 91	- 2	21	059	- 37	+ 3	26	183	- 51	+ 12
24	917	- 60	- 6								

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1858-9				1859				1859-60			
Dec. 4	22 ^h ●			May 12	38344	- 37	- 13	Sept. 17	38468	- 56	+ 5
17	38203	- 87	0	13	345	- 63	+ 12	21	472	- 53	+ 19
18	204	- 79	- 10	14	346	- 33	+ 7	26	2 ^h ●		
19	205	- 55	- 14	15	347	- 61	+ 21				
21	207	- 51	+ 16	21	353	(- 22)	(- 81)	Oct. 2	38482	- 73	+ 10
23	209	- 33	+ 25	23	355	+ 11	- 15	3	483	- 58	- 5
24	210	- 49	+ 8	24	356	- 39	+ 8	4	484	- 64	+ 19
26	212	- 32	+ 31	26	358	- 40	- 15	5	485	- 87	+ 14
27	213	- 51	+ 37	31	19 ^h ●			6	486	- 63	+ 3
28	214	- 33	+ 31					8	488	- 72	+ 18
Jan. 3	17 ^h ●			June 7	38369	- 72	+ 5	12	492	- 6	- 4
14	38230	- 66	- 14	8	370	- 60	+ 10	20	500	- 20	- 15
15	231	- 59	+ 10	9	371	- 62	- 1	21	501	- 53	+ 30
16	232	- 97	+ 20	12	374	- 34	- 3	25	13 ^h ●		
18	234	- 48	+ 13	15	377	- 70	+ 9				
19	235	- 54	+ 18	16	378	- 55	+ 8	Nov. 3	38513	- 50	- 8
21	237	- 102	- 5	17	379	- 59	+ 16	4	514	- 71	- 10
22	238	- 40	- 1	20	382	- 6	+ 33	7	517	- 28	- 53
23	239	- 35	+ 26	22	384	- 48	+ 9	8	518	- 69	+ 9
25	241	- 44	+ 21	23	385	- 58	+ 12	9	519	- 56	+ 1
26	242	- 97	+ 20	24	386	- 69	- 21	10	520	- 35	+ 2
				30	3 ^h ●			11	521	- 30	- 3
Feb. 2	13 ^h ●			July 5	38396	- 75	+ 11	12	522	- 12	- 15
10	38256	- 55	- 4	8	399	- 62	- 5	13	523	- 38	- 1
12	258	- 49	+ 12	9	400	- 55	+ 46	14	524	- 34	+ 26
13	259	- 78	+ 5	10	401	- 51	+ 16	15	525	- 30	- 11
14	260	- 57	+ 9	11	402	- 60	+ 13	17	527	- 43	+ 16
15	261	- 69	+ 18	12	403	- 60	+ 15	18	528	- 38	+ 3
16	262	- 60	+ 20	14	405	- 80	+ 5	19	529	- 37	+ 18
17	263	- 48	+ 21	15	406	- 38	- 24	24	2 ^h ●		
18	264	- 67	+ 21	16	407	- 52	- 1				
20	266	- 21	+ 40	17	408	- 32	+ 8	Dec. 1	38540	- 60	+ 2
22	268	- 62	+ 4	21	412	- 42	+ 6	2	541	- 69	+ 1
24	270	- 39	+ 3	23	414	- 51	- 18	5	544	- 59	+ 4
				24	415	- 40	- 27	6	545	- 83	+ 6
Mar. 4	7 ^h ●			29	10 ^h ●			8	547	- 85	- 19
9	38282	- 85	0					9	548	- 48	+ 1
10	283	- 51	- 9	Aug. 4	38425	- 90	- 71	10	549	- 70	+ 5
15	288	- 51	+ 1	12	433	- 51	+ 8	11	550	- 62	+ 26
18	291	- 66	+ 1	13	434	- 39	- 13	13	552	- 27	+ 3
19	292	- 58	+ 35	14	435	- 11	+ 5	14	553	- 64	+ 14
				15	436	- 45	- 3	17	556	- 39	+ 42
Apr. 2	22 ^h ●			16	437	- 25	- 6	19	558	- 47	+ 77
7	38310	- 63	+ 22	18	439	- 42	- 26	23	18 ^h ●		
10	313	- 27	- 9	19	440	- 20	- 6	30	38568	- 99	- 13
11	314	- 48	- 3	20	441	- 47	- 15				
13	316	- 43	+ 12	21	442	- 28	- 3	Jan. 2	571	- 58	- 1
15	318	- 49	- 3	22	443	- 57	+ 2	3	572	- 89	+ 4
16	319	- 60	+ 19	27	17 ^h ●			4	573	- 86	- 2
17	320	- 36	+ 14					6	575	- 74	+ 3
18	321	- 38	+ 20	Sept. 6	38457	- 61	+ 16	7	576	- 104	- 11
21	324	- 58	- 2	9	460	- 60	+ 20	8	577	- 76	+ 9
22	325	- 23	- 3	10	461	- 72	+ 13	9	578	- 71	+ 21
May 2	10 ^h ●			11	462	- 69	- 3	15	584	- 28	- 23
8	38340	- 52	+ 3	12	463	- 18	+ 19	16	585	- 61	+ 16
9	341	- 37	- 3	14	465	- 52	- 24	22	12 ^h ●		
11	343	- 62	+ 5	15	466	- 34	- 6	28	38596	- 23	+ 22
				16	467	- 38	+ 1	31	599	- 59	+ 2

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1860				1860-1				1861			
Feb. 2	38601	- 73	+ 9	July 3	38748	- 57	- 13	Jan. 5	38928	- 86	- 4
3	602	- 75	- 1	4	749	- 70	+ 11	10	15 ^h ●		
6	605	- 75	+ 13	6	751	- 58	+ 21	21	38943	- 78	- 7
9	608	- 40	+ 25	7	752	- 32	+ 32	24	946	- 100	- 13
10	609	- 51	+ 27	18	2 ^h ●			27	949	- 89	+ 31
11	610	- 60	+ 18	29	38773	- 54	- 17	28	950	- 63	+ 17
14	613	- 54	+ 8	30	774	- 67	+ 5				
21	8 ^h ●							Feb. 1	954	- 82	+ 17
25	38623	- 28	+ 3	Aug. 4	779	- 34	+ 11	9	8 ^h ●		
29	627	- 53	+ 12	6	781	- 38	- 9	17	38969	- 81	+ 8
				16	10 ^h ●			18	970	- 49	- 19
Mar. 1	628	- 53	+ 11	27	38801	- 61	0	25	977	- 69	- 28
2	629	- 88	- 4	29	803	- 74	+ 7	26	978	- 44	+ 27
3	630	- 83	+ 2	30	804	- 50	- 15				
4	631	- 73	+ 15	31	805	- 36	+ 23	Mar. 1	981	- 87	+ 14
5	632	- 70	+ 3					11	2 ^h ●		
7	634	- 22	+ 60	Sept. 1	806	- 48	0	18	38997	- 73	+ 32
9	636	- 33	+ 43	4	809	- 27	- 4	21	39000	- 68	+ 6
11	638	- 49	+ 76	5	810	- 24	- 9	22	001	- 89	+ 9
12	639	- 69	- 26	10	815	- 51	+ 16	23	002	- 69	+ 9
14	641	- 33	- 63	14	18 ^h ●			26	005	- 64	+ 13
22	2 ^h ●			25	38829	- 84	+ 1	28	007	- 81	+ 16
Apr. 1	38658	- 60	+ 12	Oct. 2	836	- 6	+ 5	Apr. 9	19 ^h ●		
2	659	- 55	- 3	3	837	- 44	+ 2	16	39025	- 81	+ 5
3	660	- 75	+ 4	4	838	- 94	- 21	17	026	- 75	+ 7
4	661	- 83	+ 5	5	839	- 63	- 41	18	027	- 71	- 3
6	663	- 50	+ 28	7	841	- 70	+ 27	20	029	- 76	+ 14
7	664	- 65	+ 19	8	842	- 76	+ 10	21	030	- 80	- 8
8	665	- 56	+ 9					23	032	- 110	+ 11
9	666	- 53	- 14	14	3 ^h ●			24	033	- 73	+ 30
10	667	- 62	- 27	20	38853	- 77	- 14	25	034	- 71	0
20	18 ^h ●			22	855	- 78	- 1	27	036	- 74	- 5
27	38683	- 60	+ 2	26	859	- 81	+ 1	29	038	- 60	- 1
28	684	- 75	+ 23	27	860	- 62	+ 2				
29	685	- 43	+ 28	28	861	- 56	- 13	May 9	11 ^h ●		
30	686	- 73	+ 6	31	864	- 60	+ 1	17	39055	- 81	+ 24
								18	056	- 70	+ 14
May 1	687	- 69	+ 9	Nov. 1	865	- 58	- 13	19	057	- 74	+ 15
2	688	- 61	+ 14	2	866	- 81	- 1	21	059	- 98	+ 6
3	689	- 74	+ 11	3	867	- 86	+ 26	22	060	- 97	+ 19
4	690	- 78	+ 26	12	13 ^h ●			24	062	- 65	+ 57
6	692	- 54	- 10	18	38881	- 67	+ 1				
20	7 ^h ●			19	882	- 81	+ 3	June 8	2 ^h ●		
28	38713	- 55	- 1	20	883	- 102	+ 11	14	39082	- 56	+ 30
29	714	- 76	+ 18	22	885	- 80	+ 4	15	083	- 60	+ 19
30	715	- 82	+ 1	30	893	- 64	+ 11	16	084	- 67	+ 23
								17	085	- 81	+ 18
June 3	719	- 68	+ 19	Dec. 6	899	- 48	+ 1	18	086	- 44	+ 33
10	726	- 62	+ 17	12	1 ^h ●			19	087	- 67	+ 3
11	727	- 24	+ 15	20	38912	- 80	- 1	20	088	- 71	- 6
12	728	- 58	- 12	22	914	- 90	+ 5	22	090	- 75	+ 15
14	730	- 69	+ 14	23	915	- 89	+ 6	25	093	- 52	+ 15
18	17 ^h ●			24	916	- 44	+ 7	26	094	- 43	+ 2
25	38740	- 83	+ 4	27	919	- 115	+ 1	27	095	- 58	- 4
26	741	- 70	+ 4	28	920	- 62	+ 20	30	098	- 28	- 31
30	745	- 40	+ 6								
July 1	746	- 43	- 21	Jan. 2	925	- 57	- 4	July 2	100	+ 19	- 47
				3	926	- 56	+ 38	7	14 ^h ●		

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1861				1861-2				1862			
July 15	39112	- 72	+ 19	Nov. 18	39234	- 28	- 10	May 6	39397	- 55	+ 24
18	115	- 36	+ 4	19	235	- 55	- 4	12	403	- 91	+ 9
20	117	- 76	+ 7	20	236	- 72	+ 31	13	404	- 94	+ 8
23	120	- 42	- 15	22	238	- 52	+ 30	16	407	- 77	- 2
29	126	- 29	+ 7	23	239	- 67	+ 23	17	408	- 61	- 6
30	127	- 29	- 4	24	240	- 63	+ 17	28	3 ^h ●		
Aug. 6	1 ^h ●			Dec. 1	14 ^h ●			June 4	39425	- 62	+ 35
15	39142	- 60	- 17	8	39253	- 66	+ 11	8	429	- 73	+ 30
17	144	- 89	- 3	9	254	- 81	- 15	9	430	- 73	+ 5
18	145	- 42	- 5	10	255	- 68	- 6	11	432	- 71	- 11
19	146	- 77	- 3	11	256	- 79	- 5	12	433	- 90	- 17
20	147	- 56	- 4	14	259	- 74	- 8	13	434	- 82	- 7
21	148	- 33	+ 20	17	262	- 82	+ 43	26	19 ^h ●		
23	150	- 54	- 11	18	263	- 63	+ 46				
24	151	- 34	- 2	19	264	- 77	+ 29	July 8	39458	- 61	+ 7
26	153	- 28	- 12	23	268	- 48	+ 4	10	460	- 79	+ 10
27	154	- 55	+ 6	24	269	- 82	+ 27	12	462	- 76	- 8
30	157	- 75	- 38	25	270	- 44	+ 27	14	464	- 37	- 10
Sept. 4	10 ^h ●			31	2 ^h ●			15	465	- 43	- 10
11	39168	- 55	+ 33	Jan. 4	39279	- 60	- 7	16	466	- 33	- 7
12	169	- 66	- 17	6	281	- 47	- 1	26	9 ^h ●		
13	170	- 56	+ 12	8	283	- 59	- 3				
14	171	- 65	- 18	10	285	- 99	- 7	Aug. 3	39483	- 45	+ 1
16	173	- 74	+ 30	11	286	- 63	- 12	6	486	- 66	- 10
17	174	- 33	+ 8	13	288	- 79	+ 11	7	487	- 62	+ 7
18	175	- 28	- 29	16	291	- 78	+ 30	9	489	- 47	- 1
20	177	- 12	+ 12	17	292	- 70	+ 21	12	492	- 60	- 25
21	178	- 18	- 1	18	293	- 74	+ 13	14	494	- 46	- 8
24	181	- 58	- 7	22	297	- 65	- 8	18	498	- 50	+ 15
25	182	- 93	+ 1	29	15 ^h ●			24	22 ^h ●		
26	183	- 59	+ 11	Feb. 5	39310	- 92	- 11	Sept. 6	39516	- 46	+ 2
28	185	- 57	0	6	311	- 80	- 2	7	517	- 40	- 6
Oct. 3	19 ^h ●			7	312	- 33	+ 1	10	520	- 45	- 14
9	39195	- 84	+ 84	8	313	- 16	- 11	11	521	- 47	- 15
11	197	- 68	+ 2	10	315	- 64	+ 33	14	524	- 31	+ 1
12	198	- 52	- 2	18	323	- 63	+ 9	23	9 ^h ●		
13	199	- 81	+ 5	19	324	- 85	- 1				
14	200	- 69	+ 12	20	325	- 70	- 11	Oct. 1	39540	- 59	+ 8
15	201	- 52	+ 18	21	326	- 93	- 42	3	542	- 66	- 7
17	203	- 52	- 2	28	5 ^h ●			6	545	- 38	- 8
18	204	- 33	- 22					9	548	- 22	+ 1
19	205	- 9	+ 7	Mar. 7	39339	- 64	+ 12	11	550	- 43	+ 6
20	206	- 30	+ 14	8	340	- 45	- 16	12	551	- 43	+ 3
21	207	- 28	- 5	9	341	- 76	+ 12	14	553	- 77	+ 10
22	208	- 42	+ 1	10	342	- 85	+ 25	15	554	- 49	+ 37
26	212	- 69	+ 16	12	344	- 66	+ 18	22	20 ^h ●		
27	213	- 69	+ 23	18	350	- 68	+ 36	31	39569	- 64	+ 3
Nov. 2	4 ^h ●			29	20 ^h ●						
7	39223	- 79	+ 11	Apr. 12	39374	- 41	+ 12	Nov. 3	572	- 40	+ 5
8	224	- 86	- 40	13	375	- 87	0	5	574	- 50	- 4
9	225	- 71	+ 11	14	376	- 89	+ 5	9	578	- 67	- 18
11	227	- 66	+ 1	15	377	- 95	+ 5	10	579	- 59	+ 20
15	231	- 57	+ 6	28	11 ^h ●			11	580	- 72	+ 31
17	233	- 46	- 7	May 5	39396	- 38	+ 2	12	581	- 72	+ 26
								13	582	- 69	+ 14
								21	6 ^h ●		
								27	39595	- 77	- 6

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1862-3				1863				1863-4			
Nov. 29	39597	- 57	- 6	May 3	39747	- 43	+ 19	Oct. 25	39916	- 19	+ 13
				4	748	- 63	+ 26	26	917	- 23	+ 1
Dec. 1	599	- 54	- 9	6	750	- 63	- 1	28	919	- 30	+ 10
2	600	- 42	- 1	7	751	- 38	+ 5	29	920	- 45	+ 6
10	608	- 58	+ 21	9	753	- 63	- 30	30	921	- 38	- 23
11	609	- 60	+ 17	17	5 ^h ●			31	922	- 55	+ 18
13	611	- 65	+ 18	26	39769	- 39	+ 13				
14	612	- 51	- 11	28	771	- 59	+ 7	Nov. 2	924	- 49	+ 18
20	17 ^h ●			29	772	- 54	- 8	10	20 ^h ●		
25	39622	- 69	- 12					16	39937	- 72	- 25
29	626	- 62	+ 7	June 2	776	- 93	- 1	20	941	- 39	- 5
				4	778	- 65	- 12	21	942	- 59	+ 8
Jan. 2	630	- 47	+ 7	15	20 ^h ●			23	944	- 23	- 3
7	635	- 82	+ 38	23	39796	- 40	+ 13	25	946	- 36	+ 11
11	639	- 58	+ 5	27	800	- 34	- 4	27	948	- 71	+ 24
19	4 ^h ●			29	802	- 62	- 10	29	950	- 45	+ 24
24	39651	- 40	+ 4	30	803	- 68	- 17	30	951	- 43	- 5
26	653	- 60	- 8								
27	654	- 38	- 11	July 1	804	- 68	- 14	Dec. 3	954	- 61	+ 9
28	655	- 50	- 11	2	805	- 70	+ 2	5	956	- 31	- 16
29	656	- 53	+ 2	5	808	- 58	- 9	10	8 ^h ●		
31	658	- 55	+ 10	6	809	- 33	- 13	14	39964	- 36	- 19
				7	810	- 64	- 21	16	966	- 87	+ 16
Feb. 1	659	- 46	+ 16	9	812	- 57	+ 53	17	967	- 40	- 2
3	661	- 57	+ 25	15	11 ^h ●			18	968	- 44	- 18
8	666	- 43	+ 5	26	39828	- 31	+ 8	19	969	- 44	+ 8
17	15 ^h ●			28	830	- 46	- 4	20	970	- 68	- 10
27	39684	- 68	+ 21	29	831	- 35	+ 5	21	971	- 46	+ 15
28	685	- 68	+ 13	30	832	- 25	+ 7	22	972	- 43	- 17
				31	833	- 38	0	23	973	- 31	+ 12
Mar. 1	686	- 42	+ 2					25	975	- 66	- 11
2	687	- 54	- 1	Aug. 1	834	- 45	- 4	27	977	- 66	+ 19
3	688	- 76	+ 10	3	836	- 38	- 20				
4	689	- 67	+ 11	14	2 ^h ●			Jan. 3	984	- 53	+ 14
5	690	- 62	+ 3	24	39856	- 47	- 1	8	20 ^h ●		
6	691	- 54	+ 5	27	859	- 70	+ 3	19	39999	- 48	+ 5
7	692	- 53	+ 4	28	860	- 42	- 10	21	40001	- 20	+ 13
8	693	- 72	+ 1	29	861	- 49	- 19	24	004	- 5	- 8
19	3 ^h ●			30	862	- 65	- 18	25	005	- 25	+ 29
25	39709	- 60	+ 7	31	863	- 79	- 28	29	009	- 41	+ 11
26	710	- 56	- 14					30	010	- 71	- 10
27	711	- 78	+ 8	Sept. 3	866	- 87	+ 42	31	011	- 52	- 2
29	713	- 43	+ 5	4	867	- 63	- 8				
31	715	- 52	+ 10	5	868	- 66	+ 2	Feb. 7	6 ^h ●		
				12	17 ^h ●			13	40023	- 59	+ 1
Apr. 1	716	- 69	+ 18	21	39883	- 81	+ 1	14	024	- 18	+ 8
2	717	- 71	- 6	23	885	- 53	- 17	16	026	- 37	- 12
3	718	- 69	+ 3	24	886	- 7	+ 23	17	027	- 71	+ 11
4	719	- 55	- 10	25	887	- 47	- 17	18	028	- 54	+ 6
17	15 ^h ●			26	888	- 32	- 16	22	032	- 30	- 4
25	39739	- 35	+ 7	29	991	- 76	- 12	23	033	- 66	+ 15
26	740	- 45	+ 5								
27	741	- 26	+ 7	Oct. 3	895	- 70	0	Mar. 7	16 ^h ●		
28	742	- 59	+ 24	4	896	- 83	+ 39	16	40054	- 43	+ 5
29	743	- 55	+ 8	5	897	- 55	+ 10	17	055	- 32	+ 4
30	744	- 55	+ 6	12	7 ^h ●			18	056	+ 34	- 2
				21	39912	- 46	+ 5	19	057	+ 10	+ 18
May 1	745	- 51	+ 20	22	913	- 39	+ 10	20	058	- 28	- 9
2	746	- 61	- 6	23	914	- 51	- 1	23	061	- 61	- 1

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1864				1864-5				1865			
Mar. 24	40062	- 45	- 7	Aug. 18	40204	- 60	+ 5	Feb. 10	40374	- 50	+ 1
26	064	- 49	+ 16	21	207	- 65	+ 13	14	378	- 40	- 2
30	068	- 71	- 3	23	209	- 46	- 11	17	381	- 43	+ 7
Apr. 6	2 ^h ●			24	210	- 42	+ 11	19	383	- 43	+ 2
12	40080	- 59	0	25	211	- 40	- 7	25	8 ^h ●		
13	081	- 45	+ 8	31	18 ^h ●			Mar. 3	40394	- 62	+ 12
14	082	- 36	- 3	Sept. 11	40227	- 29	- 3	4	395	- 43	+ 11
15	083	- 52	+ 16	18	234	- 64	- 2	5	396	- 30	+ 8
17	085	- 53	+ 18	19	235	- 54	+ 10	7	398	- 67	+ 7
18	086	- 38	+ 7	22	238	- 41	+ 13	8	399	- 42	- 9
19	987	- 38	- 4	30	11 ^h ●			17	408	- 21	+ 6
20	088	- 77	- 4	Oct. 6	40251	- 34	- 64	20	411	- 54	- 10
21	089	- 58	- 3	7	252	- 36	+ 8	26	17 ^h ●		
22	090	- 56	+ 6	12	257	- 29	+ 9	Apr. 2	40423	- 44	+ 14
May 5	12 ^h ●			13	258	- 54	+ 2	3	424	- 17	+ 5
13	40110	- 42	+ 19	15	260	- 47	0	6	427	- 35	+ 24
14	111	- 51	+ 22	16	261	- 29	- 3	7	428	- 32	0
16	113	- 75	+ 10	18	263	- 60	+ 3	8	429	- 39	- 3
17	114	- 41	- 15	20	265	- 52	+ 18	9	430	- 45	- 2
18	115	- 62	+ 10	23	268	- 31	+ 14	10	431	- 45	- 16
19	116	- 26	+ 3	30	3 ^h ●			11	432	- 40	- 11
21	118	- 46	- 6	Nov. 6	40281	- 8	- 16	16	437	- 35	- 19
22	219	- 73	+ 25	7	282	- 29	- 2	25	2 ^h ●		
23	120	- 39	- 19	8	283	- 45	+ 9	30	40450	- 35	- 7
24	121	- 48	+ 2	9	284	- 28	+ 11	May 1	451	- 38	+ 10
29	126	- 47	- 8	11	286	- 38	+ 5	2	452	- 31	- 13
June 3	24 ^h ●			12	287	- 50	+ 9	6	456	- 24	- 16
10	40137	- 59	+ 16	13	288	- 44	+ 8	7	457	- 48	+ 10
11	138	- 56	+ 9	14	289	- 37	+ 4	9	459	- 27	- 9
13	140	- 42	- 3	16	291	- 26	- 23	12	462	- 111	+ 7
20	147	- 51	- 16	17	292	- 19	+ 16	14	464	- 41	- 16
23	150	- 7	+ 7	18	293	- 37	+ 9	15	465	- 54	+ 6
26	153	- 41	- 13	20	295	+ 2	+ 30	17	467	- 10	+ 41
July 3	12 ^h ●			21	296	- 60	+ 6	18	468	0	+ 9
10	40166	- 62	+ 6	24	299	- 36	- 6	19	469	- 39	+ 4
11	167	- 47	+ 7	28	19 ^h ●			24	11 ^h ●		
12	168	- 28	+ 5	Dec. 5	40309	- 48	- 12	June 4	40484	- 14	- 10
13	169	- 32	- 8	6	310	- 16	+ 5	6	486	- 28	- 2
14	170	- 48	- 6	5	312	- 25	+ 5	7	487	- 28	- 10
15	171	- 60	- 1	10	314	- 7	- 11	8	488	- 27	- 25
16	172	- 52	- 14	11	315	- 53	+ 8	9	489	- 49	+ 10
19	175	- 52	- 9	12	316	- 39	+ 2	10	490	- 62	+ 1
20	176	- 23	- 12	16	320	- 34	- 3	11	491	- 57	+ 1
21	177	- 41	- 3	18	322	- 1	+ 3	12	492	- 27	+ 7
25	181	- 33	- 16	22	326	- 12	- 11	13	493	- 11	+ 23
26	182	- 50	0	28	9 ^h ●			14	494	- 9	+ 16
Aug. 2	3 ^h ●			Jan. 1	40335	- 36	- 15	22	20 ^h ●		
11	40197	- 35	+ 5	4	338	- 18	+ 6	July 1	40510	- 29	- 5
12	198	- 41	+ 7	6	340	- 53	- 16	2	511	- 23	- 2
13	199	- 44	- 4	7	341	- 36	- 1	3	512	- 32	- 3
14	200	- 73	+ 26	15	349	- 10	- 8	7	516	- 47	- 6
15	201	- 60	- 10	19	353	- 40	- 7	8	517	- 38	- 11
16	202	- 52	- 23	20	354	- 39	+ 6	11	520	- 12	+ 1
17	203	- 19	+ 17	26	22 ^h ●			13	522	- 19	+ 12

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1865				1865-6				1866			
July 14	40523	- 33	+ 6	Dec. 12	40669	- 15	+ 16	May 29	40831	- 12	+ 5
16	525	- 47	+ 3	17	17 ^h ●			June 2	835	- 32	+ 7
17	526	- 49	+ 13	26	40682	- 30	+ 15	12	10 ^h ●		
22	6 ^h ●			27	683	- 6	+ 17	19	40851	- 45	- 2
29	40537	- 36	+ 15	30	686	- 46	- 8	22	854	- 25	+ 10
30	538	- 35	+ 8					23	855	- 27	+ 10
Aug. 2	541	- 29	+ 19	Jan. 1	688	- 5	+ 23	24	856	- 16	- 3
5	544	- 42	- 20	16	9 ^h ●			25	857	- 5	- 7
7	546	- 22	- 11	24	40710	- 56	- 6	26	858	- 34	+ 17
8	547	- 61	+ 6	28	714	- 51	+ 16	28	860	- 33	0
9	548	- 41	+ 9					29	861	- 16	- 3
10	549	- 50	+ 15	Feb. 1	718	- 36	+ 9				
12	551	- 55	- 3	2	719	- 41	+ 2	July 1	863	- 20	+ 20
15	554	- 15	- 9	3	720	- 36	+ 5	11	18 ^h ●		
20	19 ^h ●			5	722	- 56	- 28	20	40881	- 24	+ 16
30	40568	- 40	+ 5	7	724	- 48	+ 20	21	882	- 15	- 1
31	569	- 25	- 1	14	22 ^h ●			22	883	- 27	+ 3
Sept. 2	571	- 45	- 34	21	40737	- 20	- 4	23	884	- 62	- 5
3	572	- 51	- 3	22	738	- 46	+ 3	29	890	- 28	+ 1
4	573	- 47	+ 8	23	739	- 40	- 3	30	891	- 23	+ 31
5	574	- 53	- 7	24	740	- 32	+ 11				
6	575	- 48	- 15	27	743	- 12	+ 7	Aug. 3	895	- 19	+ 37
7	576	- 94	0	28	744	- 32	+ 21	10	3 ^h ●		
14	583	- 24	+ 2					16	40907	- 16	0
19	11 ^h ●			Mar. 1	745	- 43	+ 5	18	909	- 44	+ 8
27	40595	- 15	+ 18	2	746	- 23	- 14	21	912	- 42	+ 2
28	596	- 30	- 1	16	10 ^h ●			22	913	- 43	- 12
29	597	- 18	- 9	22	40765	- 42	- 3	23	914	- 26	- 15
				25	768	- 12	+ 6	24	915	- 16	- 18
Oct. 1	599	- 36	- 18	27	770	- 23	- 5	25	916	- 43	- 5
2	600	- 48	0	30	773	- 36	+ 10	30	921	- 30	+ 7
3	601	- 40	+ 16	31	774	- 82	- 21				
4	602	- 47	- 26	Apr. 1	775	- 21	- 14	Sept. 2	924	- 23	+ 3
5	603	- 67	+ 4	4	778	- 38	0	8	14 ^h ●		
6	604	- 57	- 7	14	19 ^h ●			16	40937	- 51	+ 10
9	607	- 61	0	20	40793	- 20	+ 8	19	940	- 18	+ 2
12	610	- 31	+ 39	21	794	- 9	+ 14	21	942	- 20	+ 9
19	4 ^h ●			22	795	- 6	- 13	23	944	- 31	+ 1
27	40624	- 30	- 1	23	796	- 11	- 9	24	945	- 43	+ 7
28	625	- 24	+ 9	24	797	- 42	+ 1	25	946	- 18	+ 13
29	626	- 19	+ 4	25	798	- 27	+ 10	28	949	- 44	- 10
30	627	- 43	+ 10	26	799	- 18	+ 10				
				27	800	- 67	+ 1	Oct. 8	5 ^h ●		
Nov. 1	629	- 25	+ 8					16	40966	- 8	- 22
3	631	- 41	- 7	May 3	806	- 36	- 6	17	967	- 9	- 13
4	632	- 36	+ 11	4	807	- 50	- 11	19	969	- 27	+ 2
5	633	- 46	- 2	7	810	- 5	+ 10	21	971	- 25	+ 5
8	636	- 62	- 3	14	3 ^h ●			22	972	- 4	+ 17
12	640	- 42	- 8	19	40821	+ 14	+ 15	23	973	- 11	+ 8
17	23 ^h ●			20	822	- 10	+ 16	24	974	- 7	- 6
24	40651	- 26	- 25	21	823	- 24	- 10	26	976	- 44	+ 8
26	653	- 24	+ 15	22	824	- 5	0	28	978	- 57	+ 12
				23	825	- 6	+ 11				
Dec. 1	658	- 30	- 13	24	826	- 3	+ 26	Nov. 6	22 ^h ●		
2	659	- 34	- 5	25	827	- 25	- 2	13	40993	- 40	0
3	660	- 22	- 1	27	829	- 8	- 7	14	994	- 12	- 7
4	661	- 28	+ 16	28	830	+ 2	+ 9	16	996	+ 14	- 28
								17	997	- 22	+ 23

