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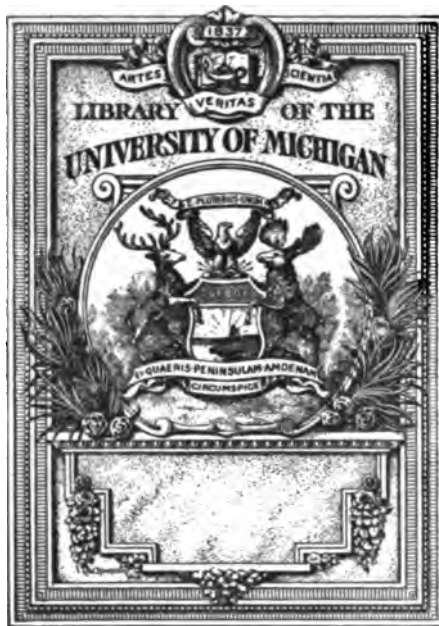
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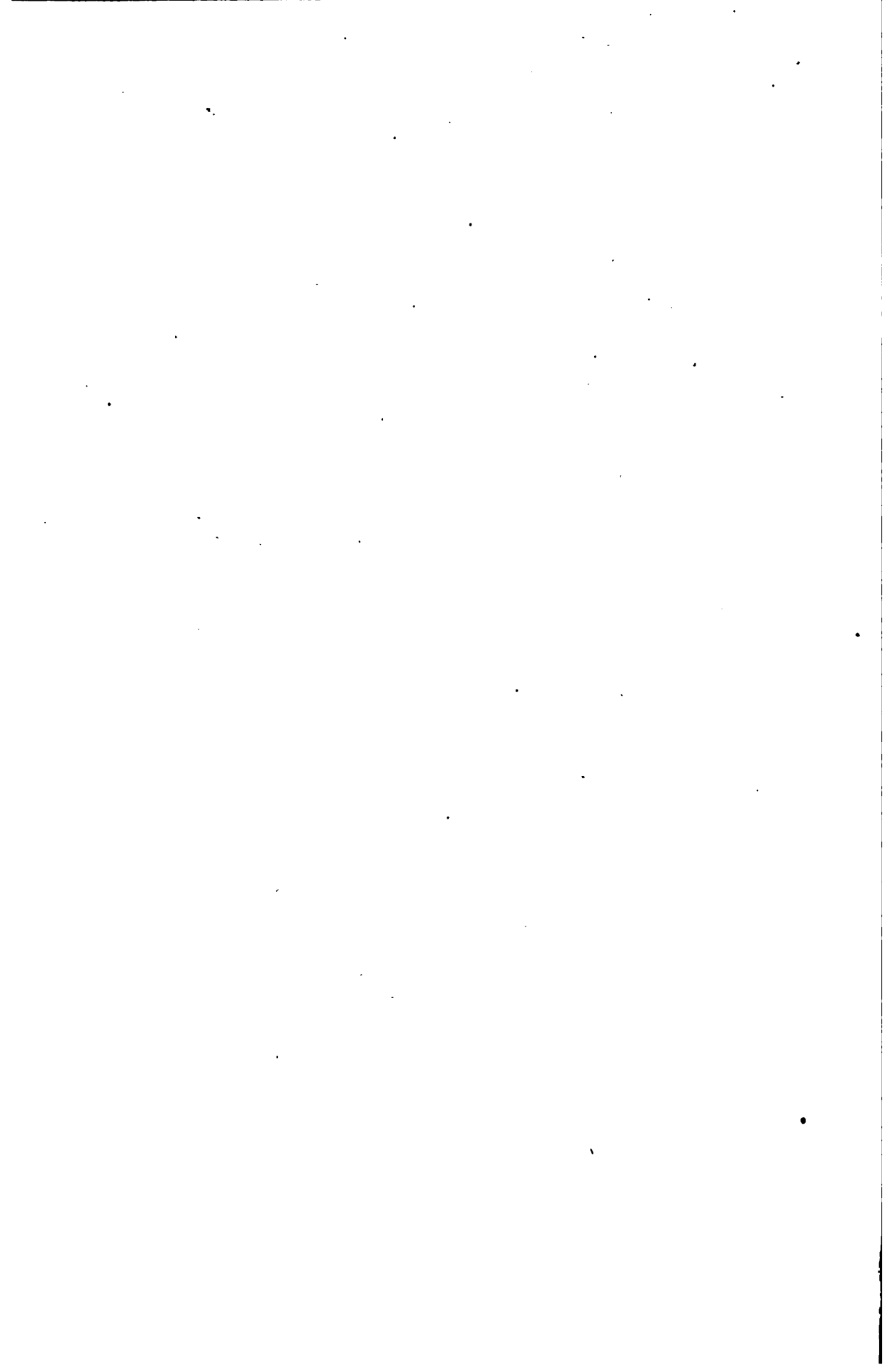
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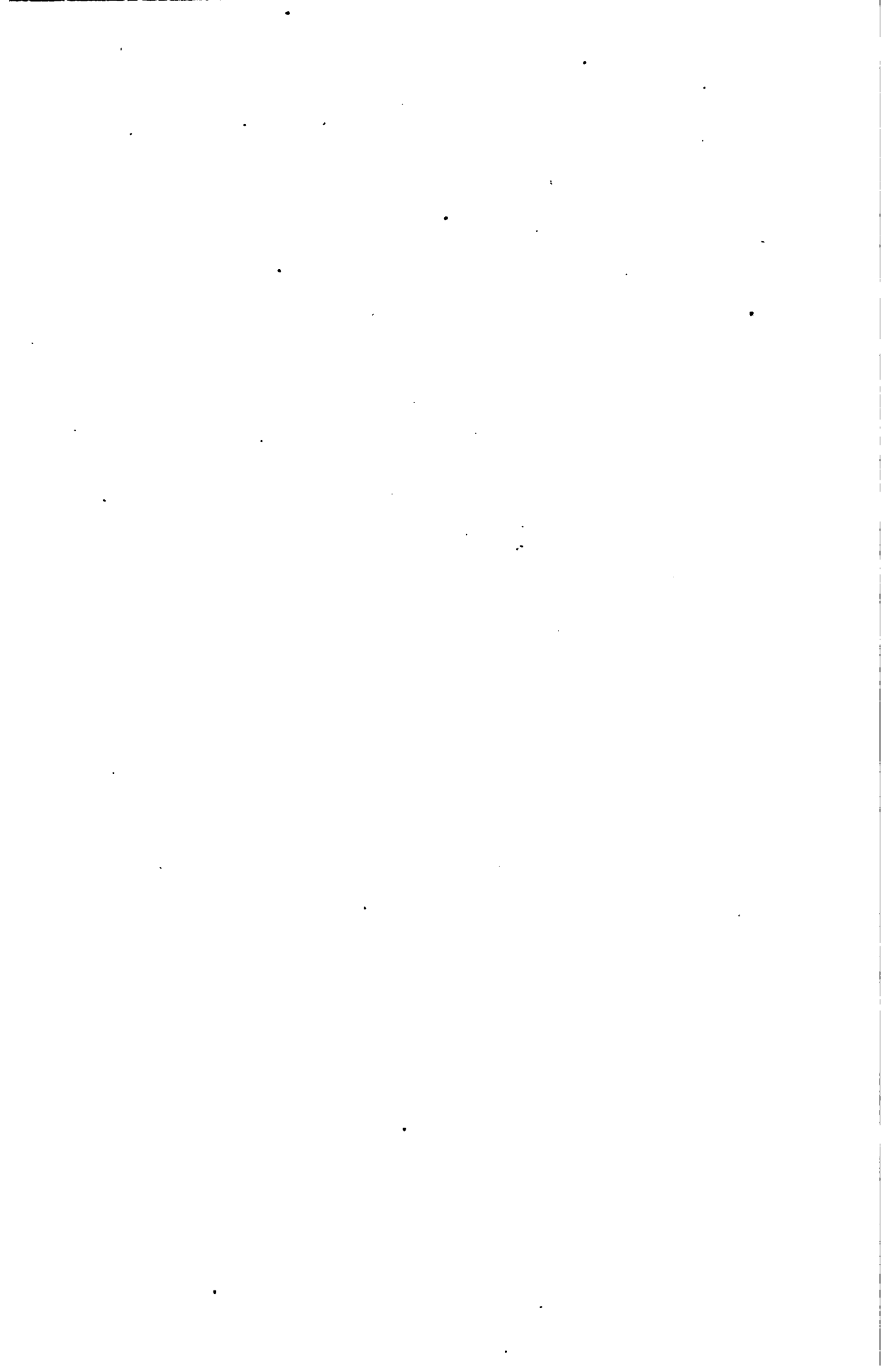
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THE
AMERICAN EPHEMERIS

AND

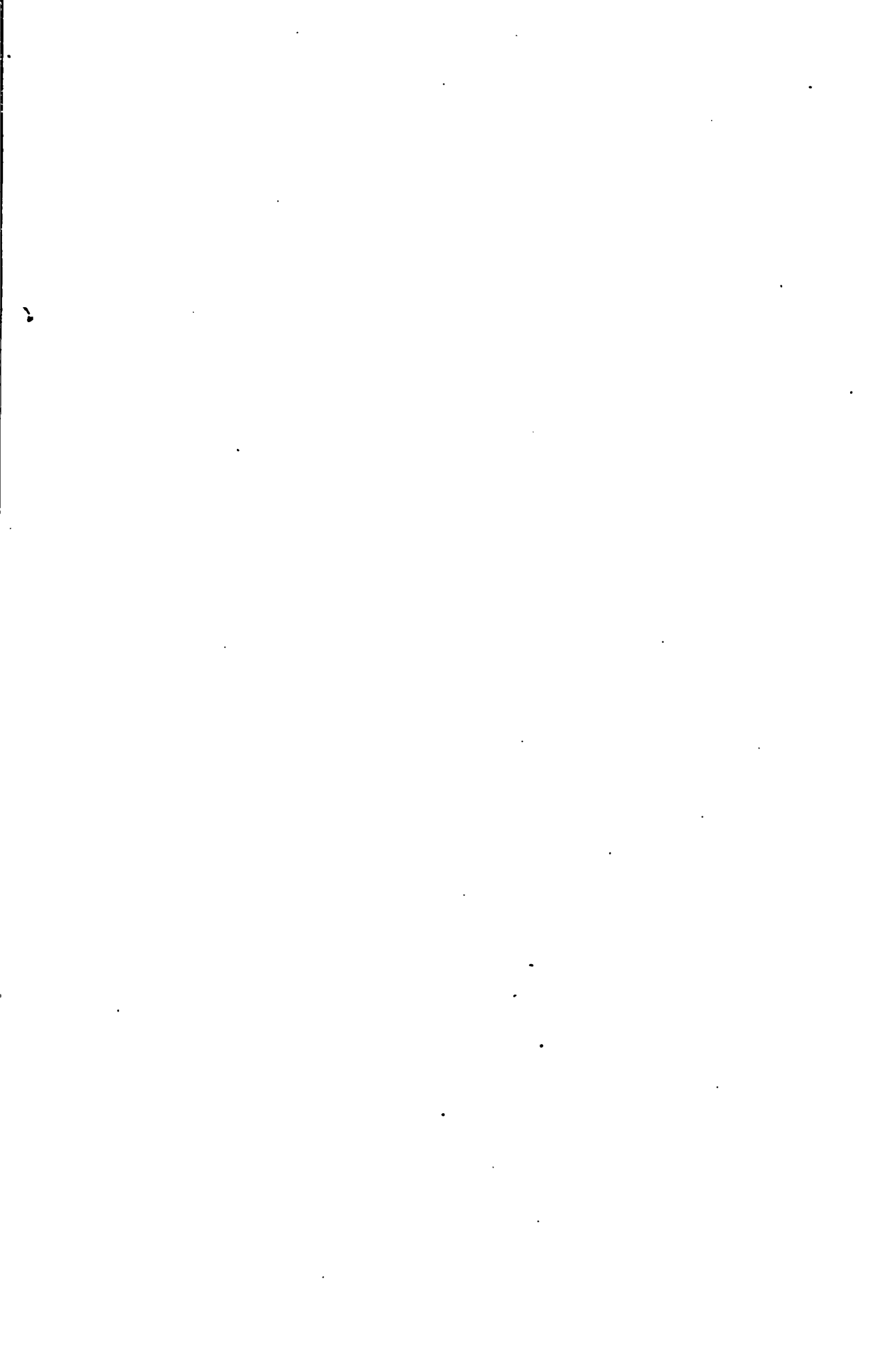
NAUTICAL ALMANAC,

FOR THE YEAR

1875.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF THE NAVY.

BUREAU OF NAVIGATION,
WASHINGTON.
1872.



PREFACE.

THE preparation of the *American Ephemeris and Nautical Almanac* was begun in the latter part of the year 1849, in accordance with an act of Congress, approved on the 3d of March of that year. An account of this preparation and the values of the constants adopted will be found in the Preface and Appendix of the first volume, for the year 1855.

In the volume for 1865 the star ephemeris was greatly enlarged; new places of the stars adopted; the form for moon culminations and moon-culminating stars changed so that less space was required; mean solar time, instead of sidereal time, used in the dates of the ephemeris for the meridian of Washington; BESSEL'S notation in the formulæ for star-reductions substituted for BAILY'S. Several other changes of less importance were also made.

In the volume for 1869 some slight changes were made in the ephemerides of Venus and Mars, and in the arrangement of the stars; and the explanations of the arrangement and use of the tables were revised so as to adapt them to the wants of operators at sea or in the field.

In the subsequent volumes the ephemeris of Neptune is derived from NEWCOMB'S tables; the ephemerides of the outer planets are given for Washington mean noon instead of sidereal 0^h; and hourly differences for interpolation, instead of the logarithms; new places adopted for the standard stars; some changes made in the pages of occultations; and a revised table given of positions of Observatories.

J. H. C. COFFIN,
Prof. Math. U. S. Navy, Superintendent.

WASHINGTON, August 1, 1872.

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CHRONOLOGICAL ERAS AND CYCLES.

CHRONOLOGICAL ERAS.

THE YEAR 1875, WHICH COMPRISES THE LATTER PART OF THE 99TH AND THE BEGINNING OF THE 100TH YEAR OF THE INDEPENDENCE OF THE UNITED STATES OF AMERICA, CORRESPONDS TO—

- The year 6588 of the Julian Period;**
- “ **7383–84 of the Byzantine era;**
- “ **5635–36 of the Jewish era;**
- “ **2628 since the foundation of Rome, according to Varro;**
- “ **2622 since the beginning of the era of Nabonassar, which has been assigned to Wednesday, the 26th of February of the 3967th year of the Julian Period, corresponding according to the chronologists to the 747th, and according to the astronomers to the 746th year before the birth of Christ.**
- “ **2651 of the Olympiads, or the third year of the 663d Olympiad, commencing in July, 1873, if we fix the era of the Olympiads at 775½ years before Christ, or near the beginning of July of the year 3938 of the Julian Period;**
- “ **2187 of the Grecian era, or the era of the Seleucidæ;**
- “ **1591 of the era of Diocletian.**

The year 1292 of the Mohammedan era, or the era of the Hegira, begins on the 7th of February, 1875.

The first day of January of the year 1875 is the 2,405,890th day since the commencement of the Julian Period.

CHRONOLOGICAL CYCLES.

Dominical Letter C Epact 23 Lunar Cycle or Golden Number 14		Solar Cycle 8 Roman Indiction 3 Julian Period 6588
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SYMBOLS AND ABBREVIATIONS.

SIGNS OF THE PLANETS, &c.

<p>☉ The Sun. ☾ The Moon. ☿ Mercury. ♀ Venus. ⊕ or ♂ The Earth.</p>		<p>♂ Mars. ♃ Jupiter. ♄ Saturn. ♅ Uranus. ♆ Neptune.</p>
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SIGNS OF THE ZODIAC.

Spring signs.	{	<p>1. ♈ Aries. 2. ♉ Taurus. 3. ♊ Gemini. 4. ♋ Cancer. 5. ♌ Leo. 6. ♍ Virgo.</p>		Autumn signs.	{	<p>7. ♎ Libra. 8. ♏ Scorpio. 9. ♐ Sagittarius. 10. ♑ Capricornus. 11. ♒ Aquarius. 12. ♓ Pisces.</p>
Summer signs.	{			Winter signs.	{	

ASPECTS.

- ♌ Conjunction, or having the same Longitude or Right Ascension.
- ☐ Quadrature, or differing 90° in " " "
- ♌ Opposition, or differing 180° in " " "

ABBREVIATIONS.

<p>♊ Ascending Node. ♋ Descending Node. N. North. S. South. E. East. W. West.</p>		<p>° Degrees. ' Minutes of Arc. " Seconds of Arc. h Hours. m Minutes of Time. s Seconds of Time.</p>
--	--	---

ASTRONOMICAL EPHEMERIS

FOR THE USE OF

NAVIGATORS.