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1866-7				1867				1867-8			
Nov. 19	40999	- 22	+ 16	June 9	41194	- 33	+ 10	Nov. 14	41347	- 5	+ 8
20	41000	- 21	+ 1	10	195	- 34	+ 21	19	352	- 34	- 1
21	001	- 38	+ 2	11	196	- 46	+ 22	25	17 ^h ●		
23	003	- 18	0	14	199	- 34	- 4	Dec. 2	41364	+ 7	+ 11
25	005	- 45	+ 5	16	201	- 35	- 4	4	366	- 13	- 15
27	007	- 39	+ 12	21	206	- 5	+ 35	6	368	- 51	+ 24
Dec. 6	17 ^h ●			24	209	- 17	+ 17	7	369	- 9	+ 11
14	41023	- 13	+ 8	26	211	- 15	- 17	9	371	- 19	+ 17
15	024	+ 2	- 8	July 1	10 ^h ●			10	372	- 40	- 14
16	025	+ 5	+ 18	10	41224	- 33	+ 4	12	374	- 42	+ 20
17	026	- 33	+ 8	12	226	- 41	- 22	13	375	- 33	+ 2
18	027	- 26	- 1	13	227	- 8	+ 7	19	381	+ 8	- 3
19	028	- 13	+ 7	14	228	- 30	+ 9	25	12 ^h ●		
21	030	- 59	- 11	16	230	- 30	- 19	31	41392	+ 25	+ 34
27	036	- 53	- 1	24	238	+ 11	+ 36	Jan. 3	395	- 18	+ 5
28	037	- 5	- 6	30	17 ^h ●			14	406	- 31	- 3
29	038	- 27	+ 7	Aug. 6	41250	- 27	+ 12	15	407	- 3	+ 7
30	039	- 22	- 24	8	252	- 44	+ 8	24	7 ^h ●		
Jan. 5	12 ^h ●			9	253	- 36	- 7	Feb. 1	41423	- 15	- 11
11	41050	- 24	- 22	10	254	- 22	- 1	3	425	- 17	- 14
12	051	- 17	- 9	12	256	- 11	- 17	4	426	- 45	- 17
13	052	- 11	- 13	13	257	+ 7	- 32	6	428	- 34	+ 2
14	053	0	+ 8	16	260	- 10	+ 21	7	429	- 18	- 4
15	054	- 16	- 12	18	262	- 9	0	8	430	- 40	- 11
18	057	- 27	+ 21	20	264	+ 21	+ 16	11	433	- 9	- 3
19	058	- 14	0	21	265	- 36	+ 9	12	434	- 19	- 3
Feb. 4	6 ^h ●			29	1 ^h ●			15	437	- 24	+ 10
10	41079	- 33	+ 11	Sept. 4	41278	- 9	- 7	23	2 ^h ●		
11	080	- 13	+ 1	5	279	- 14	- 3	28	41449	- 24	+ 6
14	083	- 46	+ 7	7	281	- 32	- 2	Mar. 3	453	- 57	- 2
15	084	- 42	- 4	10	284	- 17	+ 9	6	456	- 18	+ 10
17	086	- 17	- 2	12	286	- 5	+ 22	8	458	- 12	- 15
22	091	- 40	- 16	13	287	- 30	- 13	9	459	- 21	+ 6
23	092	- 36	+ 18	14	288	- 12	+ 14	10	460	- 23	- 11
24	093	- 35	+ 12	15	289	- 11	- 4	11	461	- 15	+ 3
Mar. 5	22 ^h ●			18	292	- 24	- 12	14	464	- 5	+ 31
15	41111	- 25	+ 6	27	12 ^h ●			23	19 ^h ●		
16	112	- 9	+ 32	Oct. 7	41310	- 6	- 6	30	41479	- 41	- 5
27	123	- 65	+ 10	8	311	- 16	+ 12	31	480	- 29	- 7
Apr. 4	10 ^h ●			10	313	+ 6	+ 16	Apr. 2	482	- 22	+ 3
12	41138	- 10	+ 1	12	315	- 10	+ 20	3	483	- 9	- 8
14	140	- 19	- 19	14	317	+ 28	+ 17	4	484	- 3	+ 14
16	142	- 7	- 2	18	321	- 39	+ 23	5	485	- 17	+ 17
17	143	- 25	+ 4	19	322	- 28	+ 7	6	486	- 7	+ 43
27	153	+ 13	+ 15	27	1 ^h ●			10	490	- 4	+ 26
May 3	20 ^h ●			Nov. 2	41335	- 23	+ 33	13	493	- 4	- 4
11	41166	- 45	+ 8	3	336	+ 9	- 11	22	8 ^h ●		
17	172	- 4	+ 14	5	338	+ 5	+ 15	29	41508	- 26	+ 6
18	173	- 33	- 2	6	339	- 20	+ 25	May 1	510	- 33	+ 8
22	177	- 1	+ 17	7	340	- 9	+ 23	2	511	+ 12	+ 8
23	178	- 19	+ 27	8	341	- 11	+ 18	3	512	- 25	+ 8
June 2	3 ^h ●			10	343	+ 5	+ 7	4	513	+ 1	+ 11
				11	344	- 3	+ 9	5	514	- 8	+ 25
				13	346	+ 9	- 17				

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1868				1868-9				1869			
May 6	41515	- 11	- 2	Sept. 7	41635	- 48	- 39	Feb. 11	2 ^h ●		
7	516	- 16	+ 19	8	636	- 21	- 27	18	41793	- 31	- 7
8	517	- 2	+ 10	9	637	- 25	+ 22	19	794	- 34	- 9
10	519	0	+ 1	16	1 ^h ●			20	795	- 38	- 4
11	520	- 2	+ 2	23	41650	- 35	+ 1	23	798	- 45	- 3
12	521	+ 16	+ 27	24	651	- 25	+ 6	24	799	- 31	- 14
14	523	+ 11	+ 8	25	652	- 3	- 17	25	800	- 32	- 8
21	19 ^h ●			26	653	- 36	- 4	27	802	- 52	+ 3
				30	657	- 19	+ 14				
27	41535	- 19	+ 4	Oct. 1	658	- 26	+ 29	Mar. 2	805	- 22	+ 17
28	536	- 31	+ 10	2	659	- 10	+ 25	12	21 ^h ●		
30	538	- 28	+ 5	7	664	- 71	- 3	22	41824	- 17	- 9
31	539	- 8	- 10	8	665	- 52	+ 22	23	825	- 37	+ 4
				9	666	- 10	+ 18				
June 1	540	- 13	+ 15	15	11 ^h ●	15		Apr. 1	834	- 34	+ 25
3	542	- 15	- 7	23	41679	+ 2	- 15	11	14 ^h ●		
5	544	- 28	+ 8	24	680	- 35	- 3	22	41854	- 37	+ 17
6	545	- 15	+ 2	26	682	- 16	+ 17	25	857	- 17	0
7	546	- 19	+ 5	27	683	- 1	+ 34	27	859	- 31	+ 22
9	548	- 13	+ 14	29	685	+ 1	+ 17	28	860	- 32	+ 39
10	549	- 3	+ 15	30	686	- 7	+ 5	29	861	- 55	+ 38
20	3 ^h ●										
26	41564	- 43	0	Nov. 1	688	- 27	+ 6	May 11	4 ^h ●		
27	565	- 28	+ 13	2	689	- 7	- 8	18	41879	- 18	+ 2
28	566	- 22	+ 16	4	691	- 32	+ 3	19	880	- 17	- 0
29	567	- 21	- 1	5	692	- 52	+ 10	20	881	- 35	- 20
				6	693	- 49	+ 23	22	883	+ 24	- 22
July 1	569	- 3	+ 7	13	23 ^h ●			29	890	- 36	+ 6
4	572	- 30	0	20	41706	- 30	+ 16	31	892	+ 33	+ 52
5	573	- 15	- 15	23	709	0	+ 21				
7	575	+ 19	+ 30	24	710	- 12	+ 19	June 9	16 ^h ●		
9	577	- 12	+ 19	26	712	- 25	+ 18	19	41910	- 9	+ 10
10	578	- 36	+ 13	28	714	- 28	+ 7	20	911	- 23	- 9
19	10 ^h ●							23	914	- 25	- 16
24	41591	- 40	- 9	Dec. 2	718	- 20	+ 4	25	916	- 30	+ 10
25	592	+ 27	+ 10	4	720	- 37	- 8	26	917	- 22	- 19
27	594	+ 2	- 8	6	722	- 29	- 12				
28	595	- 5	- 3	7	723	- 52	- 8	July 9	2 ^h ●		
30	597	- 80	+ 1	13	14 ^h ●			15	41935	- 28	- 6
31	598	- 9	+ 12	19	41734	- 22	+ 7	17	937	- 2	- 10
				23	738	- 19	+ 12	18	938	- 18	+ 17
Aug. 1	599	- 46	- 15	24	739	- 28	+ 10	21	941	- 46	+ 4
2	600	- 24	- 4	25	740	- 49	+ 1	23	943	- 22	- 23
3	601	- 10	+ 4	29	744	- 36	+ 31	25	945	- 13	+ 19
4	602	+ 11	+ 14	30	745	- 29	+ 6	27	947	- 33	+ 2
7	605	+ 8	+ 29	31	746	- 24	+ 13	28	948	- 5	+ 15
8	606	+ 2	+ 19								
11	609	- 14	- 7	Jan. 3	749	- 38	- 17	Aug. 7	10 ^h ●		
17	17 ^h ●			5	751	- 30	- 6	15	41965	- 1	+ 5
27	41624	- 16	+ 19	12	7 ^h ●			16	966	- 7	- 4
29	626	- 14	- 18	20	41765	- 15	+ 1	17	967	- 22	+ 71
31	628	+ 5	+ 8	21	766	- 37	- 3	18	968	- 31	+ 8
				22	767	- 15	+ 3	20	970	- 10	+ 6
Sept. 1	629	+ 5	- 10	23	768	- 38	- 8	21	971	- 37	- 4
2	630	- 15	+ 16	24	769	- 33	- 14	23	973	- 7	- 1
3	631	- 19	+ 9	29	774	- 37	- 6	24	974	- 17	0
4	632	+ 11	+ 24					25	975	+ 18	+ 14
5	633	+ 16	+ 35	Feb. 1	777	- 15	- 17	26	976	+ 2	+ 20
6	634	+ 12	+ 17	4	780	- 41	- 15	27	977	- 2	0

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1869-70				1870				1870			
Aug. 28	41978	- 25	+ 32	Mar. 1	21 ^h ●			Aug. 6	42309	- 27	+ 16
30	980	- 26	- 9	12	42167	- 46	+ 16	8	311	- 5	- 41
				13	168	- 31	- 2	10	313	- 30	+ 27
Sept. 5	18 ^h ●			14	169	- 7	- 2	12	315	- 34	- 7
12	41992	- 6	- 13	23	178	- 8	+ 33	15	318	+ 6	- 10
15	995	+ 1	- 20	31	14 ^h ●			17	320	- 9	+ 29
19	999	- 2	- 1					26	9 ^h ●		
20	42000	- 31	+ 9	Apr. 7	42192	- 17	- 20				
21	001	+ 8	+ 7	9	194	- 23	- 19	Sept. 2	42335	- 14	- 1
22	002	- 22	+ 19	10	195	+ 1	- 9	3	336	- 6	- 6
24	004	- 10	0	11	196	- 28	+ 5	4	337	- 18	0
25	005	- 34	+ 9	12	197	- 35	+ 12	6	339	- 26	- 1
26	006	- 40	- 4	13	198	- 44	+ 5	7	340	- 18	+ 1
27	007	- 49	- 3	14	199	- 26	+ 13	9	342	- 16	- 20
				15	200	- 34	+ 9	10	343	- 2	+ 14
Oct. 5	2 ^h ●			16	201	- 48	+ 19	11	344	- 11	+ 19
11	42020	- 31	+ 1	18	203	- 29	- 9	12	345	+ 2	- 13
12	021	- 4	- 25	19	204	- 57	+ 1	14	347	+ 11	+ 4
15	024	- 13	- 17	20	205	- 50	+ 10	15	348	- 16	- 18
16	025	- 13	+ 8	21	206	- 40	+ 38	24	19 ^h ●		
17	026	- 18	+ 18	30	7 ^h ●						
18	027	- 23	+ 19					Oct. 1	42363	- 22	+ 8
19	028	- 2	+ 7	May 8	42222	- 14	- 6	2	364	- 2	- 13
21	030	+ 5	+ 9	9	223	- 38	+ 8	3	365	- 10	+ 3
27	036	- 25	+ 3	10	224	- 20	- 4	4	366	- 25	- 1
28	037	- 29	- 1	12	226	- 40	+ 11	6	368	- 4	- 29
				13	227	- 37	+ 15	8	370	- 26	+ 4
Nov. 3	12 ^h ●			14	228	- 18	+ 9	9	371	- 27	+ 16
8	42047	+ 6	+ 10	16	230	- 50	+ 18	10	372	- 13	+ 23
9	048	+ 1	- 18	17	231	- 51	+ 12	14	376	- 31	+ 18
11	050	- 17	+ 12	18	232	- 36	+ 2	16	378	- 38	- 6
15	054	- 16	+ 16	19	233	- 27	- 11	17	379	- 21	- 34
16	055	+ 8	+ 14	29	22 ^h ●			18	380	- 15	+ 20
18	057	- 23	- 13					24	4 ^h ●		
19	058	- 21	- 7	June 6	42250	- 33	- 5	31	42392	- 20	- 3
20	059	- 30	0	8	252	- 45	+ 17				
26	065	- 27	+ 1	9	253	- 17	- 1	Nov. 1	393	- 12	- 5
				10	254	- 23	+ 9	2	394	+ 1	+ 5
Dec. 2	23 ^h ●			12	256	- 25	- 1	3	395	- 26	- 2
12	42080	- 8	+ 26	14	258	- 47	+ 1	7	399	- 17	+ 5
14	082	- 20	+ 8	15	259	- 2	+ 3	8	400	- 1	- 3
15	083	- 17	+ 13	20	264	- 8	+ 20	10	402	- 42	- 14
19	087	- 56	+ 19	28	12 ^h ●			11	403	- 10	- 9
20	088	- 15	+ 3					12	404	- 19	+ 20
25	093	- 25	+ 1	July 6	42279	- 25	+ 5	13	405	- 22	- 36
26	094	- 49	+ 15	7	280	- 32	+ 10	14	406	- 40	+ 10
				10	283	- 15	+ 4	15	407	- 23	+ 23
Jan. 1	12 ^h ●			12	285	- 10	- 28	16	408	+ 1	+ 16
10	42108	- 21	- 9	13	286	- 18	+ 1	22	13 ^h ●		
12	110	- 18	- 5	14	287	- 10	- 3				
14	112	- 38	+ 6	15	288	- 30	- 5	Dec. 2	42423	- 29	+ 24
25	123	+ 11	+ 15	16	289	- 16	- 0	4	425	- 28	+ 3
31	4 ^h ●			17	290	- 8	+ 8	12	433	+ 18	0
				19	292	- 4	+ 21	14	435	- 19	- 10
Feb 9	42137	- 3	+ 6	27	23 ^h ●			22	0 ^h ●		
10	138	- 15	- 17					29	42449	0	+ 26
11	139	- 24	- 2	Aug. 5	42308	- 22	- 4	30	450	+ 21	+ 18
12	149	- 34	- 5								

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1871				1871				1871-2			
Jan. 5	42456	- 20	+ 12	July 1	42627	- 15	+ 17	Nov. 28	42772	- 23	+ 11
7	458	- 7	- 12	2	628	+ 7	- 27	Dec. 1	775	- 11	+ 13
9	460	- 2	+ 8	4	630	- 22	+ 1	3	777	- 38	+ 24
12	463	+ 2	+ 22	5	631	+ 1	- 1	4	778	- 7	+ 5
20	13h ●			8	634	+ 24	0	11	16h ●		
26	42476	+ 11	+ 15	9	635	+ 20	- 8	19	42792	+ 17	+ 2
27	477	+ 17	- 4	17	5h ●			24	797	- 21	+ 9
				23	42648	- 20	+ 26	29	802	- 3	+ 5
Feb. 5	486	- 24	+ 7	25	650	+ 1	+ 5	30	803	- 24	+ 31
6	487	+ 1	+ 23	28	653	- 22	+ 10	31	804	- 10	+ 15
8	489	0	+ 22	29	654	+ 4	- 31				
13	494	- 2	+ 32	30	655	- 1	+ 25	Jan. 2	806	- 25	- 4
19	2h ●			31	656	+ 15	- 10	5	809	- 11	+ 38
26	42506	+ 25	+ 9					10	3h ●		
				Aug. 1	657	+ 5	0	14	42817	+ 10	- 15
Mar. 1	509	- 20	- 4	2	658	+ 1	+ 12	15	818	- 10	- 8
2	510	+ 9	- 11	4	660	+ 7	+ 8	16	819	+ 28	+ 12
3	511	+ 21	0	8	664	+ 12	+ 6	18	821	+ 22	- 17
4	512	- 20	+ 11	9	665	0	- 12	19	822	- 13	+ 1
5	513	- 24	- 11	15	19h ●			21	824	+ 10	- 17
6	514	- 1	- 1	22	42677	- 24	- 1	24	827	+ 4	- 14
8	516	+ 36	+ 17	25	680	- 38	+ 2	28	831	- 9	+ 10
9	517	- 14	+ 23	26	681	- 35	+ 10	30	833	- 45	+ 30
20	16h ●			27	682	- 13	+ 3	31	834	- 13	+ 9
				28	683	+ 9	- 6				
April 1	42539	+ 36	+ 1	29	684	+ 7	- 9	Feb. 2	836	- 27	- 16
2	540	- 28	- 13	31	686	- 11	- 5	8	14h ●		
4	542	- 42	- 41					13	42846	+ 5	+ 6
6	544	- 6	+ 44	Sept. 1	687	- 3	- 20	14	847	+ 8	- 3
9	547	+ 6	+ 39	3	689	- 26	- 8	15	848	- 20	- 2
10	548	+ 5	+ 26	4	690	- 19	+ 13	17	850	- 18	0
19	7h ●			14	7h ●			19	852	- 11	- 3
29	42566	- 4	- 6	22	42707	- 10	- 3	20	853	+ 14	+ 22
30	567	- 4	+ 4	24	709	+ 26	- 37	21	854	- 16	+ 5
				26	711	- 3	0	25	858	- 14	+ 42
May 1	568	- 26	+ 6					27	860	- 11	0
2	569	- 24	+ 6	Oct. 2	717	- 38	- 3				
3	570	- 8	+ 20	4	719	- 13	- 8	Mar. 9	1h ●		
4	571	- 20	+ 14	7	722	- 14	- 4	15	42876	- 11	+ 5
6	573	- 4	+ 14	8	723	+ 15	+ 34	16	877	- 6	+ 8
7	574	- 16	- 38	13	18h ●			19	880	- 12	- 2
11	578	+ 28	- 3	22	42736	- 10	- 4	21	882	+ 12	+ 29
18	23h ●			23	737	+ 8	- 18	24	885	- 9	0
26	42592	- 16	+ 2	25	739	+ 12	+ 41	25	886	+ 12	+ 47
28	594	+ 1	- 3	26	740	0	+ 6	26	887	- 20	+ 29
29	595	- 3	+ 14	27	741	+ 26	- 20				
31	597	- 10	+ 11	28	742	+ 5	- 12	April 7	13h ●		
				29	743	- 4	- 15	15	42906	+ 5	- 13
June 1	598	0	+ 27	31	745	+ 20	+ 18	16	907	- 23	0
2	599	+ 4	+ 21					18	909	- 10	+ 8
3	600	- 34	+ 21	Nov. 4	749	- 22	+ 7	22	913	- 35	+ 17
4	601	- 34	+ 20	5	750	- 45	+ 4	23	914	- 27	+ 12
5	602	(- 30)	(+ 84)	12	5h ●			24	915	- 34	+ 27
17	14h ●			17	42761	+ 13	- 15	25	916	- 28	+ 1
26	42622	- 15	+ 22	18	762	- 23	+ 8	28	919	- 8	+ 6
27	623	- 8	0	19	763	+ 9	- 19				
29	625	- 12	- 7	20	764	0	- 9	May 7	1h ●		
30	626	- 27	+ 16	21	765	+ 4	+ 29	15	42935	- 37	+ 7
				24	768	- 32	- 17	16	936	- 1	+ 7

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date	Lunar Day	Tab.—Obs. Unit 0".1.		Date	Lunar Day	Tab.—Obs. Unit 0".1.		Date	Lunar Day	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1872				1872-3				1873			
May 19	42939	- 40	- 1	Oct. 13	43081	+ 12	+ 15	May 2	43275	+ 16	+ 30
20	940	+ 17	+ 15	14	082	+ 25	- 30	5	278	- 3	+ 5
21	941	- 35	+ 29	16	084	- 5	- 6	6	279	- 14	+ 12
22	942	- 31	+ 17	18	086	0	- 16	9	282	- 29	+ 33
23	943	- 42	+ 34	22	090	- 32	+ 11	12	285	- 2	+ 44
24	944	+ 3	- 41	24	092	- 2	+ 3	13	286	- 14	+ 24
25	945	+ 3	+ 6	31	17 ^h ●			16	289	+ 23	- 8
28	948	- 22	+ 2					19	292	- 2	+ 6
June 5	15 ^h ●			Nov. 7	43105	+ 9	- 25	25	21 ^h ●		
14	42964	- 11	+ 20	11	109	- 4	+ 2	31	43303	+ 16	+ 55
15	965	- 23	+ 9	12	110	+ 12	+ 5				
16	966	- 26	+ 5	14	112	+ 6	+ 6	June 2	305	+ 18	+ 15
18	968	+ 25	+ 35	19	117	0	- 4	6	309	+ 38	+ 40
19	969	- 7	+ 14	20	118	- 3	+ 5	7	310	+ 22	+ 6
22	972	+ 8	+ 16	30	7 ^h ●			8	311	+ 4	+ 27
25	975	+ 16	- 13					9	312	- 4	+ 12
28	978	+ 5	+ 29	Dec. 4	43131	+ 8	+ 22	13	316	+ 11	+ 30
July 5	6 ^h ●			7	134	+ 19	+ 6	24	9 ^h ●		
12	42991	- 7	+ 8	9	136	+ 2	- 25				
15	994	- 34	+ 12	11	138	+ 27	- 4	July 1	43333	+ 6	+ 19
16	995	+ 7	+ 4	12	139	+ 1	- 33	4	336	- 9	+ 34
17	996	- 28	+ 8	18	145	+ 14	+ 14	5	337	- 16	+ 3
18	997	- 21	- 1	23	150	- 34	+ 7	6	338	+ 25	+ 15
19	998	- 29	+ 8	24	151	- 29	+ 10	7	339	- 2	+ 14
20	999	+ 4	+ 10	25	152	- 19	+ 9	10	342	- 6	+ 5
21	43000	- 4	+ 10	29	19 ^h ●			12	344	+ 11	- 25
22	001	+ 14	- 16					13	345	- 15	+ 20
23	002	+ 4	- 3	Jan. 3	43160	+ 47	- 15	14	346	- 11	- 31
25	004	+ 3	- 17	5	162	- 2	+ 4	15	347	- 12	- 7
27	006	+ 6	- 3	7	164	+ 20	- 20	18	350	+ 23	- 73
Aug. 3	22 ^h ●			8	165	+ 20	- 18	23	23 ^h ●		
9	43018	- 10	+ 26	10	167	+ 2	- 6	30	43361	+ 19	+ 14
15	024	- 21	+ 3	12	169	+ 14	- 1	31	362	0	+ 51
16	025	- 8	+ 9	19	176	- 2	+ 29				
17	026	+ 32	- 32	22	179	- 14	- 5	Aug. 5	367	0	- 40
18	027	+ 3	+ 2	28	5 ^h ●			7	369	- 9	- 19
19	028	- 6	- 4					9	371	- 48	0
20	029	+ 9	- 21	Feb. 5	43192	+ 2	- 73	11	373	- 5	- 6
23	032	- 17	- 18	10	197	- 43	+ 18	13	375	- 22	- 15
24	033	- 12	- 8	12	199	- 54	+ 11	22	14 ^h ●		
Sept. 2	13 ^h ●			26	15 ^h ●						
11	43050	- 7	+ 21	Mar. 6	43220	0	+ 8	Sept. 1	43393	+ 3	+ 37
12	051	- 3	- 5	7	221	+ 3	0	3	395	+ 9	- 15
13	052	- 8	0	10	224	+ 5	+ 11	8	400	- 22	- 14
15	054	+ 18	+ 8	11	225	+ 7	+ 11	9	401	- 11	- 9
18	057	- 26	- 3	13	227	- 29	+ 14	11	403	+ 2	- 30
19	058	- 11	+ 1	14	228	- 43	- 13	12	404	- 6	0
20	059	- 19	+ 6	28	1 ^h ●			13	405	- 29	- 8
21	060	- 11	+ 7					21	6 ^h ●		
22	061	- 15	- 3	Apr. 2	43246	- 1	+ 1	Oct. 1	43422	+ 5	- 6
24	063	- 14	+ 20	6	250	+ 25	+ 11	3	424	- 6	- 10
Oct. 2	4 ^h ●			7	251	- 10	- 5	5	426	- 9	0
11	43079	+ 30	- 13	9	253	- 7	+ 17	7	428	- 27	- 12
12	080	- 8	- 3	10	254	+ 19	+ 37	8	429	+ 5	+ 22
				13	257	- 13	+ 22	13	434	- 5	+ 15
				15	259	- 14	+ 45	14	435	- 9	+ 11
				18	262	- 25	+ 36	20	23 ^h ●		
				19	263	- 11	+ 30	27	43447	+ 3	+ 20
				26	11 ^h ●						

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1873-4				1874				1874-5			
Oct. 29	43449	+ 3	- 21	Mar. 30	43596	- 19	+ 19	Aug. 5	43720	+ 15	- 1
30	450	- 2	- 35	31	597	+ 26	+ 22	11	16h ●		
Nov. 1	452	- 10	- 10	Apr. 5	602	- 2	+ 43	18	43732	+ 8	+ 42
3	454	+ 16	- 5	6	603	- 38	+ 31	19	733	- 5	+ 36
4	455	- 17	+ 1	8	605	+ 2	+ 27	20	734	+ 10	+ 36
6	457	+ 14	+ 5	16	2h ●			21	735	+ 9	+ 38
7	458	- 2	+ 3	20	43616	- 5	+ 64	22	736	- 3	- 1
11	462	- 38	+ 19	21	617	+ 17	+ 7	25	739	+ 28	- 34
12	463	- 36	+ 6	22	618	+ 19	- 4	26	740	+ 14	- 9
19	16h ●			23	619	- 2	- 12	28	742	+ 13	+ 7
28	43478	+ 5	- 20	24	620	+ 9	+ 8	29	743	+ 8	+ 10
30	480	+ 20	- 15	25	621	- 22	0	Sept. 1	746	- 14	+ 7
Dec. 1	481	- 12	- 15	27	623	- 1	+ 34	3	748	+ 12	+ 12
2	482	- 1	- 25	28	624	+ 40	+ 23	4	749	+ 18	+ 35
6	486	+ 14	+ 5	29	625	+ 32	+ 65	10	6h ●		
8	488	+ 13	+ 31	30	626	+ 25	+ 10	21	43765	+ 11	- 19
10	490	- 11	+ 28	May 1	627	+ 2	+ 22	22	766	+ 6	- 14
19	7h ●			2	628	+ 13	+ 31	25	769	- 9	- 16
24	43503	- 11	- 8	3	629	- 29	- 5	26	770	+ 4	- 13
27	506	+ 12	- 51	10	636	+ 10	+ 8	27	771	+ 8	- 8
29	508	+ 2	- 29	15	10h ●			28	772	+ 10	+ 1
31	510	- 4	+ 8	24	43649	+ 4	+ 25	Oct. 9	23h ●		
Jan. 1	511	- 18	0	26	651	+ 19	+ 20	18	43791	+ 17	- 12
3	513	- 7	- 4	27	652	+ 13	+ 5	19	792	+ 17	- 24
4	514	+ 16	+ 19	28	653	+ 18	+ 10	20	793	+ 7	- 2
5	515	- 24	+ 16	29	654	- 2	+ 26	21	794	+ 37	- 33
7	517	- 15	0	30	655	+ 28	- 2	22	795	+ 17	- 29
11	521	- 14	+ 17	31	656	- 23	+ 14	27	800	+ 9	- 4
17	20h ●			June 3	659	- 3	- 1	28	801	- 26	+ 1
24	43533	- 1	- 8	4	660	+ 28	+ 12	Nov. 8	18h ●		
25	534	+ 22	- 25	5	661	+ 26	+ 16	17	43820	+ 4	- 28
26	535	0	- 27	7	663	+ 13	- 20	19	822	+ 8	- 21
27	536	- 21	+ 11	13	19h ●			20	823	- 5	+ 13
30	539	+ 9	+ 15	19	43674	+ 8	+ 11	22	825	+ 21	- 11
Feb. 3	543	- 4	+ 56	21	676	- 3	+ 36	26	829	0	+ 38
7	547	- 56	+ 27	22	677	+ 1	+ 33	Dec. 1	834	- 42	- 19
8	548	- 36	+ 19	24	679	+ 22	+ 31	2	835	- 1	+ 1
10	550	- 26	+ 13	July 1	686	+ 12	+ 21	8	12h ●		
16	7h ●			3	688	+ 36	- 16	17	43849	+ 5	- 10
24	43563	+ 5	+ 5	4	689	+ 22	- 30	19	851	- 7	- 9
27	566	+ 15	- 29	5	690	+ 19	- 1	21	853	- 12	- 5
28	567	+ 6	+ 9	7	692	+ 21	- 25	25	857	+ 14	- 29
Mar. 1	568	+ 15	+ 22	13	4h ●			29	861	+ 32	- 21
2	569	+ 24	+ 25	18	43702	+ 11	- 38	Jan. 1	864	- 24	+ 12
3	570	- 11	+ 22	19	703	- 1	+ 44	7	5h ●		
6	573	- 19	+ 8	20	704	+ 2	+ 30	13	43875	- 3	- 3
7	574	- 31	- 19	23	707	+ 4	- 6	15	877	+ 10	- 18
9	576	- 36	- 19	27	711	- 2	- 34	18	880	- 16	+ 4
10	577	- 44	+ 7	28	712	+ 4	- 1	20	882	+ 23	+ 15
17	17h ●			29	713	+ 3	- 12	21	883	+ 5	+ 17
23	43589	+ 6	+ 26	30	714	- 24	- 6	30	892	- 32	- 4
24	590	+ 21	+ 10	Aug. 1	716	- 10	- 21	Feb. 5	20h ●		
25	591	+ 41	+ 15	2	717	+ 16	+ 7	15	43907	+ 10	- 12
26	592	+ 29	- 5	4	719	+ 11	+ 9				