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sideral Time of the Semi-diameter passing the Meridian.	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Semi-diameter.				
Frid.	1	18 ^h 46 ^m 40.74 ^s	11.046	S. 23° 1' 25.7"	+12.32	16' 18.38"	71.09	3 45.10	1.185	
Sat.	2	18 51 5.66	11.031	22 56 16.4	13.46	16 18.37	71.04	4 13.40	1.171	
Sun.	3	18 55 30.26	11.016	22 50 39.7	14.60	16 18.36	70.99	4 41.37	1.156	
Mon.	4	18 59 54.49	11.000	22 44 35.7	15.74	16 18.34	70.94	5 8.96	1.140	
Tues.	5	19 4 18.32	10.983	22 38 4.5	16.86	16 18.32	70.88	5 36.15	1.123	
Wed.	6	19 8 41.70	10.964	22 31 6.2	17.98	16 18.30	70.82	6 2.90	1.104	
Thur.	7	19 13 4.62	10.944	22 23 41.3	19.09	16 18.27	70.76	6 29.18	1.084	
Frid.	8	19 17 27.04	10.923	22 15 50.0	20.19	16 18.24	70.69	6 54.98	1.063	
Sat.	9	19 21 48.95	10.900	22 7 32.3	21.28	16 18.20	70.62	7 20.27	1.040	
Sun.	10	19 26 10.29	10.876	21 58 48.7	22.35	16 18.16	70.54	7 44.98	1.016	
Mon.	11	19 30 31.02	10.851	21 49 39.4	23.42	16 18.12	70.46	8 9.08	0.991	
Tues.	12	19 34 51.12	10.825	21 40 4.6	24.47	16 18.07	70.38	8 32.57	0.965	
Wed.	13	19 39 10.60	10.798	21 30 4.6	25.51	16 18.02	70.30	8 55.43	0.938	
Thur.	14	19 43 29.43	10.771	21 19 39.6	26.54	16 17.96	70.21	9 17.63	0.911	
Frid.	15	19 47 47.59	10.743	21 8 50.2	27.56	16 17.90	70.12	9 39.16	0.883	
Sat.	16	19 52 5.03	10.713	20 57 36.5	28.56	16 17.83	70.02	9 59.99	0.854	
Sun.	17	19 56 21.75	10.683	20 45 58.9	29.55	16 17.76	69.92	10 20.11	0.824	
Mon.	18	20 0 37.76	10.652	20 33 57.8	30.53	16 17.68	69.82	10 39.50	0.793	
Tues.	19	20 4 53.03	10.621	20 21 33.5	31.50	16 17.60	69.72	10 58.16	0.762	
Wed.	20	20 9 7.54	10.589	20 8 46.1	32.44	16 17.51	69.62	11 16.07	0.730	
Thur.	21	20 13 21.28	10.557	19 55 36.3	33.37	16 17.41	69.52	11 33.21	0.698	
Frid.	22	20 17 34.25	10.525	19 42 4.2	34.29	16 17.31	69.41	11 49.57	0.666	
Sat.	23	20 21 46.44	10.493	19 28 10.3	35.20	16 17.20	69.30	12 5.17	0.634	
Sun.	24	20 25 57.85	10.460	19 13 54.8	36.09	16 17.09	69.19	12 19.99	0.601	
Mon.	25	20 30 8.49	10.426	18 59 18.0	36.96	16 16.97	69.08	12 34.02	0.568	
Tues.	26	20 34 18.34	10.393	18 44 20.4	37.82	16 16.84	68.97	12 47.28	0.535	
Wed.	27	20 38 27.40	10.360	18 29 2.4	38.66	16 16.71	68.86	12 59.75	0.502	
Thur.	28	20 42 35.66	10.327	18 13 24.4	39.49	16 16.58	68.74	13 11.42	0.469	
Frid.	29	20 46 43.11	10.294	17 57 26.6	40.30	16 16.44	68.63	13 22.28	0.436	
Sat.	30	20 50 49.76	10.260	17 41 9.5	41.10	16 16.30	68.51	13 32.34	0.402	
Sun.	31	20 54 55.60	10.227	17 24 33.4	41.88	16 16.15	68.40	13 41.60	0.369	
Mon.	32	20 59 0.64	10.193	S. 17 7 38.8	+42.65	16 16.00	68.28	13 50.06	0.335	

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0^h.19 from the Sideral Time.

+ prefixed to the hourly change of declination, indicates that north declinations are increasing, and south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be subtracted from Mean Time.	Diff. for 1 hour.	Sidereal Time or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
Frid.	1	18 ^h 46 ^m 40.05 ^s	11.042	S. 23° 1' 26.4"	+12.30	3 ^m 45.04 ^s	1.185	18 ^h 42 ^m 55.01 ^s
Sat.	2	18 51 4.88	11.028	22 56 17.4	13.45	4 13.31	1.171	18 46 51.57
Sun.	3	18 55 29.39	11.013	22 50 40.9	14.59	4 41.27	1.156	18 50 48.12
Mon.	4	18 59 53.54	10.997	22 44 37.1	15.73	5 8.86	1.140	18 54 44.68
Tues.	5	19 4 17.29	10.980	22 38 6.1	16.85	5 36.05	1.123	18 58 41.24
Wed.	6	19 8 40.59	10.961	22 31 8.1	17.97	6 2.79	1.104	19 2 37.80
Thur.	7	19 13 3.43	10.941	22 23 43.4	19.08	6 29.07	1.084	19 6 34.36
Frid.	8	19 17 25.78	10.920	22 15 52.3	20.18	6 54.86	1.063	19 10 30.92
Sat.	9	19 21 47.61	10.897	22 7 34.9	21.27	7 20.14	1.040	19 14 27.47
Sun.	10	19 26 8.88	10.873	21 58 51.7	22.34	7 44.85	1.016	19 18 24.03
Mon.	11	19 30 29.54	10.848	21 49 42.7	23.41	8 8.95	0.991	19 22 20.59
Tues.	12	19 34 49.58	10.822	21 40 8.1	24.46	8 32.43	0.965	19 26 17.15
Wed.	13	19 39 8.99	10.795	21 30 8.4	25.50	8 55.28	0.938	19 30 13.71
Thur.	14	19 43 27.76	10.768	21 19 43.8	26.53	9 17.49	0.911	19 34 10.27
Frid.	15	19 47 45.85	10.740	21 8 54.7	27.55	9 39.03	0.883	19 38 6.82
Sat.	16	19 52 3.23	10.711	20 57 41.3	28.55	9 59.85	0.854	19 42 3.38
Sun.	17	19 56 19.90	10.681	20 46 4.1	29.54	10 19.96	0.824	19 45 59.94
Mon.	18	20 0 35.86	10.650	20 34 3.3	30.52	10 39.36	0.793	19 49 56.50
Tues.	19	20 4 51.08	10.619	20 21 39.3	31.49	10 58.02	0.762	19 53 53.06
Wed.	20	20 9 5.54	10.587	20 8 52.3	32.43	11 15.92	0.730	19 57 49.62
Thur.	21	20 13 19.24	10.555	19 55 42.8	33.36	11 33.08	0.698	20 1 46.16
Frid.	22	20 17 32.17	10.523	19 42 11.0	34.28	11 49.44	0.666	20 5 42.73
Sat.	23	20 21 44.32	10.491	19 28 17.4	35.19	12 5.04	0.634	20 9 39.28
Sun.	24	20 25 55.70	10.458	19 14 2.2	36.08	12 19.86	0.601	20 13 35.84
Mon.	25	20 30 6.30	10.425	18 59 25.8	36.95	12 33.90	0.568	20 17 32.40
Tues.	26	20 34 16.12	10.392	18 44 28.5	37.81	12 47.16	0.535	20 21 28.96
Wed.	27	20 38 25.15	10.359	18 29 10.8	38.65	12 59.64	0.502	20 25 25.51
Thur.	28	20 42 33.38	10.326	18 13 33.1	39.48	13 11.31	0.469	20 29 22.07
Frid.	29	20 46 40.81	10.293	17 57 35.6	40.29	13 22.18	0.436	20 33 18.63
Sat.	30	20 50 47.44	10.259	17 41 18.8	41.09	13 32.25	0.402	20 37 15.19
Sun.	31	20 54 53.26	10.226	17 24 43.0	41.87	13 41.52	0.369	20 41 11.74
Mon.	32	20 58 58.28	10.192	S. 17 7 48.7	+42.64	13 49.98	0.335	20 45 8.30

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

Diff. for 1 hour.

+9°.8765

AT GREENWICH MEAN NOON.								
Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE.			
		λ	λ'					
1	1	280° 43' 54.6	44' 0.5	152.92	+0.03	9.9926680	+ 1.1	^h 5 ^m 16 ^s 13.04
2	2	281 45 4.9	45 10.6	152.93	-0.11	.9926716	1.9	5 12 17.13
3	3	282 46 15.4	46 20.9	152.94	0.22	.9926772	2.7	5 8 21.22
4	4	283 47 26.1	47 31.4	152.95	0.33	.9926846	3.5	5 4 25.31
5	5	284 48 36.9	48 42.0	152.95	0.40	.9926938	4.2	5 0 29.40
6	6	285 49 47.7	49 52.6	152.95	0.46	.9927047	4.9	4 56 33.49
7	7	286 50 58.4	51 3.1	152.94	0.47	.9927172	5.5	4 52 37.57
8	8	287 52 8.9	52 13.4	152.93	0.47	.9927313	6.2	4 48 41.65
9	9	288 53 19.0	53 23.3	152.91	0.42	.9927471	6.9	4 44 45.74
10	10	289 54 28.6	54 32.8	152.89	0.36	.9927646	7.7	4 40 49.83
11	11	290 55 37.6	55 41.6	152.87	0.26	.9927839	8.5	4 36 53.92
12	12	291 56 46.0	56 49.8	152.84	0.16	.9928051	9.3	4 32 58.01
13	13	292 57 53.8	57 57.4	152.81	-0.03	.9928282	10.1	4 29 2.10
14	14	293 59 0.8	59 4.3	152.78	+0.10	.9928533	10.9	4 25 6.19
15	15	295 0 7.1	0 10.4	152.75	0.23	.9928805	11.8	4 21 10.27
16	16	296 1 12.5	1 15.6	152.71	0.36	.9929100	12.8	4 17 14.36
17	17	297 2 17.1	2 20.0	152.68	0.47	.9929419	13.8	4 13 18.45
18	18	298 3 20.8	3 23.5	152.64	0.56	.9929764	14.9	4 9 22.54
19	19	299 4 23.7	4 26.2	152.61	0.62	.9930135	16.0	4 5 26.63
20	20	300 5 25.8	5 28.2	152.57	0.66	.9930532	17.1	4 1 30.71
21	21	301 6 27.1	6 29.3	152.54	0.67	.9930956	18.2	3 57 34.80
22	22	302 7 27.6	7 29.6	152.50	0.64	.9931406	19.3	3 53 38.89
23	23	303 8 27.3	8 29.1	152.47	0.58	.9931883	20.4	3 49 42.98
24	24	304 9 26.3	9 27.9	152.44	0.52	.9932386	21.5	3 45 47.07
25	25	305 10 24.6	10 26.1	152.42	0.43	.9932916	22.6	3 41 51.16
26	26	306 11 22.2	11 23.5	152.39	0.31	.9933472	23.6	3 37 55.25
27	27	307 12 19.1	12 20.2	152.36	0.17	.9934052	24.6	3 33 59.34
28	28	308 13 15.3	13 16.2	152.33	+0.04	.9934654	25.5	3 30 3.42
29	29	309 14 10.8	14 11.6	152.30	-0.10	.9935276	26.3	3 26 7.51
30	30	310 15 5.6	15 6.3	152.27	0.21	.9935918	27.1	3 22 11.60
31	31	311 15 59.7	16 0.2	152.24	0.30	.9936578	27.9	3 18 15.69
32	32	312 16 53.0	16 53.3	152.20	-0.39	9.9937255	+28.6	3 14 19.78

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 6d.

Diff. for 1 hour.

-9°.8296

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.

	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.
1	14' 47.6"	14' 47.5"	54' 10.7"	-0.11	54' 10.6"	+0.10	19 ^h 45.6 ^m	1.78	23.5 ^d
2	14' 48.1	14' 49.4	54' 12.9	+0.29	54' 17.4	0.47	20 29.8	1.91	24.5
3	14' 51.3	14' 53.6	54' 24.1	0.64	54' 32.7	0.79	21 17.3	2.05	25.5
4	14' 56.4	14' 59.4	54' 43.0	0.92	54' 54.8	1.04	22 8.4	2.19	26.5
5	15' 3.1	15' 7.0	55' 7.8	1.13	55' 21.9	1.20	23 2.4	2.29	27.5
6	15' 11.0	15' 15.2	55' 36.7	1.26	55' 52.0	1.29	23 57.9	2.32	28.5
7	15' 19.4	15' 23.7	56' 7.6	1.31	56' 23.2	1.30	6		29.5
8	15' 27.9	15' 32.1	56' 38.8	1.29	56' 54.1	1.26	0 53.1	2.27	0.8
9	15' 36.1	15' 40.0	57' 8.9	1.22	57' 23.2	1.17	1 46.6	2.18	1.8
10	15' 43.7	15' 47.3	57' 37.0	1.12	57' 50.0	1.06	2 37.6	2.07	2.8
11	15' 50.7	15' 53.9	58' 2.4	1.00	58' 14.2	0.95	3 26.2	1.98	3.8
12	15' 56.9	15' 59.7	58' 25.2	0.89	58' 35.5	0.83	4 13.2	1.94	4.8
13	16' 2.3	16' 4.7	58' 45.1	0.77	58' 54.0	0.71	4 59.7	1.95	5.8
14	16' 6.9	16' 8.9	59' 2.1	0.64	59' 9.3	0.56	5 47.2	2.02	6.8
15	16' 10.6	16' 12.0	59' 15.6	0.47	59' 20.7	0.37	6 37.0	2.14	7.8
16	16' 13.0	16' 13.7	59' 24.5	+0.26	59' 26.9	+0.13	7 30.4	2.31	8.8
17	16' 13.8	16' 13.5	59' 27.5	-0.02	59' 26.3	-0.18	8 28.1	2.48	9.8
18	16' 12.6	16' 11.1	59' 23.0	0.36	59' 17.6	0.55	9 29.3	2.60	10.8
19	16' 9.0	16' 6.3	59' 9.9	0.74	58' 59.9	0.92	10 32.2	2.61	11.8
20	16' 3.0	15' 59.1	58' 47.7	1.10	58' 33.5	1.27	11 33.9	2.50	12.8
21	15' 54.7	15' 49.9	58' 17.3	1.42	57' 59.5	1.54	12 31.8	2.31	13.8
22	15' 44.7	15' 39.2	57' 40.4	1.64	57' 20.3	1.71	13 24.8	2.10	14.8
23	15' 33.6	15' 27.9	56' 59.6	1.74	56' 38.7	1.74	14 13.0	1.92	15.8
24	15' 22.2	15' 16.7	56' 18.0	1.70	55' 57.9	1.64	14 57.3	1.78	16.8
25	15' 11.6	15' 6.7	55' 38.7	1.54	55' 21.0	1.42	15 38.9	1.69	17.8
26	15' 2.3	14' 58.4	55' 4.8	1.27	54' 50.6	1.10	16 19.1	1.66	18.8
27	14' 55.2	14' 52.5	54' 38.6	0.91	54' 28.8	0.71	16 59.1	1.68	19.8
28	14' 50.5	14' 49.2	54' 21.4	0.50	54' 16.7	-0.29	17 40.1	1.74	20.8
29	14' 48.6	14' 48.8	54' 14.6	-0.07	54' 15.1	+0.15	18 23.1	1.85	21.8
30	14' 49.6	14' 51.1	54' 18.3	+0.37	54' 24.0	0.58	19 9.0	1.98	22.8
31	14' 53.3	14' 56.2	54' 32.3	0.79	54' 42.9	0.98	19 58.3	2.13	23.8
32	14' 59.8	15' 3.9	54' 55.7	+1.15	55' 10.5	+1.31	20 50.9	2.25	24.8

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 1.					SUNDAY 3.				
0	h m s	a	S. 12° 31' 24.0"	12.688	0	h m s	a	S. 21° 32' 29.2"	9.522
1	13 55 7.38	1.8220	12 44 3.9	12.642	1	15 27 8.25	2.0319	21 41 57.9	9.433
2	13 56 56.79	1.8251	12 56 41.0	12.585	2	15 29 10.33	2.0373	21 51 21.2	9.344
3	13 58 46.39	1.8282	13 9 15.3	12.547	3	15 31 12.73	2.0428	22 0 39.2	9.254
4	14 0 36.17	1.8313	13 21 46.6	12.498	4	15 33 15.46	2.0483	22 9 51.7	9.163
5	14 2 26.14	1.8345	13 34 15.0	12.448	5	15 35 18.52	2.0538	22 18 58.7	9.070
6	14 4 16.31	1.8378	13 46 40.4	12.397	6	15 37 21.91	2.0593	22 28 0.1	8.977
7	14 6 6.68	1.8412	13 59 2.7	12.346	7	15 39 25.64	2.0649	22 36 55.9	8.882
8	14 7 57.25	1.8446	14 11 21.9	12.295	8	15 41 29.70	2.0705	22 45 45.9	8.786
9	14 9 48.03	1.8480	14 23 38.1	12.243	9	15 43 34.10	2.0761	22 54 30.2	8.690
10	14 11 39.01	1.8515	14 35 51.1	12.189	10	15 45 38.83	2.0817	23 3 8.7	8.592
11	14 13 30.20	1.8551	14 48 0.8	12.134	11	15 47 43.90	2.0873	23 11 41.2	8.493
12	14 15 21.62	1.8588	15 0 7.2	12.079	12	15 49 49.30	2.0929	23 20 7.8	8.393
13	14 17 13.27	1.8627	15 12 10.3	12.024	13	15 51 55.04	2.0985	23 28 28.4	8.292
14	14 19 5.14	1.8664	15 24 10.0	11.968	14	15 54 1.12	2.1042	23 36 42.9	8.190
15	14 20 57.24	1.8702	15 36 6.4	11.911	15	15 56 7.54	2.1098	23 44 51.2	8.087
16	14 22 49.56	1.8741	15 47 59.3	11.852	16	15 58 14.30	2.1155	24 0 49.1	7.979
17	14 24 42.12	1.8781	15 59 48.6	11.793	17	16 0 22.83	2.1211	24 8 38.7	7.873
18	14 26 34.93	1.8822	16 11 34.4	11.733	18	16 2 26.83	2.1267	24 16 21.9	7.765
19	14 28 27.98	1.8863	16 23 16.5	11.671	19	16 4 36.60	2.1323	24 23 58.5	7.655
20	14 30 21.28	1.8904	16 34 55.0	11.610	20	16 6 44.71	2.1380	24 31 28.5	7.544
21	14 32 14.83	1.8946	16 46 29.8	11.548	21	16 8 53.16	2.1437	24 38 52.0	7.437
22	14 34 8.63	1.8988	16 58 0.8	11.485	22	16 11 1.95	2.1493	S. 24 46 8.9	7.326
23	14 36 2.69	1.9031	S. 17° 9' 28.0"	11.421	23	16 13 11.07	2.1549		
24	14 37 57.01	1.9075			24	16 15 20.53	2.1605		
SATURDAY 2.					MONDAY 4.				
0	14 39 51.59	1.9119	S. 17° 20' 51.3"	11.356	0	16 17 30.33	2.1661	S. 24 53 19.1	7.113
1	14 41 46.44	1.9164	17 32 10.7	11.290	1	16 19 40.46	2.1716	25 0 22.5	6.999
2	14 43 41.56	1.9209	17 43 26.1	11.223	2	16 21 50.92	2.1772	25 7 19.0	6.885
3	14 45 36.95	1.9255	17 54 37.5	11.156	3	16 24 1.72	2.1828	25 14 8.7	6.770
4	14 47 32.62	1.9301	18 5 44.8	11.087	4	16 26 12.85	2.1883	25 20 51.4	6.653
5	14 49 28.57	1.9348	18 16 48.0	11.018	5	16 28 24.31	2.1937	25 27 27.0	6.535
6	14 51 24.80	1.9396	18 27 47.0	10.948	6	16 30 36.09	2.1991	25 33 55.6	6.416
7	14 53 21.32	1.9444	18 38 41.8	10.876	7	16 32 48.20	2.2045	25 40 17.0	6.296
8	14 55 18.13	1.9492	18 49 32.2	10.804	8	16 35 0.63	2.2099	25 46 31.2	6.176
9	14 57 15.22	1.9540	19 0 18.3	10.731	9	16 37 13.39	2.2153	25 52 38.1	6.054
10	14 59 12.61	1.9589	19 11 0.0	10.658	10	16 39 26.46	2.2205	25 58 37.7	5.931
11	15 1 10.30	1.9639	19 21 37.2	10.583	11	16 41 39.85	2.2256	26 4 29.8	5.807
12	15 3 8.28	1.9689	19 32 10.0	10.508	12	16 43 53.56	2.2311	26 10 14.5	5.683
13	15 5 6.57	1.9740	19 42 38.2	10.431	13	16 46 7.58	2.2363	26 15 51.7	5.557
14	15 7 5.16	1.9790	19 53 1.7	10.353	14	16 48 21.91	2.2415	26 21 21.3	5.430
15	15 9 4.05	1.9841	20 3 20.5	10.274	15	16 50 36.55	2.2466	26 26 43.3	5.302
16	15 11 3.25	1.9893	20 13 34.6	10.194	16	16 52 51.50	2.2517	26 31 57.6	5.173
17	15 13 2.77	1.9946	20 23 43.8	10.113	17	16 55 6.75	2.2566	26 37 4.1	5.043
18	15 15 2.60	1.9998	20 33 48.2	10.032	18	16 57 22.29	2.2615	26 42 2.8	4.913
19	15 17 2.74	2.0050	20 43 47.7	9.949	19	16 59 38.13	2.2664	26 46 53.7	4.782
20	15 19 3.20	2.0103	20 53 42.2	9.866	20	17 1 54.26	2.2713	26 51 36.6	4.649
21	15 21 3.98	2.0156	21 3 31.6	9.782	21	17 4 10.68	2.2761	26 56 11.5	4.515
22	15 23 5.08	2.0210	21 13 16.0	9.697	22	17 6 27.39	2.2808	27 0 38.4	4.381
23	15 25 6.50	2.0264	21 22 55.2	9.610	23	17 8 44.37	2.2854	27 4 57.2	4.245
24	15 27 8.25	2.0319	S. 21° 32' 29.2"	9.522	24	17 11 1.63	2.2899	S. 27 9 7.8	4.108