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1875				1875-6				1876			
Feb. 18	43910	+ 10	+ 20	Aug. 14	44081	- 15	- 26	Mar. 4	44277	- 5	+ 9
21	913	- 9	- 12	15	082	- 2	- 10	6	279	+ 14	+ 9
22	914	- 10	+ 5	16	083	+ 11	- 27	7	280	+ 20	+ 20
Mar. 7	8 ^h ●			18	085	+ 21	+ 26	9	282	- 4	+ 44
14	43933	+ 6	- 3	20	087	+ 33	+ 1	10	283	+ 4	+ 3
15	934	+ 18	- 3	21	088	+ 18	+ 13	15	288	- 45	+ 11
18	937	+ 22	+ 11	22	089	+ 8	- 2	25	8 ^h ●		
20	939	+ 18	+ 13	30	12 ^h ●			April 2	44305	+ 24	+ 7
21	940	+ 1	+ 22	Sept. 7	44104	- 9	+ 15	3	306	+ 32	+ 5
22	941	- 9	- 12	8	105	- 34	- 6	4	307	+ 8	+ 19
April 5	19 ^h ●			9	106	+ 1	- 18	5	308	+ 39	- 2
12	43961	+ 24	- 17	10	107	- 9	- 6	7	310	+ 13	+ 8
13	962	+ 32	- 8	14	111	- 9	- 4	8	311	+ 18	+ 26
14	963	- 4	- 5	15	112	+ 14	- 13	10	313	+ 6	+ 44
15	964	+ 21	+ 16	17	114	+ 54	+ 5	11	314	- 15	+ 21
16	965	+ 3	+ 15	18	115	+ 33	- 19	14	317	- 27	+ 32
17	966	- 10	+ 1	19	116	+ 18	- 7	23	19 ^h ●		
18	967	- 43	- 19	29	1 ^h ●			29	44331	+ 21	+ 4
19	968	+ 21	+ 11	Oct. 6	44132	- 27	+ 23	May 1	333	+ 3	+ 13
20	969	- 19	+ 9	8	134	- 30	- 6	2	334	+ 4	+ 12
23	972	- 29	+ 9	9	135	+ 20	- 15	3	335	+ 6	+ 14
25	974	- 10	+ 22	11	137	+ 5	- 7	4	336	+ 4	0
May 5	3 ^h ●			12	138	- 10	+ 5	5	337	+ 5	+ 17
11	43989	+ 1	+ 3	13	139	+ 22	- 13	6	338	+ 4	27
12	990	+ 12	+ 16	16	142	+ 17	+ 6	7	339	+ 8	- 2
13	991	- 25	+ 3	17	143	+ 9	- 23	9	341	- 7	+ 2
14	992	- 44	+ 17	20	146	+ 36	+ 6	10	342	- 14	+ 25
15	993	- 9	+ 28	21	147	+ 7	+ 6	12	344	- 14	+ 46
16	994	+ 20	+ 20	28	17 ^h ●			23	3 ^h ●		
17	995	+ 2	+ 33	Nov. 8	44164	+ 4	- 22	29	44360	- 7	+ 7
18	996	+ 21	+ 7	11	167	+ 9	- 21	30	361	+ 7	+ 10
19	997	+ 5	+ 7	14	170	- 11	- 37	June 1	363	0	+ 16
21	999	- 13	- 14	16	172	+ 4	+ 26	10	372	- 4	+ 6
22	44000	- 2	+ 12	17	173	+ 2	- 10	11	373	+ 11	- 9
24	002	- 23	+ 24	19	175	+ 11	- 8	13	375	0	+ 3
25	003	+ 1	+ 9	21	177	+ 16	- 25	21	10 ^h ●		
26	004	+ 6	+ 9	27	12 ^h ●			27	44388	- 5	+ 18
29	007	+ 2	- 13	Dec. 5	44190	+ 2	- 5	July 3	394	+ 15	- 15
June 3	10 ^h ●			7	192	+ 24	- 43	10	401	+ 1	+ 14
10	44018	+ 20	+ 10	12	197	- 14	- 3	13	404	- 13	+ 22
11	019	+ 8	+ 2	13	198	+ 2	+ 12	14	405	+ 10	- 5
15	023	+ 9	+ 15	20	205	+ 5	+ 2	20	17 ^h ●		
16	024	+ 22	+ 14	22	207	+ 8	0	26	44416	- 11	- 6
18	026	- 29	+ 12	27	7 ^h ●			Aug. 1	422	0	- 5
23	031	+ 17	+ 15	Jan. 3	44218	+ 11	- 24	3	424	+ 11	- 38
24	032	+ 22	+ 9	5	220	- 7	+ 3	5	426	- 7	- 1
July 2	17 ^h ●			9	224	- 21	+ 3	7	428	+ 34	+ 18
12	44049	- 2	+ 9	26	2 ^h ●			8	429	+ 3	+ 14
24	061	+ 19	+ 11	31	44245	- 17	- 24	9	430	+ 11	- 9
25	062	+ 2	- 7	Feb. 1	246	- 17	- 7	10	431	- 7	+ 74
26	063	- 6	- 12	2	247	+ 15	- 22	13	434	- 1	- 15
Aug. 1	1 ^h ●			9	254	+ 23	+ 1	19	0 ^h ●		
13	44080	- 17	+ 22	24	18 ^h ●			25	44445	- 2	+ 31
								27	447	- 15	+ 40

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1876-7				1877				1877-8			
Aug. 29	44449	— 8	— 10	Mar. 14	15 ^h ●			Sept. 24	44827	— 3	+ 6
				21	44646	— 29	+ 21	27	830	— 34	+ 8
Sept. 1	452	— 14	— 13	23	648	— 16	+ 8				
8	459	+ 3	— 10	25	650	— 10	+ 11	Oct. 6	10 ^h ●		
17	10 ^h ●			27	652	— 9	+ 15	14	44846	+ 8	— 3
23	44473	+ 4	+ 13	29	654	— 8	+ 49	15	847	— 18	— 8
29	479	+ 9	— 28	30	655	— 6	+ 12	16	848	— 13	— 12
								17	849	— 15	— 3
Oct. 1	481	+ 5	+ 6	April 13	6 ^h ●			18	850	— 16	— 9
3	483	— 6	+ 40	23	44678	— 15	+ 18	20	852	— 4	— 8
4	484	+ 5	— 21	24	679	— 7	+ 29	22	854	— 12	— 4
5	485	+ 1	— 10	25	680	+ 3	+ 30	23	855	— 11	+ 6
11	491	+ 18	+ 64	26	681	— 1	+ 31	24	856	— 6	+ 7
16	22 ^h ●							26	558	— 31	+ 13
29	44508	+ 6	— 18	May 2	687	— 10	+ 9	27	859	— 33	+ 2
31	510	— 9	— 6	5	690	— 1	+ 13	30	862	— 3	+ 12
				6	691	— 1	+ 23	31	863	— 25	+ 35
Nov. 1	511	+ 8	+ 19	12	17 ^h ●						
6	516	— 5	+ 13	24	44708	— 24	— 5	Nov. 4	21 ^h ●		
7	517	+ 1	+ 11	26	710	— 9	— 4	10	44872	— 22	— 39
10	520	— 22	— 5	28	712	— 39	— 22	12	874	— 8	— 11
15	13 ^h ●			29	713	— 29	— 9	13	875	— 2	— 7
24	44533	— 4	— 10	30	714	— 31	— 3	14	876	+ 4	— 11
26	535	+ 5	— 19	June 5	720	— 22	— 10	16	878	0	+ 6
27	536	— 3	— 11	11	3 ^h ●			17	879	— 25	— 7
28	537	— 7	+ 1	15	44729	— 7	+ 29	18	880	— 18	0
29	538	— 5	— 5	16	730	+ 11	+ 30	19	881	+ 3	— 2
				17	731	+ 9	+ 34	20	882	— 14	— 1
Dec. 4	543	— 18	+ 18	18	732	— 19	+ 43	21	883	— 11	+ 23
5	544	— 11	+ 42	19	733	— 28	+ 19	22	884	— 29	+ 5
8	547	— 19	+ 24	20	734	+ 5	+ 11	23	885	— 21	+ 12
15	6 ^h ●			23	737	+ 10	+ 18	27	889	— 32	+ 42
20	44558	— 1	— 7	24	738	— 8	+ 8	29	891	— 22	+ 27
21	559	— 14	— 21	25	739	— 5	+ 3				
30	568	— 29	+ 21	27	741	— 21	— 10	Dec. 4	10 ^h ●		
				29	743	— 21	+ 5	9	44900	— 3	— 39
Jan. 4	573	0	+ 6					11	902	— 24	— 19
5	574	— 21	+ 44	July 2	746	+ 15	+ 5	12	903	— 29	— 26
14	1 ^h ●			4	748	— 28	— 17	13	904	— 33	— 18
21	44589	0	— 17	10	10 ^h ●			14	905	— 28	— 19
22	590	— 27	— 10	15	44758	— 24	+ 44	17	908	— 28	— 53
23	591	— 41	— 8	21	764	+ 26	+ 4	18	909	— 41	— 2
24	592	— 15	— 18	22	765	+ 19	— 54	26	917	— 30	+ 12
25	593	— 11	+ 23	24	767	— 11	— 16	27	918	— 13	+ 38
26	594	— 32	— 11	26	769	+ 15	+ 2	Jan. 3	2 ^h ●		
27	595	+ 10	+ 25	30	773	— 19	— 6	9	44930	— 24	— 10
28	596	+ 8	+ 36					11	932	— 13	— 39
29	597	+ 28	+ 55	Aug. 8	17 ^h ●			15	936	— 42	+ 10
30	598	— 10	0	14	44787	— 21	+ 36	18	939	— 35	+ 33
				17	790	+ 9	+ 14	19	940	— 21	+ 14
Feb. 2	601	— 4	+ 40	20	793	+ 5	— 9	23	944	— 34	+ 49
3	602	— 37	+ 30	22	795	— 7	— 18				
12	21 ^h ●			23	796	+ 3	— 15	Feb. 1	20 ^h ●		
23	44621	— 45	+ 20	31	804	— 19	+ 1	8	44959	— 3	— 17
24	622	— 16	— 13					11	962	— 29	— 11
25	623	— 11	+ 21	Sept. 7	1 ^h ●			12	963	— 25	+ 16
26	624	+ 14	+ 37	21	44824	— 6	— 1	14	965	— 23	+ 29
27	625	+ 5	+ 24	22	825	+ 4	— 8	17	968	— 1	+ 25
28	626	+ 2	+ 17	23	826	— 16	+ 3	18	969	— 34	+ 17

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1878				1878-9				1879			
Mar. 3	15 ^h ●			Sept. 11	45167	- 26	- 7	Apr. 1	45362	- 11	+ 20
10	44988	- 27	+ 17	12	168	- 22	- 3	2	363	- 6	+ 25
12	990	- 9	+ 12	13	169	- 13	+ 24	3	364	- 3	+ 26
13	991	- 27	+ 16	14	170	- 5	+ 25	4	365	+ 9	+ 13
14	992	- 22	+ 4	16	172	- 26	- 1	21	2 ^h ●		
15	993	+ 13	+ 24	18	174	- 60	+ 3	29	45389	- 36	+ 24
16	994	- 5	+ 21	26	2 ^h ●						
22	45000	- 24	- 19					May 1	391	- 5	+ 71
Apr. 2	9 ^h ●			Oct. 3	45188	- 31	- 2	2	392	- 5	+ 25
7	45015	- 7	- 10	4	189	- 23	- 22	3	393	- 1	+ 25
8	016	- 27	+ 34	8	193	- 10	- 3	4	394	0	+ 23
11	019	- 26	+ 16	9	194	- 19	- 4	5	395	+ 9	+ 7
12	020	- 15	+ 15	10	195	- 33	- 14	6	396	+ 17	- 22
14	022	- 27	+ 21	11	196	- 5	+ 12	7	397	- 7	+ 31
15	023	+ 4	+ 28	12	197	- 8	- 14	20	18 ^h ●		
17	025	- 28	+ 52	13	198	- 24	- 8	29	45418	- 29	+ 32
				14	199	- 41	+ 2	30	419	- 33	+ 29
May 2	1 ^h ●			18	203	- 37	+ 34	31	420	- 21	+ 13
11	45048	- 15	+ 21	25	11 ^h ●						
12	049	- 24	+ 13					June 3	423	+ 4	0
13	050	- 5	+ 16	Nov. 1	45216	- 28	- 8	4	424	- 28	+ 10
14	051	- 18	+ 8	2	217	- 22	+ 1	11	431	- 22	- 22
20	057	- 45	- 4	3	218	- 34	- 2	19	8 ^h ●		
31	14 ^h ●			4	219	- 6	+ 9	25	45444	- 70	+ 31
				6	221	- 28	- 12	28	447	- 19	+ 7
June 7	45074	- 10	+ 46	7	222	- 2	- 7	29	448	- 4	- 2
8	075	- 29	+ 23	10	225	- 10	+ 2				
11	078	0	+ 6	11	226	- 29	+ 13	July 1	450	+ 5	- 8
18	085	- 34	- 17	17	232	- 21	+ 15	5	454	- 30	- 11
19	086	- 28	- 2	18	233	- 43	+ 16	7	456	- 3	- 18
21	088	- 15	- 5	23	21 ^h ●			18	21 ^h ●		
23	090	+ 12	+ 21	29	45243	- 36	- 2	24	45472	- 13	+ 22
30	1 ^h ●							28	476	+ 1	- 20
July 7	45103	- 36	+ 3	Dec. 8	252	- 37	+ 8	29	477	- 11	- 15
13	109	- 20	+ 24	13	257	- 16	+ 29				
14	110	- 45	- 26	17	261	- 39	+ 18	Aug. 1	480	- 20	- 3
15	111	- 40	- 13	18	262	- 38	- 25	4	483	- 25	- 12
16	112	- 26	- 9	23	9 ^h ●			5	484	- 5	- 18
17	113	- 36	- 19	Jan. 2	45276	- 27	+ 26	11	490	- 15	+ 8
18	114	- 13	+ 12	4	278	- 24	- 15	17	8 ^h ●		
19	115	- 26	- 18	5	279	- 13	+ 4	22	45500	- 4	+ 14
20	116	- 26	- 15	7	281	- 61	+ 43	25	503	+ 1	- 6
21	117	- 6	- 20	8	282	- 46	+ 41	28	506	+ 10	- 33
29	10 ^h ●			22	0 ^h ●			29	507	- 15	- 37
								30	508	- 10	- 20
Aug. 6	45132	- 10	+ 25	Feb. 20	16 ^h ●			31	509	- 7	- 2
7	133	- 6	+ 9								
8	134	- 7	+ 17	Mar. 1	45332	- 20	+ 26	Sept. 1	510	- 22	+ 7
12	138	- 32	+ 16	2	333	- 18	+ 25	2	511	- 5	- 28
17	143	- 2	- 4	3	334	- 37	+ 35	3	512	- 10	- 26
27	18 ^h ●			4	335	- 39	+ 12	6	515	- 22	- 4
				6	337	- 5	+ 19	7	516	- 12	+ 9
Sept. 3	45159	0	+ 18	7	338	- 19	+ 14	9	518	- 22	+ 54
6	162	- 15	- 5	8	339	- 27	+ 11	15	18 ^h ●		
7	163	- 32	- 11	9	340	- 15	+ 41	24	45532	- 7	- 1
8	164	- 32	- 11	22	9 ^h ●			25	533	+ 5	- 29
10	166	- 34	+ 4	30	45360	- 45	+ 15	26	534	- 7	- 21
				31	361	- 15	+ 32	27	535	- 10	- 7

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1879-80				1880				1880-1			
Oct. 1	45539	- 2	- 5	Mar. 19	45703	- 43	+ 17	Sept. 21	45883	+ 13	- 8
2	540	+ 7	- 1	21	705	- 29	+ 14	23	885	- 35	+ 79
3	541	+ 23	+ 12	22	706	- 21	+ 35	24	886	- 23	+ 30
15	3 ^h ●			23	707	+ 27	+ 22				
21	45558	- 19	- 23	24	708	- 16	+ 22	Oct. 3	17 ^h ●		
25	562	+ 1	+ 4	25	709	- 18	+ 16	11	45902	+ 1	- 40
				26	710	- 38	+ 11	12	903	+ 9	- 26
Nov. 2	570	- 42	+ 7	28	712	- 29	+ 15	14	905	- 4	+ 7
5	573	- 54	+ 22	30	714	- 26	+ 22	15	906	- 6	- 20
7	575	- 11	+ 16					17	908	0	+ 14
13	13 ^h ●			April 9	3 ^h ●			20	911	- 3	- 23
18	45585	- 18	- 19	16	45730	- 53	+ 35	23	914	- 14	+ 22
23	590	- 14	- 54	17	731	- 25	+ 16	24	915	- 42	+ 31
28	595	- 26	+ 17	20	734	- 24	+ 32				
29	596	- 28	+ 12	21	735	- 33	+ 17	Nov. 2	4 ^h ●		
				22	736	- 9	+ 10	8	45929	- 5	- 34
Dec. 1	598	- 10	+ 22	23	737	- 4	+ 3	10	931	+ 15	- 5
2	599	- 27	+ 37	25	739	- 20	- 7	11	932	- 12	+ 8
3	600	- 17	+ 33	26	740	- 41	+ 7	12	933	+ 19	+ 11
6	603	- 28	+ 3	30	744	- 18	+ 103	16	937	+ 3	+ 5
12	23 ^h ●							17	938	- 2	+ 37
18	45614	- 14	- 6	May 8	18 ^h ●			19	940	- 26	+ 9
21	617	- 30	- 17	15	45758	- 58	+ 32	20	941	- 34	+ 35
22	618	- 8	+ 4	16	759	- 33	+ 7	26	947	- 47	- 3
23	619	- 20	+ 6	17	760	- 44	+ 19				
24	620	- 24	- 6	18	761	- 48	+ 19	Dec. 1	15 ^h ●		
29	625	- 5	+ 32	20	763	- 18	+ 10	6	45956	- 14	+ 20
30	626	- 13	+ 35	22	765	- 4	- 5	7	957	- 15	- 22
				23	766	+ 5	- 15	9	959	- 11	- 1
Jan. 2	629	- 38	+ 26	24	767	- 24	+ 7	10	960	- 6	- 8
4	631	- 3	+ 33	25	768	- 21	- 18	12	962	- 39	+ 8
11	11 ^h ●			28	771	- 31	- 21	15	965	- 11	+ 15
17	45643	- 11	- 20					16	966	- 22	+ 19
18	644	- 9	+ 19	June 7	10 ^h ●			18	968	- 17	+ 36
20	646	- 14	- 5	13	45786	- 39	+ 22	23	973	- 27	+ 5
22	648	- 18	+ 16	23	796	+ 5	- 35	24	974	- 34	- 5
25	651	- 36	+ 22	25	798	+ 22	+ 7	31	2 ^h ●		
26	652	- 1	+ 20								
29	655	- 31	- 6	July 1	804	- 39	- 16	Jan. 5	45985	+ 13	- 7
30	656	- 24	+ 27	7	1 ^h ●			6	986	- 7	- 2
				15	45817	- 9	- 2	7	987	+ 11	- 4
Feb. 1	658	0	+ 4	20	822	+ 8	- 13	12	992	- 23	+ 18
3	660	- 15	- 17	22	824	- 11	+ 23	13	993	0	+ 28
9	23 ^h ●			24	826	- 3	- 9	15	995	- 18	+ 35
16	45672	- 10	+ 7	30	832	- 46	+ 16	29	13 ^h ●		
17	673	- 13	- 7								
19	675	- 25	+ 15	Aug. 5	16 ^h ●			Feb. 6	46016	- 12	- 6
21	677	- 41	+ 20	19	45851	+ 5	- 13	8	018	- 26	+ 22
22	678	- 20	+ 19	22	854	- 14	- 20	12	022	+ 1	+ 19
24	680	- 10	+ 32	23	855	+ 11	- 19	13	023	- 21	+ 10
25	681	- 29	+ 21					15	025	- 11	+ 14
26	682	- 47	+ 9	Sept. 4	5 ^h ●			16	026	- 17	+ 45
28	684	- 30	+ 10	10	45872	- 13	- 62	27	24 ^h ●		
				12	874	- 39	- 22				
Mar. 3	688	- 37	- 2	13	875	+ 8	- 7	Mar. 8	46045	- 32	+ 14
10	13 ^h ●			15	877	- 3	- 18	10	047	- 22	+ 12
17	45701	- 23	+ 18	16	878	+ 3	- 44	11	048	- 19	+ 17
18	702	- 29	+ 23	18	880	0	- 18	13	050	+ 10	+ 45
				19	881	- 15	- 22				

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1881				1881-2				1882			
Mar. 14	46051	- 30	+ 17	Aug. 5	46190	- 15	- 12	Feb. 1	46364	+ 50	- 6
15	052	- 23	+ 20	6	191	- 41	- 6	10	373	- 29	- 24
16	053	- 26	- 11	7	192	- 3	- 8	17	15 ^h ●		
17	054	- 24	- 33	10	195	- 26	+ 7	24	46386	+ 8	- 5
22	059	- 8	- 10	14	199	- 43	+ 11	26	388	- 22	- 1
29	11 ^h ●			24	9 ^h ●						
April 3	46070	- 28	- 16	Sept. 3	46218	0	- 67	Mar. 2	392	- 14	+ 5
4	071	- 49	+ 34	4	219	- 4	- 15	3	393	+ 6	+ 25
6	073	- 34	+ 19	13	228	- 35	+ 19	4	394	- 9	+ 24
7	074	- 17	+ 21	22	24 ^h ●			6	396	- 1	- 26
8	075	- 15	+ 13	30	46244	- 48	- 19	12	402	- 3	- 31
9	076	- 20	+ 3					19	oh ●		
12	079	- 32	- 8	Oct. 1	245	- 10	- 10	26	46415	- 6	+ 21
13	080	- 15	- 13	2	246	- 19	- 34	27	416	- 17	+ 4
15	082	- 37	- 12	3	247	+ 10	0	29	418	- 18	+ 24
17	084	- 25	- 13	4	248	+ 18	+ 3	30	419	+ 10	+ 1
27	22 ^h ●			5	249	+ 13	- 14	31	420	- 4	+ 18
				6	250	+ 6	+ 6				
May 4	46100	- 16	- 67	9	253	- 27	+ 7	April 1	421	+ 6	- 16
6	102	- 25	+ 7	14	258	- 50	+ 10	3	423	- 9	- 20
7	103	- 27	+ 19	15	259	- 51	+ 32	5	425	- 16	- 53
8	104	- 32	+ 21	16	260	- 57	- 16	6	426	- 18	- 25
10	106	- 18	+ 8	22	15 ^h ●			7	427	- 16	- 32
11	107	- 23	+ 14	29	46272	- 26	- 29	9	429	- 44	- 45
12	108	- 30	- 3	31	274	- 9	- 9	10	430	- 6	- 49
13	109	- 19	- 32					17	10 ^h ●		
15	111	+ 1	- 13	Nov. 3	277	(- 39)	(+ 82)	24	46443	- 32	+ 14
16	112	- 18	- 14	6	280	(- 82)	(+ 13)	27	446	- 18	- 18
19	115	+ 10	0	8	282	- 14	+ 50	30	449	- 28	+ 7
21	117	- 36	- 24	10	284	- 24	+ 67				
22	118	- 31	- 23	12	286	- 33	+ 12	May 1	450	- 10	- 32
27	12 ^h ●			16	290	- 33	+ 2	2	451	- 53	+ 1
				21	4 ^h ●			4	453	- 14	- 35
June 1	46127	- 48	- 45	27	46300	- 16	- 2	6	455	- 1	+ 3
2	128	- 12	+ 30	28	301	- 13	- 6	7	456	- 5	- 10
3	129	(- 73)	(- 75)	29	302	0	- 5	8	457	- 19	+ 10
4	130	- 30	+ 48					16	20 ^h ●		
7	133	+ 6	+ 60	Dec. 1	304	- 8	+ 2	26	46474	- 22	- 17
8	134	- 24	+ 5	2	305	- 16	+ 16	27	475	- 7	- 8
14	140	+ 6	- 43	3	306	- 9	+ 9	28	476	- 31	- 20
19	145	- 27	- 1	4	307	- 30	+ 7	29	477	- 52	- 7
26	2 ^h ●			5	308	- 10	+ 22	30	478	- 8	- 20
				7	310	- 20	+ 31	31	479	+ 1	- 20
July 1	46156	- 61	- 66	12	315	- 36	+ 11				
4	159	- 3	+ 40	20	17 ^h ●			June 1	480	- 13	+ 23
5	160	- 15	+ 4	29	46331	- 28	+ 24	4	483	- 12	- 10
8	163	- 14	- 26	30	332	- 22	+ 17	15	7 ^h ●		
10	165	- 18	- 8					25	46503	- 10	- 13
11	166	- 22	- 9	Jan. 1	334	- 16	- 5	27	505	0	- 20
12	167	+ 17	- 4	3	336	- 17	+ 15	30	508	- 10	- 9
13	168	- 18	- 7	5	338	- 27	+ 24				
14	169	- 30	- 25	6	339	- 17	- 4	July 1	509	- 4	- 29
15	170	- 16	+ 4	7	340	+ 1	+ 23	2	510	- 18	- 27
17	172	- 53	- 38	9	342	- 32	- 47	7	515	- 14	- 3
18	173	- 36	+ 20	12	345	- 12	0	14	19 ^h ●		
25	17 ^h ●			19	5 ^h ●			21	46528	- 31	+ 4
Aug. 4	46189	(- 31)	(- 111)	24	46356	- 4	+ 1	23	530	- 21	- 2
				27	359	+ 2	+ 1	24	531	+ 1	- 6

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1882-3				1883				1883			
July 26	46533	+ 20	- 8	Jan. 14	46699	+ 10	- 5	July 13	46873	- 4	- 2
28	535	- 18	- 15	15	700	+ 5	- 20	15	875	- 3	- 18
29	536	- 2	- 29	16	701	+ 8	- 14	17	877	- 28	+ 1
Aug. 1	539	- 34	- 37	18	703	- 17	- 14	19	879	- 23	- 18
2	540	- 20	+ 25	20	705	- 25	+ 19	20	880	- 4	- 3
3	541	- 26	- 1	23	708	+ 6	+ 6	22	882	+ 8	+ 2
13	9 ^h ●			27	712	+ 6	- 9	Aug. 2	13 ^h ●		
21	46558	- 37	- 22	29	714	+ 2	- 7	9	46899	- 21	- 7
23	560	+ 10	- 13	30	715	- 2	- 13	10	900	- 15	- 8
24	561	+ 14	- 11	Feb. 7	6 ^h ●			11	901	- 22	- 12
25	562	- 3	+ 6	11	46726	- 4	- 2	13	903	- 33	- 12
26	563	+ 8	+ 2	13	728	- 1	- 13	14	904	+ 11	- 15
27	564	- 1	- 8	18	733	+ 34	- 10	16	906	- 18	+ 14
29	566	- 13	+ 17	22	737	- 1	+ 9	18	908	+ 30	+ 21
30	567	- 10	+ 16	23	738	- 15	+ 32	19	909	- 1	+ 36
Sept. 2	570	- 11	+ 14	Mar. 3	746	- 24	+ 41	23	913	- 14	+ 1
12	1 ^h ●			8	17 ^h ●			Sept. 1	2 ^h ●		
20	46587	- 23	- 11	18	46760	+ 11	- 1	8	46928	- 23	- 19
21	588	+ 23	+ 14	23	765	- 31	+ 4	9	929	- 14	- 34
22	589	+ 10	- 18	24	766	+ 18	- 12	12	932	+ 10	- 4
23	590	+ 2	- 30	25	767	- 6	- 18	14	934	+ 7	- 9
25	592	+ 15	- 9	26	768	+ 16	+ 2	15	935	+ 30	0
26	593	+ 12	- 1	30	772	- 39	- 20	16	936	- 11	+ 36
27	594	+ 5	- 3	31	773	+ 4	+ 2	17	937	+ 12	- 12
29	596	- 2	+ 19	April 1	774	- 11	- 17	18	938	+ 12	+ 16
Oct. 1	598	- 31	+ 10	7	2 ^h ●			19	939	- 15	- 5
11	18 ^h ●			15	46787	+ 5	0	20	940	+ 1	+ 1
18	46614	- 11	+ 38	16	788	+ 4	+ 9	24	944	+ 7	0
22	618	+ 9	+ 6	17	789	- 5	+ 5	30	18 ^h ●		
23	619	+ 2	+ 3	25	797	- 7	- 4	Oct. 10	46959	- 18	- 22
24	620	- 10	+ 1	29	801	- 10	+ 6	12	961	- 2	+ 7
25	621	- 3	+ 19	May 6	10 ^h ●			13	962	+ 4	+ 13
26	622	- 1	- 8	13	46814	- 27	+ 16	16	965	+ 21	- 3
29	625	- 30	- 8	15	816	+ 4	+ 9	17	966	+ 14	+ 12
30	626	- 27	+ 6	16	817	+ 8	+ 24	18	967	+ 10	- 10
Nov. 1	628	- 16	+ 14	17	818	+ 4	- 3	20	969	- 8	- 5
5	632	- 1	0	18	819	- 4	- 7	30	12 ^h ●		
10	11 ^h ●			19	820	- 8	- 10	Nov. 8	46987	+ 17	- 10
17	46643	- 18	- 19	22	823	- 23	- 7	9	988	+ 31	+ 12
19	645	- 3	- 1	23	824	- 10	- 9	10	989	- 3	+ 19
20	646	- 7	+ 15	24	825	- 37	- 26	12	991	+ 9	+ 2
24	650	+ 17	+ 14	27	828	- 2	+ 2	13	992	+ 19	- 41
25	651	+ 18	+ 23	28	829	+ 20	+ 4	14	993	+ 11	+ 15
27	653	- 7	+ 27	30	831	+ 12	+ 41	16	995	+ 5	- 35
Dec. 3	659	- 21	- 30	June 4	18 ^h ●			17	996	- 6	+ 8
10	4 ^h ●			10	46841	+ 1	+ 3	21	47000	+ 14	+ 12
18	46673	- 21	+ 46	12	843	+ 32	+ 5	29	7 ^h ●		
19	674	+ 8	+ 5	13	844	- 12	- 4	Dec. 5	47013	+ 29	- 50
21	676	- 9	+ 16	16	847	- 5	+ 5	6	014	+ 21	- 5
22	677	- 18	+ 9	17	848	+ 15	- 2	7	015	+ 11	- 27
23	678	+ 7	+ 17	28	859	+ 5	- 9	11	019	- 7	- 4
27	682	- 22	+ 33	July 4	3 ^h ●			14	022	+ 16	+ 16
Jan. 8	18 ^h ●			11	46871	- 6	+ 10	15	023	+ 5	- 23
								19	027	+ 17	+ 4

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1883-4				1884				1884-5			
Dec. 21	47029	- 56	+ 20	June 14	47199	+ 24	+ 21	Dec. 3	47365	+ 13	- 5
22	030	- 9	- 18	16	201	+ 11	- 5	4	366	- 23	+ 21
29	1 ^h ●			22	18 ^h ●			9	371	- 25	- 12
Jan. 6	47044	+ 9	- 12	28	47212	+ 17	+ 11	17	1 ^h ●		
8	046	- 19	- 8	29	213	+ 20	+ 7	25	47386	+ 7	+ 7
9	047	- 18	+ 5	July 1	215	+ 16	+ 19	31	392	- 25	+ 11
10	048	- 5	- 2	2	216	- 4	- 13	Jan. 4	396	+ 1	- 30
11	049	- 7	+ 1	4	218	+ 25	+ 2	5	397	+ 1	- 25
12	050	- 10	+ 10	5	219	+ 6	- 4	6	398	- 28	- 1
14	052	- 1	+ 33	6	220	- 15	- 9	7	399	- 15	- 29
15	053	- 9	+ 19	7	221	+ 10	+ 11	15	21 ^h ●		
20	058	- 44	- 12	10	224	+ 20	+ 6	23	47414	- 19	- 12
27	17 ^h ●			13	227	- 1	+ 9	25	416	- 27	- 15
Feb. 2	47070	- 1	+ 12	22	1 ^h ●			27	418	- 37	- 3
3	071	+ 13	+ 19	Aug. 1	47245	+ 13	- 11	29	420	- 30	+ 3
4	072	- 2	+ 10	2	246	- 22	- 11	Feb. 1	423	- 49	+ 11
7	075	- 4	+ 28	3	247	- 42	+ 1	2	424	- 21	- 3
9	077	0	+ 18	4	248	- 11	- 4	4	426	- 61	+ 6
10	078	+ 1	+ 20	5	249	- 4	- 15	6	428	- 9	+ 4
11	079	- 8	+ 25	7	251	+ 40	- 19	14	14 ^h ●		
12	080	- 13	- 1	8	252	0	- 26	19	47440	- 39	+ 14
15	083	- 22	- 16	14	258	+ 12	- 9	21	442	- 11	- 6
19	087	- 21	0	15	259	- 22	- 18	23	444	- 38	- 13
26	7 ^h ●			20	10 ^h ●			24	445	- 24	+ 1
Mar. 5	47101	- 2	- 7	Sept. 1	47275	- 2	- 19	25	446	- 23	+ 8
7	103	+ 5	0	4	278	- 22	- 11	28	449	- 7	+ 8
8	104	+ 22	+ 6	5	279	- 8	+ 28	Mar. 1	450	- 36	+ 28
12	108	- 8	- 7	7	281	+ 7	0	2	451	- 18	- 8
14	110	+ 9	- 13	8	282	- 2	+ 11	7	456	+ 31	+ 25
15	111	- 10	- 10	12	286	+ 2	- 39	9	458	- 14	- 38
16	112	+ 1	+ 5	18	22 ^h ●			16	6 ^h ●		
18	114	- 25	+ 22	28	47301	+ 14	+ 4	25	47473	- 10	+ 1
26	18 ^h ●			30	303	+ 11	- 12	27	475	- 13	+ 11
April 2	47128	+ 16	+ 6	Oct. 3	306	- 13	+ 24	28	476	- 21	+ 10
3	129	+ 26	- 15	4	307	- 1	+ 13	29	477	- 1	+ 9
5	131	+ 12	- 6	10	313	- 32	- 3	30	478	- 34	+ 5
9	135	+ 31	- 6	12	315	+ 13	+ 12	31	479	- 13	- 10
10	136	- 36	+ 3	18	13 ^h ●			Apr. 2	481	- 20	+ 14
13	139	- 30	+ 3	26	47328	+ 4	- 23	3	482	- 7	- 7
25	3 ^h ●			28	330	+ 8	+ 4	4	483	- 29	+ 25
May 3	47158	+ 31	+ 1	29	331	+ 28	+ 4	14	18 ^h ●		
4	159	+ 11	- 3	30	332	0	+ 17	20	47498	- 13	+ 1
8	163	- 4	- 1	31	333	+ 4	+ 10	21	499	+ 5	+ 5
9	164	+ 16	- 22	Nov. 3	336	+ 17	- 26	22	500	+ 13	+ 9
10	165	- 8	- 41	6	339	- 11	+ 17	25	503	- 7	+ 24
11	166	- 13	- 37	7	340	- 13	- 36	27	505	+ 35	+ 4
13	168	+ 2	- 10	10	343	0	+ 4	29	507	- 6	+ 3
24	1 ^h ●			17	6 ^h ●			May 1	509	+ 8	+ 9
30	47184	0	+ 11	23	47355	- 14	- 29	2	510	+ 5	- 1
June 1	186	+ 5	- 4	24	356	+ 5	+ 6	5	513	- 15	+ 15
7	192	+ 6	0	26	358	+ 8	- 22	7	515	+ 26	+ 19
10	195	- 25	- 6	27	359	+ 5	+ 7	14	3 ^h ●		
12	197	+ 11	+ 13	28	360	+ 15	- 1	22	47529	+ 7	- 2

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1885				1885-6				1886			
May 23	47530	- 10	+ 2	Nov. 18	47703	+ 21	- 3	June 15	47905	+ 38	+ 11
24	531	- 1	- 1	21	706	+ 13	- 4	19	909	+ 17	+ 47
26	533	+ 10	+ 4	30	715	+ 5	- 16	22	912	+ 15	+ 14
27	534	- 37	+ 6					26	916	+ 37	- 31
29	536	+ 1	+ 27	Dec. 6	1 ^h ●			July 1	10 ^h ●		
				10	47724	- 12	- 4	5	47924	- 14	+ 14
June 1	539	+ 3	+ 15	15	729	+ 4	+ 7	12	931	+ 20	- 10
2	540	+ 25	- 1	22	736	- 28	- 6	14	933	- 8	+ 12
3	541	+ 31	+ 23	23	737	- 14	- 4	15	934	0	- 1
12	11 ^h ●			24	738	- 20	- 20	16	935	- 5	+ 17
18	47555	+ 2	- 6	28	742	- 39	- 3	17	936	+ 16	+ 9
20	557	+ 5	+ 5	29	743	- 24	- 23	18	937	+ 11	+ 16
26	563	+ 5	+ 9					19	938	+ 28	+ 32
July 1	568	+ 25	+ 26	Jan. 4	20 ^h ●			21	940	+ 31	+ 13
3	570	- 38	- 14	13	47757	- 14	+ 7	25	944	- 5	+ 18
5	572	+ 10	+ 4	14	758	+ 3	- 7	30	17 ^h ●		
6	573	+ 26	+ 7	16	760	- 11	- 13				
11	17 ^h ●			17	761	- 29	+ 2	Aug. 5	47954	- 11	+ 5
20	47586	+ 15	- 10	18	762	- 49	+ 25	7	956	+ 2	- 29
22	588	+ 39	- 5	19	763	- 5	- 4	10	959	+ 24	+ 1
23	589	+ 16	- 6					11	960	+ 13	+ 13
24	590	+ 14	+ 20	Feb. 3	15 ^h ●			13	962	+ 5	+ 6
25	591	+ 11	- 4	8	47782	- 11	+ 35	16	965	- 3	+ 13
26	592	+ 3	- 21	13	787	+ 9	+ 3	29	1 ^h ●		
				15	789	- 24	+ 5	3	47983	+ 5	- 25
Aug. 10	0 ^h ●			21	795	+ 4	- 1	6	985	- 11	+ 9
16	47612	+ 20	+ 16	23	797	+ 15	+ 18	7	986	+ 6	+ 5
18	614	+ 14	+ 5					10	989	+ 8	+ 6
21	617	+ 15	+ 20	Mar. 5	10 ^h ●			11	990	+ 12	+ 12
22	618	+ 2	+ 12	11	47812	- 23	+ 12	13	992	- 10	+ 2
24	620	+ 18	+ 20	16	817	0	- 7	15	994	- 12	+ 22
25	621	+ 22	+ 12	17	818	- 18	+ 2	16	995	+ 36	+ 15
27	623	- 10	- 2	19	820	- 26	- 9	17	996	+ 5	+ 13
29	625	+ 35	+ 32	21	822	- 4	- 26	18	997	- 35	- 19
31	627	+ 24	+ 15					27	9 ^h ●		
Sept. 8	9 ^h ●			Apr. 4	3 ^h ●			Oct. 2	48010	+ 14	- 6
15	47641	+ 14	- 24	11	47842	- 6	- 8	4	012	+ 12	- 3
18	644	+ 2	+ 5	12	843	- 6	+ 5	5	013	+ 4	- 2
19	645	- 3	- 19	15	846	- 6	- 1	6	014	+ 4	- 13
20	646	+ 25	- 7	20	851	+ 1	+ 4	10	018	+ 5	+ 16
21	647	+ 10	- 10					11	019	+ 26	+ 7
24	650	+ 10	+ 37	May 3	16 ^h ●			21	029	- 19	+ 6
25	651	+ 18	+ 27	9	47869	- 11	- 4	26	19 ^h ●		
26	652	+ 7	+ 14	13	873	+ 2	- 13				
				15	875	+ 11	+ 14	Nov. 2	48040	+ 9	- 7
Oct. 2	658	- 9	- 13	17	877	+ 43	+ 1	4	042	+ 29	- 11
7	20 ^h ●			18	878	- 6	- 2	9	047	+ 20	+ 18
16	47671	+ 35	- 28	19	879	- 15	+ 24	10	048	+ 1	- 7
18	673	+ 16	- 8	20	880	- 6	+ 3	17	055	- 5	- 1
22	677	- 2	+ 37					18	056	- 15	- 34
25	680	- 6	+ 14	June 2	2 ^h ●			19	057	- 15	- 1
27	682	- 21	+ 2	6	47896	- 10	+ 15	25	7 ^h ●		
				8	898	- 19	+ 14				
Nov. 6	9 ^h ●			9	899	+ 2	0	Dec. 1	48068	+ 13	- 19
15	47700	+ 27	+ 5	10	900	- 14	+ 7	2	069	+ 12	+ 6
16	701	+ 22	- 1	11	901	+ 14	+ 6	3	070	+ 8	+ 9
17	702	+ 14	+ 4	12	902	+ 6	+ 7	4	071	+ 8	+ 2
				13	903	+ 26	0				

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1886-7				1887				1887-8			
Dec. 7	48074	+ 7	+ 25	May 31	48243	- 3	- 9	Oct. 30	48390	+ 2	+ 10
8	075	+ 5	- 5					31	391	- 1	- 7
10	077	0	0	June 5	248	- 9	- 4				
12	079	+ 2	- 5	6	249	+ 1	+ 1	Nov. 1	392	+ 14	- 3
15	082	- 4	- 13	8	251	- 4	+ 29	4	395	- 10	- 5
17	084	- 52	- 13	9	252	+ 7	+ 5	5	396	- 30	+ 3
18	085	- 10	- 12	11	254	+ 3	+ 22	14	20h ●		
19	086	- 7	- 29	12	255	- 26	+ 12	25	48415	+ 4	+ 24
24	22h ●			13	256	+ 20	+ 4	27	417	+ 9	+ 9
31	48097	- 3	+ 10	14	257	- 14	+ 13	29	419	0	- 3
				20	23h ●			30	420	- 13	- 3
Jan. 1	098	- 56	+ 44	25	48267	+ 38	- 45				
4	101	+ 3	+ 29	30	272	0	- 1	Dec. 5	425	- 4	- 17
5	102	- 30	+ 14					6	426	- 47	- 15
6	103	- 13	- 13	July 1	273	+ 16	- 7	8	428	- 6	- 18
10	107	- 23	+ 8	2	274	+ 24	0	14	7h ●		
12	109	- 3	- 30	3	275	+ 14	- 3	26	48445	- 10	- 14
16	113	+ 4	+ 9	5	277	- 11	- 16	27	446	+ 7	- 11
23	15h ●			7	279	- 1	- 1	31	450	- 9	- 2
30	48126	+ 25	- 2	10	282	+ 12	0				
				11	283	- 9	+ 10	Jan. 3	453	- 14	- 27
Feb. 1	128	+ 9	- 14	12	284	+ 10	+ 26	5	455	- 22	- 7
4	131	- 19	- 5	20	9h ●			12	21h ●		
6	133	+ 2	+ 7	26	48297	- 7	+ 8	17	48466	- 2	+ 14
7	134	- 5	- 1	27	298	- 22	+ 1	23	472	- 7	- 10
15	139	+ 19	+ 29	28	299	+ 20	- 37	26	475	+ 10	+ 11
22	10h ●			29	300	+ 21	- 6	27	476	+ 42	- 4
27	48153	+ 7	- 3	30	301	+ 28	- 3	29	478	- 26	- 36
28	154	0	- 19	31	302	+ 33	+ 22				
								Feb. 1	481	- 24	+ 3
Mar. 1	155	- 16	- 13	Aug. 2	304	+ 13	- 2	11	12h ●		
2	156	+ 6	+ 13	3	305	+ 12	+ 14	24	48503	+ 17	- 6
3	157	+ 10	- 21	4	306	+ 5	0	25	504	+ 11	+ 12
6	160	- 26	- 6	5	307	+ 12	- 12				
10	164	+ 17	+ 1	6	308	- 16	+ 14	Mar. 1	509	+ 16	+ 2
12	166	- 13	- 8	7	309	- 15	+ 25	4	512	- 64	+ 19
13	167	+ 22	+ 16	8	310	+ 11	+ 12	12	4h ●		
16	170	+ 7	- 34	18	18h ●			18	48525	+ 4	- 17
24	4h ●			23	48324	- 1	+ 25	21	528	+ 16	+ 15
				24	325	+ 22	- 12	28	535	+ 19	- 10
Apr. 2	48186	+ 1	+ 18	25	326	+ 11	+ 17				
3	187	- 8	- 2	31	332	+ 12	- 1	April 10	21h ●		
4	188	- 14	+ 2					19	48556	- 21	- 17
7	191	- 6	- 16	Sept. 2	334	+ 17	+ 4	21	558	- 17	- 20
8	192	- 2	- 8	6	338	+ 27	+ 4	26	563	+ 23	+ 17
10	194	+ 5	- 11	7	339	- 12	+ 24	29	566	+ 8	+ 13
11	195	+ 18	+ 33	8	340	+ 9	+ 3				
22	21h ●			17	2h ●			May 10	13h ●		
				28	48359	+ 21	+ 14	18	48584	- 14	+ 13
May 3	48216	- 24	+ 5	29	360	+ 14	+ 18	22	588	- 10	+ 4
5	218	+ 2	+ 10					23	589	- 1	- 9
7	220	- 9	- 18	Oct. 1	362	+ 4	+ 18	26	592	- 30	+ 17
8	221	- 17	- 12	2	363	- 6	+ 8	27	593	+ 15	- 6
9	222	- 3	+ 1	10	371	- 2	+ 12	30	596	+ 22	+ 13
12	225	+ 7	+ 11	16	11h ●						
14	227	+ 9	+ 9	22	48382	+ 9	- 10	June 9	5h ●		
22	11h ●			24	384	+ 22	+ 4	16	48612	+ 66	- 47
26	48238	+ 12	- 24	25	385	+ 21	+ 19	24	620	+ 14	+ 12
30	242	- 12	+ 17	28	388	+ 10	+ 11	30	626	+ 2	+ 6

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1888-9				1889				1889-90			
July 8	18h ●			Jan. 9	48812	+ 14	- 8	Aug. 17	49025	- 23	- 4
18	48643	+ 9	- 9	17	820	+ 9	- 12	26	2h ●		
19	644	- 13	+ 5	19	822	+ 25	+ 5				
21	646	- 15	+ 1	22	825	+ 3	+ 17	Sept. 1	49039	- 3	+ 10
23	648	- 10	+ 5	30	21h ●			6	044	- 17	- 22
26	651	+ 5	+ 9					7	045	- 5	+ 1
				Feb. 4	48837	+ 10	+ 16	10	048	- 4	+ 26
Aug. 7	6h ●			8	841	+ 31	- 38	11	049	+ 7	+ 8
14	48669	- 9	- 20	9	842	+ 10	- 14	16	054	- 8	+ 1
18	673	+ 1	- 9	12	845	+ 23	- 3	24	15h ●		
22	677	0	- 1	15	848	- 2	- 16				
23	678	- 5	+ 8	16	849	- 7	- 17	Oct. 3	49070	+ 5	+ 11
26	681	+ 16	+ 9	21	854	+ 2	+ 22	4	071	+ 4	+ 24
28	683	+ 12	+ 5	22	855	- 9	+ 31	5	072	+ 6	+ 10
29	684	+ 10	0					7	074	+ 2	+ 13
30	685	- 22	- 8	Mar. 1	10h ●			8	075	+ 9	+ 7
				9	48869	- 14	- 31	9	076	- 13	+ 7
Sept. 5	17h ●			11	871	- 1	- 20	12	079	+ 3	+ 5
13	48698	+ 13	0	13	873	+ 3	- 14	13	080	- 10	+ 1
14	699	+ 23	- 2	18	878	+ 6	+ 23	16	083	- 11	- 13
19	704	+ 25	- 1	19	879	- 4	+ 21	17	084	- 28	+ 3
20	705	+ 8	+ 18	21	881	- 28	+ 45	24	2h ●		
				22	882	- 15	+ 11	30	49096	0	0
Oct. 5	3h ●			30	24h ●			31	097	+ 10	+ 4
11	48725	+ 18	- 7								
13	727	+ 30	+ 6	April 5	48895	- 15	- 16	Nov. 1	098	- 28	+ 31
14	728	+ 48	+ 6	6	896	- 16	- 20	2	099	+ 15	+ 12
15	729	+ 33	+ 5	7	897	- 23	- 26	4	101	0	+ 14
17	731	+ 22	+ 13	8	898	+ 24	+ 1	5	102	+ 3	+ 4
19	733	+ 23	+ 15	11	901	- 8	- 15	6	103	+ 17	+ 2
20	734	+ 9	- 19	15	905	+ 4	+ 9	8	105	+ 16	- 7
22	736	+ 3	- 18	18	908	+ 4	+ 22	12	109	- 13	- 11
23	737	- 6	+ 7	29	14h ●			22	14h ●		
24	738	+ 25	+ 14	May 6	48925	- 7	- 43	30	49126	+ 2	+ 19
30	744	- 15	+ 18	8	927	- 21	0				
				16	935	- 22	+ 36	Dec. 1	127	+ 20	+ 29
Nov. 3	12h ●			23	942	- 23	+ 18	2	128	- 8	+ 12
9	48753	+ 16	+ 2	29	5h ●			3	129	+ 2	+ 12
13	757	+ 25	+ 17					11	137	- 8	+ 17
14	758	+ 18	+ 19	June 3	48952	- 6	+ 3	22	1h ●		
17	761	+ 23	+ 3	13	962	- 33	+ 16	28	49153	- 7	+ 33
18	762	0	- 15	16	965	- 4	+ 23	29	154	+ 11	+ 9
19	763	- 22	+ 4	18	967	+ 21	- 6	31	156	+ 10	- 3
20	764	- 2	- 35	27	21h ●						
23	767	- 1	- 10					Jan. 4	160	+ 5	- 9
27	771	0	- 12	July 4	48982	- 23	+ 2	8	164	- 3	+ 1
				5	983	+ 5	0	9	165	- 38	+ 4
Dec. 2	22h ●			6	984	- 10	- 5	20	12h ●		
7	48780	+ 15	+ 1	10	988	- 19	+ 13	27	49182	+ 22	- 3
9	782	+ 8	+ 22	20	998	- 7	- 5	29	184	- 3	- 8
12	785	+ 10	+ 17	21	999	+ 16	- 43				
13	786	+ 29	+ 12	27	12h ●			Feb. 2	188	+ 20	- 13
19	792	- 4	- 25					5	191	+ 7	+ 9
21	794	- 36	+ 1	Aug. 2	49010	+ 2	+ 20	7	193	- 29	+ 9
22	795	+ 1	- 3	6	014	- 35	+ 2	9	195	+ 3	+ 32
24	797	+ 1	- 15	7	015	- 31	+ 5	11	197	- 2	+ 34
25	798	- 5	+ 10	8	016	- 12	+ 4	18	22h ●		
				9	017	- 9	- 12	23	49208	+ 4	+ 22
Jan. 1	9h ●			11	019	+ 1	+ 8	27	212	- 6	- 22
8	48811	- 2	- 7								

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1890				1890-1				1891			
Mar. 2	49215	+ 15	- 10	Aug. 22	49382	- 3	+ 15	Feb. 8	14 ^h ●		
3	216	+ 8	- 23	23	383	+ 9	+ 12	13	49551	+ 3	- 15
5	218	- 5	- 27	27	387	+ 29	- 15	15	553	+ 14	- 24
6	219	+ 4	+ 1	29	389	+ 7	+ 24	16	554	+ 10	- 14
8	221	- 9	+ 40	30	390	+ 2	+ 24	17	555	+ 17	- 15
9	222	+ 9	+ 19	31	391	- 3	- 12	22	560	+ 13	- 43
11	224	- 38	+ 20					24	562	+ 16	+ 24
20	9 ^h ●			Sept. 1	392	- 8	- 14	25	563	+ 11	+ 27
26	49238	+ 12	- 2	2	393	+ 2	- 35	26	564	+ 9	0
28	240	+ 10	- 9	13	20 ^h ●			27	565	- 10	+ 35
29	241	- 10	- 12	20	49410	- 1	+ 1	Mar. 2	568	+ 1	+ 32
30	242	- 13	- 7	23	413	- 18	- 27	9	24 ^h ●		
31	243	+ 5	- 17	24	414	+ 5	+ 8	18	49583	+ 5	+ 1
April 1	244	+ 2	+ 5	25	415	- 2	- 3	19	584	+ 12	- 3
2	245	- 9	- 7	26	416	0	+ 4	21	586	- 3	+ 1
3	246	0	- 3	27	417	+ 11	- 11	22	587	+ 10	+ 13
4	247	+ 23	+ 2	Oct. 1	421	- 5	+ 4	23	588	+ 14	- 4
7	250	+ 13	+ 12	2	422	- 13	+ 8	26	591	- 4	+ 19
18	20 ^h ●			4	424	- 19	- 20	April 8	9 ^h ●		
29	49271	+ 7	- 24	7	427	- 22	- 26	17	49612	0	- 6
30	272	- 10	- 3	13	11 ^h ●			18	613	+ 12	- 7
May 1	273	+ 6	- 3	22	49441	+ 19	- 5	20	615	- 5	- 6
2	274	+ 12	+ 19	25	444	+ 16	+ 20	23	618	+ 15	+ 8
3	275	+ 17	- 3	26	445	+ 20	- 12	24	619	- 11	+ 27
6	278	- 21	+ 9	27	446	- 1	+ 18	25	620	+ 15	+ 30
18	8 ^h ●			29	448	+ 11	- 8	26	621	- 19	+ 10
23	49294	- 8	0	Nov. 2	452	- 15	- 18	May 2	627	- 1	+ 14
24	295	+ 1	- 8	3	453	- 41	- 5	7	18 ^h ●		
25	296	- 18	- 6	5	455	- 34	+ 2	13	49637	+ 3	- 20
26	297	- 39	- 5	12	2 ^h ●			14	638	+ 2	+ 19
28	299	- 25	- 1	17	49466	+ 4	- 16	17	641	- 9	+ 6
30	301	- 9	- 1	24	473	+ 12	- 11	19	643	- 6	+ 19
31	302	- 8	- 6	25	474	+ 12	- 2	22	646	+ 6	- 2
June 2	304	- 29	+ 11	26	475	+ 15	+ 6	26	650	+ 26	+ 13
7	309	+ 4	+ 34	29	478	+ 4	- 8	28	652	+ 24	- 8
10	312	+ 37	+ 10	30	479	- 7	- 19	30	654	+ 25	- 4
16	22 ^h ●			Dec. 6	485	- 19	+ 11	June 6	4 ^h ●		
26	49327	- 18	- 2	11	15 ^h ●			11	49665	- 44	- 17
27	328	- 17	- 3	21	49499	+ 46	- 4	12	666	- 25	- 30
29	330	- 26	+ 3	24	502	+ 18	- 6	16	670	+ 8	- 1
30	331	- 16	+ 5	25	503	+ 8	+ 10	17	671	+ 15	+ 10
July 1	332	- 19	+ 4	Jan. 4	513	- 1	+ 15	19	673	+ 27	+ 25
9	340	+ 3	+ 10	10	3 ^h ●			20	674	+ 38	+ 32
16	13 ^h ●			15	49523	- 12	- 23	29	683	+ 20	+ 11
26	49356	- 14	- 6	16	524	+ 30	- 5	July 5	16 ^h ●		
28	358	- 32	- 8	17	525	+ 24	- 7	15	49698	+ 6	+ 15
29	359	+ 19	- 9	18	526	+ 31	- 15	17	700	+ 32	+ 20
31	361	+ 19	+ 6	21	529	+ 26	+ 5	22	705	+ 37	- 1
Aug. 1	362	- 10	+ 4	22	530	+ 27	+ 4	24	707	+ 42	+ 8
3	364	+ 10	- 4	24	532	+ 5	- 4	27	710	+ 33	- 4
4	365	+ 2	- 14	25	533	- 8	- 8	Aug. 4	5 ^h ●		
5	366	+ 1	- 9	26	534	- 10	+ 14	Sept. 2	20 ^h ●		
7	368	- 10	- 18	31	539	+ 17	+ 44	Oct. 2	13 ^h ●		
15	4 ^h ●			Feb. 1	540	- 12	+ 41	9	49781	+ 6	- 39
								12	784	+ 15	- 2
								14	786	+ 5	+ 1

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1891-2				1892				1892-3			
Oct. 15	49787	+ 46	+ 3	April 11	49960	+ 8	+ 19	Sept. 20	13 ^h ●		
17	789	+ 4	- 13	14	963	+ 15	+ 23				
				16	965	+ 9	+ 26	Oct. 1	50127	- 4	+ 25
Nov. 1	7 ^h ●			26	10 ^h ●			3	129	- 15	+ 35
8	49810	+ 28	+ 3					5	131	0	+ 16
9	811	+ 23	- 4	May 6	49984	+ 3	+ 25	6	132	+ 27	- 4
11	813	+ 26	- 1	8	986	+ 23	+ 16	7	133	+ 17	- 5
12	814	- 17	- 1	9	987	- 2	+ 40	8	134	- 12	- 31
13	815	+ 14	+ 9	10	988	- 5	+ 20	9	135	+ 8	- 25
17	819	+ 31	+ 3	11	989	+ 22	+ 26	10	136	+ 12	+ 17
19	821	+ 36	+ 10	12	990	+ 11	+ 24	20	6 ^h ●		
20	822	+ 5	- 3	14	992	- 10	+ 31				
21	823	- 42	- 4	15	993	+ 7	+ 3	Nov. 1	50157	- 26	- 10
25	827	+ 20	+ 15	18	996	+ 29	+ 10	3	159	- 7	- 7
30	24 ^h ●			25	18 ^h ●			5	161	- 7	+ 2
				30	50007	+ 11	- 12	6	162	- 5	- 3
Dec. 8	49839	+ 29	- 6					19	1 ^h ●		
9	840	+ 13	+ 10	June 1	009	+ 3	+ 16	27	50182	+ 14	+ 4
10	841	+ 2	+ 29	2	010	- 1	+ 4	29	184	- 2	- 11
11	842	+ 23	- 5	5	013	+ 17	+ 18	30	185	+ 7	+ 7
16	847	+ 22	- 17	7	015	+ 13	+ 9				
17	848	+ 15	+ 1	8	016	+ 16	- 7	Dec. 4	189	- 2	- 17
18	849	- 5	+ 26	9	017	+ 10	+ 10	10	195	- 3	- 28
19	850	0	- 17	10	018	- 4	+ 10	12	197	- 8	- 10
20	851	- 37	+ 6	12	020	+ 10	+ 32	18	20 ^h ●		
30	15 ^h ●			17	025	+ 30	+ 8	23	50207	- 8	+ 8
				24	2 ^h ●			24	208	- 3	+ 7
Jan. 4	49865	+ 13	+ 8					25	209	- 1	+ 7
6	867	+ 28	- 9	July 2	50039	+ 2	+ 24	26	210	+ 15	+ 1
7	868	0	+ 1	3	040	+ 18	+ 3	27	211	+ 14	- 21
8	869	+ 22	- 5	4	041	- 3	+ 2	28	212	+ 3	- 14
11	872	+ 3	+ 2	7	044	- 12	+ 7	29	213	- 14	- 27
15	876	+ 15	- 17	8	045	+ 1	+ 4				
18	879	+ 26	+ 3	10	047	+ 24	+ 22	Jan. 1	216	+ 18	+ 4
20	881	+ 15	+ 3	23	12 ^h ●			2	217	+ 8	+ 4
29	5 ^h ●			29	50065	- 2	+ 23	3	218	+ 1	+ 16
				30	066	- 7	+ 4	4	219	+ 19	- 9
Feb. 5	49896	+ 6	- 16					6	221	0	- 29
7	898	+ 4	+ 5	Aug. 4	071	- 18	- 5	17	13 ^h ●		
11	902	+ 40	+ 10	6	073	- 21	+ 10	27	50241	- 9	+ 22
13	904	+ 2	- 12	10	077	+ 45	+ 13	28	242	- 36	- 11
17	908	- 1	- 2	11	078	+ 23	- 12	29	243	- 26	+ 20
27	16 ^h ●			12	079	+ 27	- 12				
				13	080	+ 35	- 8	Feb. 4	249	- 37	+ 26
Mar. 7	49926	+ 40	- 11	14	081	+ 28	- 12	5	250	- 27	+ 25
12	931	+ 31	+ 16	15	082	+ 20	- 16	8	253	- 55	+ 14
13	932	+ 24	+ 12	16	083	+ 11	- 17	16	4 ^h ●		
14	933	+ 19	+ 12	21	23 ^h ●			20	50264	- 3	- 15
17	936	- 46	+ 43	30	50096	- 17	+ 11	24	268	- 9	- 5
18	937	- 22	+ 53					25	269	+ 5	- 7
19	938	- 4	+ 35	Sept. 3	100	- 24	+ 7	26	270	- 11	- 6
28	1 ^h ●			4	101	+ 2	+ 29	28	272	+ 5	+ 13
				5	102	+ 15	+ 5				
April 2	49951	- 9	+ 35	6	103	+ 1	+ 17	Mar. 1	273	- 7	+ 13
3	952	- 5	- 18	7	104	+ 18	- 12	2	274	+ 6	+ 20
4	953	+ 19	- 8	8	105	+ 25	+ 6	4	276	+ 6	+ 7
5	954	+ 3	+ 8	10	107	+ 15	- 4	5	277	- 46	+ 6
7	956	+ 1	+ 11	11	108	+ 38	- 23	6	278	+ 7	+ 8
10	959	+ 9	+ 36	13	110	+ 17	+ 22	7	279	- 26	- 9