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 5.					THURSDAY 7.				
0	17 11 1.63	2.2899	S. 27° 9' 7.8"	4.108	0	19 4 30.51	2.3978	S. 27° 36' 14.3"	3.150
1	17 13 19.16	2.2944	27 13 10.2	3.971	1	19 6 54.36	2.3973	27 33 0.6	3.307
2	17 15 36.96	2.2989	27 17 4.4	3.834	2	19 9 18.18	2.3967	27 29 37.5	3.464
3	17 17 55.03	2.3033	27 20 50.3	3.696	3	19 11 41.96	2.3959	27 26 4.9	3.621
4	17 20 13.36	2.3076	27 24 27.9	3.556	4	19 14 5.69	2.3951	27 22 22.9	3.778
5	17 22 31.94	2.3118	27 27 57.0	3.415	5	19 16 29.37	2.3943	27 18 31.5	3.935
6	17 24 50.77	2.3159	27 31 17.6	3.273	6	19 18 53.00	2.3933	27 14 30.7	4.092
7	17 27 9.85	2.3199	27 34 29.7	3.131	7	19 21 16.56	2.3921	27 10 20.5	4.248
8	17 29 29.16	2.3238	27 37 33.3	2.988	8	19 23 40.05	2.3908	27 6 1.0	4.403
9	17 31 48.71	2.3277	27 40 28.3	2.845	9	19 26 3.46	2.3895	27 1 32.2	4.558
10	17 34 8.49	2.3315	27 43 14.7	2.700	10	19 28 26.79	2.3880	26 56 54.0	4.713
11	17 36 28.49	2.3353	27 45 52.4	2.554	11	19 30 50.02	2.3864	26 52 6.6	4.868
12	17 38 48.72	2.3389	27 48 21.2	2.408	12	19 33 13.16	2.3848	26 47 9.9	5.023
13	17 41 9.16	2.3424	27 50 41.3	2.262	13	19 35 36.20	2.3831	26 42 3.9	5.176
14	17 43 29.81	2.3458	27 52 52.6	2.115	14	19 37 59.13	2.3812	26 36 48.7	5.329
15	17 45 50.66	2.3492	27 54 55.1	1.967	15	19 40 21.94	2.3792	26 31 24.4	5.482
16	17 48 11.71	2.3524	27 56 48.7	1.818	16	19 42 44.63	2.3772	26 25 50.9	5.635
17	17 50 32.95	2.3555	27 58 33.3	1.668	17	19 45 7.20	2.3751	26 20 8.3	5.787
18	17 52 54.37	2.3585	28 0 8.9	1.518	18	19 47 29.64	2.3728	26 14 16.5	5.938
19	17 55 15.97	2.3615	28 1 35.5	1.368	19	19 49 51.94	2.3705	26 8 15.7	6.088
20	17 57 37.74	2.3643	28 2 53.1	1.217	20	19 52 14.10	2.3681	26 2 5.9	6.239
21	17 59 59.69	2.3671	28 4 1.6	1.066	21	19 54 36.11	2.3656	25 55 47.0	6.389
22	18 2 21.80	2.3696	28 5 1.0	0.914	22	19 56 57.97	2.3630	25 49 19.2	6.537
23	18 4 44.05	2.3720	S. 28° 5' 51.3"	0.761	23	19 59 19.67	2.3603	S. 25° 42' 42.5"	6.685
WEDNESDAY 6.					FRIDAY 8.				
0	18 7 6.44	2.3744	S. 28° 6' 32.4"	0.608	0	20 1 41.21	2.3578	S. 25° 35' 57.0"	6.833
1	18 9 28.98	2.3768	28 7 4.3	0.454	1	20 4 2.58	2.3548	25 29 2.6	6.980
2	18 11 51.06	2.3790	28 7 26.9	0.300	2	20 6 23.78	2.3519	25 21 50.4	7.126
3	18 14 14.46	2.3810	28 7 40.3	-0.146	3	20 8 44.81	2.3490	25 14 47.5	7.272
4	18 16 37.38	2.3830	28 7 44.4	+0.009	4	20 11 5.66	2.3459	25 7 26.8	7.416
5	18 19 0.42	2.3849	28 7 39.2	0.163	5	20 13 26.32	2.3428	24 59 57.5	7.559
6	18 21 23.57	2.3866	28 7 24.8	0.318	6	20 15 46.79	2.3396	24 52 19.7	7.702
7	18 23 46.82	2.3882	28 7 1.0	0.475	7	20 18 7.07	2.3364	24 44 33.3	7.845
8	18 26 10.15	2.3896	28 6 27.8	0.632	8	20 20 27.16	2.3332	24 36 38.4	7.987
9	18 28 33.57	2.3910	28 5 45.2	0.788	9	20 22 47.05	2.3298	24 28 34.9	8.128
10	18 30 57.07	2.3923	28 4 53.2	0.945	10	20 25 6.73	2.3264	24 20 23.0	8.267
11	18 33 20.65	2.3935	28 3 51.8	1.101	11	20 27 26.21	2.3229	24 12 2.8	8.405
12	18 35 44.29	2.3945	28 2 41.1	1.258	12	20 29 45.48	2.3194	24 3 34.4	8.543
13	18 38 7.99	2.3954	28 1 20.9	1.416	13	20 32 4.53	2.3158	23 54 57.7	8.680
14	18 40 31.74	2.3962	27 59 51.2	1.573	14	20 34 23.37	2.3122	23 46 12.8	8.817
15	18 42 55.53	2.3968	27 58 12.1	1.731	15	20 36 41.99	2.3085	23 37 19.7	8.952
16	18 45 19.36	2.3974	27 56 23.5	1.889	16	20 39 0.39	2.3048	23 28 18.6	9.085
17	18 47 43.22	2.3979	27 54 25.5	2.046	17	20 41 18.56	2.3010	23 19 9.5	9.218
18	18 50 7.11	2.3982	27 52 18.0	2.204	18	20 43 36.51	2.2972	23 9 52.4	9.351
19	18 52 31.01	2.3984	27 50 1.0	2.362	19	20 45 54.23	2.2934	23 0 27.4	9.482
20	18 54 54.92	2.3985	27 47 34.6	2.519	20	20 48 11.72	2.2896	22 50 54.6	9.612
21	18 57 18.83	2.3985	27 44 58.7	2.677	21	20 50 28.98	2.2857	22 41 14.0	9.741
22	18 59 42.74	2.3983	27 42 13.4	2.834	22	20 52 46.00	2.2817	22 31 25.7	9.869
23	19 2 6.63	2.3981	27 39 18.6	2.993	23	20 55 2.78	2.2778	22 21 29.8	9.996
24	19 4 30.51	2.3978	S. 27° 36' 14.3"	3.150	24	20 57 19.33	2.2738	S. 22° 11' 26.2"	10.122

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 9.					MONDAY 11.				
0	20 ^h 57 ^m 19.33 ^s	2.2738	S. 22° 11' 26.2"	10.122	0	22 ^h 41 ^m 55.27 ^s	2.0944	S. 12° 2' 53.6"	14.757
1	20 59 35.64	2.2698	22 1 15.1	10.947	1	22 44 0.85	2.0916	11 48 6.2	14.823
2	21 1 51.71	2.2658	21 50 56.6	10.370	2	22 46 6.26	2.0888	11 33 14.9	14.888
3	21 4 7.53	2.2617	21 40 30.7	10.493	3	22 48 11.51	2.0862	11 18 19.7	14.951
4	21 6 23.11	2.2577	21 29 57.5	10.614	4	22 50 16.61	2.0836	11 3 20.8	15.012
5	21 8 38.45	2.2536	21 19 17.0	10.734	5	22 52 21.55	2.0811	10 48 18.3	15.073
6	21 10 53.54	2.2495	21 8 29.3	10.854	6	22 54 26.34	2.0786	10 33 12.1	15.132
7	21 13 8.39	2.2454	20 57 34.5	10.972	7	22 56 30.98	2.0763	10 18 2.4	15.189
8	21 15 22.99	2.2413	20 46 32.7	11.090	8	22 58 35.49	2.0740	10 2 49.3	15.246
9	21 17 37.35	2.2372	20 35 23.8	11.206	9	23 0 39.86	2.0718	9 47 32.9	15.301
10	21 19 51.46	2.2331	20 24 8.0	11.320	10	23 2 44.10	2.0696	9 32 13.2	15.355
11	21 22 5.32	2.2290	20 12 45.5	11.432	11	23 4 48.21	2.0674	9 16 50.3	15.407
12	21 24 18.94	2.2249	20 1 16.2	11.545	12	23 6 52.19	2.0653	9 1 24.3	15.459
13	21 26 32.31	2.2208	19 49 40.1	11.656	13	23 8 56.05	2.0634	8 45 55.2	15.509
14	21 28 45.44	2.2168	19 37 57.4	11.766	14	23 10 59.80	2.0615	8 30 23.2	15.558
15	21 30 58.32	2.2127	19 26 8.2	11.874	15	23 13 3.43	2.0597	8 14 48.3	15.606
16	21 33 10.96	2.2086	19 14 12.5	11.980	16	23 15 6.96	2.0580	7 59 10.5	15.652
17	21 35 23.35	2.2045	19 2 10.4	12.088	17	23 17 10.39	2.0563	7 43 30.0	15.696
18	21 37 35.50	2.2005	18 50 1.9	12.193	18	23 19 13.72	2.0546	7 27 47.0	15.739
19	21 39 47.41	2.1965	18 37 47.2	12.297	19	23 21 16.96	2.0533	7 12 1.4	15.781
20	21 41 59.08	2.1924	18 25 26.3	12.400	20	23 23 20.11	2.0518	6 56 13.2	15.823
21	21 44 10.50	2.1884	18 12 59.2	12.501	21	23 25 23.17	2.0504	6 40 22.5	15.864
22	21 46 21.69	2.1845	18 0 26.1	12.601	22	23 27 26.16	2.0492	6 24 29.5	15.902
23	21 48 32.64	2.1805	S. 17° 47' 47.1"	12.700	23	23 29 29.08	2.0480	S. 6° 8' 34.3"	15.938
SUNDAY 10.					TUESDAY 12.				
0	21 50 43.35	2.1766	S. 17° 35' 2.1"	12.798	0	23 31 31.92	2.0468	S. 5° 52' 36.9"	15.974
1	21 52 53.83	2.1727	17 22 11.3	12.894	1	23 33 34.70	2.0458	5 36 37.4	16.009
2	21 55 4.08	2.1688	17 9 14.8	12.988	2	23 35 37.42	2.0449	5 20 35.9	16.043
3	21 57 14.09	2.1650	16 56 12.7	13.083	3	23 37 40.09	2.0441	5 4 32.3	16.075
4	21 59 23.88	2.1612	16 43 4.9	13.176	4	23 39 42.71	2.0433	4 48 26.9	16.105
5	22 1 33.44	2.1574	16 29 51.6	13.267	5	23 41 45.28	2.0425	4 32 19.8	16.134
6	22 3 42.77	2.1537	16 16 32.9	13.357	6	23 43 47.81	2.0419	4 16 10.9	16.163
7	22 5 51.88	2.1500	16 3 8.8	13.445	7	23 45 50.31	2.0414	4 0 0.3	16.189
8	22 8 0.77	2.1464	15 49 39.5	13.533	8	23 47 52.78	2.0410	3 43 48.2	16.213
9	22 10 9.44	2.1428	15 36 4.9	13.619	9	23 49 55.23	2.0407	3 27 34.7	16.237
10	22 12 17.90	2.1392	15 22 25.2	13.704	10	23 51 57.66	2.0403	3 11 19.7	16.261
11	22 14 26.15	2.1357	15 8 40.5	13.788	11	23 54 0.07	2.0401	2 55 3.4	16.283
12	22 16 34.18	2.1322	14 54 50.7	13.871	12	23 56 2.47	2.0400	2 38 45.8	16.303
13	22 18 42.01	2.1287	14 40 56.0	13.951	13	23 58 4.87	2.0400	2 22 27.1	16.321
14	22 20 49.63	2.1253	14 26 56.6	14.030	14	0 0 7.27	2.0401	2 6 7.3	16.339
15	22 22 57.05	2.1220	14 12 52.4	14.109	15	0 2 9.68	2.0403	1 49 46.4	16.356
16	22 25 4.27	2.1187	13 58 43.5	14.186	16	0 4 12.10	2.0405	1 33 24.6	16.370
17	22 27 11.30	2.1155	13 44 30.0	14.262	17	0 6 14.54	2.0409	1 17 2.0	16.383
18	22 29 18.13	2.1123	13 30 12.0	14.337	18	0 8 17.01	2.0413	1 0 38.6	16.396
19	22 31 24.77	2.1092	13 15 49.5	14.410	19	0 10 19.50	2.0418	0 44 14.5	16.407
20	22 33 31.23	2.1061	13 1 22.7	14.481	20	0 12 22.03	2.0424	0 27 49.8	16.417
21	22 35 37.51	2.1031	12 46 51.7	14.550	21	0 14 24.59	2.0431	S. 0 11 24.5	16.426
22	22 37 43.60	2.1001	12 32 16.5	14.621	22	0 16 27.20	2.0439	N. 0 5 1.2	16.431
23	22 39 49.52	2.0972	12 17 37.1	14.690	23	0 18 29.86	2.0448	0 21 27.2	16.437
24	22 41 55.27	2.0944	S. 12° 2' 53.6"	14.757	24	0 20 32.58	2.0458	N. 0 37 53.6	16.441

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 13.					FRIDAY 15.				
0	0 20 32.58	2.0458	N. 0 37 53.6	16.441	0	2 1 34.80	2.1981	N. 13 25 24.0	14.973
1	0 22 35.36	2.0468	0 54 20.2	16.444	1	2 3 46.84	2.2033	13 40 20.4	14.905
2	0 24 38.20	2.0479	1 10 46.9	16.446	2	2 5 59.20	2.2087	13 55 12.6	14.835
3	0 26 41.11	2.0492	1 27 13.7	16.446	3	2 8 11.88	2.2140	14 10 0.6	14.764
4	0 28 44.10	2.0505	1 43 40.4	16.445	4	2 10 24.88	2.2195	14 24 44.3	14.692
5	0 30 47.17	2.0519	2 0 7.0	16.443	5	2 12 38.22	2.2251	14 39 23.6	14.617
6	0 32 50.33	2.0534	2 16 33.5	16.439	6	2 14 51.89	2.2307	14 53 58.3	14.540
7	0 34 53.58	2.0551	2 32 59.7	16.433	7	2 17 5.90	2.2363	15 8 28.4	14.463
8	0 36 56.94	2.0568	2 49 25.5	16.427	8	2 19 20.25	2.2420	15 22 53.8	14.383
9	0 39 0.40	2.0586	3 5 50.9	16.419	9	2 21 34.94	2.2478	15 37 14.4	14.301
10	0 41 3.97	2.0605	3 22 15.8	16.409	10	2 23 49.98	2.2536	15 51 30.0	14.218
11	0 43 7.66	2.0624	3 38 40.0	16.398	11	2 26 5.37	2.2595	16 5 40.6	14.134
12	0 45 11.46	2.0644	3 55 3.6	16.386	12	2 28 21.12	2.2655	16 19 46.1	14.048
13	0 47 15.39	2.0666	4 11 26.4	16.373	13	2 30 37.23	2.2715	16 33 46.4	13.960
14	0 49 19.46	2.0689	4 27 48.3	16.359	14	2 32 53.70	2.2775	16 47 41.3	13.870
15	0 51 23.66	2.0712	4 44 9.4	16.343	15	2 35 10.53	2.2837	17 1 30.7	13.778
16	0 53 28.00	2.0737	5 0 29.4	16.324	16	2 37 27.74	2.2899	17 15 14.6	13.684
17	0 55 32.50	2.0763	5 16 48.2	16.304	17	2 39 45.32	2.2961	17 28 52.8	13.589
18	0 57 37.15	2.0789	5 33 5.9	16.284	18	2 42 3.27	2.3023	17 42 25.3	13.493
19	0 59 41.96	2.0815	5 49 22.3	16.262	19	2 44 21.60	2.3086	17 55 52.0	13.396
20	1 1 46.93	2.0843	6 5 37.3	16.238	20	2 46 40.31	2.3150	18 9 12.7	13.294
21	1 3 52.07	2.0872	6 21 50.9	16.214	21	2 48 59.40	2.3214	18 22 27.2	13.191
22	1 5 57.39	2.0902	6 38 3.0	16.188	22	2 51 18.87	2.3278	18 35 35.6	13.088
23	1 8 2.89	2.0933	N. 6 54 13.4	16.160	23	2 53 38.73	2.3343	N. 18 48 37.7	12.983
THURSDAY 14.					SATURDAY 16.				
0	1 10 8.58	2.0964	N. 7 10 22.1	16.130	0	2 55 58.98	2.3408	N. 19 1 33.5	12.876
1	1 12 14.46	2.0997	7 26 29.0	16.099	1	2 58 19.62	2.3473	19 14 22.8	12.767
2	1 14 20.54	2.1030	7 42 34.0	16.067	2	3 0 40.65	2.3538	19 27 5.5	12.655
3	1 16 26.82	2.1064	7 58 37.1	16.034	3	3 3 2.08	2.3604	19 39 41.4	12.543
4	1 18 33.31	2.1099	8 14 38.1	15.999	4	3 5 23.90	2.3670	19 52 10.6	12.429
5	1 20 40.01	2.1135	8 30 36.9	15.963	5	3 7 46.12	2.3737	20 4 32.9	12.313
6	1 22 46.93	2.1173	8 46 33.6	15.925	6	3 10 8.74	2.3803	20 16 48.1	12.195
7	1 24 54.07	2.1210	9 2 27.9	15.885	7	3 12 31.76	2.3869	20 28 56.2	12.075
8	1 27 1.45	2.1249	9 18 19.7	15.843	8	3 14 55.17	2.3935	20 40 57.1	11.953
9	1 29 9.06	2.1288	9 34 9.0	15.800	9	3 17 18.98	2.4002	20 52 50.6	11.830
10	1 31 16.91	2.1329	9 49 55.7	15.756	10	3 19 43.19	2.4069	21 4 36.7	11.706
11	1 33 25.01	2.1370	10 5 39.7	15.711	11	3 22 7.80	2.4136	21 16 15.3	11.579
12	1 35 33.35	2.1412	10 21 21.0	15.664	12	3 24 32.82	2.4203	21 27 46.2	11.450
13	1 37 41.95	2.1455	10 36 59.4	15.614	13	3 26 58.24	2.4269	21 39 9.3	11.320
14	1 39 50.81	2.1498	10 52 34.7	15.564	14	3 29 24.05	2.4335	21 50 24.6	11.189
15	1 41 59.93	2.1543	11 8 7.0	15.513	15	3 31 50.26	2.4402	22 1 32.0	11.056
16	1 44 9.33	2.1589	11 23 36.2	15.459	16	3 34 16.87	2.4468	22 12 31.3	10.920
17	1 46 19.00	2.1635	11 39 2.1	15.403	17	3 36 43.88	2.4535	22 23 22.4	10.782
18	1 48 28.95	2.1682	11 54 24.6	15.346	18	3 39 11.29	2.4601	22 34 5.2	10.643
19	1 50 39.18	2.1730	12 9 43.7	15.288	19	3 41 39.09	2.4667	22 44 39.6	10.503
20	1 52 49.71	2.1779	12 24 59.2	15.228	20	3 44 7.29	2.4732	22 55 5.6	10.362
21	1 55 0.53	2.1828	12 40 11.1	15.167	21	3 46 35.87	2.4798	23 5 23.1	10.219
22	1 57 11.65	2.1878	12 55 19.3	15.104	22	3 49 4.84	2.4861	23 15 31.9	10.073
23	1 59 23.07	2.1929	13 10 23.6	15.039	23	3 51 34.20	2.4926	23 25 31.8	9.925
24	2 1 34.80	2.1981	N. 13 25 24.0	14.973	24	3 54 3.95	2.4990	N. 23 35 22.8	9.775

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 17.					TUESDAY 19.				
0	3 54 3.95	2.4990	N.23 35 22.8	9.775	0	5 59 37.64	2.6812	N.28 7 8.6	1.160
1	3 56 34.08	2.5053	23 45 4.8	9.625	1	6 2 18.51	2.6811	28 8 12.3	0.964
2	3 59 4.58	2.5115	23 54 37.8	9.474	2	6 4 59.37	2.6808	28 9 4.3	0.769
3	4 1 35.46	2.5177	24 4 1.7	9.321	3	6 7 40.21	2.6804	28 9 44.6	0.573
4	4 4 6.71	2.5239	24 13 16.3	9.165	4	6 10 21.02	2.6798	28 10 13.1	0.377
5	4 6 38.33	2.5301	24 22 21.5	9.008	5	6 13 1.79	2.6790	28 10 29.8	+0.180
6	4 9 10.32	2.5362	24 31 17.3	8.850	6	6 15 42.50	2.6780	28 10 34.7	-0.017
7	4 11 42.67	2.5421	24 40 3.5	8.690	7	6 18 23.14	2.6768	28 10 27.8	0.912
8	4 14 15.37	2.5479	24 48 40.1	8.529	8	6 21 3.71	2.6754	28 10 9.3	0.407
9	4 16 48.42	2.5537	24 57 7.0	8.366	9	6 23 44.19	2.6738	28 9 39.1	0.602
10	4 19 21.82	2.5595	25 5 24.0	8.201	10	6 26 24.57	2.6721	28 8 57.1	0.797
11	4 21 55.56	2.5651	25 13 31.1	8.035	11	6 29 4.84	2.6702	28 8 3.5	0.991
12	4 24 29.63	2.5707	25 21 28.3	7.868	12	6 31 44.99	2.6680	28 6 58.2	1.185
13	4 27 4.04	2.5763	25 29 15.3	7.699	13	6 34 25.00	2.6657	28 5 41.3	1.378
14	4 29 38.77	2.5815	25 36 52.2	7.530	14	6 37 4.87	2.6639	28 4 12.8	1.571
15	4 32 13.82	2.5868	25 44 18.9	7.359	15	6 39 44.58	2.6605	28 2 32.8	1.763
16	4 34 49.18	2.5919	25 51 35.3	7.187	16	6 42 24.13	2.6577	28 0 41.3	1.954
17	4 37 24.85	2.5970	25 58 41.3	7.012	17	6 45 3.50	2.6546	27 58 38.3	2.145
18	4 40 0.82	2.6019	26 5 36.7	6.836	18	6 47 42.68	2.6513	27 56 23.9	2.335
19	4 42 37.08	2.6067	26 12 21.6	6.660	19	6 50 21.66	2.6479	27 53 58.1	2.524
20	4 45 13.62	2.6114	26 18 55.9	6.482	20	6 53 0.43	2.6444	27 51 21.0	2.713
21	4 47 50.45	2.6161	26 25 19.5	6.303	21	6 55 38.99	2.6407	27 48 32.6	2.900
22	4 50 27.55	2.6205	26 31 32.3	6.123	22	6 58 17.31	2.6368	27 45 33.0	3.087
23	4 53 4.91	2.6248	N.26 37 34.3	5.942	23	7 0 55.40	2.6327	N.27 42 22.2	3.273
MONDAY 18.					WEDNESDAY 20.				
0	4 55 42.52	2.6289	N.26 43 25.4	5.760	0	7 3 33.24	2.6285	N.27 39 0.3	3.458
1	4 58 20.38	2.6330	26 49 5.5	5.577	1	7 6 10.82	2.6241	27 35 27.3	3.641
2	5 0 58.48	2.6369	26 54 34.6	5.393	2	7 8 48.13	2.6196	27 31 43.4	3.824
3	5 3 36.80	2.6406	26 59 52.6	5.208	3	7 11 25.17	2.6149	27 27 48.5	4.006
4	5 6 15.35	2.6442	27 4 59.5	5.021	4	7 14 1.92	2.6100	27 23 42.7	4.187
5	5 8 54.11	2.6477	27 9 55.1	4.834	5	7 16 38.37	2.6050	27 19 26.1	4.366
6	5 11 33.07	2.6510	27 14 39.5	4.646	6	7 19 14.52	2.5999	27 14 58.8	4.544
7	5 14 12.23	2.6541	27 19 12.6	4.457	7	7 21 50.36	2.5946	27 10 20.8	4.721
8	5 16 51.57	2.6571	27 23 34.3	4.268	8	7 24 25.88	2.5892	27 5 32.2	4.897
9	5 19 31.08	2.6599	27 27 44.7	4.077	9	7 27 1.06	2.5836	27 0 33.2	5.071
10	5 22 10.76	2.6626	27 31 43.6	3.886	10	7 29 35.91	2.5779	26 55 23.7	5.244
11	5 24 50.59	2.6650	27 35 31.0	3.695	11	7 32 10.41	2.5721	26 50 3.9	5.416
12	5 27 30.56	2.6673	27 39 7.0	3.503	12	7 34 44.56	2.5662	26 44 33.8	5.587
13	5 30 10.67	2.6695	27 42 31.4	3.309	13	7 37 18.35	2.5601	26 38 53.5	5.756
14	5 32 50.90	2.6715	27 45 44.1	3.115	14	7 39 51.77	2.5539	26 33 3.1	5.923
15	5 35 31.25	2.6733	27 48 45.2	2.922	15	7 42 24.82	2.5477	26 27 2.7	6.089
16	5 38 11.70	2.6749	27 51 34.7	2.728	16	7 44 57.49	2.5413	26 20 52.4	6.254
17	5 40 52.24	2.6763	27 54 12.5	2.533	17	7 47 29.77	2.5348	26 14 32.2	6.418
18	5 43 32.86	2.6776	27 56 38.6	2.338	18	7 50 1.66	2.5282	26 8 2.3	6.579
19	5 46 13.55	2.6787	27 58 53.0	2.142	19	7 52 33.15	2.5214	26 1 22.7	6.739
20	5 48 54.30	2.6795	28 0 55.6	1.946	20	7 55 4.23	2.5147	25 54 33.6	6.898
21	5 51 35.09	2.6802	28 2 46.5	1.751	21	7 57 31.91	2.5078	25 47 35.0	7.053
22	5 54 15.42	2.6807	28 4 25.7	1.555	22	8 0 5.17	2.5008	25 40 27.0	7.210
23	5 56 56.77	2.6810	28 5 53.1	1.358	23	8 2 35.00	2.4937	25 33 9.8	7.363
24	5 59 37.64	2.6812	N.28 7 8.6	1.160	24	8 5 4.41	2.4866	N.25 25 43.4	7.516

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 21.					SATURDAY 23.				
0	8 5 4.41	2.4866	N.25 25 43.4	7.516	0	9 55 33.14	2.1180	N.17 2 34.7	12.781
1	8 7 33.39	2.4794	25 18 7.9	7.667	1	9 57 40.01	2.1109	16 49 45.8	12.848
2	8 10 1.93	2.4721	25 10 23.4	7.815	2	9 59 46.45	2.1038	16 36 52.9	12.914
3	8 12 30.04	2.4648	25 2 30.1	7.962	3	10 1 52.47	2.0969	16 23 56.1	12.979
4	8 14 57.70	2.4573	24 54 28.0	8.108	4	10 3 58.08	2.0900	16 10 55.4	13.043
5	8 17 24.91	2.4498	24 46 17.2	8.253	5	10 6 3.28	2.0832	15 57 50.9	13.106
6	8 19 51.68	2.4423	24 37 57.7	8.395	6	10 8 8.06	2.0764	15 44 42.7	13.167
7	8 22 17.99	2.4348	24 29 29.8	8.535	7	10 10 12.44	2.0697	15 31 30.9	13.226
8	8 24 43.85	2.4272	24 20 53.6	8.673	8	10 12 16.42	2.0630	15 18 15.6	13.283
9	8 27 9.25	2.4195	24 12 9.1	8.810	9	10 14 20.00	2.0563	15 4 57.0	13.338
10	8 29 34.19	2.4118	24 3 16.4	8.945	10	10 16 23.18	2.0498	14 51 35.0	13.393
11	8 31 58.66	2.4040	23 54 15.7	9.078	11	10 18 25.98	2.0434	14 38 9.8	13.447
12	8 34 22.66	2.3962	23 45 7.0	9.210	12	10 20 28.39	2.0370	14 24 41.4	13.499
13	8 36 46.20	2.3884	23 35 50.5	9.340	13	10 22 30.42	2.0307	14 11 9.9	13.549
14	8 39 9.26	2.3805	23 26 26.3	9.468	14	10 24 32.08	2.0245	13 57 35.5	13.598
15	8 41 31.85	2.3726	23 16 54.4	9.594	15	10 26 33.36	2.0183	13 43 58.2	13.645
16	8 43 53.97	2.3647	23 7 15.0	9.719	16	10 28 34.27	2.0122	13 30 18.1	13.692
17	8 46 15.62	2.3568	22 57 28.2	9.842	17	10 30 34.82	2.0062	13 16 35.2	13.737
18	8 48 36.79	2.3488	22 47 34.0	9.963	18	10 32 35.01	2.0002	13 2 49.7	13.780
19	8 50 57.48	2.3409	22 37 32.6	10.082	19	10 34 34.84	1.9943	12 49 1.6	13.822
20	8 53 17.70	2.3330	22 27 24.2	10.199	20	10 36 34.33	1.9886	12 35 11.0	13.863
21	8 55 37.44	2.3250	22 17 8.8	10.314	21	10 38 33.47	1.9829	12 21 18.0	13.903
22	8 57 56.70	2.3171	22 6 46.5	10.428	22	10 40 32.27	1.9773	12 7 22.6	13.942
23	9 0 15.49	2.3092	N.21 56 17.4	10.540	23	10 42 30.74	1.9717	N.11 53 25.0	13.979
FRIDAY 22.					SUNDAY 24.				
0	9 2 33.80	2.3012	N.21 45 41.7	10.650	0	10 44 28.87	1.9662	N.11 39 25.2	14.014
1	9 4 51.63	2.2933	21 34 59.4	10.758	1	10 46 26.68	1.9608	11 25 23.3	14.049
2	9 7 8.99	2.2853	21 24 10.7	10.865	2	10 48 24.16	1.9554	11 11 19.3	14.083
3	9 9 25.87	2.2773	21 13 15.6	10.971	3	10 50 21.32	1.9501	10 57 13.4	14.115
4	9 11 42.27	2.2694	21 2 14.2	11.074	4	10 52 18.17	1.9449	10 43 5.6	14.145
5	9 13 58.20	2.2616	20 51 6.7	11.175	5	10 54 14.71	1.9398	10 28 56.0	14.175
6	9 16 13.66	2.2537	20 39 53.2	11.275	6	10 56 10.95	1.9348	10 14 44.6	14.204
7	9 18 28.64	2.2458	20 28 33.7	11.373	7	10 58 6.89	1.9299	10 0 31.5	14.231
8	9 20 43.16	2.2380	20 17 8.4	11.469	8	11 0 2.54	1.9250	9 46 16.9	14.257
9	9 22 57.21	2.2302	20 5 37.4	11.563	9	11 1 57.89	1.9202	9 32 0.7	14.282
10	9 25 10.79	2.2224	19 54 0.8	11.656	10	11 3 52.96	1.9155	9 17 43.0	14.306
11	9 27 23.90	2.2147	19 42 18.7	11.748	11	11 5 47.75	1.9108	9 3 24.0	14.329
12	9 29 36.55	2.2070	19 30 31.1	11.838	12	11 7 42.26	1.9063	8 49 3.6	14.351
13	9 31 48.74	2.1994	19 18 38.2	11.925	13	11 9 36.50	1.9018	8 34 41.9	14.372
14	9 34 0.47	2.1918	19 6 40.1	12.010	14	11 11 30.48	1.8975	8 20 19.0	14.391
15	9 36 11.75	2.1842	18 54 37.0	12.094	15	11 13 24.20	1.8932	8 5 55.0	14.409
16	9 38 22.57	2.1766	18 42 28.9	12.177	16	11 15 17.66	1.8890	7 51 29.9	14.427
17	9 40 32.94	2.1691	18 30 15.8	12.259	17	11 17 10.88	1.8849	7 37 3.8	14.443
18	9 42 42.86	2.1617	18 17 57.8	12.339	18	11 19 3.85	1.8808	7 22 36.8	14.458
19	9 44 52.34	2.1543	18 5 35.1	12.417	19	11 20 56.58	1.8768	7 8 8.9	14.472
20	9 47 1.37	2.1469	17 53 7.8	12.492	20	11 22 49.07	1.8729	6 53 40.2	14.486
21	9 49 9.96	2.1396	17 40 36.1	12.565	21	11 24 41.33	1.8691	6 39 10.6	14.499
22	9 51 18.12	2.1324	17 28 0.0	12.638	22	11 26 33.36	1.8654	6 24 40.3	14.510
23	9 53 25.85	2.1252	17 15 19.5	12.711	23	11 28 25.17	1.8618	6 10 9.4	14.519
24	9 55 33.14	2.1180	N.17 2 34.7	12.781	24	11 30 16.77	1.8583	N. 5 55 38.0	14.528