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1893				1893				1893-4			
Mar. 8	50280	- 34	+ 16	July 17	50406	0	+ 13	Dec. 18	50555	- 6	- 14
9	281	- 46	+ 35	21	410	- 12	- 2	19	556	- 12	- 39
10	282	- 6	+ 23	22	411	+ 1	+ 17	21	558	- 9	0
17	17 ^h ●			25	414	- 26	+ 6	22	559	- 15	- 12
22	50293	- 19	- 3	26	415	0	+ 5	25	562	+ 1	+ 30
23	294	- 15	+ 16	30	419	+ 12	- 2	26	563	0	+ 16
25	296	+ 4	- 16	31	420	+ 12	+ 27	29	566	- 4	+ 16
26	297	+ 8	- 7								
27	298	+ 15	- 1	Aug. 5	425	+ 19	+ 5	Jan. 6	15 ^h ●		
28	299	+ 21	- 4	11	9 ^h ●			11	50578	- 21	+ 2
29	300	- 4	- 14	17	50436	- 23	+ 20	12	579	- 8	- 23
30	301	+ 7	- 0	18	437	- 17	+ 32	13	580	+ 13	- 23
31	302	+ 9	+ 1	19	438	0	+ 8	17	584	- 20	+ 2
				20	439	- 9	- 7	18	585	- 28	+ 17
Apr. 2	304	+ 5	+ 29	22	441	- 19	+ 7	20	587	+ 6	+ 8
3	305	- 2	+ 16	23	442	+ 8	- 37	21	588	- 7	+ 1
16	3 ^h ●			24	443	- 8	- 6	22	589	- 20	+ 14
21	50322	- 6	- 24	25	444	- 10	- 10	23	590	- 28	- 21
22	323	- 3	+ 2	26	445	0	- 14	27	594	- 16	+ 10
23	324	+ 15	+ 5	27	446	+ 7	+ 4	29	596	- 20	+ 2
24	325	+ 1	- 8	28	447	+ 4	- 3				
25	326	- 2	+ 3					Feb. 5	10 ^h ●		
26	327	+ 17	+ 5	Sept. 9	19 ^h ●			12	50609	- 4	- 1
27	328	+ 1	+ 20	22	50471	- 14	+ 14	13	610	+ 13	- 56
30	331	+ 5	+ 19	23	472	+ 22	- 11	15	612	- 36	+ 8
				24	473	+ 13	+ 2	16	613	- 22	+ 1
May 1	332	- 18	+ 29	25	474	+ 35	+ 17	18	615	+ 15	+ 10
3	334	+ 10	+ 6	27	476	+ 11	+ 6	19	616	- 27	- 3
4	335	- 4	+ 4	28	477	+ 39	- 14	20	617	- 11	- 11
6	337	- 13	- 5	29	478	- 9	- 26	21	618	- 4	- 1
7	338	+ 20	+ 8	30	479	- 28	- 12	22	619	- 18	- 17
8	339	+ 38	- 3					24	621	+ 3	+ 4
10	341	- 12	- 15	Oct. 1	480	+ 9	- 17	25	622	- 46	+ 7
15	11 ^h ●			2	481	+ 12	- 35	26	623	- 16	+ 12
21	50351	+ 1	+ 25	3	482	+ 15	+ 4				
22	352	- 6	+ 13	9	8 ^h ●			Mar. 7	2 ^h ●		
25	355	- 2	+ 3	16	50494	+ 1	- 28	14	50638	- 19	+ 14
26	356	- 8	+ 21	18	496	+ 2	- 14	15	639	- 18	- 1
27	357	+ 1	+ 29	19	497	- 2	- 12	16	640	+ 10	- 10
31	361	+ 24	+ 5	22	500	- 19	+ 3	17	641	+ 17	- 2
				24	502	+ 13	- 3	18	642	+ 14	+ 2
June 2	363	+ 9	+ 19	26	504	- 24	- 8	23	647	- 21	+ 23
5	366	+ 51	+ 19	27	505	- 2	- 21	24	648	- 22	- 5
13	18 ^h ●			29	507	+ 5	+ 24	25	649	- 14	+ 21
17	50377	- 11	+ 21	30	508	+ 18	- 1	26	650	- 16	+ 9
18	378	+ 4	+ 20	31	509	+ 3	+ 3	27	651	0	0
23	383	+ 5	+ 10								
24	384	+ 27	+ 45	Nov. 8	1 ^h ●			Apr. 5	16 ^h ●		
25	385	+ 5	+ 4	20	50528	- 7	- 3	10	50664	- 14	- 20
27	387	- 31	+ 22	22	530	- 1	- 9	13	667	+ 19	0
28	388	+ 1	0	23	531	+ 4	- 15	14	668	- 4	+ 19
29	389	- 23	- 3	24	532	- 12	- 6	16	670	+ 8	+ 6
30	390	+ 29	- 2					17	671	- 1	+ 16
				Dec. 1	539	+ 1	+ 4	18	672	+ 12	+ 11
July 1	391	+ 35	+ 13	2	540	- 18	+ 14	21	675	- 3	+ 1
5	395	+ 57	+ 22	7	20 ^h ●			23	677	- 53	+ 3
6	396	+ 31	- 5	13	50550	+ 41	- 11	25	679	- 13	0
7	397	+ 33	+ 17	14	551	- 9	- 21				
13	1 ^h ●			16	553	+ 6	- 24	May 5	3 ^h ●		

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1894				1894-5				1895			
May 13	50696	- 33	- 2	Dec. 19	50909	- 18	- 5	June 5	51071	+ 22	+ 5
14	697	+ 3	+ 10	20	910	- 4	+ 20	6	072	+ 31	+ 4
17	700	+ 41	+ 24	26	14 ^h ●			7	073	- 52	- 33
18	701	+ 1	+ 8					8	074	- 23	+ 5
20	703	- 37	- 9	Jan. 3	50923	- 6	+ 10	10	076	- 42	+ 1
23	706	- 18	0	4	924	- 14	- 31	11	077	- 11	+ 6
27	710	- 29	+ 41	7	927	- 8	- 26	12	078	+ 19	+ 1
				15	935	- 24	- 19	14	080	- 15	+ 8
June 3	11 ^h ●			17	937	- 7	- 26	15	081	+ 32	+ 15
12	50725	- 9	- 4	25	9 ^h ●			22	10 ^h ●		
21	734	- 35	- 22	31	50950	+ 11	- 10	29	51094	- 32	+ 4
24	737	- 81	+ 41								
27	740	+ 1	- 13	Feb. 3	953	- 13	- 30	July 1	096	- 11	+ 3
				5	955	- 14	+ 23	2	097	0	- 4
July 2	18 ^h ●			6	956	- 33	+ 18	6	101	- 28	- 3
9	50751	- 18	- 9	7	957	- 23	+ 19	7	102	- 5	- 31
11	753	- 17	- 16	8	958	- 23	+ 11	8	103	+ 1	- 13
13	755	+ 10	- 2	9	959	- 57	+ 8	9	104	- 31	0
14	756	- 10	+ 5	11	961	0	- 7	12	107	+ 7	+ 1
21	763	+ 22	+ 5	12	962	- 25	- 2	13	108	- 17	- 8
				13	963	- 6	+ 33	14	109	+ 22	- 4
Aug. 1	0 ^h ●			15	965	- 28	- 4	16	111	0	- 13
6	50778	- 31	+ 31	16	966	- 42	- 23	21	18 ^h ●		
8	780	- 13	- 6	24	5 ^h ●			26	51120	- 30	+ 16
15	787	- 17	- 7					27	121	- 33	+ 4
16	788	+ 3	+ 5	Mar. 4	50981	+ 6	+ 11	31	125	+ 10	+ 35
20	792	+ 8	+ 10	9	986	- 31	+ 26				
25	797	- 24	+ 43	10	987	- 22	+ 22	Aug. 4	129	- 16	- 1
30	8 ^h ●			13	990	- 21	+ 25	6	131	+ 7	- 9
				17	994	- 9	+ 10	7	132	+ 13	+ 7
Sept. 9	50811	- 22	- 7	25	22 ^h ●			10	135	+ 12	- 12
10	812	- 40	- 22					11	136	- 16	- 3
11	813	- 28	- 14	Apr. 1	51008	- 9	+ 33	13	138	- 27	- 16
12	814	- 25	+ 10	3	010	0	+ 16	14	139	- 10	- 4
15	817	- 6	- 4	4	011	+ 6	+ 8	20	1 ^h ●		
28	18 ^h ●			5	012	- 5	+ 12	27	51151	- 14	+ 22
				7	014	- 22	+ 15	28	152	- 26	- 28
Oct. 14	50845	+ 6	+ 6	9	016	- 42	+ 20	30	154	- 4	- 20
15	846	+ 24	- 5	10	017	- 6	+ 4	31	155	- 18	+ 2
16	847	+ 12	- 3	11	018	- 23	0				
22	853	- 1	+ 14	12	019	+ 1	- 23	Sept. 2	157	+ 2	- 26
28	6 ^h ●			24	13 ^h ●			3	158	- 9	- 13
								4	159	- 2	- 4
Nov. 4	50865	- 16	- 19	May 4	51040	+ 10	+ 6	7	162	- 13	- 13
6	867	- 4	- 5	6	042	+ 17	+ 15	8	163	+ 23	+ 2
8	869	+ 6	- 7	7	043	+ 7	+ 1	10	165	- 31	+ 1
14	875	+ 14	+ 1	8	044	- 18	- 13	11	166	- 35	+ 1
15	876	+ 5	+ 4	9	045	- 17	+ 6	12	167	- 18	+ 40
16	877	+ 8	+ 39	10	046	- 11	+ 11	18	9 ^h ●		
18	879	0	+ 2	11	047	- 31	+ 6	24	51178	- 31	- 7
19	880	+ 8	+ 17	15	051	- 15	+ 4	25	179	- 24	- 21
26	21 ^h ●			24	1 ^h ●			26	180	+ 11	- 12
				28	51063	- 18	+ 4	27	181	- 5	0
Dec. 3	50893	+ 5	- 18	29	064	- 20	+ 37	28	182	- 27	- 1
6	896	- 13	- 19	30	065	- 10	+ 3	29	183	- 16	- 3
8	898	0	- 29	31	066	- 1	+ 21	30	184	- 28	+ 5
9	899	- 6	- 20								
11	901	- 29	+ 6	June 1	067	- 7	+ 15	Oct. 1	185	- 23	- 3
18	908	+ 12	- 4	2	068	+ 9	- 2	2	186	- 9	+ 8

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1895-6				1896				1896-7			
Oct. 3	51187	- 40	- 2	Mar. 2	51333	- 1	+ 36	Aug. 8	17 ^h ●		.
4	188	- 6	+ 7	4	335	- 27	- 7	16	51494	- 4	- 3
6	190	- 15	- 1	13	23 ^h ●			17	495	0	- 10
9	193	- 40	+ 16	22	51352	- 44	+ 11	20	498	- 4	- 4
10	194	- 45	+ 26	23	353	- 23	+ 9	21	499	- 10	- 12
11	195	- 12	+ 26	25	355	- 12	+ 14	22	500	- 13	- 20
17	18 ^h ●			27	357	- 17	+ 17	26	504	+ 5	- 9
24	51207	+ 7	- 18	28	358	- 16	+ 14	27	505	+ 26	0
25	208	- 9	0	29	359	+ 10	+ 30	28	506	+ 19	+ 7
27	210	- 15	+ 2	30	360	- 12	+ 28	29	507	- 14	- 13
28	211	- 18	+ 3								
29	212	- 5	- 14	April 3	364	- 5	+ 5	Sept. 7	2 ^h ●		
30	213	- 17	- 1	12	16 ^h ●			13	51521	- 13	+ 4
				20	51380	- 20	+ 6	16	524	- 6	- 9
Nov. 1	215	- 20	- 8	21	381	- 12	+ 8	19	527	- 16	+ 5
2	216	+ 6	+ 11	22	382	- 24	+ 19	20	528	+ 2	+ 13
3	217	- 12	+ 2	23	383	- 40	+ 13	23	531	+ 22	+ 11
4	218	+ 5	+ 2	24	384	- 31	+ 7	26	534	- 36	+ 4
5	219	- 9	- 4	26	386	- 20	+ 12	27	535	- 18	0
6	220	- 23	+ 48	27	387	- 36	+ 11	28	536	- 38	- 17
9	223	- 7	+ 10	28	388	- 18	- 22	29	537	- 13	+ 32
12	226	- 12	+ 35	29	389	- 3	+ 25				
16	5 ^h ●			30	390	- 39	- 8	Oct. 6	10 ^h ●		
22	51235	- 21	- 30					18	51555	- 28	+ 16
26	239	- 11	+ 7	May 12	8 ^h ●			20	557	- 30	- 11
27	240	- 25	0	21	51410	- 26	+ 15	21	558	+ 12	+ 14
30	243	- 28	- 8	24	413	- 4	+ 12	24	561	- 7	+ 10
				26	415	- 12	- 9	25	562	- 15	+ 13
Dec. 1	244	- 24	0	30	419	- 27	0	27	564	- 41	+ 44
3	246	- 43	+ 29	31	420	- 12	+ 15	28	565	- 11	+ 23
4	247	+ 6	+ 28					29	566	- 40	+ 23
7	250	- 39	- 3								
9	252	- 14	+ 15	June 3	423	- 13	- 1	Nov. 4	19 ^h ●		
15	18 ^h ●			4	424	+ 8	+ 6	9	51576	- 30	- 18
21	51263	- 20	+ 4	5	425	- 5	- 7	10	577	- 14	+ 1
22	264	- 36	- 15	10	21 ^h ●			13	580	- 20	- 4
23	265	- 30	+ 6	16	51435	- 24	+ 12	18	585	- 27	- 6
31	273	- 30	+ 12	18	437	- 22	+ 12	19	586	- 28	- 16
				19	438	- 24	+ 9	20	587	- 8	+ 11
Jan. 8	281	- 22	+ 12	20	439	- 27	+ 10	22	589	- 17	+ 9
14	10 ^h ●			23	442	- 17	- 8	26	593	- 43	+ 28
19	51291	- 40	- 2	24	443	- 28	+ 10	28	595	- 44	- 8
20	292	- 39	- 4	26	445	- 12	- 1	29	596	- 21	+ 11
24	296	- 49	- 8	28	447	- 28	- 2				
26	298	- 16	+ 27	29	448	- 14	- 8	Dec. 4	6 ^h ●		
28	300	- 48	+ 17					11	51607	- 37	- 1
29	301	- 35	+ 2	July 3	452	+ 10	- 3	14	610	- 40	- 2
30	302	- 5	+ 18	5	454	- 11	- 14	15	611	- 32	+ 4
				10	8 ^h ●			18	614	- 25	+ 32
Feb. 2	305	+ 1	+ 19	18	51466	- 8	+ 18	21	617	- 14	+ 57
13	4 ^h ●			19	467	- 7	+ 11	22	618	+ 2	+ 19
22	51324	- 12	- 28	20	468	- 7	- 14	23	619	- 10	- 3
23	325	- 37	+ 6	22	470	- 12	- 7	25	621	- 21	+ 21
24	326	- 50	+ 20	23	471	- 21	+ 19	26	622	+ 6	+ 2
25	327	- 26	+ 8	24	472	- 17	+ 4	28	624	- 9	+ 24
28	330	- 2	+ 19	25	473	- 15	+ 25				
29	331	+ 5	+ 12	26	474	- 6	+ 6	Jan. 2	18 ^h ●		
				27	475	+ 6	- 6	13	51639	- 47	- 19
Mar. 1	332	- 6	+ 36	28	476	- 9	+ 7	14	640	- 21	+ 12

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1897				1897-8				1898			
Jan. 15	51641	- 31	+ 4	Aug. 2	51833	- 53	+ 44	Jan. 3	51982	- 31	+ 1
17	643	- 34	+ 14	3	834	- 13	+ 22	6	985	- 58	+ 36
22	648	- 10	+ 4	6	837	- 17	- 5	7	986	- 9	+ 25
25	651	- 13	+ 39	9	840	- 15	- 28	8	987	- 29	+ 28
26	652	- 63	+ 11	11	842	- 30	- 27	10	989	- 19	+ 17
				12	843	- 12	+ 11	11	990	- 30	+ 9
Feb. 1	8h ●			14	845	- 3	+ 12	21	19h ●		
16	51672	- 11	+ 38	15	846	- 26	- 6	31	52009	- 43	+ 6
17	673	- 2	+ 9	16	847	- 47	- 20				
				17	848	- 15	- 1	Feb. 4	013	- 15	+ 22
Mar. 2	24h ●			19	850	+ 6	- 7	5	014	- 41	+ 29
10	51693	- 43	+ 20	21	852	- 35	- 7	6	015	- 20	+ 24
12	695	- 34	0	27	15h ●			7	016	- 47	+ 24
13	696	- 34	+ 25					8	017	- 13	+ 13
15	698	- 20	+ 14	Sept. 4	51865	- 2	- 22	13	022	- 25	- 17
17	700	- 37	+ 12	6	867	+ 3	- 35	20	8h ●		
18	701	- 39	+ 14	9	870	- 10	+ 1	25	52033	- 31	+ 7
19	702	- 14	+ 14	10	871	- 20	- 2	26	034	- 39	+ 2
22	705	- 7	+ 25	11	872	- 33	- 17	28	036	- 41	+ 12
24	707	+ 5	+ 49	14	875	- 6	- 9				
				16	877	- 27	+ 1	Mar. 1	037	- 56	+ 13
April 1	16h ●			20	881	- 30	+ 27	2	038	- 32	+ 14
10	51723	- 12	+ 17	26	2h ●			4	040	- 38	+ 22
11	724	- 35	+ 21					5	041	- 31	+ 35
13	726	- 21	+ 14	Oct. 3	51893	- 33	+ 6	6	042	- 23	+ 12
14	727	- 32	+ 24	4	894	- 15	- 15	12	048	- 28	- 5
15	728	- 27	+ 12	5	895	- 27	- 9	14	050	- 33	- 6
23	736	- 29	- 7	7	897	- 26	+ 6	21	21h ●		
				10	900	- 6	- 8	30	52065	- 46	+ 10
May 1	9h ●			11	901	- 24	- 2	31	066	- 33	+ 21
9	51751	- 37	+ 16	12	902	- 5	+ 21				
12	754	- 24	+ 28	14	904	- 22	+ 4	April 1	067	- 37	+ 23
13	755	- 23	+ 20	16	906	- 23	+ 6	4	070	- 50	+ 30
15	757	- 35	+ 18	17	907	- 38	+ 10	5	071	- 12	+ 18
20	762	- 10	+ 3	25	11h ●			7	073	- 8	+ 3
21	763	- 30	0	30	51919	- 24	- 12	8	074	- 31	0
31	ch ●			31	920	- 44	- 1	10	076	- 13	- 39
								20	10h ●		
June 5	51777	- 24	+ 21	Nov. 5	925	- 24	+ 9	27	52092	- 4	+ 29
11	783	- 26	+ 3	6	926	- 21	+ 21	30	095	- 34	+ 28
12	784	- 58	- 21	10	930	- 20	+ 12				
13	785	- 16	- 7	13	933	- 29	+ 14				
14	786	- 60	- 28	23	21h ●			May 1	096	- 13	+ 16
16	788	- 42	+ 1	29	51948	- 47	0	3	098	- 67	+ 19
18	790	- 20	0	30	949	- 46	+ 13	4	099	- 48	+ 7
22	794	- 9	- 27					6	101	- 21	- 14
23	795	- 12	+ 9	Dec. 2	951	- 20	+ 8	8	103	- 24	- 32
29	15h ●			3	952	- 54	+ 12	20	1h ●		
				6	955	- 14	+ 6	28	52122	- 40	+ 19
July 10	51811	- 21	- 5	8	957	- 33	+ 15				
11	812	- 27	+ 8	11	960	- 28	+ 34	June 1	126	- 48	+ 10
12	813	- 15	- 6	12	961	- 34	- 6	2	127	- 47	- 3
13	814	+ 8	- 16	16	965	- 66	+ 6	5	130	- 35	- 18
14	815	- 28	- 9	23	8h ●			6	131	- 44	- 20
15	816	- 43	+ 38	28	51976	- 29	- 2	7	132	- 31	+ 2
18	819	- 2	- 4	30	978	- 22	- 3	18	16h ●		
24	825	- 14	- 22	31	979	- 46	- 5	23	52147	- 37	+ 38
29	4h ●							26	150	- 25	+ 17
				Jan. 2	981	- 22	+ 2	29	153	- 28	0

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1898				1898-9				1899			
July 2	52156	- 35	- 11	Dec. 21	52322	- 27	+ 17	May 9	6h ●		
4	158	- 10	+ 1	22	323	- 28	+ 18	15	52462	- 34	- 8
6	160	- 17	- 6	23	324	- 44	- 6	18	465	- 34	+ 22
11	165	+ 13	- 10	25	326	- 26	+ 12	22	469	- 40	+ 5
18	8h ●			28	329	- 6	+ 34	23	470	- 19	+ 1
23	52176	- 43	+ 14	30	331	- 18	+ 2	25	472	- 27	+ 28
24	177	- 20	+ 28	31	332	- 21	+ 29	26	473	+ 1	+ 1
30	183	- 49	- 15					27	474	- 24	- 6
31	184	- 10	- 5	Jan. 1	333	+ 8	+ 2	28	475	- 15	- 6
Aug. 1	185	- 36	- 8	4	336	- 21	+ 13	29	476	- 19	+ 13
2	186	0	+ 2	5	337	- 19	- 5	30	477	+ 10	+ 11
3	187	- 2	+ 3	11	11h ●			31	478	+ 3	- 4
4	188	- 6	+ 9	16	52347	- 20	+ 9				
5	189	- 31	- 10	19	350	- 29	- 3	June 2	480	+ 19	- 20
8	192	- 9	- 11	22	353	- 38	+ 17	7	18h ●		
16	23h ●			24	355	- 17	+ 20	14	52491	- 29	+ 8
25	52208	+ 1	0	25	356	- 19	+ 23	15	492	- 52	+ 1
27	210	- 17	- 20	26	357	- 1	+ 32	16	493	- 31	+ 19
31	214	- 31	- 12	27	358	- 39	+ 9	17	494	- 43	+ 12
				29	360	+ 9	- 6	24	501	- 55	- 2
Sept. 1	215	+ 5	+ 2	Feb. 9	22h ●			July 7	9h ●		
2	216	- 8	- 10	16	52377	- 28	- 21	16	52522	- 26	+ 19
3	217	+ 2	+ 2	17	378	- 30	- 6	18	524	- 24	- 6
7	221	- 37	- 1	19	380	- 27	+ 14	19	525	- 29	- 1
8	222	- 25	+ 26	21	382	- 10	+ 12	24	530	- 14	+ 5
15	12h ●			22	383	- 11	+ 7	25	531	- 1	- 8
23	52236	- 33	- 1	23	384	- 43	+ 18	26	532	0	+ 19
25	238	- 24	- 15	24	385	- 7	- 1	27	533	- 23	- 15
26	239	- 7	+ 5	25	386	- 31	- 7	28	534	+ 3	+ 6
28	241	0	+ 12	26	387	- 8	+ 45	29	535	- 19	0
30	243	- 12	- 15	27	388	- 31	0				
				28	389	- 11	- 2	Aug. 6	0h ●		
Oct. 1	244	- 21	- 10					12	52548	- 2	+ 27
2	245	- 4	- 3	Mar. 1	390	- 46	+ 1	13	549	- 27	+ 13
15	1h ●			2	391	- 14	- 4	16	552	- 11	- 6
24	52266	- 8	+ 10	3	392	- 6	- 5	19	555	- 31	- 16
25	267	- 25	- 9	4	393	- 17	- 8	20	556	- 12	+ 11
26	268	- 36	+ 8	5	394	- 12	- 4	21	557	- 23	+ 7
28	270	- 10	- 4	11	8h ●			22	558	+ 1	- 10
30	272	+ 4	- 3	15	52403	- 36	+ 8	24	560	- 30	- 5
				18	406	- 55	+ 28	25	561	- 28	- 2
Nov. 1	274	- 28	+ 4	20	408	- 35	+ 9	26	562	- 18	- 10
3	276	- 35	+ 25	21	409	- 18	+ 14	29	565	- 14	+ 27
5	278	- 37	+ 31	22	410	- 37	+ 16				
6	279	- 8	+ 18	23	411	- 9	+ 22	Sept. 4	16h ●		
7	280	- 48	+ 19	24	412	- 15	+ 36	12	52578	- 19	- 8
13	12h ●			26	414	- 37	+ 26	16	582	- 31	- 13
18	52290	- 53	- 28	27	415	- 46	+ 4	17	583	- 14	+ 2
19	291	- 20	- 33					18	584	- 29	- 11
22	294	- 26	+ 19	April 9	18h ●			20	586	- 5	+ 7
25	297	- 19	+ 11	15	52433	- 50	+ 1	22	598	- 27	+ 9
26	298	- 30	- 17	17	435	- 12	+ 12	23	589	- 44	- 5
27	299	- 20	+ 4	19	437	- 41	+ 5	25	591	- 52	- 7
29	301	- 32	+ 12	20	438	- 27	+ 15	26	592	- 37	+ 14
				22	440	- 45	+ 14	27	593	- 22	+ 24
Dec. 13	0h ●			26	444	- 3	0				
19	52320	- 20	+ 13					Oct. 4	7h ●		
20	321	- 40	- 1	May 3	451	0	- 15	11	52606	- 23	+ 1

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1899-1900				1900				1900-1			
Oct. 13	52608	- 11	- 21	Mar. 10	52751	- 38	- 3	July 26	2 ^h ●		
14	609	- 22	+ 6	11	752	- 17	+ 5	31	52889	- 36	+ 17
15	610	- 11	- 1	12	753	- 5	+ 6				
16	611	- 6	- 38	14	755	+ 17	- 6	Aug. 7	896	- 49	- 18
17	612	- 5	- 10	16	757	- 5	- 4	8	897	- 41	+ 19
18	613	- 36	- 12	17	758	- 3	- 1	11	900	+ 8	+ 12
19	614	- 26	- 55	19	760	- 12	- 9	13	902	- 12	- 5
22	617	- 26	- 1	20	761	- 12	- 2	18	907	- 28	+ 5
23	618	- 23	- 4	30	9 ^h ●			24	16 ^h ●		
Nov. 2	22 ^h ●			April 6	52777	- 33	- 3	Sept. 3	52922	- 19	+ 11
10	52635	- 9	- 7	7	778	0	- 9	4	923	- 33	- 12
11	636	0	+ 9	10	781	- 32	+ 3	5	924	- 43	- 12
12	637	- 24	- 4	11	782	- 28	- 10	6	925	- 38	0
13	638	- 6	- 2	13	784	- 10	+ 2	8	927	- 30	- 1
14	639	- 19	+ 40	14	785	- 25	+ 2	9	928	- 34	+ 1
16	641	- 12	+ 1	15	786	- 39	- 1	10	929	- 42	+ 19
17	642	- 17	+ 10	16	787	- 14	- 9	11	930	- 42	+ 3
19	644	- 19	- 10	17	788	- 26	+ 16	12	931	- 43	+ 14
20	645	- 31	+ 26	19	790	- 28	0	16	935	- 25	+ 27
Dec. 2	13 ^h ●			20	791	- 16	- 26	23	8 ^h ●		
8	52662	- 4	+ 9	21	792	- 41	- 11				
10	664	+ 5	+ 10	28	17 ^h ●			Oct. 1	52949	- 23	- 6
11	665	- 15	+ 4					2	950	- 10	- 4
13	667	- 12	+ 14	May 4	52804	- 47	+ 7	3	951	- 24	- 3
14	668	- 20	- 9	5	805	- 31	+ 6	4	952	- 35	- 4
16	670	- 37	+ 5	7	807	- 28	+ 6	5	953	- 47	+ 4
19	673	- 9	+ 26	10	810	- 20	+ 17	7	955	- 46	+ 7
				11	811	- 29	+ 6	8	956	- 65	- 3
Jan. 1	2 ^h ●			13	813	+ 2	- 4	10	958	- 75	+ 6
7	52691	- 12	+ 4	14	814	- 10	+ 5	11	959	- 52	+ 15
9	693	- 30	- 8	15	815	- 26	+ 5	13	961	- 47	+ 1
10	694	- 28	- 4	19	819	+ 4	+ 14	14	962	- 59	+ 4
12	696	- 37	+ 6	28	3 ^h ●			15	963	- 50	+ 7
13	697	- 10	+ 6					23	1 ^h ●		
14	698	- 2	+ 12	June 3	52833	- 21	+ 9	Nov. 9	52987	- 58	- 1
15	699	- 2	+ 20	4	834	- 32	+ 7	13	991	- 32	+ 23
16	700	- 24	+ 14	5	835	- 40	+ 14	15	993	- 24	+ 17
17	701	- 39	+ 26	7	837	- 30	+ 12	21	19 ^h ●		
18	702	- 11	+ 24	9	839	- 33	+ 6	27	53004	- 29	- 17
22	706	- 12	+ 5	10	840	- 2	- 13				
23	707	- 72	+ 20	11	841	- 9	- 15	Dec. 5	012	- 27	0
24	708	- 43	- 5	12	842	- 34	+ 1	6	013	- 46	+ 8
30	13 ^h ●			15	845	- 16	+ 6	7	014	- 7	+ 3
				17	847	+ 3	+ 5	10	017	- 38	+ 3
Feb. 6	52720	- 24	- 13	26	13 ^h ●			13	020	- 21	+ 15
7	721	- 28	- 20					15	022	- 33	+ 1
8	722	- 17	+ 3	July 3	52862	- 33	+ 22	21	12 ^h ●		
9	723	- 23	+ 5	4	863	- 13	- 3	26	53032	- 37	- 7
11	725	- 17	+ 8	7	866	- 26	- 1	29	035	- 13	- 6
12	726	- 38	+ 13	10	869	- 36	+ 8				
14	728	+ 9	+ 14	11	870	- 36	- 3	Jan. 2	039	- 16	- 1
17	731	- 28	0	12	871	- 11	- 13	4	041	- 27	+ 6
20	734	- 27	+ 10	13	872	+ 10	+ 7	5	042	- 17	+ 5
28	23 ^h ●			14	873	- 8	- 2	7	044	+ 1	+ 8
				15	874	+ 5	+ 15	8	045	- 19	+ 28
Mar. 8	52749	- 25	+ 5	17	876	+ 9	+ 11	9	046	+ 4	+ 15
9	750	- 16	- 20	18	877	- 29	- 4	13	050	- 23	+ 14

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1901				1901				1901-2			
Jan. 14	53051	- 27	+ 21	June 23	53205	- 17	- 8	Nov. 20	53350	- 22	+ 20
20	3 ^h ●			24	206	- 23	+ 5	22	352	- 42	+ 17
27	53063	- 54	- 11	26	208	- 20	+ 2	23	353	- 41	+ 10
28	064	- 47	- 3	27	209	- 6	0	24	354	- 56	+ 9
29	065	- 56	- 1	29	211	- 24	- 6	26	356	- 43	+ 1
30	066	- 50	- 19					28	358	- 37	+ 6
31	067	- 44	+ 2	July 1	213	- 21	+ 23	30	360	- 42	+ 13
Feb. 1	068	- 17	- 1	4	216	- 8	+ 22	Dec. 5	365	- 1	+ 22
3	070	- 21	+ 17	5	217	- 10	+ 9	10	15 ^h ●		
5	072	- 46	+ 42	7	219	+ 17	+ 9	16	53375	- 17	- 1
7	074	- 37	+ 8	15	10 ^h ●			18	377	- 2	+ 14
11	078	- 45	+ 8	20	53231	- 31	+ 25	19	378	- 28	+ 9
18	15 ^h ●			23	234	+ 11	- 13	25	384	- 28	+ 23
Mar. 1	53095	- 26	+ 3	28	239	- 50	- 15	26	385	- 3	+ 1
2	096	- 32	- 5	29	240	- 33	- 6	27	386	- 32	+ 7
3	097	- 1	+ 11	30	241	- 44	- 2	31	390	- 24	+ 8
5	099	- 4	- 1	31	242	- 17	+ 5	Jan. 2	392	- 26	- 13
6	100	- 22	- 5	Aug. 1	243	0	+ 3	4	394	- 38	+ 14
20	1 ^h ●			3	245	+ 15	+ 10	9	9 ^h ●		
26	53119	- 34	- 1	4	246	+ 4	+ 12	13	53402	- 23	+ 33
27	120	- 21	+ 5	6	248	- 3	+ 16	14	403	- 31	+ 5
31	124	- 17	+ 15	13	20 ^h ●			18	407	- 43	- 7
April 1	125	- 15	+ 9	20	53261	- 8	+ 3	23	412	- 32	+ 1
4	128	- 15	- 10	21	262	- 35	- 1	24	413	- 1	+ 15
5	129	- 30	+ 5	22	263	- 28	- 24	25	414	- 10	+ 14
9	133	- 50	+ 4	23	264	- 37	- 8	28	417	- 41	- 16
18	10 ^h ●			24	265	- 61	- 4	29	418	(- 94)	(+ 7)
23	53146	- 12	+ 9	30	271	- 14	+ 3	31	420	- 28	- 11
25	148	- 28	- 2	Sept. 1	273	- 21	+ 7	Feb. 8	1 ^h ●		
26	149	- 20	- 2	3	275	- 7	+ 16	12	53431	- 48	+ 3
28	151	- 19	+ 10	5	277	- 30	+ 6	13	432	- 48	+ 4
29	152	- 34	+ 16	12	9 ^h ●			15	434	- 43	+ 19
30	153	- 16	+ 8	18	53289	- 40	- 9	16	435	- 63	+ 5
May 3	156	- 27	+ 16	19	290	- 19	+ 7	21	440	- 34	+ 14
5	158	- 17	+ 1	23	294	- 49	- 2	28	447	- 43	+ 14
13	166	+ 22	- 15	24	295	- 57	- 7	Mar. 9	15 ^h ●		
17	18 ^h ●			25	296	- 41	+ 6	12	53458	- 48	- 7
21	53173	- 32	+ 8	26	297	- 40	+ 18	15	461	- 71	+ 11
22	174	(+ 76)	(- 29)	28	299	- 54	- 1	16	462	- 46	- 16
23	175	- 13	+ 8	Oct. 4	305	- 15	+ 12	17	463	- 42	+ 17
24	176	- 31	+ 21	6	307	- 37	+ 39	19	465	- 28	+ 20
26	178	- 30	+ 5	12	1 ^h ●			20	466	- 20	+ 7
27	179	- 9	- 1	19	53319	- 32	+ 12	21	467	- 37	+ 20
28	180	- 12	- 6	20	320	- 37	+ 1	22	468	- 8	+ 12
29	181	- 15	+ 2	22	322	- 51	- 12	25	471	- 34	- 2
31	183	- 19	- 4	23	323	- 46	+ 4	28	474	- 39	- 9
June 2	185	- 28	- 1	24	324	- 15	+ 12	April 8	2 ^h ●		
3	186	- 20	- 4	25	325	- 47	+ 15	10	53486	- 61	- 1
5	188	- 7	+ 1	26	326	- 58	- 2	12	488	- 34	- 5
8	191	+ 18	+ 7	27	327	- 43	+ 4	13	489	- 39	+ 21
9	192	- 14	- 8	30	330	- 36	- 18	15	491	- 36	+ 11
10	193	- 18	- 6	31	331	- 28	+ 19	16	492	- 39	+ 9
16	2 ^h ●			Nov. 1	332	- 39	- 7	17	493	- 33	+ 13
21	53203	(+ 41)	(- 9)	10	20 ^h ●			18	494	- 39	+ 18
				17	53347	- 18	- 16				

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1902				1902-3				1903			
April 20	53496	- 50	+ 2	Sept. 7	53631	- 47	+ 12	Feb. 16	53788	- 24	- 9
22	498	- 33	- 3	8	632	- 19	- 19	17	789	- 35	- 6
23	499	- 18	+ 7	16	640	- 59	- 1	18	790	- 24	- 18
24	500	- 19	- 3	17	641	- 45	+ 12	23	795	- 62	+ 24
25	501	- 22	+ 24	18	642	- 17	+ 13	26	22 ^h ●		
27	503	- 43	0	19	643	+ 1	+ 24	Mar. 3	53802	- 20	0
28	504	- 4	- 4	22	646	- 41	+ 18	4	803	- 39	+ 1
May 1	507	- 63	+ 20	23	647	- 55	+ 20	6	805	- 27	+ 12
2	508	- 57	- 1	25	649	- 63	- 1	7	806	- 64	+ 14
7	11 ^h ●			26	650	- 60	+ 40	8	807	- 78	+ 5
12	53517	- 28	+ 3	Oct. 1	5 ^h ●			10	809	- 44	- 5
13	518	- 42	+ 22	8	53661	- 58	- 30	11	810	- 55	+ 9
14	519	- 43	+ 8	12	665	- 14	+ 9	12	811	- 49	+ 2
23	528	+ 2	+ 12	14	667	- 44	+ 20	13	812	- 6	- 10
24	529	- 27	- 8	15	668	- 29	+ 5	14	813	- 41	+ 3
26	531	+ 8	- 1	16	669	- 24	+ 12	15	814	- 14	- 9
27	532	- 45	- 7	18	671	+ 26	+ 6	16	815	- 18	- 2
June 5	18 ^h ●			19	672	- 2	- 2	18	817	+ 12	- 4
10	53545	- 40	+ 36	20	673	- 34	+ 9	22	821	- 70	- 10
18	553	- 49	+ 6	21	674	- 18	+ 4	28	13 ^h ●		
21	556	- 56	0	23	676	- 31	+ 6	31	53829	- 64	- 3
23	558	+ 3	- 6	30	20 ^h ●			April 4	833	- 46	+ 62
24	559	- 23	+ 13	Nov. 8	53691	- 19	- 6	5	834	- 36	+ 13
25	560	- 9	+ 7	9	692	- 27	+ 3	7	836	- 20	- 3
26	561	- 14	+ 3	10	693	- 35	+ 20	8	837	- 60	+ 5
27	562	- 18	+ 7	12	695	- 38	+ 21	9	838	- 38	+ 5
28	563	- 51	+ 2	13	696	- 33	+ 14	12	841	+ 6	+ 4
29	564	- 12	+ 22	14	697	- 56	+ 15	13	842	- 22	0
July 2	567	- 31	- 13	16	699	- 43	- 11	15	844	+ 13	+ 24
5	1 ^h ●			17	700	- 29	+ 4	16	845	- 33	+ 35
12	53576	- 42	+ 6	22	705	- 28	+ 3	17	846	- 25	- 12
13	577	- 34	+ 6	29	14 ^h ●			18	847	- 42	+ 1
14	578	- 41	+ 1	Dec. 6	53718	- 32	- 9	19	848	- 28	- 19
15	579	- 21	+ 9	15	727	- 28	+ 11	21	850	- 17	+ 5
16	580	- 14	+ 3	29	9 ^h ●			22	851	- 52	- 51
18	582	- 71	- 17	Jan. 1	53743	- 11	- 6	27	2 ^h ●		
26	590	- 17	- 35	3	745	+ 28	+ 11	May 1	53859	- 45	+ 12
27	591	+ 15	+ 12	6	748	- 26	+ 7	2	860	- 38	+ 4
28	592	- 46	- 11	7	749	- 14	+ 10	4	862	- 47	0
29	593	- 49	- 1	10	752	- 55	- 9	7	865	- 25	+ 21
Aug. 3	8 ^h ●			11	753	- 79	- 13	12	870	+ 13	+ 11
10	53604	- 31	+ 11	12	754	- 73	+ 25	17	875	+ 32	0
12	606	- 17	- 12	14	756	- 23	+ 2	18	876	- 44	+ 39
14	608	- 62	- 3	15	757	- 28	+ 19	26	11 ^h ●		
15	609	- 63	- 26	16	758	- 24	- 9	30	53887	- 27	+ 25
17	611	- 41	- 1	22	764	- 32	- 17	31	888	- 34	+ 20
20	614	- 44	+ 10	28	5 ^h ●			June 1	889	- 60	- 17
21	615	- 19	+ 2	31	53772	- 63	- 24	2	890	- 28	+ 5
24	618	- 15	- 5	Feb. 1	773	- 40	- 11	3	891	- 43	+ 9
25	619	- 68	- 15	2	774	- 51	- 12	4	892	- 34	+ 13
27	621	- 54	- 19	6	778	- 44	+ 12	6	894	- 39	+ 22
29	623	- 42	+ 4	7	779	- 52	+ 4	12	900	- 26	+ 5
Sept. 1	17 ^h ●			10	782	- 56	+ 17	15	903	+ 10	+ 30
				13	785	- 21	+ 23	16	904	- 64	+ 24
								17	905	- 26	+ 26

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1903				1903-4				1904			
June 24	18 ^h ●			Oct. 28	54033	- 26	- 4	Mar. 30	54182	- 38	- 12
30	53917	- 45	- 4	29	034	- 29	+ 4				
July 1	918	- 44	+ 5	30	035	- 8	+ 16	April 1	184	- 20	0
2	919	- 28	+ 9					3	186	- 27	+ 24
3	920	- 35	+ 12	Nov. 3	039	- 30	+ 18	6	189	- 39	+ 7
4	921	- 32	+ 5	4	040	- 32	+ 11	9	192	- 61	+ 29
7	924	+ 7	+ 20	6	042	0	+ 39	10	193	- 46	+ 42
9	926	+ 26	- 5	9	045	- 14	+ 9	15	10 ^h ●		
10	927	- 14	+ 5	14	050	- 45	+ 16	17	54199	- 58	+ 4
12	929	+ 21	+ 20	15	051	- 60	- 12	18	200	- 72	+ 12
16	933	- 26	+ 3	18	17 ^h ●			19	201	- 61	+ 11
24	1 ^h ●			24	54059	- 51	- 11	20	202	+ 11	+ 2
29	53945	- 35	+ 2	25	060	- 27	+ 14	21	203	- 68	+ 23
Aug. 1	948	- 17	0	29	064	- 46	+ 18	24	206	- 61	- 2
4	951	- 33	+ 14	30	065	- 39	+ 14	25	207	- 66	- 10
5	952	- 25	+ 15					27	209	- 35	+ 10
6	953	- 47	+ 8	Dec. 1	066	- 23	+ 16	28	210	- 35	+ 3
7	954	- 24	- 3	2	067	- 45	+ 12				
8	955	+ 2	+ 16	4	069	- 15	+ 12	May 2	214	- 10	+ 7
10	957	+ 40	+ 23	6	071	- 50	- 12	3	215	- 3	- 12
12	959	- 25	- 16	7	072	- 3	- 9	14	23 ^h ●		
13	960	+ 11	- 2	10	075	- 19	- 12	18	54229	- 65	+ 38
14	961	- 52	- 3	11	076	- 29	- 6	19	230	- 45	+ 20
15	962	- 41	+ 2	12	077	- 28	- 3	20	231	- 61	+ 6
19	966	- 76	- 6	13	078	- 26	- 4	23	234	- 61	+ 7
22	8 ^h ●			15	080	- 53	- 8	25	236	- 70	- 1
28	53974	- 22	+ 48	18	9 ^h ●			30	241	- 30	- 3
29	975	- 12	- 2	29	54093	- 41	+ 3				
31	977	- 24	- 1	30	094	- 43	+ 5	June 1	243	- 29	+ 17
				31	095	- 57	+ 8	3	245	- 49	- 6
Sept. 1	978	- 47	+ 18					13	9 ^h ●		
4	981	- 42	+ 1	Jan. 1	096	- 75	+ 4	18	54259	- 54	+ 3
5	982	- 22	+ 4	7	102	- 90	+ 16	20	261	- 61	- 2
6	983	- 11	+ 29	9	104	- 27	- 15	21	262	- 51	+ 44
7	984	+ 2	+ 7	10	105	- 35	+ 6	25	266	- 49	0
9	986	- 26	+ 42	13	108	- 67	0	26	267	- 7	+ 16
11	988	- 24	+ 7	17	4 ^h ●			27	268	- 35	+ 21
12	989	+ 26	+ 11	21	54115	- 59	+ 11	28	269	- 45	+ 22
13	990	- 72	+ 9	22	116	- 41	+ 20	29	270	- 29	0
14	991	- 53	+ 15	23	117	- 62	+ 20				
15	992	- 31	- 47	26	120	- 50	- 7	July 3	274	- 43	+ 22
16	993	- 66	- 8	29	123	- 95	0	5	276	- 69	+ 3
17	994	- 53	+ 8	30	124	- 81	+ 5	6	277	- 43	+ 18
20	17 ^h ●							9	280	- 70	- 4
25	54001	- 23	+ 35	Feb. 3	128	- 30	- 2	12	17 ^h ●		
26	002	- 22	+ 13	6	131	- 33	+ 9	16	54286	- 48	+ 2
28	004	- 42	+ 6	8	133	- 25	+ 12	17	287	- 51	- 4
30	006	- 56	0	9	134	- 24	+ 11	18	288	- 48	+ 4
Oct. 4	010	- 29	+ 26	11	136	- 68	+ 3	19	289	- 57	+ 21
5	011	- 51	- 4	15	23 ^h ●			20	290	- 60	+ 36
6	012	- 14	+ 20	23	54147	- 41	+ 2	21	291	- 42	- 5
9	015	- 7	+ 3					22	292	- 29	+ 3
12	018	- 46	+ 8	Mar. 1	154	- 60	- 11	23	293	- 49	+ 22
13	019	- 56	- 18	8	161	- 19	+ 19	28	298	- 3	+ 3
15	021	- 46	- 11	10	163	- 27	+ 20				
20	4 ^h ●			16	18 ^h ●			Aug. 1	302	- 49	+ 7
				21	54173	- 70	+ 21	2	303	- 28	+ 14
				25	177	- 54	+ 38	3	304	- 39	- 24
				27	179	- 30	+ 4	6	307	- 39	+ 14

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1904				1904-5				1905			
Aug. 8	54309	- 65	+ 13	Dec. 6	16h ●			Apr. 18	54553	- 74	+ 10
11	1h ●			17	54435	- 30	- 40	22	557	- 54	+ 10
15	54315	- 24	+ 7	18	436	- 51	+ 5	23	558	- 53	+ 14
17	317	- 18	+ 14	20	438	- 57	- 3				
18	318	- 24	- 2	30	448	- 58	- 8	May 4	4h ●		
20	320	- 26	+ 19	31	449	- 20	+ 11	6	54570	- 78	+ 31
24	324	- 26	+ 10					8	572	- 56	+ 21
26	326	- 37	+ 18	Jan. 5	6h ●			9	573	- 42	+ 16
27	327	- 4	+ 17	9	54457	- 34	+ 41	10	574	- 68	+ 9
28	328	- 6	+ 17	10	458	- 32	+ 24	15	579	- 67	- 1
29	329	- 21	- 3	11	459	- 51	+ 28	17	581	- 61	+ 5
30	330	+ 14	+ 16	12	460	- 42	+ 19	22	586	- 38	+ 19
				13	461	- 44	+ 19	23	587	- 41	+ 6
Sept. 3	334	- 52	+ 18	14	462	- 42	+ 13	28	592	- 55	+ 27
4	335	- 60	- 9	15	463	- 60	- 4				
5	336	- 88	- 17	17	465	- 56	+ 8	June 2	18h ●		
9	9h ●			18	466	- 68	+ 2	13	54607	- 57	+ 6
12	54342	- 51	- 16	19	467	- 76	+ 9	14	608	- 55	+ 4
14	344	- 39	+ 10	25	473	- 39	- 11	16	610	- 66	- 8
15	345	- 31	+ 22	26	474	- 24	- 5	18	612	- 54	+ 11
16	346	- 34	- 17	27	475	- 52	- 5	19	613	- 47	+ 4
17	347	- 30	+ 24	28	476	- 12	+ 3	20	614	- 55	+ 15
18	348	- 26	+ 20					21	615	- 38	+ 6
19	349	- 34	- 7	Feb. 3	23h ●			22	616	- 51	+ 23
20	350	- 42	+ 10	11	54489	- 37	- 1	26	620	- 67	+ 2
25	355	- 20	+ 54	12	490	- 60	+ 9	28	622	- 65	- 31
26	356	- 2	+ 63	16	494	- 68	+ 1				
28	358	- 7	- 3	17	495	- 66	+ 2	July 2	6h ●		
29	359	- 35	+ 11	18	496	- 70	+ 7	7	54630	- 71	- 4
				19	497	- 52	- 11	8	631	- 48	- 1
Oct. 1	361	- 36	+ 5	20	498	- 49	- 7	12	635	- 33	- 14
3	363	- 74	+ 10	26	504	- 34	+ 13	13	636	- 65	+ 5
4	364	- 66	+ 7	27	505	- 29	+ 7	14	637	- 76	- 4
5	365	- 92	+ 11					15	638	- 65	+ 2
8	17h ●			Mar. 5	17h ●			16	639	- 51	+ 18
12	54372	- 33	+ 8	9	54514	- 40	+ 10	18	641	- 51	- 16
13	373	- 27	+ 11	11	516	- 46	+ 19	19	642	- 42	+ 2
14	374	- 26	+ 23	12	517	- 71	+ 14	20	643	- 47	+ 22
15	375	- 45	+ 25	14	519	- 31	- 2	21	644	- 56	+ 15
18	377	- 47	+ 9	15	520	- 55	+ 6	24	647	- 60	+ 15
20	379	- 33	+ 12	17	522	- 72	+ 5	25	648	- 63	- 11
24	383	- 17	+ 3	18	523	- 82	+ 3	26	649	- 85	- 29
25	384	- 3	+ 4	19	524	- 69	+ 7	28	651	- 92	0
26	385	- 21	+ 10	20	525	- 84	+ 15	31	16h ●		
28	387	- 33	- 1	21	526	- 72	+ 14				
				22	527	- 46	+ 2	Aug. 5	54658	- 86	+ 21
Nov. 3	393	(-110)	(+ 40)	23	528	- 28	- 8	6	659	- 53	+ 15
7	4h ●			24	529	- 46	+ 3	8	661	- 58	- 13
13	54402	- 20	+ 4	25	530	- 39	+ 27	10	663	- 27	- 7
14	403	- 33	+ 11	27	532	- 34	- 17	11	664	- 61	- 2
15	404	- 19	+ 5	30	535	- 31	+ 17	13	666	- 45	+ 13
16	405	- 22	+ 15					14	667	- 50	+ 18
20	409	- 36	+ 19	Apr. 4	11h ●			16	669	- 47	- 2
22	411	- 35	+ 4	6	54541	- 93	+ 6	17	670	- 98	+ 1
25	414	- 32	+ 4	8	543	- 56	+ 20	18	671	- 58	+ 6
26	415	- 35	0	12	547	- 60	- 6	20	673	- 20	+ 18
28	417	- 28	+ 12	13	548	- 54	- 4	23	676	- 38	+ 13
29	418	- 34	- 9	14	549	- 72	- 4	30	1h ●		
				15	550	- 67	+ 12	Sept. 3	54686	- 50	- 11

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1905-6				1906				1906			
Sept. 4	54687	- 85	+ 6	Feb. 22	20 ^h ●			June 26	54972	- 67	+ 8
7	690	- 36	+ 15	25	54855	- 71	+ 7	27	973	- 52	+ 4
8	691	- 55	+ 17	27	857	- 42	+ 12	28	974	- 76	- 27
12	695	- 45	+ 13					29	975	- 71	- 6
14	697	- 55	+ 11	Mar. 3	861	- 55	- 2	30	976	- 70	+ 11
17	700	- 38	+ 10	4	862	- 60	- 11				
18	701	- 45	+ 5	5	863	- 59	+ 10	July 1	977	- 79	- 3
19	702	- 49	- 2	6	864	- 70	- 17	2	978	- 76	+ 6
20	703	- 68	+ 1	7	865	- 69	- 7	3	979	- 68	- 6
23	706	- 60	- 15	8	866	- 75	+ 4	4	980	- 87	- 11
28	10 ^h ●			9	867	- 49	- 3	5	981	- 88	+ 10
				11	869	- 51	+ 23	6	982	- 47	+ 37
Oct. 4	54716	- 50	+ 19	16	874	- 31	+ 15	12	988	- 62	+ 6
7	719	- 49	- 6	17	875	- 5	+ 34	14	990	- 56	+ 14
10	722	- 52	+ 30	24	12 ^h ●			15	991	- 44	+ 11
13	725	- 52	+ 33	28	54885	- 31	- 14	21	1 ^h ●		
16	728	- 61	+ 13	29	886	- 51	+ 18	25	55000	- 38	- 14
19	731	- 63	- 5	31	888	- 53	+ 17	28	003	- 68	0
20	732	- 63	+ 4					30	005	- 62	+ 4
21	733	- 66	+ 4	Apr. 3	891	- 43	0	31	006	- 78	+ 1
22	734	- 61	+ 6	4	892	- 64	+ 2				
27	19 ^h ●			5	893	- 64	+ 4	Aug. 1	007	- 78	- 7
				6	894	- 88	+ 13	2	008	- 82	+ 1
Nov. 2	54744	- 17	+ 31	7	895	- 75	- 17	3	009	- 34	- 3
3	745	- 46	- 2	9	897	- 77	+ 19	4	010	- 58	- 7
5	747	- 42	+ 15	10	898	- 69	+ 30	5	011	- 45	+ 27
6	748	- 50	+ 15	11	899	- 24	- 12	7	013	- 36	+ 18
7	749	- 43	+ 6	14	902	- 57	+ 13	10	016	- 47	+ 5
16	758	- 62	+ 9	15	903	- 27	+ 16	14	020	- 47	+ 1
20	762	- 65	+ 1	23	4 ^h ●			19	13 ^h ●		
21	763	- 34	+ 8	25	54912	- 37	+ 3	22	55027	- 10	- 30
23	765	- 79	- 19	26	913	- 55	+ 20	25	030	- 66	+ 33
26	5 ^h ●			27	914	- 34	+ 28	27	032	- 64	+ 4
29	54770	- 56	+ 19	28	915	- 56	+ 4	28	033	- 65	+ 17
				29	916	- 39	- 2	29	034	- 70	+ 23
Dec. 8	779	- 48	+ 21					30	035	- 61	- 6
9	780	- 49	+ 15	May 1	918	- 40	- 2	31	036	- 64	+ 1
10	781	- 59	- 16	3	920	- 61	+ 9				
19	790	- 70	- 9	4	921	- 79	+ 31	Sept. 1	037	- 46	+ 8
25	16 ^h ●			7	924	- 83	- 2	2	038	- 60	+ 14
31	54801	- 42	+ 24	8	925	- 66	+ 6	3	039	- 42	+ 10
				12	929	- 29	+ 25	5	041	- 32	+ 5
Jan. 3	804	- 67	+ 7	13	930	- 36	- 2	6	042	- 29	- 8
5	806	- 61	+ 7	17	934	- 10	+ 31	7	043	- 35	+ 3
8	809	- 71	+ 3	22	20 ^h ●			9	045	- 44	+ 26
9	810	- 68	+ 7	25	54941	- 52	+ 1	10	046	- 42	- 22
10	811	- 61	+ 29	28	944	- 49	+ 6	11	047	- 51	- 7
13	814	- 40	+ 48	29	945	- 50	- 4	12	048	- 9	- 11
14	815	- 74	+ 3	31	947	- 94	+ 6	13	049	- 35	- 8
16	817	- 64	- 3					18	1 ^h ●		
24	5 ^h ●			June 2	949	- 81	+ 7	24	55059	- 45	+ 7
30	54830	- 59	+ 27	3	950	- 92	+ 2	25	060	- 51	+ 13
31	831	- 55	+ 7	5	952	- 75	+ 19	26	061	- 62	- 14
				6	953	- 78	+ 14	27	062	- 44	+ 10
Feb. 2	833	- 71	+ 1	7	954	- 63	+ 17	28	063	- 58	+ 7
5	836	- 84	0	8	955	- 60	+ 17	29	064	- 53	+ 7
7	838	- 64	+ 15	9	956	- 64	+ 47	30	065	- 44	+ 9
8	839	- 48	+ 22	17	964	- 15	+ 31				
12	843	- 52	+ 2	21	11 ^h ●			Oct. 6	071	- 52	+ 1