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 25.					WEDNESDAY 27.				
0	11 30 16.77	1.8583	N. 5 55 38.0	14.528	0	12 56 55.16	1.7825	S. 5 36 7.8	13.996
1	11 32 8.16	1.8548	5 41 6.0	14.537	1	12 58 42.12	1.7828	5 50 6.7	13.967
2	11 33 59.34	1.8513	5 26 33.5	14.545	2	13 0 29.10	1.7833	6 4 3.8	13.938
3	11 35 50.32	1.8480	5 12 0.6	14.551	3	13 2 16.11	1.7838	6 17 59.2	13.908
4	11 37 41.10	1.8448	4 57 27.4	14.557	4	13 4 3.15	1.7843	6 31 52.7	13.876
5	11 39 31.69	1.8417	4 42 53.8	14.562	5	13 5 50.23	1.7849	6 45 44.3	13.844
6	11 41 22.10	1.8386	4 28 20.0	14.565	6	13 7 37.34	1.7856	6 59 33.9	13.811
7	11 43 12.32	1.8356	4 13 46.0	14.568	7	13 9 24.50	1.7864	7 13 21.6	13.778
8	11 45 2.37	1.8328	3 59 11.8	14.570	8	13 11 11.71	1.7873	7 27 7.3	13.745
9	11 46 52.25	1.8299	3 44 37.6	14.571	9	13 12 58.98	1.7883	7 40 51.0	13.711
10	11 48 41.96	1.8272	3 30 3.3	14.571	10	13 14 46.31	1.7893	7 54 32.6	13.675
11	11 50 31.51	1.8245	3 15 29.1	14.570	11	13 16 33.70	1.7904	8 8 12.0	13.639
12	11 52 20.90	1.8210	3 0 54.9	14.569	12	13 18 21.16	1.7916	8 21 49.3	13.603
13	11 54 10.14	1.8194	2 46 20.8	14.567	13	13 20 8.69	1.7928	8 35 24.4	13.566
14	11 55 59.23	1.8170	2 31 46.9	14.563	14	13 21 56.30	1.7941	8 48 57.2	13.529
15	11 57 48.18	1.8147	2 17 13.2	14.559	15	13 23 43.99	1.7955	9 2 27.8	13.491
16	11 59 36.99	1.8124	2 2 39.8	14.554	16	13 25 31.76	1.7970	9 15 56.1	13.451
17	12 1 25.67	1.8103	1 48 6.7	14.548	17	13 27 19.63	1.7986	9 29 21.9	13.410
18	12 3 14.23	1.8082	1 33 34.0	14.542	18	13 29 7.59	1.8001	9 42 45.3	13.370
19	12 5 2.66	1.8062	1 19 1.7	14.534	19	13 30 55.64	1.8018	9 56 6.3	13.329
20	12 6 50.97	1.8043	1 4 29.9	14.526	20	13 32 43.80	1.8036	10 9 24.8	13.288
21	12 8 39.17	1.8024	0 49 58.6	14.518	21	13 34 32.07	1.8054	10 22 40.8	13.246
22	12 10 27.26	1.8006	0 35 27.8	14.508	22	13 36 20.45	1.8073	10 35 54.3	13.203
23	12 12 15.25	1.7989	N. 0 20 57.7	14.497	23	13 38 8.95	1.8093	S. 10 49 5.1	13.158
TUESDAY 26.					THURSDAY 28.				
0	12 14 3.13	1.7973	N. 0 6 28.2	14.486	0	13 39 57.56	1.8113	S. 11 2 13.3	13.114
1	12 15 50.92	1.7958	S. 0 8 0.6	14.474	1	13 41 46.30	1.8134	11 15 18.8	13.069
2	12 17 38.63	1.7944	0 22 28.6	14.461	2	13 43 35.17	1.8155	11 28 21.6	13.023
3	12 19 26.25	1.7930	0 36 55.9	14.448	3	13 45 24.16	1.8177	11 41 21.6	12.977
4	12 21 13.79	1.7917	0 51 22.3	14.433	4	13 47 13.29	1.8201	11 54 18.8	12.939
5	12 23 1.26	1.7905	1 5 47.8	14.418	5	13 49 2.57	1.8225	12 7 13.1	12.881
6	12 24 48.65	1.7893	1 20 12.4	14.402	6	13 50 51.99	1.8249	12 20 4.5	12.833
7	12 26 35.98	1.7883	1 34 36.0	14.385	7	13 52 41.56	1.8274	12 32 53.0	12.783
8	12 28 23.25	1.7874	1 48 58.6	14.368	8	13 54 31.28	1.8300	12 45 38.5	12.733
9	12 30 10.47	1.7865	2 3 20.2	14.351	9	13 56 21.16	1.8327	12 58 21.0	12.683
10	12 31 57.63	1.7857	2 17 40.7	14.332	10	13 58 11.20	1.8354	13 11 0.5	12.632
11	12 33 44.75	1.7849	2 32 0.0	14.312	11	14 0 1.41	1.8382	13 23 36.8	12.580
12	12 35 31.82	1.7842	2 46 18.1	14.292	12	14 1 51.79	1.8411	13 36 10.0	12.527
13	12 37 18.85	1.7837	3 0 35.0	14.271	13	14 3 42.34	1.8440	13 48 40.0	12.473
14	12 39 5.86	1.7832	3 14 50.6	14.250	14	14 5 33.07	1.8469	14 1 6.8	12.419
15	12 40 52.84	1.7828	3 29 5.0	14.228	15	14 7 23.97	1.8499	14 13 30.3	12.364
16	12 42 39.79	1.7824	3 43 18.0	14.204	16	14 9 15.06	1.8531	14 25 50.5	12.309
17	12 44 26.73	1.7821	3 57 29.5	14.180	17	14 11 6.34	1.8563	14 38 7.3	12.253
18	12 46 13.65	1.7819	4 11 39.6	14.156	18	14 12 57.82	1.8595	14 50 20.8	12.196
19	12 48 0.56	1.7818	4 25 48.2	14.131	19	14 14 49.49	1.8628	15 2 30.8	12.138
20	12 49 47.47	1.7818	4 39 55.3	14.106	20	14 16 41.36	1.8662	15 14 37.3	12.079
21	12 51 34.38	1.7818	4 54 0.9	14.080	21	14 18 33.43	1.8696	15 26 40.2	12.019
22	12 53 21.29	1.7820	5 8 4.9	14.053	22	14 20 25.71	1.8731	15 38 39.6	11.959
23	12 55 8.22	1.7822	5 22 7.2	14.025	23	14 22 18.20	1.8767	15 50 35.3	11.898
24	12 56 55.16	1.7825	S. 5 36 7.8	13.996	24	14 24 10.91	1.8803	S. 16 2 27.4	11.837

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
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FRIDAY 29.

	h	m	s	a	S.	16'	2'	27.4"	"
0	14	24	10.91	1.8903	S.16	2	27.4	11.837	
1	14	26	3.84	1.8840		16	14 15.8	11.775	
2	14	27	56.99	1.8877		16	26 0.4	11.719	
3	14	29	50.36	1.8914		16	37 41.2	11.648	
4	14	31	43.96	1.8953		16	49 18.1	11.583	
5	14	33	37.80	1.8992		17	0 51.1	11.518	
6	14	35	31.87	1.9032		17	12 20.2	11.452	
7	14	37	26.18	1.9073		17	23 45.3	11.385	
8	14	39	20.74	1.9113		17	35 6.3	11.317	
9	14	41	15.54	1.9154		17	46 23.3	11.248	
10	14	43	10.59	1.9196		17	57 36.1	11.178	
11	14	45	5.90	1.9239		18	8 44.7	11.108	
12	14	47	1.46	1.9282		18	19 49.0	11.037	
13	14	48	57.28	1.9325		18	30 49.1	10.965	
14	14	50	53.36	1.9369		18	41 41.8	10.893	
15	14	52	49.71	1.9413		18	52 36.2	10.819	
16	14	54	46.32	1.9458		19	3 23.1	10.745	
17	14	56	43.21	1.9504		19	14 5.5	10.670	
18	14	58	40.37	1.9550		19	24 43.5	10.595	
19	15	0	37.80	1.9596		19	35 16.9	10.518	
20	15	2	35.52	1.9643		19	45 45.6	10.439	
21	15	4	33.52	1.9690		19	56 9.5	10.359	
22	15	6	31.80	1.9738		20	6 28.7	10.280	
23	15	8	30.37	1.9786	S.20	16	43.1	10.201	

SATURDAY 30.

0	15	10	29.23	1.9834	S.20	26	52.8	10.120	
1	15	12	28.38	1.9883		20	36 57.6	10.038	
2	15	14	27.83	1.9933		20	46 57.3	9.954	
3	15	16	27.58	1.9983		20	56 52.0	9.869	
4	15	18	27.62	2.0033		21	6 41.6	9.784	
5	15	20	27.97	2.0083		21	16 26.1	9.699	
6	15	22	28.62	2.0134		21	26 5.5	9.613	
7	15	24	29.58	2.0186		21	35 39.6	9.525	
8	15	26	30.85	2.0237		21	45 8.4	9.437	
9	15	28	32.42	2.0288		21	54 32.0	9.348	
10	15	30	34.30	2.0340		22	3 50.2	9.257	
11	15	32	36.50	2.0393		22	13 2.9	9.165	
12	15	34	39.02	2.0446		22	22 10.0	9.073	
13	15	36	41.86	2.0499		22	31 11.6	8.980	
14	15	38	45.01	2.0552		22	40 7.6	8.886	
15	15	40	48.48	2.0605		22	48 57.9	8.791	
16	15	42	52.27	2.0658		22	57 42.5	8.695	
17	15	44	56.38	2.0712		23	6 21.3	8.598	
18	15	47	0.82	2.0767		23	14 54.2	8.499	
19	15	49	5.58	2.0821		23	23 21.2	8.400	
20	15	51	10.67	2.0875		23	31 42.2	8.301	
21	15	53	16.08	2.0929		23	39 57.3	8.200	
22	15	55	21.82	2.0984		23	48 6.3	8.098	
23	15	57	27.89	2.1038		23	56 9.1	7.995	
24	15	59	34.28	2.1093	S.24	4	5.7	7.892	

SUNDAY 31.

	h	m	s	a	S.	24'	4'	5.7"	"
0	15	59	34.28	2.1093	S.24	4	5.7	7.892	
1	16	1	41.01	2.1148		24	11 56.1	7.787	
2	16	3	48.06	2.1203		24	19 40.1	7.681	
3	16	5	55.44	2.1258		24	27 17.8	7.575	
4	16	8	3.15	2.1313		24	34 49.1	7.467	
5	16	10	11.19	2.1368		24	42 13.8	7.357	
6	16	12	19.56	2.1423		24	49 31.9	7.247	
7	16	14	28.26	2.1478		24	56 43.4	7.137	
8	16	16	37.29	2.1532		25	3 48.3	7.026	
9	16	18	46.64	2.1586		25	10 46.5	6.913	
10	16	20	56.32	2.1641		25	17 37.9	6.799	
11	16	23	6.33	2.1696		25	24 22.4	6.684	
12	16	25	16.67	2.1750		25	31 0.0	6.569	
13	16	27	27.33	2.1804		25	37 30.7	6.452	
14	16	29	38.32	2.1858		25	43 54.3	6.334	
15	16	31	49.63	2.1912		25	50 10.8	6.216	
16	16	34	1.26	2.1965		25	56 20.2	6.096	
17	16	36	13.21	2.2019		26	2 22.3	5.975	
18	16	38	25.49	2.2072		26	8 17.2	5.854	
19	16	40	38.08	2.2125		26	14 4.8	5.732	
20	16	42	50.89	2.2178		26	19 45.0	5.608	
21	16	45	4.21	2.2230		26	25 17.7	5.483	
22	16	47	17.75	2.2282		26	30 42.9	5.358	
23	16	49	31.60	2.2333	S.26	36	0.6	5.232	

MONDAY, FEBRUARY 1.

0	16	51	45.75	2.2384	S.26	41	10.7	5.104	
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PHASES OF THE MOON.

- New Moon, 7 5 8.2
- ☽ First Quarter, 14 9 22.3
- Full Moon, 21 5 41.0
- ☾ Last Quarter, 29 0 33.7

- ☾ Apogee, 1 6.6
- ☾ Perigee, 16 22.3
- ☾ Apogee, 29 3.6

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
1	Pollux W.	99° 41' 2"	3078	101° 9' 38"	3078	102° 38' 14"	3078	104° 6' 51"	3076
	Regulus W.	63 4 50	3088	64 33 13	3087	66 1 39	3088	67 30 6	3085
	Antares E.	37 0 7	3078	35 31 31	3078	34 2 55	3078	32 34 19	3077
	Venus E.	38 41 18	3246	37 16 3	3257	35 51 1	3268	34 26 12	3280
	Sun E.	69 33 43	3489	68 13 7	3489	66 52 31	3488	65 31 54	3487
2	Regulus W.	74 52 55	3071	76 21 40	3067	77 50 30	3063	79 19 25	3059
	Spica W.	20 51 6	3084	22 19 35	3078	23 48 12	3071	25 16 57	3065
	Venus E.	27 26 8	3365	26 3 11	3389	24 40 42	3419	23 18 47	3455
	Sun E.	58 48 21	3477	57 27 31	3473	56 6 37	3469	54 45 38	3464
3	Regulus W.	86 45 34	3029	88 15 11	3023	89 44 55	3017	91 14 47	3009
	Spica W.	32 42 40	3031	34 12 14	3023	35 41 58	3016	37 11 51	3008
	Jupiter W.	26 11 59	3073	27 40 41	3067	29 9 31	3059	30 38 31	3051
	Mars W.	17 57 19	3276	19 21 59	3264	20 46 53	3253	22 12 0	3242
	Sun E.	47 59 27	3439	46 37 55	3433	45 16 16	3428	43 54 31	3422
4	Regulus W.	98 46 31	2969	100 17 22	2961	101 48 24	2952	103 19 37	2942
	Spica W.	44 43 47	2966	46 14 42	2957	47 45 49	2948	49 17 7	2939
	Jupiter W.	38 6 5	3007	39 36 9	2998	41 6 24	2989	42 36 50	2980
	Mars W.	29 20 39	3190	30 47 0	3181	32 13 32	3170	33 40 17	3160
	Sun E.	37 3 58	3390	35 41 30	3384	34 18 55	3378	32 56 13	3372
9	Sun W.	22 5 43	3030	23 35 18	3009	25 5 20	2989	26 35 46	2972
	α Pegasi E.	47 13 35	2926	45 48 9	2927	44 23 19	2902	42 59 10	2892
	α Arietis E.	86 20 10	2622	84 41 45	2614	83 3 9	2606	81 24 22	2598
	Aldebaran E.	116 48 43	2638	115 10 40	2628	113 32 23	2618	111 53 53	2609
10	Sun W.	34 12 57	2901	35 45 14	2890	37 17 46	2879	38 50 32	2869
	α Pegasi E.	36 12 25	2657	34 54 52	2651	33 38 59	2641	32 25 0	2630
	α Arietis E.	73 7 56	2564	71 28 11	2557	69 48 17	2551	68 8 15	2546
	Aldebaran E.	103 38 15	2565	101 58 32	2557	100 18 38	2550	98 38 34	2542
11	Sun W.	46 37 32	2822	48 11 31	2814	49 45 41	2806	51 20 1	2798
	Saturn W.	23 49 27	2543	25 29 40	2531	27 10 10	2520	28 50 56	2509
	α Arietis E.	59 46 17	2522	58 5 34	2518	56 24 46	2515	54 43 53	2512
	Aldebaran E.	90 15 40	2507	88 34 37	2502	86 53 26	2495	85 12 6	2489
12	Sun W.	59 14 13	2761	60 49 32	2755	62 24 59	2748	64 0 35	2742
	Saturn W.	37 18 9	2466	39 0 10	2458	40 42 22	2451	42 24 44	2444
	α Arietis E.	46 18 40	2504	44 37 33	2506	42 56 28	2507	41 15 25	2510
	Aldebaran E.	76 43 29	2463	75 1 24	2458	73 19 12	2454	71 36 54	2450
13	Sun W.	72 0 39	2711	73 37 4	2706	75 13 36	2700	76 50 16	2694
	Saturn W.	50 58 55	2413	52 42 11	2407	54 25 36	2401	56 9 9	2396
	Fomalhaut W.	37 35 14	2225	39 7 1	2219	40 39 47	2218	42 13 25	2201
	Aldebaran E.	63 4 1	2433	61 21 13	2430	59 38 21	2427	57 55 25	2425
	Pollux E.	106 35 17	2364	104 50 50	2359	103 6 16	2353	101 21 34	2348
14	Sun W.	84 55 26	2608	86 32 49	2603	88 10 18	2609	89 47 53	2604
	Saturn W.	64 48 45	2370	66 33 3	2366	68 17 27	2361	70 1 58	2357
	Fomalhaut W.	50 12 9	2665	51 49 36	2644	53 27 31	2625	55 5 52	2608
	α Pegasi W.	33 6 21	2622	34 24 32	2604	35 44 52	2600	37 7 8	2611
	Aldebaran E.	49 20 16	2422	47 37 13	2424	45 54 12	2426	44 11 14	2420
	Pollux E.	92 36 21	2325	90 50 58	2321	89 5 20	2317	87 19 54	2312

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
1	Pollux W.	105° 35' 30"	3074	107° 4' 11"	3073	108° 32' 54"	3070	110° 1' 40"	3067
	Regulus W.	68 58 34	3083	70 27 4	3081	71 55 37	3078	73 24 14	3074
	Antares E.	31 5 41	3075	29 37 1	3073	28 8 19	3071	26 39 34	3069
	Venus E.	33 1 37	3293	31 37 17	3307	30 13 14	3324	28 49 30	3343
	Sun E.	64 11 15	3486	62 50 35	3484	61 29 53	3481	60 9 8	3480
2	Regulus W.	80 48 25	3054	82 17 31	3048	83 46 44	3042	85 16 5	3035
	Spica W.	26 45 49	3059	28 14 49	3052	29 43 58	3045	31 13 15	3039
	Venus E.	21 57 33	3500	20 37 9	3553	19 17 43	3619	17 59 20	3703
	Sun E.	53 24 34	3460	52 3 25	3455	50 42 11	3451	49 20 52	3446
3	Regulus W.	92 44 48	3001	94 14 59	2993	95 45 20	2986	97 15 50	2977
	Spica W.	38 41 54	3000	40 12 7	2992	41 42 30	2984	43 13 3	2975
	Jupiter W.	32 7 41	3043	33 37 1	3034	35 6 32	3026	36 36 13	3017
	Mars W.	23 37 19	3223	25 2 50	3221	26 28 34	3211	27 54 30	3200
	Sun E.	42 32 39	3415	41 10 40	3408	39 48 33	3402	38 26 19	3396
4	Regulus W.	104 51 2	2934	106 22 38	2924	107 54 26	2915	109 26 26	2905
	Spica W.	50 48 37	2929	52 20 19	2920	53 52 13	2909	55 24 20	2900
	Jupiter W.	44 7 28	2969	45 38 19	2960	47 9 22	2950	48 40 37	2940
	Mars W.	35 7 14	3149	36 34 24	3138	38 1 47	3128	39 29 23	3117
	Sun E.	31 33 24	3366	30 10 29	3362	28 47 29	3358	27 24 24	3355
9	Sun W.	28 6 34	2955	29 37 43	2940	31 9 11	2927	32 40 56	2914
	α Pegasi E.	41 35 47	3388	40 13 17	3442	38 51 48	3503	37 31 27	3575
	α Arietis E.	79 45 24	2591	78 6 16	2584	76 26 59	2577	74 47 32	2570
	Aldebaran E.	110 15 10	2599	108 36 14	2591	106 57 6	2582	105 17 46	2574
10	Sun W.	40 23 31	2859	41 56 43	2848	43 30 8	2840	45 3 44	2831
	α Pegasi E.	31 13 10	4140	30 3 47	4318	28 57 11	4527	27 53 43	4778
	α Arietis E.	66 28 6	2540	64 47 49	2535	63 7 25	2530	61 26 54	2526
	Aldebaran E.	96 58 19	2535	95 17 54	2527	93 37 19	2520	91 56 31	2514
11	Sun W.	52 54 32	2790	54 29 13	2783	56 4 3	2775	57 39 3	2768
	Saturn W.	30 31 57	2499	32 13 11	2490	33 54 38	2481	35 36 18	2473
	α Arietis E.	53 2 56	2509	51 21 55	2507	49 40 52	2506	47 59 47	2504
	Aldebaran E.	83 30 38	2484	81 49 2	2476	80 7 18	2473	78 25 27	2468
12	Sun W.	65 36 19	2735	67 12 12	2729	68 48 13	2723	70 24 22	2717
	Saturn W.	44 7 16	2437	45 49 58	2431	47 32 49	2425	49 15 48	2419
	α Arietis E.	39 34 25	2513	37 53 30	2519	36 12 43	2526	34 32 6	2535
	Aldebaran E.	69 54 30	2445	68 12 0	2442	66 29 25	2438	64 46 45	2436
13	Sun W.	78 27 4	2689	80 3 59	2684	81 41 1	2678	83 18 10	2673
	Saturn W.	57 52 49	2391	59 36 37	2386	61 20 32	2380	63 4 35	2375
	Fomalhaut W.	43 47 51	2769	45 23 0	2739	46 58 48	2712	48 35 12	2687
	Aldebaran E.	56 12 26	2424	54 29 25	2423	52 46 23	2422	51 3 20	2422
	Pollux E.	99 36 45	2344	97 51 49	2339	96 6 46	2335	94 21 37	2330
14	Sun W.	91 25 35	2649	93 3 23	2645	94 41 17	2641	96 19 16	2637
	Saturn W.	71 46 35	2353	73 31 18	2348	75 16 8	2344	77 1 4	2339
	Fomalhaut W.	56 44 36	2592	58 23 42	2577	60 3 8	2564	61 42 53	2551
	α Pegasi W.	38 31 7	3231	39 56 39	3162	41 23 34	3100	42 51 44	3043
	Aldebaran E.	42 28 21	2433	40 45 34	2438	39 2 54	2445	37 20 23	2453
Pollux E.	85 34 12	2308	83 48 24	2304	82 2 30	2300	80 16 30	2296	

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
15	Sun W.	97° 57' 21"	2639	99° 35' 32"	2629	101° 13' 48"	2626	102° 52' 8"	2623
	Fomalhaut W.	63 22 55	2540	65 3 13	2529	66 43 46	2519	68 24 33	2510
	α Pegasi W.	44 21 3	2993	45 51 24	2949	47 22 41	2909	48 54 49	2873
	Aldebaran E.	35 38 4	2464	33 56 0	2477	32 14 15	2494	30 32 53	2514
	Pollux E.	78 30 25	2293	76 44 15	2289	74 57 59	2285	73 11 37	2281
16	Sun W.	111 4 53	2608	112 43 37	2606	114 22 24	2604	116 1 13	2602
	Fomalhaut W.	76 51 17	2475	78 33 5	2470	80 15 0	2466	81 57 1	2462
	α Pegasi W.	56 45 50	2736	58 21 42	2716	59 58 1	2698	61 34 44	2681
	Pollux E.	64 18 41	2268	62 31 54	2266	60 45 4	2263	58 58 10	2262
	Regulus E.	100 57 30	2274	99 10 53	2273	97 24 12	2270	95 37 28	2267
17	Sun W.	124 15 45	2599	125 54 41	2600	127 33 36	2601	129 12 30	2602
	Fomalhaut W.	90 28 8	2453	92 10 28	2453	93 52 48	2454	95 35 6	2455
	α Pegasi W.	69 43 11	2621	71 21 38	2612	73 0 16	2605	74 39 4	2599
	α Arietis W.	26 8 32	2507	27 49 35	2479	29 31 18	2455	31 13 34	2436
	Pollux E.	50 3 8	2256	48 16 4	2256	46 28 59	2256	44 41 54	2256
Regulus E.	86 43 9	2263	84 56 13	2261	83 9 16	2260	81 22 18	2260	
18	α Pegasi W.	82 54 37	2585	84 33 53	2585	86 13 9	2586	87 52 23	2588
	α Arietis W.	39 50 33	2377	41 34 41	2370	43 18 59	2366	45 3 23	2362
	Pollux E.	35 46 45	2262	33 59 50	2265	32 12 59	2269	30 26 12	2271
	Regulus E.	72 27 42	2266	70 40 53	2268	68 54 7	2271	67 7 25	2274
19	α Pegasi W.	96 7 31	2611	97 46 11	2619	99 24 40	2628	101 2 57	2637
	α Arietis W.	53 46 12	2358	55 30 47	2360	57 15 19	2362	58 59 48	2366
	Aldebaran W.	24 4 52	2613	25 43 29	2579	27 22 53	2551	29 2 55	2530
	Regulus E.	58 15 11	2295	56 29 4	2300	54 43 5	2306	52 57 14	2312
	Spica E.	112 16 1	2268	110 29 41	2261	108 43 28	2266	106 57 22	2262
20	α Arietis W.	67 40 46	2380	69 24 35	2397	71 8 14	2405	72 51 42	2412
	Aldebaran W.	37 28 37	2480	39 10 19	2477	40 52 5	2476	42 33 52	2477
	Regulus E.	44 10 29	2350	42 25 43	2360	40 41 11	2370	38 56 53	2380
	Spica E.	98 9 9	2335	96 24 1	2344	94 39 5	2352	92 54 21	2360
	Jupiter E.	106 20 49	2260	104 36 17	2268	102 51 56	2276	101 7 47	2285
21	α Arietis W.	81 26 6	2457	83 8 20	2467	84 50 19	2479	86 32 2	2490
	Aldebaran W.	51 2 0	2497	52 43 17	2504	54 24 25	2511	56 5 23	2520
	Spica E.	84 13 59	2410	82 30 38	2420	80 47 32	2431	79 4 42	2443
	Jupiter E.	92 30 20	2433	90 47 33	2444	89 5 1	2455	87 22 45	2467
	Mars E.	109 31 52	2599	107 52 56	2611	106 14 16	2622	104 35 51	2634
22	α Arietis W.	94 56 33	2551	96 36 35	2564	98 16 19	2578	99 55 44	2592
	Aldebaran W.	64 27 4	2569	66 6 42	2580	67 46 4	2591	69 25 11	2603
	Pollux W.	20 16 43	2515	21 57 36	2527	23 38 12	2538	25 18 32	2551
	Spica E.	70 34 42	2504	68 53 34	2517	67 12 45	2530	65 32 14	2544
	Jupiter E.	78 55 33	2528	77 14 59	2540	75 34 42	2553	73 54 43	2567
Mars E.	96 27 55	2696	94 51 12	2711	93 14 47	2725	91 38 40	2738	
23	Aldebaran W.	77 36 32	2668	79 13 55	2681	80 51 0	2695	82 27 47	2708
	Pollux W.	33 35 54	2615	35 14 28	2629	36 52 44	2643	38 30 41	2657
	Spica E.	57 14 21	2613	55 35 44	2627	53 57 26	2641	52 19 27	2656
	Jupiter E.	65 39 31	2636	64 1 25	2651	62 23 39	2665	60 46 12	2679
	Mars E.	83 42 44	2611	82 8 30	2625	80 34 35	2641	79 1 0	2655
	Antares E.	103 7 12	2610	101 28 31	2624	99 50 9	2638	98 12 6	2652

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XV ^h .	P. L. of Diff.	XVIII ^h .	P. L. of Diff.	XXI ^h .	P. L. of Diff.
15	SUN W.	104 30 32	2619	106 9 1	2615	107 47 35	2613	109 26 12	2610
	Fomalhaut W.	70 5 33	2502	71 46 44	2494	73 28 6	2487	75 9 37	2481
	α Pegasi W.	50 27 43	2839	52 1 20	2809	53 35 36	2782	55 10 27	2758
	Aldebaran E.	28 51 59	2538	27 11 39	2569	25 32 1	2607	23 53 16	2655
	Pollux E.	71 25 10	2279	69 38 39	2276	67 52 4	2272	66 5 24	2270
16	SUN W.	117 40 5	2601	119 18 58	2600	120 57 53	2599	122 36 49	2599
	Fomalhaut W.	83 39 7	2459	85 21 18	2457	87 3 32	2455	88 45 49	2453
	α Pegasi W.	63 11 49	2666	64 49 14	2653	66 26 57	2640	68 4 57	2630
	Pollux E.	57 11 14	2260	55 24 16	2258	53 37 15	2257	51 50 12	2256
	Regulus E.	93 50 40	2266	92 3 50	2264	90 16 58	2263	88 30 4	2262
17	SUN W.	130 51 22	2604	132 30 11	2607	134 8 57	2609	135 47 40	2612
	Fomalhaut W.	97 17 23	2457	98 59 37	2460	100 41 47	2463	102 23 52	2467
	α Pegasi W.	76 18 0	2594	77 57 3	2591	79 36 11	2588	81 15 23	2586
	α Arietis W.	32 56 17	2419	34 39 24	2405	36 22 52	2394	38 6 36	2384
	Pollux E.	42 54 49	2256	41 7 45	2258	39 20 43	2259	37 33 43	2260
	Regulus E.	79 35 20	2261	77 48 23	2262	76 1 28	2263	74 14 34	2264
18	α Pegasi W.	89 31 35	2591	91 10 43	2594	92 49 46	2599	94 28 42	2604
	α Arietis W.	46 47 52	2359	48 32 25	2358	50 17 0	2357	52 1 36	2357
	Pollux E.	28 39 30	2275	26 52 54	2280	25 6 25	2285	23 20 4	2291
	Regulus E.	65 20 47	2277	63 34 14	2281	61 47 47	2285	60 1 26	2289
19	α Pegasi W.	102 41 2	2647	104 18 53	2660	105 56 27	2672	107 33 44	2687
	α Arietis W.	60 44 12	2369	62 28 31	2373	64 12 44	2379	65 56 49	2384
	Aldebaran W.	30 43 27	2513	32 24 22	2500	34 5 35	2491	35 47 1	2484
	Regulus E.	51 11 32	2318	49 25 59	2326	47 40 37	2334	45 55 27	2342
	Spica E.	105 11 25	2307	103 25 36	2314	101 39 57	2321	99 54 28	2328
	α Arietis W.	74 34 59	2421	76 18 4	2429	78 0 57	2438	79 43 38	2447
20	Aldebaran W.	44 15 38	2478	45 57 22	2482	47 39 1	2486	49 20 34	2491
	Regulus E.	37 12 49	2391	35 29 1	2403	33 45 30	2415	32 2 16	2427
	Spica E.	91 9 49	2369	89 25 30	2379	87 41 25	2389	85 57 35	2399
	Jupiter E.	99 23 51	2394	97 40 8	2403	95 56 38	2413	94 13 22	2423
	α Arietis W.	88 13 29	2502	89 54 40	2513	91 35 35	2525	93 16 13	2538
21	Aldebaran W.	57 46 9	2528	59 26 43	2538	61 7 4	2548	62 47 11	2558
	Spica E.	77 22 8	2455	75 39 51	2467	73 57 51	2479	72 16 8	2491
	Jupiter E.	85 40 45	2479	83 59 2	2490	82 17 35	2502	80 36 25	2515
	Mars E.	102 57 42	2646	101 19 49	2658	99 42 13	2672	98 4 55	2685
	α Arietis W.	101 34 50	2606	103 13 37	2621	104 52 4	2635	106 30 12	2649
	Aldebaran W.	71 4 2	2615	72 42 36	2629	74 20 52	2641	75 58 51	2655
22	Pollux W.	26 58 35	2563	28 38 21	2575	30 17 50	2588	31 57 1	2601
	Spica E.	63 52 2	2557	62 12 8	2571	60 32 33	2585	58 53 17	2599
	Jupiter E.	72 15 3	2581	70 35 42	2595	68 56 40	2608	67 17 56	2622
	Mars E.	90 2 51	2753	88 27 21	2767	86 52 10	2782	85 17 18	2795
	Aldebaran W.	84 4 16	2722	85 40 26	2736	87 16 18	2750	88 51 51	2765
	Pollux W.	40 8 19	2671	41 45 38	2684	43 22 39	2698	44 59 21	2712
23	Spica E.	50 41 48	2670	49 4 28	2685	47 27 28	2699	45 50 47	2713
	Jupiter E.	59 9 4	2693	57 32 15	2707	55 55 45	2722	54 19 35	2737
	Mars E.	77 27 44	2870	75 54 47	2886	74 22 10	2901	72 49 52	2916
	Antares E.	96 34 22	2666	94 56 57	2681	93 19 51	2695	91 43 5	2710

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.	
23	Venus E.	113° 55' 23"	2994	112° 23' 35"	2939	110° 52' 5"	2954	109° 20' 54"	2968	
24	Aldebaran W.	90 27 5	2779	92 2 0	2793	93 36 37	2808	95 10 55	2821	
	Pollux W.	46 35 45	2726	48 11 50	2740	49 47 37	2754	51 23 5	2768	
	Spica E.	44 14 25	2729	42 38 22	2743	41 2 39	2757	39 27 15	2771	
	Jupiter E.	52 43 44	2751	51 8 12	2765	49 32 58	2779	47 58 3	2794	
	Mars E.	71 17 53	2931	69 46 13	2946	68 14 52	2960	66 43 49	2975	
	Antares E.	90 6 38	2724	88 30 30	2738	86 54 40	2751	85 19 8	2766	
	Venus E.	101 49 36	2043	100 20 16	2058	98 51 15	2073	97 22 33	2089	
25	Pollux W.	59 15 57	2835	60 49 39	2848	62 23 5	2860	63 56 15	2873	
	Regulus W.	22 49 18	2884	24 21 57	2891	25 54 27	2900	27 26 46	2908	
	Jupiter E.	40 8 5	2862	38 34 58	2876	37 2 9	2891	35 29 38	2904	
	Mars E.	59 13 12	2047	57 43 58	2061	56 15 1	2075	54 46 21	2089	
	Antares E.	77 26 2	2833	75 52 17	2846	74 18 49	2859	72 45 37	2871	
	Venus E.	90 3 40	3163	88 36 47	3178	87 10 12	3193	85 43 54	3207	
	SUN E.	134 16 42	3233	132 51 12	3246	131 25 57	3259	130 0 56	3270	
26	Pollux W.	71 38 11	2931	73 9 50	2942	74 41 16	2952	76 12 29	2962	
	Regulus W.	35 5 36	2954	36 36 47	2962	38 7 47	2971	39 38 36	2981	
	Jupiter E.	27 51 9	2968	26 20 16	2980	24 49 38	2992	23 19 15	3005	
	Mars E.	47 27 5	3153	46 0 0	3166	44 33 10	3178	43 6 34	3188	
	Antares E.	65 3 31	2930	63 31 50	2940	62 0 22	2951	60 29 8	2961	
	Venus E.	78 36 33	2975	77 11 52	2988	75 47 27	3000	74 23 16	3013	
	SUN E.	122 59 26	3330	121 35 49	3340	120 12 24	3351	118 49 12	3362	
27	Pollux W.	83 45 34	3008	85 15 39	3014	86 45 34	3022	88 15 20	3028	
	Regulus W.	47 10 0	3020	48 39 48	3027	50 9 27	3034	51 38 58	3039	
	Mars E.	35 56 53	2943	34 31 35	2953	33 6 29	2964	31 41 35	2973	
	Antares E.	52 55 56	3005	51 25 50	3014	49 55 54	3021	48 26 7	3027	
	Venus E.	67 25 48	3370	66 2 57	3380	64 40 18	3390	63 17 50	3400	
	SUN E.	111 56 1	3408	110 33 53	3416	109 11 55	3423	107 50 5	3431	
	28	Pollux W.	95 42 16	3056	97 11 20	3060	98 40 19	3063	100 9 14	3066
Regulus W.		59 4 49	3065	60 33 41	3069	62 2 29	3072	63 31 13	3074	
Antares E.		40 59 6	3055	39 30 1	3059	38 1 1	3063	36 32 6	3065	
Venus E.		56 28 9	3444	55 6 42	3451	53 45 23	3458	52 24 12	3466	
SUN E.		101 2 46	3459	99 41 36	3463	98 20 31	3467	96 59 30	3471	
29		Regulus W.	70 54 14	3082	72 22 46	3081	73 51 19	3081	75 19 52	3079
		Spica W.	16 52 34	3098	18 20 46	3094	19 49 3	3091	21 17 24	3087
	Antares E.	29 8 13	3074	27 39 32	3074	26 10 51	3073	24 42 9	3073	
	Venus E.	45 40 16	3499	44 19 51	3506	42 59 33	3512	41 39 22	3518	
	SUN E.	90 15 7	3478	88 54 18	3479	87 33 30	3478	86 12 41	3477	
	30	Regulus W.	82 43 11	3087	84 12 1	3083	85 40 56	3089	87 9 56	3084
		Spica W.	28 40 13	3068	30 9 2	3064	31 37 56	3059	33 6 56	3053
Jupiter W.		19 54 34	3104	21 22 39	3097	22 50 52	3090	24 19 14	3082	
Venus E.		35 0 18	3555	33 40 55	3565	32 21 43	3576	31 2 43	3588	
SUN E.		79 28 6	3463	78 7 1	3459	76 45 51	3454	75 24 36	3450	
31		Regulus W.	94 36 38	3022	96 6 23	3015	97 36 17	3007	99 6 21	2999
		Spica W.	40 33 49	3019	42 3 38	3012	43 33 36	3004	45 3 44	2995
	Jupiter W.	31 43 24	3043	33 12 44	3034	34 42 14	3026	36 11 55	3017	
	SUN E.	68 36 44	3416	67 14 46	3408	65 52 39	3400	64 30 23	3392	

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.	
23	Venus E.	107 50 1	2983	106 19 27	2997	104 49 11	3013	103 19 14	3028	
24	Aldebaran W.	96 44 55	2836	98 18 36	2850	99 51 59	2864	101 25 4	2878	
	Pollux W.	52 58 15	2782	54 33 7	2795	56 7 41	2808	57 41 58	2822	
	Spica E.	37 52 9	2785	36 17 22	2800	34 42 54	2814	33 8 44	2828	
	Jupiter E.	46 23 27	2808	44 49 9	2822	43 15 10	2836	41 41 29	2849	
	Mars E.	65 13 5	2989	63 42 39	3005	62 12 32	3019	60 42 43	3034	
	Antares E.	83 43 55	2779	82 9 0	2793	80 34 23	2807	79 0 4	2820	
	Venus E.	95 54 10	3104	94 26 5	3119	92 58 19	3134	91 30 51	3148	
25	Pollux W.	65 29 9	2885	67 1 47	2897	68 34 10	2909	70 6 18	2920	
	Regulus W.	28 58 55	2916	30 30 53	2926	32 2 39	2935	33 34 13	2944	
	Jupiter E.	33 57 24	2916	32 25 26	2929	30 53 44	2942	29 22 18	2955	
	Mars E.	53 17 58	3102	51 49 51	3115	50 22 0	3129	48 54 25	3141	
	Antares E.	71 12 41	2883	69 40 1	2895	68 7 36	2907	66 35 26	2919	
	Venus E.	84 17 53	3291	82 52 9	3305	81 26 41	3318	80 1 29	3332	
	Sun E.	128 36 10	3282	127 11 38	3294	125 47 20	3306	124 23 16	3319	
26	Pollux W.	77 43 29	2972	79 14 17	2981	80 44 54	2990	82 15 19	2998	
	Regulus W.	41 9 13	2989	42 39 39	2997	44 9 55	3005	45 40 2	3012	
	Jupiter E.	21 49 8	3018	20 19 17	3031	18 49 43	3046	17 20 27	3060	
	Mars E.	41 40 11	3200	40 14 2	3211	38 48 6	3222	37 22 23	3233	
	Antares E.	58 58 6	2970	57 27 16	2980	55 56 38	2989	54 26 12	2997	
	Venus E.	72 59 19	3325	71 35 36	3337	70 12 7	3348	68 48 51	3359	
	Sun E.	117 26 12	3372	116 3 23	3381	114 40 45	3391	113 18 18	3400	
27	Pollux W.	89 44 58	3034	91 14 28	3041	92 43 50	3046	94 13 6	3051	
	Regulus W.	53 8 22	3045	54 37 39	3051	56 6 49	3056	57 35 52	3061	
	Mars E.	30 16 52	3283	28 52 21	3293	27 28 1	3303	26 3 53	3313	
	Antares E.	46 56 28	3034	45 26 57	3039	43 57 33	3045	42 28 16	3051	
	Venus E.	61 55 33	3409	60 33 27	3418	59 11 31	3427	57 49 45	3436	
	Sun E.	106 28 23	3438	105 6 49	3444	103 45 22	3449	102 24 1	3454	
	28	Pollux W.	101 38 5	3069	103 6 52	3071	104 35 37	3072	106 4 21	3073
Regulus W.		64 59 54	3077	66 28 32	3079	67 57 7	3080	69 25 41	3081	
Antares E.		35 3 14	3068	33 34 25	3070	32 5 39	3072	30 36 55	3073	
Venus E.		51 3 10	3473	49 42 16	3480	48 21 29	3486	47 0 49	3492	
Sun E.		95 38 33	3472	94 17 38	3475	92 56 46	3477	91 35 56	3478	
29		Regulus W.	76 48 27	3078	78 17 4	3078	79 45 43	3073	81 14 25	3070
		Spica W.	22 45 49	3084	24 14 18	3080	25 42 52	3077	27 11 30	3073
	Antares E.	23 13 27	3073	21 44 44	3071	20 15 59	3069	18 47 11	3065	
	Venus E.	40 19 18	3325	38 59 21	3332	37 39 32	3339	36 19 51	3346	
	Sun E.	84 51 51	3475	83 30 59	3473	82 10 5	3470	80 49 7	3467	
	30	Regulus W.	88 39 2	3049	90 8 14	3043	91 37 34	3036	93 7 2	3030
		Spica W.	34 36 3	3047	36 5 18	3041	37 34 40	3034	39 4 10	3027
Jupiter W.		25 47 45	3074	27 16 26	3067	28 45 16	3060	30 11 15	3059	
Venus E.		29 43 56	3603	28 25 25	3621	27 7 13	3641	25 49 23	3663	
Sun E.		74 3 16	3444	72 41 49	3438	71 20 15	3431	69 58 34	3423	
31		Regulus W.	100 36 35	2980	102 7 0	2981	103 37 36	2972	105 8 24	2962
		Spica W.	46 34 3	2986	48 4 33	2977	49 35 15	2967	51 6 9	2958
	Jupiter W.	37 41 47	3007	39 11 51	2997	40 42 8	2987	42 12 37	2977	
	Sun E.	63 7 57	3382	61 45 20	3372	60 22 32	3363	58 59 33	3352	