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1906-7				1907				1907-8			
Oct. 8	55073	- 75	+ 13	Mar. 19	55229	- 40	- 9	Aug. 24	55382	- 50	+ 3
10	075	- 57	+ 3	20	230	- 58	+ 4	27	385	- 38	+ 3
11	076	- 38	- 1	21	231	- 59	- 15	28	386	- 42	+ 2
17	11 ^h ●			22	232	- 94	- 22	Sept. 7	9 ^h ●		
23	55087	- 66	- 14	23	233	- 44	- 2	11	55399	- 67	- 1
24	088	- 53	- 4	24	234	- 60	+ 3	15	403	- 79	+ 8
25	089	- 42	+ 23	25	235	- 48	- 6	16	404	- 83	+ 11
26	090	- 19	+ 21	26	236	- 64	- 3	17	405	- 76	+ 9
27	091	- 39	+ 11	27	237	- 53	0	18	406	- 79	+ 15
Nov. 5	100	- 34	+ 10	28	238	- 41	- 8	19	407	- 64	+ 19
10	105	- 59	+ 22	29	239	- 52	+ 3	22	410	- 39	+ 10
11	106	- 104	- 7	30	240	- 39	+ 5	23	411	- 44	+ 11
15	21 ^h ●			31	241	- 40	+ 24	24	412	- 40	+ 8
19	55113	- 45	+ 15	Apr. 1	242	- 23	+ 22	27	415	- 52	- 9
22	116	- 71	+ 15	12	7 ^h ●			30	418	- 75	- 15
23	117	- 52	+ 15	15	55255	- 60	+ 15	Oct. 6	22 ^h ●		
27	121	- 54	+ 7	18	258	- 52	+ 13	11	55428	- 42	- 25
30	124	- 44	- 3	19	259	- 48	+ 7	12	429	- 75	+ 13
Dec. 1	125	- 43	+ 20	22	262	- 52	+ 6	13	430	- 63	+ 7
5	129	- 58	+ 8	23	263	- 64	- 13	15	432	- 58	+ 14
7	131	- 40	- 20	24	264	- 61	- 2	19	436	- 57	+ 15
9	133	- 71	+ 13	27	267	- 62	- 3	20	437	- 68	+ 17
15	7 ^h ●			29	269	- 55	+ 10	21	438	- 39	+ 8
26	55149	- 52	+ 24	May 3	273	- 49	+ 22	22	439	- 52	+ 7
27	150	- 57	+ 15	11	21 ^h ●			23	440	- 43	+ 6
31	154	- 56	0	18	55287	- 67	- 5	25	442	- 49	- 11
Jan. 2	156	- 44	- 2	19	288	- 70	+ 5	30	447	- 44	+ 6
6	160	- 41	+ 15	21	290	- 58	+ 12	Nov. 5	11 ^h ●		
10	164	- 91	- 19	24	293	- 77	- 19	9	55456	- 83	0
13	18 ^h ●			26	295	- 57	+ 11	11	458	- 61	+ 2
17	55170	- 44	- 12	27	296	- 68	+ 11	12	459	- 44	+ 10
18	171	- 52	+ 35	June 10	12 ^h ●			13	460	- 42	+ 14
21	174	- 53	+ 7	15	55314	- 113	- 25	15	462	- 47	+ 5
22	175	- 41	+ 12	17	316	- 94	+ 2	18	465	- 48	+ 9
25	178	- 62	+ 2	19	318	- 94	+ 6	19	466	- 38	+ 9
26	179	- 59	+ 3	22	321	- 85	+ 20	21	468	- 33	- 14
27	180	- 50	- 8	23	322	- 54	+ 11	23	470	- 46	- 6
28	181	- 46	+ 21	24	323	- 85	+ 27	26	473	- 65	- 15
29	182	- 45	- 2	28	327	- 51	+ 25	27	474	- 65	+ 10
30	183	- 43	+ 1	July 2	331	- 30	+ 2	28	475	- 56	- 11
31	184	- 42	- 2	10	3 ^h ●			29	476	- 72	+ 17
Feb. 1	185	- 37	+ 4	15	55343	- 34	+ 9	30	477	- 46	+ 31
12	6 ^h ●			16	344	- 95	0	Dec. 4	22 ^h ●		
16	55199	- 51	+ 4	17	345	- 60	- 9	9	55485	- 40	+ 19
18	201	- 43	+ 14	18	346	- 81	+ 1	10	486	- 36	+ 9
21	204	- 55	- 6	19	347	- 68	- 7	11	487	- 59	+ 14
22	205	- 60	- 2	23	351	- 67	+ 5	14	490	- 37	+ 16
23	206	- 58	- 5	24	352	- 48	+ 12	15	491	- 34	+ 14
27	210	- 46	+ 4	30	358	- 35	+ 13	17	493	- 45	+ 12
28	211	- 44	+ 3	31	359	- 41	- 4	18	494	- 65	- 7
Mar. 1	212	- 41	+ 1	Aug. 8	19 ^h ●			21	497	- 38	- 2
5	216	- 31	+ 12	17	55375	- 66	- 14	Jan. 3	10 ^h ●		
6	217	- 53	+ 7	19	377	- 84	+ 6	9	55515	- 46	+ 17
13	18 ^h ●			20	378	- 78	+ 7	10	516	- 51	+ 2

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1908				1908				1908-9			
Jan. 11	55517	- 42	+ 16	June 2	55655	- 74	+ 28	Oct. 8	55779	- 79	+ 5
12	518	- 40	- 1	3	656	- 61	+ 3	10	781	- 78	+ 17
13	519	- 41	0	5	658	- 29	+ 8	11	782	- 83	- 1
14	520	- 51	- 5	9	662	- 66	+ 18	14	785	- 62	- 10
18	524	- 44	- 10	10	663	- 87	- 1	15	786	- 79	- 6
20	526	- 48	+ 21	11	664	- 71	+ 9	21	792	- 85	- 16
27	533	- 57	+ 50	14	667	- 66	+ 22	24	19 ^h ●		
				17	670	- 46	+ 17	29	55799	- 78	+ 6
Feb. 1	21 ^h ●			18	671	- 45	+ 34	30	800	- 59	- 10
6	55542	- 40	+ 10	19	672	- 46	- 26	31	801	- 67	- 13
7	543	- 64	+ 15	22	675	- 16	- 27				
8	544	- 38	- 13	28	5 ^h ●			Nov. 3	804	- 77	+ 22
10	546	- 40	0					6	807	- 79	+ 26
11	547	- 55	- 17	July 2	55684	- 65	+ 9	7	808	- 92	+ 20
12	548	- 45	+ 7	5	687	- 22	- 18	8	809	- 87	+ 2
14	550	- 49	0	7	689	- 60	+ 35	9	810	- 77	+ 7
15	551	- 48	- 1	8	690	- 78	- 6	16	817	- 66	- 3
16	552	- 51	+ 3	14	696	- 46	+ 10	17	818	- 60	- 16
18	554	- 38	+ 11	19	701	- 51	+ 16	20	821	- 74	- 18
22	558	- 53	+ 9	20	702	- 45	+ 15	23	10 ^h ●		
23	559	- 48	+ 46	21	703	- 47	+ 3				
24	560	- 35	+ 33	23	705	- 64	- 12	Dec. 7	55837	- 82	- 7
				27	19 ^h ●			9	839	- 71	+ 5
Mar. 2	7 ^h ●			31	55712	- 65	- 25	10	840	- 78	+ 10
5	55569	- 63	- 1					14	844	- 70	- 4
9	573	- 45	+ 5	Aug. 2	714	- 54	- 11	17	847	- 67	- 8
11	575	- 54	+ 1	7	719	- 75	+ 5	22	24 ^h ●		
12	576	- 43	+ 6	9	721	- 98	- 10	28	55857	- 61	+ 10
13	577	- 43	0	10	722	- 85	+ 25	30	859	- 28	+ 22
14	578	- 53	- 11	11	723	- 59	+ 7				
18	582	- 58	- 1	12	724	- 73	+ 22	Jan. 6	866	- 71	+ 7
19	583	- 58	+ 23	14	726	- 48	- 11	7	867	- 82	+ 7
21	585	- 47	+ 14	15	727	- 53	+ 1	8	868	- 70	- 4
23	587	- 59	+ 20	16	728	- 58	- 1	11	871	- 64	- 1
31	17 ^h ●			26	11 ^h ●			13	873	- 73	- 3
								15	875	- 70	+ 6
Apr. 3	55597	- 51	+ 21	Sept. 2	55744	- 70	+ 5	16	876	- 81	+ 2
7	601	- 55	- 1	5	747	- 63	- 6	21	12 ^h ●		
8	602	- 54	- 1	6	748	- 91	+ 2	25	55884	- 55	+ 8
9	603	- 66	- 2	7	749	- 101	+ 6	26	885	- 67	+ 2
13	607	- 61	- 2	8	750	- 72	+ 15	30	889	- 53	+ 4
14	608	- 51	0	10	752	- 70	+ 17				
15	609	- 61	+ 4	12	754	- 67	+ 18	Feb. 1	891	- 64	+ 1
16	610	- 47	+ 16	14	756	- 67	+ 9	3	893	- 45	+ 14
17	611	- 41	+ 32	15	757	- 66	0	5	895	- 59	+ 7
20	614	- 44	+ 19	16	758	- 71	+ 8	6	896	- 66	+ 4
30	4 ^h ●			17	759	- 78	- 24	7	897	- 46	- 5
				18	760	- 75	- 18	8	898	- 67	+ 10
May 6	55629	- 52	+ 6	25	3 ^h ●			12	902	- 73	+ 34
9	632	- 73	- 2	29	55770	- 67	- 18	13	903	- 77	+ 33
12	635	- 71	+ 8	30	771	- 57	- 25	15	905	- 75	- 1
13	636	- 53	- 1					19	23 ^h ●		
14	637	- 49	+ 8	Oct. 1	772	- 109	- 7	22	55911	- 73	+ 14
18	641	- 43	+ 9	2	773	- 83	+ 12				
20	643	+ 9	+ 17	3	774	- 72	+ 8	Mar. 1	918	- 69	- 25
21	644	+ 2	+ 42	4	775	- 88	+ 3	4	921	- 59	- 5
22	645	- 59	- 8	5	776	- 74	+ 4	5	922	- 73	+ 6
29	15 ^h ●			6	777	- 73	+ 23	7	924	- 62	- 9
				7	778	- 77	+ 26	21	8 ^h ●		

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1909				1909				1909-10			
Mar. 27	55943	— 61	— 1	July 23	56057	— 58	+ 5	Nov. 22	56175	— 75	+ 14
29	945	— 67	— 14	24	058	— 72	+ 3	24	177	— 98	— 9
31	947	— 61	— 1	25	059	— 65	— 5	27	180	— 90	+ 15
				26	060	— 87	+ 11	29	182	— 55	+ 3
Apr. 1	948	— 44	+ 11	26	062	— 69	+ 14	30	183	— 77	+ 11
2	949	— 66	+ 1	29	063	— 91	— 14				
3	950	— 46	+ 5					Dec. 1	184	— 72	+ 4
4	951	— 50	+ 3	Aug. 2	067	— 55	+ 1	4	187	— 62	+ 6
5	952	— 65	+ 10	4	069	— 50	+ 22	5	188	— 81	0
6	953	— 66	+ 5	5	070	— 50	+ 17	7	190	— 70	— 4
7	954	— 54	+ 20	6	071	— 44	+ 11	8	191	— 57	+ 7
8	955	— 49	+ 11	7	072	— 46	+ 12	12	8h ●		
9	956	— 66	+ 20	8	073	— 21	— 15	19	56201	— 79	+ 3
10	957	— 74	+ 22	9	074	— 36	— 13	20	202	— 72	+ 14
11	958	— 76	+ 31	11	076	— 76	— 2	24	206	— 103	+ 5
14	961	— 58	+ 47	12	077	— 40	— 48	29	211	— 61	+ 10
19	17h ●			13	078	— 43	— 47	31	213	— 77	+ 5
23	55969	— 65	0	15	12h ●						
24	970	— 83	+ 9	21	56085	— 40	— 27	Jan. 10	24h ●		
25	971	— 80	— 8	22	086	— 79	+ 12	14	56226	— 51	+ 3
26	972	— 72	— 17	26	090	— 78	+ 49	17	229	— 73	0
27	973	— 60	— 5	27	091	— 81	+ 7	19	231	— 84	+ 4
28	974	— 54	— 6	28	092	— 80	+ 13	21	233	— 82	+ 15
30	976	— 62	— 3	31	095	— 78	+ 2	22	234	— 82	+ 19
								25	237	— 73	+ 9
May 2	978	— 52	+ 7	Sept. 1	096	— 66	— 2	26	238	— 73	— 3
3	979	— 57	+ 13	2	097	— 62	— 3	29	241	— 73	+ 5
4	980	— 58	+ 12	4	099	— 54	+ 2	30	242	— 71	— 2
5	981	— 69	+ 10	6	101	— 59	0	31	243	— 77	0
6	982	— 56	+ 14	7	102	— 47	— 10				
7	983	— 62	+ 16	14	3h ●			Feb. 3	246	— 103	+ 18
8	984	— 56	+ 4	19	56113	— 55	— 9	9	13h ●		
10	986	— 43	— 1	20	114	— 39	— 13	12	56254	— 79	— 3
11	987	— 76	+ 21	22	116	— 75	— 6	14	256	— 65	— 8
12	988	— 41	+ 35	24	118	— 73	— 2	17	259	— 67	— 2
19	2h ●			26	120	— 95	+ 7	18	260	— 67	+ 2
23	55998	— 66	+ 19	27	121	— 76	+ 9	21	263	— 70	+ 5
24	999	— 71	+ 7	29	123	— 74	+ 11	22	264	— 67	+ 4
29	56004	— 69	— 5	30	124	— 82	— 6	23	365	— 70	+ 1
31	006	— 71	+ 9					26	268	— 67	+ 10
				Oct. 3	127	— 49	— 6	28	270	— 72	+ 10
June 7	013	— 37	+ 16	4	128	— 86	— 1				
10	016	— 66	+ 6	5	129	— 66	+ 11	Mar. 1	271	— 77	+ 5
14	020	— 61	+ 5	6	130	— 75	+ 12	2	272	— 76	+ 18
17	11h ●			8	132	— 64	— 1	3	273	— 115	+ 1
22	56027	— 84	+ 13	9	133	— 36	— 3	4	274	— 76	+ 7
23	028	— 61	— 14	11	135	— 60	0				
27	032	— 56	+ 4	13	20h ●			11	oh ●		
28	033	— 65	— 3	24	56147	— 83	+ 11	14	56283	— 112	+ 1
29	034	— 71	+ 6	25	148	— 95	+ 15	16	285	— 83	— 12
30	035	— 65	+ 7	29	152	— 72	— 1	18	287	— 40	— 31
								19	288	— 61	+ 5
July 1	036	— 80	— 3	Nov. 5	159	— 75	— 9	20	289	— 60	— 9
2	037	— 56	— 3	7	161	— 77	— 6	21	290	— 62	— 2
4	039	— 50	+ 20	9	163	— 90	— 18	22	291	— 57	0
8	043	— 28	— 1	10	164	— 97	— 18	23	292	— 59	0
10	045	+ 6	— 8	12	14h ●			25	294	— 55	+ 7
14	049	— 38	— 21	18	56171	— 71	— 14	27	296	— 75	— 7
16	23h ●			20	173	— 77	+ 2	29	298	— 60	+ 21

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date	Lunar Day.	Tab.—Obs. Unit 0".1.		Date	Lunar Day.	Tab.—Obs. Unit 0".1.		Date	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1910				1910-1				1911			
April 1	56301	- 91	- 3	Sept. 3	6h ●			Mar. 8	56630	- 76	- 2
9	9h ●			12	56459	- 97	+ 3	9	631	- 81	- 6
11	56310	-109	+ 1	19	466	- 92	+ 7	11	633	- 97	0
13	312	- 94	+ 20	20	467	- 65	+ 8	13	635	- 83	+ 15
15	314	- 84	+ 5	21	468	- 77	- 4	14	636	- 74	+ 13
17	316	- 64	+ 5	22	469	- 97	- 3	16	638	- 78	+ 7
24	323	- 61	+ 1	25	472	- 73	- 16	19	641	- 74	+ 13
25	324	- 69	+ 16	26	473	- 85	- 21	30	1h ●		
26	325	- 81	+ 7	27	474	- 68	- 7				
28	327	- 80	+ 12					April 3	56655	- 99	+ 4
29	328	- 65	+ 15	Oct. 2	21h ●			5	657	- 78	- 4
				15	56491	- 99	+ 13	6	658	- 71	+ 20
May 8	18h ●			16	492	-104	+ 18	7	659	- 68	- 2
10	56338	- 91	+ 19	22	498	- 73	- 2	8	660	- 75	+ 11
13	341	-148	+ 0					11	663	- 63	+ 8
14	342	- 91	+ 15	Nov. 1	14h ●			12	664	- 69	+ 1
15	343	-104	+ 6	7	56513	- 86	0	13	665	- 54	+ 2
16	344	- 67	+ 9	8	514	- 93	- 7	14	666	- 61	+ 5
18	346	- 66	- 4	9	515	-100	- 18	15	667	- 60	+ 10
22	350	- 64	+ 11	11	517	-100	+ 4	16	668	- 75	- 2
23	351	- 73	0	14	520	- 91	+ 14	17	669	- 69	+ 21
26	354	- 61	+ 22	15	521	-112	- 4	18	670	- 77	+ 5
				16	522	- 97	- 1	28	10h ●		
June 7	1h ●			17	523	- 88	+ 6				
12	56370	- 98	+ 15	20	526	- 81	+ 3	May 1	56682	- 87	+ 9
14	372	- 84	0	21	527	- 62	+ 9	4	685	- 83	- 14
15	373	- 84	+ 2	28	534	- 9	+ 22	5	686	- 97	0
16	374	- 79	+ 8					6	687	- 91	+ 12
18	376	- 73	+ 3	Dec. 1	9h ●			8	689	- 82	+ 12
19	377	- 78	+ 14	7	56542	- 84	- 4	9	690	- 77	+ 5
20	378	- 69	+ 6	9	544	- 80	+ 1	10	691	- 81	- 1
22	380	- 80	- 10	12	547	-100	+ 7	11	692	- 81	- 3
24	382	- 57	+ 7	13	548	-101	0	12	693	- 76	+ 2
26	384	- 51	+ 20	15	550	- 98	- 1	16	697	- 74	+ 18
28	386	- 44	+ 2	16	551	-103	- 10	21	702	- 71	+ 2
29	387	-119	- 19	19	554	- 67	+ 11	27	18h ●		
				21	556	- 75	- 11				
July 6	9h ●			22	557	- 64	- 7	June 1	56712	- 94	+ 6
11	56398	- 82	+ 9	26	561	- 55	- 8	2	713	- 83	- 8
12	399	- 81	+ 3	27	562	- 95	- 17	3	714	- 93	+ 23
13	400	- 85	- 13	31	4h ●			4	715	- 93	- 22
22	409	- 71	- 14					5	716	- 79	- 22
30	417	- 58	+ 6	Jan. 7	56572	- 79	+ 1	6	717	- 76	- 7
31	418	- 75	- 7	10	575	-105	- 9	7	718	- 85	- 5
				12	577	-117	+ 2	8	719	- 77	+ 8
Aug. 2	420	- 93	0	13	578	- 99	+ 4	9	720	- 74	- 8
4	19h ●			14	579	- 93	+ 1	10	721	- 68	+ 12
10	56427	- 76	- 18	15	580	- 87	- 3	13	724	- 62	- 14
14	431	- 93	+ 18	29	22h ●			14	725	- 70	+ 11
15	432	- 94	+ 15					26	1h ●		
17	434	- 98	- 8	Feb. 11	56606	- 97	+ 6				
19	436	- 95	- 3	12	607	-101	+ 9	July 1	56741	- 48	+ 4
20	437	- 69	- 10	13	608	- 68	+ 5	2	742	- 55	- 1
21	438	- 67	- 1	17	612	- 89	+ 21	3	743	- 66	+ 11
22	439	- 54	- 28	19	614	- 79	+ 17	4	744	- 89	+ 7
26	443	- 82	- 28	28	13h ●			5	745	-104	- 2
27	444	- 87	- 2					6	746	- 81	0
28	445	- 74	- 30	Mar. 5	56627	- 95	+ 11	7	747	- 78	+ 17
30	447	-117	- 18	7	629	- 86	- 7	8	748	- 88	+ 11

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1911				1911-2				1912			
July 9	56749	- 84	- 17	Nov. 1	56860	- 99	+ 12	April 21	57026	-100	+ 6
10	750	- 87	+ 3	5	864	-102	+ 7	22	027	-123	+ 15
11	751	- 91	+ 4	6	865	-102	+ 5	23	028	-117	- 13
12	752	- 71	+ 7	7	866	-110	+ 4	24	029	- 92	- 6
13	753	- 76	- 4	8	867	-106	+ 1	25	030	- 93	+ 4
14	754	- 44	+ 9	9	868	- 95	- 6	26	031	-110	+ 12
16	756	- 81	- 13	13	872	- 81	- 7	27	032	- 96	+ 2
18	758	- 42	+ 3	14	873	- 67	- 4	28	033	- 97	- 3
20	760	-108	- 36	15	874	- 77	+ 14	29	034	-103	+ 5
21	761	- 96	0	20	9 ^h ●						
22	762	- 60	+ 16	27	56885	- 97	- 9	May 16	10 ^h ●		
25	8 ^h ●			29	887	- 85	+ 12	18	57052	- 94	+ 19
27	56766	-112	+ 15					19	053	- 97	+ 4
28	767	- 65	+ 20	Dec. 3	891	-113	+ 8	20	054	- 99	+ 3
30	769	- 52	- 8	5	893	- 93	0	24	058	-120	- 6
31	770	- 84	+ 20	7	895	-105	- 8	25	059	- 99	- 1
				10	898	- 95	+ 1	26	060	- 93	+ 6
Aug. 2	772	- 57	- 5	11	899	- 80	+ 13	27	061	- 99	- 5
3	773	- 91	- 4	15	903	- 89	- 5	28	062	- 82	- 10
7	777	- 90	- 2	20	4 ^h ●			29	063	-100	- 25
8	778	- 70	- 8	27	56914	- 95	+ 3	31	065	- 90	- 8
9	779	- 82	+ 2	31	918	-151	- 11				
10	780	-100	+ 18					June 2	067	- 94	- 15
11	781	- 88	+ 4	Jan. 5	923	- 97	- 18	5	070	- 69	+ 11
12	782	-115	- 5	8	926	- 91	+ 1	9	074	- 78	+ 3
13	783	- 78	+ 4	9	927	- 81	- 14	10	075	- 54	- 3
14	784	- 75	+ 7	18	23 ^h ●			14	18 ^h ●		
15	785	- 80	+ 15	27	56944	-118	- 9	18	57082	- 93	+ 19
17	787	- 98	- 6	28	945	-105	- 5	19	083	- 96	+ 12
18	788	- 73	+ 21	29	946	-123	+ 10	21	085	-128	+ 12
23	16 ^h ●			31	948	-103	+ 6	22	086	- 89	- 9
31	56800	- 92	- 10					24	088	-121	- 6
				Feb. 1	949	-120	+ 14	25	089	- 74	- 10
Sept. 1	801	-107	+ 16	2	950	-102	+ 4	26	090	- 95	- 3
2	802	- 99	+ 1	4	952	- 96	- 10	28	092	- 89	+ 1
3	803	-109	+ 16	9	957	- 99	- 1	29	093	-115	- 18
4	804	- 96	+ 2	17	18 ^h ●			30	094	- 84	- 52
5	805	- 91	- 3	28	56975	-102	+ 5				
6	806	- 89	+ 11	29	976	-107	+ 8	July 5	099	- 63	- 16
7	807	- 85	- 5					7	101	-102	- 8
8	808	- 92	+ 5	Mar. 3	979	- 91	- 9	8	102	- 90	+ 7
9	809	- 84	+ 2	6	982	- 98	- 2	14	1 ^h ●		
10	810	- 79	- 2	8	984	-104	- 9	16	57109	-114	+ 10
11	811	- 71	+ 16	18	10 ^h ●			17	110	-112	- 9
14	814	- 84	- 3	26	57001	-127	- 17	25	118	- 95	0
15	815	- 77	- 2	28	003	-149	- 4	28	121	- 76	- 24
17	817	- 99	- 34	30	005	-111	- 10	31	124	- 71	+ 9
18	818	- 74	+ 7	31	006	- 96	- 11				
22	3 ^h ●							Aug. 1	125	- 61	+ 10
				April 1	007	- 91	- 7	2	126	- 88	- 3
Oct. 1	56830	- 86	- 17	2	008	- 86	- 7	12	8 ^h ●		
2	831	-115	- 4	3	009	-101	- 11	27	57150	- 86	+ 6
6	835	-100	+ 13	5	011	- 90	- 7	30	153	- 73	+ 3
8	837	- 79	- 4	8	014	- 87	+ 17				
9	838	- 63	- 28	9	015	-112	+ 17	Sept. 4	158	-114	- 8
11	840	- 90	- 11	16	022	- 45	+ 1	5	159	-117	+ 14
12	841	- 77	- 11	17	0 ^h ●			6	160	-126	+ 4
21	16 ^h ●			19	57024	-103	- 7	10	16 ^h ●		
31	56859	- 82	+ 1	20	025	-123	- 3	18	57171	-101	- 9

OBSERVATIONS OF THE MOON, 1851-1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1912-3				1913				1913-4			
Sept. 20	57173	-101	+ 12	Feb. 16	57317	-136	+ 4	July 19	57465	-117	+ 15
21	174	-101	+ 7	18	319	-117	- 2	20	466	-122	- 11
23	176	-105	+ 16	21	322	-108	- 6	23	469	-104	+ 6
24	177	-108	+ 11	22	323	-112	- 10	Aug. 2	1 ^h ●		
25	178	-100	0	23	324	-111	0	9	57485	-115	- 7
26	179	-97	- 1	24	325	-109	- 3	11	487	-101	+ 20
27	180	-83	+ 7					20	496	-83	+ 9
Oct. 2	185	-98	- 3	Mar. 7	12 ^h ●			21	497	-80	+ 12
3	186	-117	- 1	12	57340	-114	- 21	22	498	-112	- 9
4	187	-127	- 13	13	341	-130	+ 15	24	500	-145	+ 22
6	189	-107	- 20	15	343	-122	+ 22	25	501	-129	+ 5
10	2 ^h ●			17	345	-129	+ 14	31	9 ^h ●		
17	57197	-87	- 23	18	346	-140	+ 6	Sept. 8	57514	(-123)	(+ 63)
19	201	-80	- 2	19	347	-129	+ 3	10	516	-109	+ 3
25	207	-105	+ 10	20	348	-121	+ 14	11	517	-108	+ 11
29	211	-107	- 15	21	349	-118	+ 1	12	518	-111	+ 1
31	213	-89	+ 5	23	251	-109	+ 15	13	519	-137	+ 10
Nov. 1	214	-101	+ 21	24	352	-104	+ 8	15	521	-118	+ 7
2	215	-98	+ 19	25	353	-102	- 11	17	523	-102	+ 8
8	14 ^h ●			April 6	6 ^h ●			18	524	-109	- 4
24	57236	-96	- 8	13	57371	-131	+ 7	21	527	-133	- 4
25	237	-100	- 8	16	374	-134	+ 8	23	529	-125	+ 23
26	238	-90	+ 8	17	375	-141	+ 10	24	530	-152	+ 22
30	242	-91	+ 5	19	377	-143	- 11	29	17 ^h ●		
Dec. 1	243	-94	- 3	22	380	-102	- 2	Oct. 6	57541	-129	- 8
2	244	-82	- 23	23	381	-111	- 2	7	542	-101	- 9
4	246	-105	- 18	28	386	-119	+ 7	10	545	-138	- 5
8	5 ^h ●			May 5	20 ^h ●			11	546	-113	+ 1
16	57257	-106	- 1	13	57400	-118	+ 11	12	547	-114	- 9
17	258	-95	- 1	15	402	-123	+ 3	13	548	-122	+ 27
18	259	-107	+ 3	16	403	-114	+ 9	16	551	-114	- 8
20	261	-112	+ 5	18	405	-122	+ 5	19	554	-128	- 17
23	264	-131	- 5	19	406	-115	- 15	29	2 ^h ●		
24	265	-111	+ 14	20	407	-88	+ 1	Nov. 7	57572	-134	+ 14
25	266	-114	+ 3	21	408	-99	+ 9	8	573	-111	+ 3
26	267	-106	+ 7	24	411	-90	+ 10	12	577	-114	- 11
29	270	-93	- 5	25	412	-137	+ 14	13	578	-119	+ 3
Jan. 1	273	-88	- 11	26	413	-102	+ 14	15	580	-128	0
6	22 ^h ●			27	414	-107	+ 21	16	581	-127	- 11
12	57283	-85	- 15	29	416	-113	+ 10	18	583	-115	+ 15
13	284	-95	- 11	June 4	8 ^h ●			24	589	-119	- 7
15	286	-114	+ 10	7	57424	-118	- 7	27	14 ^h ●		
17	288	-119	+ 3	10	427	-119	+ 13	Dec. 5	57599	-146	0
19	290	-132	- 7	11	428	-148	+ 16	9	603	-126	- 9
20	291	-146	- 10	14	431	-103	+ 4	13	607	-129	0
21	292	-116	+ 1	15	432	-116	- 15	14	608	-120	+ 17
25	296	-125	- 8	16	433	-121	+ 2	18	612	-129	+ 18
26	297	-111	0	17	434	-107	+ 8	19	613	-117	+ 20
Feb. 5	17 ^h ●			19	436	-102	+ 18	20	614	-116	- 11
8	57309	-88	- 12	20	437	-129	+ 9	27	3 ^h ●		
10	311	-121	+ 6	21	438	-109	+ 11	Jan. 5	57629	-121	+ 11
11	312	-109	+ 9	July 3	17 ^h ●			6	630	-145	+ 4
12	313	-112	+ 19	12	57458	-100	+ 2	14	638	-129	- 3
13	314	-115	- 6	13	459	-128	- 9				
				18	464	-110	- 14				

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1914				1914				1914-5			
Jan. 25	19 ^h ●			June 28	57797	- 95	+ 9	Nov. 2	57920	-113	+ 2
Feb. 1	57655	-126	+ 1	29	798	-114	+ 17	3	921	-108	0
2	656	-129	- 19	30	799	-131	+ 1	5	923	-127	- 1
3	657	-135	- 5	July 2	801	-129	+ 12	6	924	-131	+ 24
4	658	-135	- 9	4	803	-117	+ 24	7	925	-123	+ 24
5	659	-142	+ 11	6	805	-118	+ 1	8	926	-134	+ 17
6	660	-150	- 10	7	806	-133	+ 12	10	928	-128	- 2
9	663	-138	- 1	9	808	-123	+ 20	11	929	-149	+ 7
11	665	-131	+ 13	11	810	-138	+ 6	13	931	-162	+ 14
24	12 ^h ●			17	816	-156	+ 13	17	4 ^h ●		
27	57680	-127	- 43	22	15 ^h ●			25	57942	-115	+ 11
Mar. 10	691	-144	+ 20	26	57824	-133	- 17	27	944	-117	+ 16
12	693	-138	- 13	30	828	-133	+ 4	28	945	-124	- 10
16	697	-103	- 5	Aug. 2	831	-133	+ 7	Dec. 1	948	-125	+ 1
26	6 ^h ●			3	832	-125	+ 17	4	951	-133	+ 14
31	57711	-136	+ 31	5	834	-124	- 2	5	952	-124	+ 19
April 1	712	-125	+ 6	7	836	-121	+ 11	10	957	-139	+ 6
2	713	-126	- 2	10	839	-104	+ 4	16	15 ^h ●		
3	714	-140	- 2	11	840	- 91	+ 6	21	57967	-122	- 7
4	715	-131	- 10	12	841	-144	+ 5	25	971	-119	+ 12
6	717	-126	+ 15	13	842	-142	- 9	26	972	-131	- 3
7	718	-151	+ 8	16	845	-147	+ 13	29	975	-136	+ 9
8	719	-147	+ 7	17	846	-187	- 30	31	977	-140	+ 4
10	721	-129	+ 5	21	oh ●			Jan. 1	978	-139	+ 10
11	722	-114	- 13	21	57849	-135	+ 49	2	979	-120	+ 35
12	723	-104	+ 9	29	857	-123	+ 10	5	982	-112	+ 4
14	725	-118	0	30	858	-118	- 3	8	985	-126	+ 18
15	726	-107	- 15	Sept. 1	860	-117	+ 12	15	3 ^h ●		
17	728	-105	- 6	2	861	-113	+ 11	Feb. 2	58009	-132	+ 18
18	729	- 80	- 23	3	862	-109	+ 17	3	010	-130	+ 12
24	23 ^h ●			5	864	-125	+ 15	4	011	-127	+ 25
27	57737	-111	+ 12	6	865	-117	+ 6	7	014	-129	+ 18
28	738	-111	+ 38	7	866	- 91	+ 13	13	17 ^h ●		
29	739	-110	+ 9	9	868	-106	- 17	19	58025	- 90	- 8
May 1	741	-123	0	10	869	-125	- 4	21	027	-144	- 47
2	742	-133	+ 13	11	870	-135	- 4	24	030	-151	+ 2
3	743	-123	+ 2	12	871	-125	- 20	Mar. 5	039	-114	+ 15
4	744	-135	+ 32	14	873	-138	+ 16	15	8 ^h ●		
13	753	-105	- 1	19	10 ^h ●			19	58052	-123	- 7
16	756	-102	- 1	25	57883	-135	+ 32	21	054	-140	+ 7
17	757	-107	- 7	27	885	-133	+ 8	23	056	-130	+ 21
24	15 ^h ●			28	886	-119	+ 36	25	058	-109	- 2
June 1	57771	-115	+ 5	29	887	-132	+ 15	27	060	-115	+ 29
3	773	-142	+ 8	30	888	-135	+ 32	29	062	-133	+ 2
4	774	-125	+ 11	Oct. 1	889	-128	+ 12	31	064	-133	+ 18
14	784	-125	- 9	3	891	-105	- 1	April 5	069	-121	+ 10
16	786	- 89	+ 5	4	892	-113	+ 7	14	oh ●		
17	787	-110	- 11	5	893	-104	- 10	17	58080	- 85	+ 17
18	788	-136	- 10	7	895	-118	- 19	18	081	-118	- 5
19	789	-127	+ 7	10	898	-125	+ 5	21	084	-160	+ 2
23	4 ^h ●			11	899	-159	+ 3	23	086	-132	+ 4
25	57794	-133	+ 13	18	10 ^h ●			24	087	-118	+ 23
26	795	-122	+ 27	27	57914	-133	+ 3	26	089	-140	- 1
27	796	-137	+ 26	31	918	-105	+ 2	27	090	-131	- 3