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sideral Time of the Semi-diameter passing the Meridian.	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.					
		Apparent Right Ascension.			Diff. for 1 hour.	Apparent Declination.					Diff. for 1 hour.	Semi-diameter.			
		h	m	^s		^s	°						'	"	
Mon.	1	20	59	0.64	10.193	S. 17	7	38.8	+42.65	16	16.00	68.28	13	50.06	0.335
Tues.	2	21	3	4.86	10.160	16	50	26.1	43.40	16	15.85	68.17	13	57.71	0.302
Wed.	3	21	7	8.27	10.125	16	32	55.6	44.13	16	15.69	68.05	14	4.55	0.268
Thur.	4	21	11	10.88	10.091	16	15	7.7	44.84	16	15.53	67.94	14	10.58	0.234
Frid.	5	21	15	12.67	10.057	15	57	3.0	45.54	16	15.36	67.82	14	15.80	0.200
Sat.	6	21	19	13.64	10.023	15	38	41.9	46.21	16	15.19	67.71	14	20.21	0.166
Sun.	7	21	23	13.80	9.990	15	20	4.7	46.87	16	15.02	67.59	14	23.80	0.133
Mon.	8	21	27	13.15	9.956	15	1	12.0	47.51	16	14.85	67.48	14	26.59	0.099
Tues.	9	21	31	11.70	9.923	14	42	4.2	48.13	16	14.67	67.36	14	28.57	0.066
Wed.	10	21	35	9.44	9.890	14	22	41.8	48.74	16	14.49	67.25	14	29.75	+0.033
Thur.	11	21	39	6.37	9.857	14	3	5.0	49.33	16	14.31	67.14	14	30.13	0.000
Frid.	12	21	43	2.51	9.824	13	43	14.3	49.89	16	14.13	67.03	14	29.72	-0.033
Sat.	13	21	46	57.88	9.792	13	23	10.3	50.44	16	13.94	66.92	14	28.53	0.065
Sun.	14	21	50	52.48	9.759	13	2	53.5	50.96	16	13.75	66.81	14	26.58	0.097
Mon.	15	21	54	46.31	9.728	12	42	24.1	51.47	16	13.55	66.71	14	23.87	0.128
Tues.	16	21	58	39.39	9.697	12	21	42.5	51.96	16	13.35	66.61	14	20.41	0.159
Wed.	17	22	2	31.74	9.667	12	0	49.2	52.45	16	13.15	66.51	14	16.22	0.189
Thur.	18	22	6	23.38	9.638	11	39	44.7	52.91	16	12.94	66.41	14	11.32	0.218
Frid.	19	22	10	14.32	9.609	11	18	29.2	53.36	16	12.73	66.31	14	5.72	0.247
Sat.	20	22	14	4.59	9.581	10	57	3.2	53.79	16	12.51	66.21	13	59.44	0.275
Sun.	21	22	17	54.19	9.554	10	35	27.0	54.21	16	12.29	66.12	13	52.50	0.302
Mon.	22	22	21	43.14	9.528	10	13	41.1	54.61	16	12.07	66.02	13	44.92	0.328
Tues.	23	22	25	31.47	9.502	9	51	45.8	54.99	16	11.84	65.93	13	36.72	0.354
Wed.	24	22	29	19.20	9.477	9	29	41.6	55.36	16	11.61	65.84	13	27.92	0.379
Thur.	25	22	33	6.34	9.453	9	7	28.6	55.71	16	11.37	65.76	13	18.53	0.403
Frid.	26	22	36	52.91	9.430	8	45	7.4	56.05	16	11.13	65.67	13	8.58	0.426
Sat.	27	22	40	38.94	9.407	8	22	38.4	56.37	16	10.88	65.59	12	58.08	0.449
Sun.	28	22	44	24.43	9.385	8	0	2.0	56.67	16	10.64	65.51	12	47.05	0.471
Mon.	29	22	48	9.41	9.364	S. 7	37	18.5	+56.95	16	10.39	65.44	12	35.51	0.492

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0^s.19 from the Sideral Time.

+ prefixed to the hourly change of declination, indicates that north declinations are increasing, and south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be subtracted from Mean Time.	Diff. for 1 hour.	Sidereal Time or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
Mon.	1	h m s 20 58 58.28	s 10.192	S. 17° 7' 48.7"	+42.64	m s 13 49.98	s 0.335	h m s 20 45 8.30
Tues.	2	21 3 2.49	10.159	16 50 36.3	43.39	13 57.64	0.302	20 49 4.85
Wed.	3	21 7 5.89	10.125	16 33 6.0	44.12	14 4.48	0.268	20 53 1.41
Thur.	4	21 11 8.49	10.091	16 15 18.4	44.83	14 10.53	0.234	20 56 57.96
Frid.	5	21 15 10.28	10.057	15 57 13.9	45.53	14 15.76	0.200	21 0 54.52
Sat.	6	21 19 11.25	10.023	15 38 53.0	46.20	14 20.17	0.166	21 4 51.08
Sun.	7	21 23 11.41	9.990	15 20 16.0	46.86	14 23.77	0.133	21 8 47.64
Mon.	8	21 27 10.76	9.956	15 1 23.5	47.50	14 26.57	0.099	21 12 44.19
Tues.	9	21 31 9.31	9.923	14 42 15.9	48.12	14 29.56	0.066	21 16 40.75
Wed.	10	21 35 7.05	9.890	14 22 53.6	48.73	14 29.75	+0.033	21 20 37.30
Thur.	11	21 39 3.99	9.857	14 3 16.9	49.32	14 30.13	0.000	21 24 33.86
Frid.	12	21 43 0.14	9.824	13 43 26.3	49.88	14 29.73	-0.033	21 28 30.41
Sat.	13	21 46 55.52	9.792	13 23 22.5	50.43	14 28.55	0.065	21 32 26.97
Sun.	14	21 50 50.13	9.760	13 3 5.7	50.96	14 26.61	0.097	21 36 23.52
Mon.	15	21 54 43.98	9.729	12 42 36.3	51.47	14 23.90	0.128	21 40 20.08
Tues.	16	21 58 37.08	9.698	12 21 54.9	51.96	14 20.45	0.150	21 44 16.63
Wed.	17	22 2 29.45	9.668	12 1 1.7	52.45	14 16.26	0.189	21 48 13.19
Thur.	18	22 6 21.11	9.639	11 39 57.2	52.91	14 11.37	0.218	21 52 9.74
Frid.	19	22 10 12.07	9.610	11 18 41.7	53.36	14 5.77	0.247	21 56 6.30
Sat.	20	22 14 2.36	9.582	10 57 15.7	53.79	13 59.51	0.275	22 0 2.85
Sun.	21	22 17 51.98	9.555	10 35 39.5	54.21	13 52.57	0.302	22 3 59.41
Mon.	22	22 21 40.96	9.529	10 13 53.6	54.61	13 45.00	0.328	22 7 55.96
Tues.	23	22 25 29.32	9.503	9 51 58.2	54.99	13 36.80	0.354	22 11 52.52
Wed.	24	22 29 17.08	9.478	9 29 53.9	55.36	13 28.01	0.379	22 15 49.07
Thur.	25	22 33 4.25	9.454	9 7 40.9	55.71	13 18.62	0.403	22 19 45.63
Frid.	26	22 36 50.85	9.431	8 45 19.7	56.05	13 8.67	0.426	22 23 42.18
Sat.	27	22 40 36.91	9.408	8 22 50.6	56.37	12 58.17	0.449	22 27 38.74
Sun.	28	22 44 22.44	9.386	8 0 14.1	56.67	12 47.15	0.471	22 31 35.29
Mon.	29	22 48 7.46	9.365	S. 7° 37' 30.4"	+56.96	12 35.61	0.492	22 35 31.85

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

Diff. for 1 hour.

+9°.8565

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S					Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE.				
		λ	λ'						
1	32	312° 16' 53.0"	16' 53.3"	152.20	-0.39	9.9937255	+28.6	h m s 3 14 19.78	
2	33	313 17 45.4	17 45.5	152.16	0.44	.9937948	29.3	3 10 23.87	
3	34	314 18 36.8	18 36.8	152.12	0.48	.9938656	29.7	3 6 27.96	
4	35	315 19 27.2	19 27.1	152.08	0.48	.9939378	30.2	3 2 32.05	
5	36	316 20 16.5	20 16.3	152.03	0.45	.9940112	30.7	2 58 36.14	
6	37	317 21 4.6	21 4.3	151.98	0.39	.9940857	31.2	2 54 40.23	
7	38	318 21 51.3	21 50.9	151.92	0.30	.9941614	31.7	2 50 44.32	
8	39	319 22 36.6	22 36.0	151.86	0.20	.9942383	32.2	2 46 48.41	
9	40	320 23 20.4	23 19.6	151.79	-0.08	.9943163	32.7	2 42 52.50	
10	41	321 24 2.7	24 1.8	151.73	+0.06	.9943956	33.3	2 38 56.59	
11	42	322 24 43.4	24 42.4	151.66	0.19	.9944763	33.9	2 35 0.68	
12	43	323 25 22.4	25 21.3	151.59	0.31	.9945585	34.5	2 31 4.77	
13	44	324 25 59.7	25 58.4	151.52	0.43	.9946423	35.2	2 27 8.86	
14	45	325 26 35.2	26 33.7	151.45	0.54	.9947277	35.9	2 23 12.95	
15	46	326 27 9.0	27 7.4	151.37	0.60	.9948148	36.7	2 19 17.04	
16	47	327 27 41.0	27 39.3	151.30	0.64	.9949037	37.4	2 15 21.13	
17	48	328 28 11.2	28 9.4	151.22	0.66	.9949944	38.1	2 11 25.22	
18	49	329 28 39.7	28 37.7	151.15	0.63	.9950871	38.9	2 7 29.31	
19	50	330 29 6.4	29 4.2	151.08	0.59	.9951818	39.8	2 3 33.41	
20	51	331 29 31.4	29 29.1	151.01	0.51	.9952785	40.6	1 59 37.50	
21	52	332 29 54.8	29 52.4	150.94	0.42	.9953772	41.5	1 55 41.58	
22	53	333 30 16.6	30 14.1	150.87	0.30	.9954779	42.3	1 51 45.67	
23	54	334 30 36.8	30 34.2	150.81	0.17	.9955805	43.1	1 47 49.76	
24	55	335 30 55.5	30 52.7	150.74	+0.04	.9956849	43.8	1 43 53.86	
25	56	336 31 12.6	31 9.7	150.68	-0.09	.9957909	44.4	1 39 57.95	
26	57	337 31 28.3	31 25.3	150.62	0.22	.9958984	45.0	1 36 2.04	
27	58	338 31 42.5	31 39.4	150.56	0.33	.9960073	45.6	1 32 6.12	
28	59	339 31 55.2	31 52.0	150.50	0.43	.9961174	46.1	1 28 10.22	
29	60	340 32 6.5	32 3.2	150.44	-0.49	9.9962286	+46.5	1 24 14.31	

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 0d.

Diff. for 1 hour.

-9°.8296

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.

	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.
							h m	m	d
1	14 59.8	15 3.9	54 55.7	+1.15	55 10.5	+1.31	20 50.9	2.25	24.8
2	15 8.4	15 13.3	55 27.1	1.44	55 45.1	1.55	21 45.9	2.32	25.8
3	15 18.5	15 23.9	56 4.1	1.63	56 24.0	1.67	22 41.7	2.32	26.8
4	15 29.4	15 34.9	56 44.2	1.69	57 4.5	1.68	23 36.7	2.25	27.8
5	15 40.3	15 45.5	57 24.3	1.63	57 43.4	1.55	6		
6	15 50.4	15 54.9	58 1.5	1.45	58 18.1	1.32	0 29.7	2.16	0.2
7	15 59.0	16 2.6	58 33.1	1.17	58 46.1	1.01	1 20.3	2.06	1.2
8	16 5.6	16 8.0	58 57.2	0.84	59 6.2	0.66	2 9.0	2.00	2.2
9	16 9.9	16 11.3	59 13.2	0.49	59 18.1	0.33	2 56.7	1.98	3.2
10	16 12.1	16 12.4	59 21.1	+0.17	59 22.3	+0.03	3 44.7	2.02	4.2
11	16 12.3	16 11.7	59 21.8	-0.10	59 19.8	-0.21	4 34.2	2.11	5.2
12	16 10.9	16 9.6	59 16.6	0.32	59 12.1	0.41	5 26.4	2.25	6.2
13	16 8.1	16 6.4	59 6.6	0.50	59 0.1	0.58	6 22.2	2.40	7.2
14	16 4.4	16 2.1	58 52.7	0.65	58 44.5	0.72	7 21.2	2.52	8.2
15	15 59.7	15 57.0	58 35.4	0.79	58 25.5	0.86	8 22.3	2.55	9.2
16	15 54.0	15 50.9	58 14.7	0.93	58 3.1	1.00	9 23.1	2.49	10.2
17	15 47.5	15 43.8	57 50.6	1.07	57 37.3	1.14	10 21.2	2.34	11.2
18	15 40.0	15 36.0	57 23.3	1.20	57 8.5	1.25	11 15.1	2.15	12.2
19	15 31.8	15 27.5	56 53.2	1.30	56 37.4	1.33	12 4.5	1.97	13.2
20	15 23.2	15 18.8	56 21.4	1.34	56 5.3	1.34	12 50.1	1.83	14.2
21	15 14.4	15 10.2	55 49.3	1.32	55 33.8	1.27	13 32.7	1.73	15.2
22	15 6.1	15 2.3	55 18.9	1.21	55 4.9	1.12	14 13.6	1.68	16.2
23	14 58.8	14 55.7	54 52.0	1.01	54 40.6	0.88	14 53.9	1.68	17.2
24	14 53.1	14 50.9	54 30.8	0.74	54 22.9	0.57	15 34.7	1.72	18.2
25	14 49.3	14 48.3	54 17.1	0.40	54 13.5	0.21	16 16.9	1.80	19.2
26	14 48.0	14 48.3	54 12.2	-0.01	54 13.4	+0.20	17 1.5	1.92	20.2
27	14 49.3	14 51.0	54 17.1	+0.42	54 23.4	0.63	17 49.0	2.05	21.2
28	14 53.5	14 56.6	54 32.3	0.85	54 43.8	1.06	18 39.7	2.17	22.2
29	15 0.4	15 4.9	54 57.8	+1.27	55 14.2	+1.46	19 33.0	2.26	23.2