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1915				1915-6				1916			
Apr. 28	58091	-110	+ 7	Sept. 2	58214	-134	+ 67	Feb. 10	58369	-121	0
29	092	-117	- 1	3	215	-130	+ 38	12	371	-123	+ 4
30	093	-125	- 2	5	217	-156	- 4	14	373	-127	+ 13
				8	23 ^h ●			16	375	-121	+ 15
May 1	094	-135	- 27	16	58227	-120	+ 13	17	376	-124	+ 10
2	095	- 92	- 10	17	228	-135	0	19	378	-117	+ 20
5	098	-120	+ 23	19	230	-137	+ 6	20	379	-117	+ 5
7	100	-133	- 51	20	231	-134	+ 21				
8	101	-106	+ 19	21	232	-118	+ 16	Mar. 3	16 ^h ●		
13	16 ^h ●			24	235	-107	- 5	17	58404	-131	- 6
19	58111	-133	+ 21	25	236	- 93	- 1	18	405	-138	+ 21
22	114	-130	+ 14	27	238	-103	+ 3	19	406	-132	+ 4
23	115	-135	+ 5	30	241	-124	+ 7	24	411	-128	- 2
25	117	-152	- 9								
26	118	-136	+ 16	Oct. 1	242	-140	+ 13	Apr. 2	4 ^h ●		
28	120	-102	+ 7	4	245	-176	0	5	58422	- 85	+ 24
30	122	-121	- 21	8	10 ^h ●			7	424	-134	+ 26
31	123	-120	+ 38	14	58254	-112	- 12	8	425	-134	+ 19
				17	257	-128	+ 9	9	426	-160	+ 19
June 1	124	-113	- 14	18	258	-117	+ 6	10	427	-129	0
4	127	-130	- 9	20	260	-123	+ 4	11	428	-134	+ 9
7	130	-138	+ 2	21	261	-114	+ 2	12	429	-121	+ 20
12	7 ^h ●			22	262	-130	+ 6	13	430	-124	+ 25
15	58137	-118	+ 21	25	265	-108	+ 2	14	431	-134	+ 13
16	138	- 95	+ 21	26	266	-120	- 2	15	432	-138	+ 13
18	140	-136	+ 11	28	268	-117	+ 6	20	437	-123	+ 14
19	141	-143	+ 18					22	439	-128	+ 9
20	142	-136	+ 8	Nov. 1	272	-140	+ 16				
21	143	-149	+ 12	2	273	-145	+ 15	May 1	17 ^h ●		
22	144	-158	+ 12	6	20 ^h ●			8	58454	-134	+ 28
30	152	-124	+ 9	13	58283	-132	+ 7	15	461	-133	+ 2
				14	284	-130	+ 8	17	463	(-204)	(+ 13)
July 1	153	-119	- 20	15	285	-124	- 7	18	464	-137	+ 12
2	154	-128	- 3	16	286	-107	+ 12	19	465	-118	- 15
3	155	-104	+ 17	19	289	-105	+ 28	20	466	-118	- 3
5	157	-172	- 32	26	296	-122	+ 16	21	467	-138	+ 5
11	22 ^h ●							22	468	-135	+ 7
20	58171	-148	+ 22	Dec. 1	301	-148	+ 2	23	469	-115	+ 14
23	174	-140	- 9	6	6 ^h ●			26	472	-139	+ 13
24	175	-131	- 4	11	58310	-129	+ 13	27	473	-116	- 5
26	177	-133	- 1	12	311	-123	+ 7	31	8 ^h ●		
27	178	-147	+ 12	13	312	-122	+ 8				
28	179	-115	+ 1	21	320	-112	+ 5	June 5	58481	-130	+ 46
29	180	-121	+ 9	27	326	-124	+ 16	6	482	-112	+ 27
30	181	-110	+ 6	29	328	-133	- 6	7	483	-138	+ 13
31	182	-122	- 14	30	329	-143	- 8	8	484	-124	- 6
								9	485	-146	+ 7
Aug. 1	183	-130	+ 1	Jan. 4	17 ^h ●			10	486	-137	+ 2
3	185	-105	+ 19	7	58336	-165	+ 20	16	492	-153	0
10	11 ^h ●			13	342	-120	- 8	19	495	-140	+ 13
18	58199	-131	+ 2	14	343	-118	- 6	21	497	-129	- 12
19	200	-142	+ 7	15	344	-125	+ 4	24	500	-147	- 45
23	204	-135	+ 12	18	347	-141	+ 3	29	23 ^h ●		
25	206	-118	- 5	22	351	-109	+ 11				
26	207	-117	+ 5	24	353	-124	+ 9	July 5	58510.	-136	+ 17
27	208	-116	+ 10					7	512	-139	+ 22
29	210	-133	- 13	Feb. 3	4 ^h ●			8	513	-146	+ 25
				8	58367	-171	- 33	14	519	-135	- 8
Sept. 1	213	-140	+ 10	9	368	-113	+ 14	15	520	-139	+ 4

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OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1916-7				1917				1917			
July 19	58524	-103	+ 2	Jan. 3	58686	-136	- 32	June 2	58831	-140	+ 13
20	525	-123	+ 9	4	687	-134	+ 2	3	832	-144	0
25	530	-153	- 10	6	689	-120	+ 2	4	833	-144	+ 10
29	14h ●			7	690	-112	- 7	7	836	-131	+ 1
				9	692	-120	+ 12	8	837	-107	0
Aug. 4	58539	-148	+ 31	22	20h ●			9	838	-126	+ 12
5	540	-135	+ 38	27	58709	-141	- 12	11	840	-194	+ 4
7	542	-132	+ 2	28	710	-118	+ 32	12	841	-123	0
8	543	-135	+ 16	29	711	-131	- 14	14	843	-128	- 16
9	544	-165	0	31	713	-146	+ 2	15	844	-128	- 37
10	545	-173	- 2					19	1h ●		
12	547	-138	- 3	Feb. 1	714	-148	+ 5	25	58853	-169	+ 25
14	549	-132	0	3	716	-138	- 18	26	854	-126	+ 9
15	550	-118	- 16	5	718	-135	+ 11	27	855	-146	- 1
19	554	-125	- 19	6	719	-128	+ 17				
28	5h ●			7	720	-133	+ 31	July 1	859	-158	+ 2
				8	721	-140	+ 7	2	860	-141	+ 7
Sept. 5	58570	-151	+ 8	9	722	-120	+ 11	6	864	-137	- 6
6	571	-159	- 15	21	6h ●			9	867	-118	- 19
8	573	-170	- 15					11	869	-124	- 10
13	578	-137	- 10	Mar. 2	58742	-125	- 2	15	873	-144	- 10
14	579	-136	+ 6	3	743	-124	+ 2	18	15h ●		
15	580	-135	- 5	9	749	-132	+ 6	25	58882	-123	- 9
16	581	-137	- 11	12	752	-125	+ 10	28	885	-134	- 10
20	585	-144	+ 38	16	756	-136	- 5				
23	588	-172	+ 25	22	16h ●			Aug. 6	894	-132	- 10
26	20h ●			28	58767	-121	+ 10	17	6h ●		
				29	768	-147	+ 38	23	58910	-134	+ 12
Oct. 8	58602	-135	- 2	30	769	-136	+ 2	29	916	-161	- 15
9	603	-148	+ 6					31	918	-151	+ 10
11	605	-128	+ 6	Apr. 1	771	-140	+ 14				
15	609	-149	+ 4	3	773	-135	+ 12	Sept. 1	919	-139	- 6
16	610	-135	+ 5	4	774	-137	+ 17	2	920	-157	0
17	611	-145	- 4	6	776	-149	+ 2	3	921	-137	+ 7
20	614	-121	+ 6	7	777	-128	- 4	4	922	-155	- 3
21	615	-150	+ 13	9	779	-125	0	7	925	-142	- 11
22	616	-175	- 6	12	782	-124	- 2	15	22h ●		
26	9h ●			21	2h ●			21	58938	-136	+ 34
31	58624	-160	- 17	25	58794	-130	- 4	24	941	-137	- 1
				27	796	-130	+ 19	25	942	-149	+ 5
Nov. 2	626	-135	+ 4	29	797	-140	+ 10	27	944	-164	- 4
8	632	-142	+ 8	30	798	-157	+ 24	29	946	-168	- 4
9	633	-135	- 3					30	947	-163	- 1
11	635	-133	- 5	May 1	800	-138	+ 18				
16	640	-155	+ 12	2	801	-141	+ 23	Oct. 1	948	-159	- 2
24	21h ●			3	802	-154	+ 27	4	951	-157	+ 4
28	58651	-117	+ 23	4	803	-139	+ 9	6	953	-148	- 5
30	653	-144	+ 13	5	804	-142	+ 14	7	954	-148	+ 6
				6	805	-136	+ 43	8	955	-146	- 8
Dec. 3	656	-140	+ 7	10	809	-122	- 12	10	957	-149	- 14
4	657	-140	+ 10	12	811	-112	- 8	12	959	-155	+ 8
8	661	-141	- 6	20	13h ●			15	15h ●		
9	662	-122	+ 6	25	58823	-125	+ 17	21	58967	-151	- 29
18	671	-163	- 9	26	824	-121	+ 10	22	968	-144	- 7
19	672	-156	+ 5	27	825	-128	+ 36	25	971	-145	- 1
24	9h ●			28	826	-131	+ 19	26	972	-155	+ 2
30	58682	-146	+ 8	30	828	-120	+ 12	27	973	-152	+ 6
								28	974	-157	+ 3
Jan. 2	685	-132	- 12	June 1	830	-144	+ 9	30	976	-148	- 6

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1917-8				1918				1918-9			
Oct. 31	58977	-174	+ 5	Mar. 22	59114	-121	+ 13	Aug. 31	59271	-126	+ 53
Nov. 4	981	-130	+ 18	23	115	-120	+ 9	Sept. 4	23 ^h ●		
7	984	-142	+ 21	24	116	-113	+ 12	11	59281	-129	+ 1
8	985	-163	+ 7	25	117	-116	+ 28	15	285	-141	+ 5
9	986	-161	- 3	27	119	-133	+ 2	17	287	-144	+ 4
10	987	-127	+ 29	31	123	-108	- 9	19	289	-154	+ 6
14	6 ^h ●			Apr. 1	124	-111	- 9	20	290	-139	- 6
23	58999	-146	- 15	2	125	-115	- 9	23	293	-148	- 3
24	59000	-156	- 1	10	17 ^h ●			25	295	-146	+ 2
25	001	-149	+ 12	19	59141	-111	0	26	296	-140	- 12
27	003	-151	+ 4	22	144	-133	+ 5	Oct. 4	15 ^h ●		
28	004	-149	- 16	26	148	-113	+ 3	13	59312	-143	- 2
29	005	-153	+ 2					17	316	-150	+ 3
Dec. 2	008	-141	0	May 10	1 ^h ●			18	317	-161	0
3	009	-122	+ 16	15	59166	-133	- 49	22	321	-140	- 3
5	011	-138	+ 12	16	167	-140	+ 9	29	328	-132	+ 32
6	012	-130	+ 18	17	168	-137	- 5	Nov. 3	9 ^h ●		
7	013	-139	- 2	18	169	-143	+ 2	9	59338	-132	- 5
13	21 ^h ●			20	171	-146	+ 9	12	341	-143	- 4
17	59022	-192	0	21	172	-117	+ 17	13	342	-146	+ 10
18	023	-141	- 12	27	178	-134	+ 9	14	343	-165	+ 4
19	024	-138	- 1	29	180	-123	+ 13	15	344	-161	- 2
23	028	-138	- 1	30	181	-128	+ 11	18	347	-157	- 4
25	030	-148	- 10	June 1	183	- 88	+ 6	21	350	-126	+ 20
Jan. 2	038	-131	+ 3	8	10 ^h ●			22	351	-143	+ 5
3	039	-144	+ 19	11	59192	-158	+ 11	Dec. 3	3 ^h ●		
12	11 ^h ●			13	194	-145	+ 18	7	59365	-126	- 32
19	59054	-159	- 12	15	196	-148	- 7	12	370	-139	+ 1
20	055	-138	- 5	16	197	-135	0	13	371	-141	- 1
21	056	-136	- 11	21	202	-134	+ 1	16	374	-158	+ 10
24	059	-131	- 3	22	203	-118	0	23	381	-118	+ 29
26	061	-119	+ 14	24	205	-142	+ 4	24	382	-103	+ 19
27	062	-103	+ 11	25	206	-133	- 4	25	383	-144	+ 11
28	063	-112	+ 14	26	207	-125	+ 4	Jan. 1	20 ^h ●		
29	064	-107	+ 27	29	210	-114	+ 8	6	59394	-123	- 12
30	065	-109	+ 16	30	211	-114	- 14	9	397	-133	- 2
Feb. 1	067	-128	+ 9	July 3	214	-111	- 21	10	398	-127	- 4
10	22 ^h ●			7	20 ^h ●			11	399	-141	- 1
15	59080	-147	- 7	16	59226	-140	+ 24	12	400	-145	- 10
16	081	-147	- 3	18	228	-133	+ 2	15	403	-140	+ 12
17	082	-126	- 1	21	231	-147	+ 2	16	404	-134	+ 11
18	083	-120	- 10	23	233	-142	- 12	17	405	-120	+ 9
19	084	-129	+ 4	28	238	-128	- 12	18	406	-120	+ 41
21	086	-127	+ 13	29	239	-127	- 12	22	410	-110	+ 18
24	089	-120	+ 5	30	240	-137	+ 4	31	11 ^h ●		
25	090	-101	+ 28	Aug. 6	8 ^h ●			Feb. 7	59425	-127	- 1
26	091	-122	+ 16	14	59254	-129	+ 11	8	426	-130	- 5
27	092	-120	+ 18	15	255	-138	- 9	9	427	-128	- 11
Mar. 1	094	-109	+ 18	18	258	-133	+ 7	10	428	-131	- 5
5	098	-139	- 17	19	259	-140	- 2	11	429	-137	- 3
12	8 ^h ●			20	260	-154	- 1	12	430	-130	- 2
18	59110	-134	+ 28	21	261	-127	+ 6	Mar. 1	23 ^h ●		
20	112	-132	+ 9	22	262	-136	+ 2				
21	113	-117	+ 8	24	264	-137	+ 3				
				26	266	-147	- 8				
				28	268	-141	- 38				

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1919				1919-20				1920			
Mar. 9	59454	— 98	— 3	Aug. 13	59606	—128	+ 2	Feb. 5	59776	—138	+ 31
11	456	—106	+ 16	14	607	—133	— 4	6	777	—113	+ 42
17	462	—111	+ 11	15	608	—121	— 5	8	779	—123	+ 14
20	465	— 93	— 3	17	610	—130	— 4	10	781	—130	+ 7
22	467	—105	+ 32	25	4 ^h ●			11	782	—132	+ 3
31	9 ^h ●			31	59623	—116	+ 10	19	10 ^h ●		
April 5	59480	—152	+ 5	Sept. 6	629	—145	+ 6	22	59792	—147	+ 13
7	482	—109	+ 2	8	631	—155	+ 1	23	793	—143	+ 2
8	483	—109	+ 6	9	632	—134	+ 9	24	794	—156	— 4
12	487	—113	+ 25	10	633	—107	— 20	26	796	—158	— 11
13	488	—103	+ 14	11	634	—127	+ 3	27	797	—164	— 2
20	495	—120	— 6	16	639	—151	— 10	Mar. 1	800	—168	+ 5
21	496	—125	+ 6	17	640	—120	+ 52	2	801	—155	+ 12
29	18 ^h ●			23	17 ^h ●			3	802	—135	+ 23
May 8	59512	—116	+ 16	30	59652	—139	+ 45	7	806	—114	+ 12
9	513	—115	+ 15	Oct. 2	654	—131	— 2	12	811	—122	+ 14
10	514	—113	+ 19	3	655	—128	— 13	19	23 ^h ●		
12	516	—110	— 1	6	658	—143	— 4	28	59826	—137	+ 5
13	517	— 81	+ 20	7	659	—164	— 7	31	829	—113	+ 31
14	518	—108	+ 1	9	661	—135	— 2	April 1	830	—123	+ 42
15	519	—104	+ 16	10	662	—130	+ 4	13	842	—124	+ 17
17	521	—111	— 6	11	663	—107	+ 6	18	10 ^h ●		
18	522	—111	— 12	12	664	—140	0	21	59849	—157	+ 23
19	523	—104	+ 3	13	665	—133	— 0	23	851	—152	— 8
21	525	— 86	+ 28	14	666	—134	— 2	24	852	—130	— 3
22	526	— 96	— 7	15	667	—134	+ 10	25	853	—148	+ 5
29	1 ^h ●			23	9 ^h ●			26	854	—138	+ 12
June 5	59539	—123	+ 22	Nov. 10	59692	—139	+ 2	28	856	—118	+ 19
6	540	—143	+ 21	11	693	—138	+ 18	29	857	—125	— 1
7	541	—113	+ 8	15	697	—119	+ 35	30	858	—128	+ 27
8	542	—109	+ 18	22	3 ^h ●			May 2	860	—115	0
9	543	—110	0	28	59709	—112	— 1	3	861	—111	+ 18
10	544	—108	+ 4	30	711	—124	— 8	4	862	—115	+ 9
11	545	—103	— 4	Dec. 2	713	—142	+ 5	9	867	—120	+ 30
13	547	—134	— 4	4	715	—163	+ 13	12	870	—129	— 6
14	548	— 83	— 9	5	716	—155	— 12	17	18 ^h ●		
15	549	—122	0	6	717	—157	+ 3	19	59876	—144	+ 25
16	550	— 99	+ 3	7	718	—151	— 5	21	878	—141	+ 21
18	552	—102	— 4	8	719	—147	+ 6	22	879	—138	+ 9
21	555	—133	— 42	9	720	—125	+ 7	23	880	—120	+ 4
27	9 ^h ●			21	23 ^h ●			24	881	—124	+ 10
July 9	59572	— 75	+ 5	27	59737	—110	— 20	26	883	—119	+ 4
11	574	—141	— 5	31	741	—148	+ 4	27	884	—119	— 4
12	575	—144	+ 3	Jan. 2	743	—158	— 3	29	886	—115	+ 25
13	576	—144	— 17	12	753	—134	— 8	June 1	889	—113	+ 2
15	578	—129	+ 9	20	17 ^h ●			5	893	— 86	— 17
26	17 ^h ●			25	59765	—132	— 8	6	894	— 96	+ 8
31	59593	—173	+ 57	29	769	—149	— 4	7	895	—109	— 2
Aug. 6	599	—130	+ 14	30	770	—152	+ 6	8	896	—115	— 1
7	600	—147	— 17	31	771	—172	0	11	899	— 97	— 6
9	602	—137	— 8	Feb. 2	773	—183	— 9	16	2 ^h ●		
10	603	—144	+ 2	3	774	—159	+ 15	22	59909	—111	+ 23
11	604	—133	+ 12	4	775	—151	+ 25	29	916	—115	+ 1
12	605	—125	0					July 3	920	—102	+ 12

OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.		Date.	Lunar Day.	Tab.—Obs. Unit 0°.1.	
		Long.	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1920				1920-1				1921			
July 7	59924	-102	+ 2	Nov. 26	60061	-148	- 1	May 20	60230	-114	+ 5
9	926	- 88	0	30	065	-133	+ 11	21	231	-122	+ 11
15	8h ●							22	232	-120	+ 15
23	59939	-104	- 22	Dec. 9	22h ●			23	233	-113	+ 6
24	940	- 99	- 5	21	60085	-126	+ 3	24	234	-112	- 7
26	942	-114	+ 8	25	089	-144	- 3	30	240	- 92	0
28	944	-120	0	28	092	-130	+ 8	31	241	- 99	+ 4
29	945	-109	+ 2	31	095	-117	+ 13				
30	946	-116	- 31					June 1	242	-103	- 22
Aug. 1	948	-103	- 5	Jan. 8	17h ●			5	18h ●		
7	954	-140	- 23	12	60106	-113	+ 1	9	60249	-130	+ 21
8	955	-136	+ 4	15	109	-118	+ 9	10	250	-129	+ 9
9	956	-154	- 8	18	112	-142	- 4	11	251	-127	- 10
13	16h ●			22	116	-163	+ 17	12	252	-143	+ 5
19	59965	-150	+ 10	28	122	-124	- 7	13	253	-149	- 1
21	967	-105	+ 3	31	125	-118	+ 1	14	254	-128	+ 5
24	970	-130	0	Feb. 7	13h ●			15	255	-127	+ 5
25	971	-132	+ 3	10	60134	-108	+ 1	16	256	-128	+ 15
26	972	-125	+ 3	14	138	-149	+ 4	17	257	-114	+ 7
27	973	-123	- 4	17	141	-159	+ 29	22	262	- 85	- 3
28	974	-136	- 11	19	143	-170	+ 2	23	263	-104	- 1
29	975	-115	- 11	20	144	-165	+ 7	24	264	- 96	+ 19
Sept. 1	978	-121	0	21	145	-159	+ 18	28	268	-122	+ 4
12	1h ●			26	150	-124	+ 23	July 5	2h ●		
16	59992	-131	- 11	28	152	-132	+ 4	9	60278	-191	+ 38
18	994	-124	- 9	Mar. 2	154	-106	+ 36	10	279	-176	+ 26
19	995	-112	- 12	9	6h ●			11	280	-148	+ 1
22	998	-138	- 10	14	60165	-135	+ 14	12	281	-125	+ 20
26	60002	-127	+ 1	15	166	-129	- 28	13	282	-128	+ 29
27	003	-132	- 2	18	169	-159	- 3	17	286	-125	- 11
Oct. 11	13h ●			20	171	-164	+ 4	18	287	-128	0
19	60024	-122	+ 12	21	172	-173	+ 14	19	288	-100	+ 13
20	025	-126	- 2	23	174	-144	+ 4	20	289	-115	+ 1
21	026	-121	+ 3	24	175	-132	+ 5	21	290	-105	+ 30
22	027	-142	- 13	25	176	-123	+ 13	29	298	-145	- 55
23	028	-145	+ 15	27	178	-124	+ 7	Aug. 3	8h ●		
24	029	-138	+ 8	29	180	-142	+ 6	8	60307	-157	+ 11
25	030	-144	+ 4	April 7	21h ●			9	308	-126	+ 22
26	031	-143	+ 10	10	60191	-143	+ 4	11	310	-114	+ 11
27	032	-124	- 1	12	193	-150	+ 20	15	314	-111	+ 2
28	033	-124	+ 7	14	195	-162	+ 6	19	318	-115	- 12
29	034	-149	+ 18	15	196	-150	- 12	20	319	-105	+ 1
30	035	-156	- 7	16	197	-151	+ 1	22	321	- 99	+ 11
Nov. 1	037	-149	+ 4	18	199	-147	+ 15	25	324	-150	0
10	4h ●			19	200	-134	+ 7	Sept. 1	16h ●		
13	60048	-151	- 26	22	203	-122	- 7	7	60336	-135	+ 4
17	052	-114	- 4	28	209	-111	+ 11	8	337	-123	+ 13
18	053	-129	- 12	May 7	9h ●			9	338	-119	+ 13
19	054	-109	+ 5	10	60220	-121	+ 20	10	339	-124	- 3
20	055	-114	+ 20	12	222	-152	+ 25	12	341	-135	- 7
21	056	-137	+ 6	13	223	-122	+ 31	15	344	-122	- 7
22	057	-129	+ 3	14	224	-144	+ 1	16	345	-121	+ 2
23	058	-134	+ 3	16	226	-136	+ 19	17	346	-127	+ 8
24	059	-158	- 1	17	227	-142	+ 22	21	350	-135	- 1
25	060	-152	+ 2	19	229	-129	+ 11	22	351	-133	- 22
								24	353	-144	+ 17

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OBSERVATIONS OF THE MOON, 1851—1922, COMPARED WITH HANSEN'S TABLES.

Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.		Date.	Lunar Day.	Tab.—Obs. Unit 0".1.	
		Long.,	E.N.P.D.			Long.	E.N.P.D.			Long.	E.N.P.D.
1921-2				1922				1922			
Sept. 27	60356	-159	+ 3	Feb. 10	60487	-175	+ 4	Aug. 11	60663	- 71	- 5
				11	488	-163	+ 7	13	665	- 63	+ 14
Oct. 1	oh ●			13	490	-172	+ 6	14	666	- 66	+ 6
5	60363	-146	+ 12	19	496	-130	+ 28	22	9h ●		
6	364	-144	+ 27	26	7h ●			26	60677	-160	+ 34
7	365	-132	+ 11					27	678	-153	+ 25
8	366	-136	+ 19	Mar. 6	60510	-139	- 3	31	682	-115	+ 6
9	367	-141	+ 14	7	511	-144	+ 3				
11	369	-119	+ 9	8	512	-181	+ 14	Sept. 1	683	-119	+ 7
12	370	-134	+ 7	9	513	-174	+ 10	2	684	-123	0
13	371	-129	+ 14	28	1h ●			3	685	-123	- 2
14	372	-135	+ 4					6	688	-112	- 1
15	373	-136	+ 5	Apr. 2	60536	-144	+ 27	9	691	-105	+ 8
16	374	-122	+ 8	6	540	-166	0	11	693	- 75	+ 23
17	375	-118	0	9	543	-164	+ 26	20	17h ●		
30	12h ●			12	546	-155	+ 8	29	60710	-122	+ 13
				26	17h ●						
Nov. 5	60393	-139	+ 9	May 4	60567	-149	- 3	Oct. 6	717	- 90	+ 9
6	394	-118	- 8	5	568	-157	+ 3	7	718	-111	+ 12
8	396	-110	+ 3	6	569	-189	+ 12	9	720	-106	+ 3
10	398	-135	+ 20	7	570	-170	- 21	11	722	-157	+ 1
12	400	- 98	- 3	8	571	-150	+ 13	12	723	-139	+ 7
14	402	-144	+ 3	12	575	-116	+ 23	13	724	-131	- 3
15	403	-131	+ 4	13	576	-120	- 4	15	726	-135	+ 6
23	411	-155	- 6	14	577	-118	+ 1	20	2h ●		
29	1h ●			15	578	- 79	+ 6	24	60734	-134	+ 8
				19	582	- 84	- 19	26	736	-125	+ 5
Dec. 7	60424	-110	+ 2	20	583	-117	- 8	27	737	-126	- 9
8	425	-111	+ 1	26	6h ●			28	738	-135	+ 5
12	429	-133	- 2					31	741	-116	+ 5
13	430	-134	+ 5	June 1	60594	-152	+ 8				
23	440	-141	- 5	3	596	-150	0	Nov. 1	742	-122	+ 10
28	18h ●			5	598	-141	+ 15	2	743	-132	- 3
				6	599	-134	+ 14	4	745	-131	+ 3
Jan. 3	60450	-119	0	7	600	-131	+ 4	6	747	-127	+ 7
4	451	-118	+ 6	9	602	-108	- 2	10	751	-149	+ 2
5	452	-110	+ 14	10	603	-118	+ 8	11	752	-151	+ 9
6	453	-131	+ 9	11	604	-119	+ 14	18	12h ●		
8	455	-145	+ 5	12	605	-110	+ 19	24	60764	-120	+ 3
9	456	-159	- 3	15	608	-109	+ 5	25	765	-106	- 11
10	457	-149	+ 9	24	16h ●			27	767	-118	- 5
11	458	-158	+ 6	29	60621	-166	- 7	28	768	-113	- 5
12	459	-158	+ 7								
17	464	-146	+ 1	July 2	624	-158	+ 16	Dec. 5	775	-141	+ 14
21	468	-128	+ 16	3	625	-138	+ 2	6	776	-135	+ 2
27	12h ●			4	626	-124	- 2	8	778	-147	+ 22
				6	628	-127	- 1	12	782	-142	- 7
Feb. 3	60480	-119	- 11	9	631	-125	+ 1	13	783	-128	- 8
5	482	-144	- 5	10	632	-100	+ 12	18	oh ●		
6	483	-145	+ 2	11	633	-103	+ 3	22	60791	-104	- 3
7	484	-157	+ 1	15	637	-105	+ 15	23	792	-112	+ 30
8	485	-177	- 3	18	640	-114	- 5	26	795	-101	+ 2
9	486	-160	+ 6	24	1h ●			27	796	-127	- 2
								31	800	-129	- 6