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 1.					WEDNESDAY 3.				
0	h m s	s	S. 26° 41' 10.7"	5.104	0	h m s	s	S. 28° 3' 34.7"	1.996
1	16 54 0.21	2.2435	26 46 13.1	4.975	1	18 43 53.35	2.4008	28 1 34.4	2.085
2	16 56 14.97	2.2486	26 51 7.7	4.846	2	18 46 17.43	2.4018	27 59 24.5	2.244
3	16 58 30.04	2.2535	26 55 54.6	4.716	3	18 48 41.57	2.4027	27 57 5.1	2.403
4	17 0 45.40	2.2584	27 0 33.7	4.585	4	18 51 5.76	2.4035	27 54 36.1	2.563
5	17 3 1.05	2.2633	27 5 4.8	4.453	5	18 53 29.99	2.4042	27 51 36.1	2.732
6	17 5 17.00	2.2682	27 9 28.0	4.320	6	18 55 54.26	2.4048	27 51 57.5	2.893
7	17 7 33.24	2.2730	27 13 43.2	4.186	7	18 58 18.57	2.4053	27 49 9.4	3.043
8	17 9 49.76	2.2777	27 17 50.3	4.051	8	19 0 42.90	2.4056	27 46 11.6	3.202
9	17 12 6.56	2.2824	27 21 49.3	3.916	9	19 3 7.24	2.4058	27 43 4.3	3.362
10	17 14 23.64	2.2870	27 25 40.2	3.779	10	19 5 31.60	2.4060	27 39 47.4	3.522
11	17 16 41.00	2.2916	27 29 22.8	3.642	11	19 7 55.96	2.4060	27 36 20.9	3.681
12	17 18 58.63	2.2961	27 32 57.2	3.504	12	19 10 20.32	2.4060	27 32 44.8	3.840
13	17 21 16.53	2.3005	27 36 23.3	3.365	13	19 12 44.68	2.4058	27 28 59.2	4.000
14	17 23 34.69	2.3049	27 39 41.0	3.224	14	19 15 9.02	2.4055	27 25 4.0	4.159
15	17 25 53.11	2.3092	27 42 50.2	3.083	15	19 17 33.34	2.4051	27 20 59.2	4.318
16	17 28 11.79	2.3133	27 45 51.0	2.942	16	19 19 57.63	2.4046	27 16 44.9	4.478
17	17 30 30.71	2.3174	27 48 43.2	2.799	17	19 22 21.89	2.4039	27 12 21.0	4.637
18	17 32 49.88	2.3215	27 51 26.9	2.656	18	19 24 46.10	2.4032	27 7 47.5	4.795
19	17 35 9.29	2.3255	27 54 2.0	2.513	19	19 27 10.27	2.4024	27 3 4.6	4.954
20	17 37 28.94	2.3294	27 56 28.4	2.368	20	19 29 34.39	2.4015	26 58 12.2	5.113
21	17 39 48.82	2.3333	27 58 46.1	2.223	21	19 31 58.45	2.4004	26 53 10.2	5.269
22	17 42 8.93	2.3370	28 0 55.1	2.077	22	19 34 22.44	2.3993	26 47 58.8	5.427
23	17 44 29.26	2.3407	S. 28° 2' 55.3"	1.929	23	19 36 46.36	2.3981	26 42 37.9	5.584
24					24	19 39 10.21	2.3968	S. 26° 37' 7.6"	
TUESDAY 2.					THURSDAY 4.				
0	17 46 49.81	2.3443	S. 28° 4' 46.6"	1.781	0	19 41 33.98	2.3954	S. 26° 31' 27.8"	5.741
1	17 49 10.57	2.3477	28 6 20.0	1.633	1	19 43 57.66	2.3938	26 25 38.6	5.896
2	17 51 31.53	2.3511	28 8 2.5	1.484	2	19 46 21.24	2.3922	26 19 40.1	6.053
3	17 53 52.70	2.3545	28 9 27.1	1.335	3	19 48 44.72	2.3905	26 13 32.3	6.208
4	17 56 14.07	2.3577	28 10 42.7	1.184	4	19 51 8.10	2.3887	26 7 15.2	6.363
5	17 58 35.62	2.3608	28 11 49.2	1.033	5	19 53 31.37	2.3868	26 0 48.8	6.518
6	18 0 57.36	2.3638	28 12 46.7	0.882	6	19 55 54.52	2.3848	25 54 13.1	6.673
7	18 3 19.28	2.3668	28 13 35.1	0.730	7	19 58 17.55	2.3828	25 47 28.2	6.825
8	18 5 41.37	2.3696	28 14 14.3	0.577	8	20 0 40.45	2.3807	25 40 34.2	6.977
9	18 8 3.63	2.3723	28 14 44.3	0.424	9	20 3 3.23	2.3785	25 33 31.0	7.129
10	18 10 26.05	2.3749	28 15 5.1	0.270	10	20 5 25.87	2.3762	25 26 18.7	7.281
11	18 12 48.62	2.3775	28 15 16.7	-0.116	11	20 7 48.37	2.3738	25 18 57.3	7.433
12	18 15 11.35	2.3800	28 15 19.0	+0.039	12	20 10 10.72	2.3713	25 11 26.8	7.583
13	18 17 34.22	2.3823	28 15 12.0	0.194	13	20 12 32.93	2.3688	25 3 47.3	7.733
14	18 19 57.22	2.3845	28 14 55.7	0.350	14	20 14 54.98	2.3662	24 55 58.9	7.881
15	18 22 20.35	2.3866	28 14 30.0	0.506	15	20 17 16.87	2.3635	24 48 1.6	8.029
16	18 24 43.61	2.3886	28 13 55.0	0.662	16	20 19 38.60	2.3608	24 39 55.4	8.177
17	18 27 6.98	2.3905	28 13 10.6	0.819	17	20 22 0.16	2.3579	24 31 40.4	8.323
18	18 29 30.47	2.3923	28 12 16.7	0.976	18	20 24 21.55	2.3550	24 23 16.7	8.468
19	18 31 54.06	2.3940	28 11 13.4	1.134	19	20 26 42.76	2.3521	24 14 44.2	8.613
20	18 34 17.75	2.3956	28 10 0.6	1.292	20	20 29 3.80	2.3492	24 6 3.1	8.758
21	18 36 41.53	2.3970	28 8 38.4	1.450	21	20 31 24.66	2.3461	23 57 13.3	8.909
22	18 39 5.39	2.3983	28 7 6.7	1.608	22	20 33 45.33	2.3430	23 48 14.9	9.044
23	18 41 29.33	2.3996	28 5 25.5	1.767	23	20 36 5.82	2.3399	23 39 8.0	9.185
24	18 43 53.35	2.4008	S. 28° 3' 34.7"	1.926	24	20 38 26.12	2.3367	S. 23° 29' 52.7"	9.326

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 5.					SUNDAY 7.				
0	20 38 26.12	2.3367	S. 23 29 52.7	9.326	0	22 26 26.74	2.1646	S. 13 41 19.7	14.712
1	20 40 46.22	2.3334	23 20 28.9	9.466	1	22 28 36.52	2.1615	13 26 34.6	14.791
2	20 43 6.12	2.3301	23 10 56.8	9.605	2	22 30 46.12	2.1584	13 11 44.8	14.869
3	20 45 25.83	2.3268	23 1 16.4	9.743	3	22 32 55.53	2.1553	12 56 50.3	14.946
4	20 47 45.33	2.3233	22 51 27.7	9.879	4	22 35 4.76	2.1523	12 41 51.3	15.021
5	20 50 4.62	2.3198	22 41 30.9	10.014	5	22 37 13.81	2.1494	12 26 47.8	15.094
6	20 52 23.71	2.3164	22 31 26.0	10.149	6	22 39 22.69	2.1465	12 11 40.0	15.166
7	20 54 42.59	2.3129	22 21 13.0	10.283	7	22 41 31.39	2.1436	11 56 27.9	15.237
8	20 57 1.26	2.3093	22 10 52.0	10.416	8	22 43 39.92	2.1408	11 41 11.6	15.305
9	20 59 19.71	2.3058	22 0 23.1	10.548	9	22 45 48.29	2.1381	11 25 51.3	15.379
10	21 1 37.95	2.3022	21 49 46.3	10.678	10	22 47 56.49	2.1354	11 10 27.0	15.438
11	21 3 55.97	2.2986	21 39 1.7	10.808	11	22 50 4.54	2.1328	10 54 58.7	15.503
12	21 6 13.78	2.2950	21 28 9.4	10.936	12	22 52 12.43	2.1303	10 39 26.6	15.567
13	21 8 31.37	2.2913	21 17 9.4	11.063	13	22 54 20.17	2.1278	10 23 50.7	15.628
14	21 10 48.73	2.2875	21 6 1.8	11.189	14	22 56 27.76	2.1253	10 8 11.2	15.689
15	21 13 5.87	2.2838	20 54 46.7	11.314	15	22 58 35.20	2.1229	9 52 28.1	15.748
16	21 15 22.79	2.2801	20 43 24.1	11.438	16	23 0 42.50	2.1206	9 36 41.5	15.805
17	21 17 39.48	2.2763	20 31 54.2	11.560	17	23 2 49.67	2.1183	9 20 51.5	15.860
18	21 19 55.94	2.2725	20 20 17.0	11.681	18	23 4 56.70	2.1161	9 4 58.3	15.914
19	21 22 12.18	2.2688	20 8 32.5	11.801	19	23 7 3.60	2.1140	8 49 1.9	15.967
20	21 24 28.20	2.2651	19 56 40.9	11.920	20	23 9 10.38	2.1119	8 33 2.3	16.018
21	21 26 43.99	2.2613	19 44 42.1	12.038	21	23 11 17.03	2.1099	8 16 59.7	16.068
22	21 28 59.55	2.2575	19 32 36.3	12.154	22	23 13 23.57	2.1080	8 0 54.2	16.116
23	21 31 14.89	2.2537	S. 19 20 23.6	12.269	23	23 15 30.00	2.1069	S. 7 44 45.8	16.163
SATURDAY 6.					MONDAY 8.				
0	21 33 30.00	2.2499	S. 19 8 4.0	12.383	0	23 17 36.31	2.1044	S. 7 28 34.6	16.208
1	21 35 44.88	2.2462	18 55 37.6	12.496	1	23 19 42.52	2.1027	7 12 20.8	16.252
2	21 37 59.54	2.2424	18 43 4.5	12.608	2	23 21 48.63	2.1010	6 56 4.4	16.293
3	21 40 13.97	2.2386	18 30 24.7	12.718	3	23 23 54.64	2.0994	6 39 45.6	16.333
4	21 42 28.18	2.2349	18 17 38.4	12.826	4	23 26 0.56	2.0979	6 23 24.4	16.373
5	21 44 42.16	2.2312	18 4 45.6	12.933	5	23 28 6.39	2.0964	6 7 0.9	16.411
6	21 46 55.92	2.2275	17 51 46.4	13.039	6	23 30 12.13	2.0951	5 50 35.1	16.447
7	21 49 9.46	2.2237	17 38 40.9	13.144	7	23 32 17.80	2.0938	5 34 7.2	16.481
8	21 51 22.77	2.2200	17 25 29.1	13.247	8	23 34 23.39	2.0926	5 17 37.4	16.513
9	21 53 35.86	2.2163	17 12 11.2	13.349	9	23 36 28.91	2.0914	5 1 5.6	16.545
10	21 55 48.73	2.2127	16 58 47.2	13.450	10	23 38 34.36	2.0904	4 44 32.0	16.575
11	21 58 1.38	2.2091	16 45 17.2	13.549	11	23 40 39.76	2.0895	4 27 56.6	16.604
12	22 0 13.82	2.2055	16 31 41.3	13.647	12	23 42 45.10	2.0885	4 11 19.5	16.631
13	22 2 26.04	2.2019	16 17 59.6	13.744	13	23 44 50.38	2.0877	3 54 40.9	16.656
14	22 4 38.05	2.1983	16 4 12.1	13.839	14	23 46 55.62	2.0870	3 38 0.8	16.680
15	22 6 49.84	2.1948	15 50 18.9	13.932	15	23 49 0.82	2.0863	3 21 19.3	16.702
16	22 9 1.42	2.1913	15 36 20.2	14.024	16	23 51 5.98	2.0856	3 4 36.5	16.723
17	22 11 12.79	2.1878	15 22 16.0	14.116	17	23 53 11.11	2.0853	2 47 52.5	16.743
18	22 13 23.96	2.1844	15 8 6.3	14.206	18	23 55 16.21	2.0848	2 31 7.4	16.760
19	22 15 34.92	2.1810	14 53 51.3	14.293	19	23 57 21.29	2.0845	2 14 21.3	16.776
20	22 17 45.68	2.1776	14 39 31.1	14.379	20	23 59 26.35	2.0842	1 57 34.3	16.791
21	22 19 56.24	2.1743	14 25 5.8	14.464	21	0 1 31.39	2.0840	1 40 46.4	16.804
22	22 22 6.60	2.1711	14 10 35.4	14.548	22	0 3 36.43	2.0840	1 23 57.8	16.816
23	22 24 16.77	2.1678	13 56 0.0	14.631	23	0 5 41.47	2.0839	1 7 8.5	16.826
24	22 26 26.74	2.1646	S. 13 41 19.7	14.712	24	0 7 46.50	2.0840	S. 0 50 18.6	16.835

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 9.					THURSDAY 11.				
0	0 7 46.50	2.0840	S. 0° 50' 18.6"	16.835	0	1 49 28.91	2.1856	N. 12° 18' 25.7"	15.433
1	0 9 51.54	2.0843	0 33 28.3	16.842	1	1 51 40.17	2.1897	12 33 49.7	15.366
2	0 11 56.60	2.0844	S. 0 16 37.6	16.848	2	1 53 51.67	2.1938	12 49 9.6	15.298
3	0 14 1.67	2.0847	N. 0 0 13.4	16.852	3	1 56 3.42	2.1979	13 4 25.4	15.228
4	0 16 6.76	2.0851	0 17 4.6	16.854	4	1 58 15.42	2.2022	13 19 36.9	15.155
5	0 18 11.88	2.0856	0 33 55.9	16.854	5	2 0 27.69	2.2066	13 34 44.0	15.080
6	0 20 17.03	2.0862	0 50 47.1	16.853	6	2 2 40.22	2.2110	13 49 46.5	15.004
7	0 22 22.22	2.0868	1 7 38.3	16.851	7	2 4 53.01	2.2155	14 4 44.5	14.927
8	0 24 27.45	2.0875	1 24 29.3	16.848	8	2 7 6.08	2.2201	14 19 37.8	14.849
9	0 26 32.72	2.0883	1 41 20.1	16.843	9	2 9 19.42	2.2247	14 34 26.4	14.769
10	0 28 38.05	2.0893	1 58 10.5	16.837	10	2 11 33.04	2.2293	14 49 10.1	14.688
11	0 30 43.44	2.0903	2 15 0.5	16.828	11	2 13 46.94	2.2340	15 3 48.9	14.604
12	0 32 48.88	2.0913	2 31 49.9	16.818	12	2 16 1.12	2.2388	15 18 22.6	14.519
13	0 34 54.39	2.0925	2 48 38.7	16.807	13	2 18 15.59	2.2437	15 32 51.2	14.433
14	0 36 59.98	2.0937	3 5 26.8	16.794	14	2 20 30.36	2.2486	15 47 14.5	14.344
15	0 39 5.64	2.0950	3 22 14.0	16.779	15	2 22 45.42	2.2535	16 1 32.5	14.254
16	0 41 11.38	2.0965	3 39 0.3	16.764	16	2 25 0.78	2.2585	16 15 45.0	14.163
17	0 43 17.22	2.0980	3 55 45.6	16.747	17	2 27 16.44	2.2635	16 29 52.0	14.070
18	0 45 23.15	2.0996	4 12 29.9	16.728	18	2 29 32.40	2.2686	16 43 53.4	13.976
19	0 47 29.17	2.1013	4 29 13.0	16.707	19	2 31 48.67	2.2738	16 57 49.1	13.879
20	0 49 35.30	2.1031	4 45 54.8	16.684	20	2 34 5.25	2.2790	17 11 38.9	13.781
21	0 51 41.54	2.1049	5 2 35.1	16.660	21	2 36 22.15	2.2843	17 25 22.8	13.689
22	0 53 47.89	2.1068	5 19 14.0	16.635	22	2 38 39.36	2.2895	17 39 0.7	13.581
23	0 55 54.35	2.1088	N. 5 35 51.3	16.608	23	2 40 56.89	2.2948	N. 17 52 32.5	13.479
WEDNESDAY 10.					FRIDAY 12.				
0	0 58 0.94	2.1109	N. 5 52 27.0	16.580	0	2 43 14.73	2.3001	N. 18 5 58.2	13.375
1	1 0 7.66	2.1131	6 9 0.9	16.550	1	2 45 32.90	2.3055	18 19 17.6	13.269
2	1 2 14.51	2.1153	6 25 33.0	16.519	2	2 47 51.40	2.3109	18 32 30.5	13.161
3	1 4 21.50	2.1177	6 42 3.2	16.487	3	2 50 10.22	2.3164	18 45 36.9	13.052
4	1 6 28.63	2.1201	6 58 31.4	16.453	4	2 52 29.37	2.3219	18 58 36.8	12.942
5	1 8 35.91	2.1227	7 14 57.5	16.416	5	2 54 48.85	2.3274	19 11 30.0	12.830
6	1 10 43.35	2.1253	7 31 21.3	16.378	6	2 57 8.66	2.3329	19 24 16.4	12.717
7	1 12 50.94	2.1279	7 47 42.8	16.338	7	2 59 28.80	2.3385	19 36 56.0	12.602
8	1 14 58.70	2.1306	8 4 1.9	16.298	8	3 1 49.28	2.3442	19 49 28.6	12.485
9	1 17 6.62	2.1334	8 20 18.6	16.257	9	3 4 10.10	2.3498	20 1 54.1	12.366
10	1 19 14.71	2.1364	8 36 32.7	16.213	10	3 6 31.26	2.3554	20 14 12.5	12.246
11	1 21 22.99	2.1395	8 52 44.1	16.167	11	3 8 52.75	2.3610	20 26 23.6	12.124
12	1 23 31.45	2.1426	9 8 52.7	16.120	12	3 11 14.58	2.3667	20 38 27.4	12.002
13	1 25 40.10	2.1457	9 24 58.5	16.071	13	3 13 36.75	2.3723	20 50 23.8	11.878
14	1 27 48.94	2.1489	9 41 1.3	16.021	14	3 15 59.26	2.3780	21 2 12.7	11.751
15	1 29 57.97	2.1523	9 57 1.0	15.970	15	3 18 22.11	2.3836	21 13 53.9	11.622
16	1 32 7.21	2.1557	10 12 57.6	15.917	16	3 20 45.30	2.3893	21 25 27.4	11.493
17	1 34 16.65	2.1591	10 28 51.0	15.862	17	3 23 8.83	2.3949	21 36 53.1	11.363
18	1 36 26.30	2.1627	10 44 41.0	15.805	18	3 25 32.69	2.4006	21 48 11.0	11.232
19	1 38 36.17	2.1663	11 0 27.6	15.747	19	3 27 56.90	2.4062	21 59 20.9	11.098
20	1 40 46.26	2.1700	11 16 10.7	15.688	20	3 30 21.44	2.4118	22 10 22.7	10.969
21	1 42 56.58	2.1738	11 31 50.1	15.626	21	3 32 46.32	2.4175	22 21 16.3	10.835
22	1 45 7.12	2.1776	11 47 25.8	15.563	22	3 35 11.54	2.4232	22 32 1.7	10.687
23	1 47 17.89	2.1816	12 2 57.7	15.499	23	3 37 37.10	2.4288	22 42 38.7	10.547
24	1 49 28.91	2.1856	N. 12 18 25.7	15.433	24	3 40 2.99	2.4343	N. 22 53 7.3	10.406

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 13.					MONDAY 15.				
0	3 40 2.99	2.4343	N.22° 53' 7.3	10.406	0	5 42 8.12	2.6143	N.28° 6' 26.0	2.279
1	3 42 29.21	2.4398	23 3 27.4	10.263	1	5 44 45.00	2.6150	28 8 37.1	2.092
2	3 44 55.77	2.4454	23 13 38.9	10.120	2	5 47 21.92	2.6157	28 10 37.0	1.904
3	3 47 22.66	2.4509	23 23 41.8	9.975	3	5 49 58.88	2.6162	28 12 25.6	1.717
4	3 49 49.88	2.4563	23 33 35.9	9.829	4	5 52 35.86	2.6165	28 14 3.0	1.529
5	3 52 17.42	2.4617	23 43 21.1	9.679	5	5 55 12.85	2.6166	28 15 29.1	1.342
6	3 54 45.28	2.4671	23 52 57.4	9.530	6	5 57 49.85	2.6165	28 16 44.0	1.154
7	3 57 13.47	2.4724	24 2 24.7	9.379	7	6 0 26.84	2.6163	28 17 47.6	0.967
8	3 59 41.97	2.4777	24 11 42.9	9.227	8	6 3 3.81	2.6160	28 18 40.0	0.779
9	4 2 10.79	2.4829	24 20 51.9	9.073	9	6 5 40.76	2.6155	28 19 21.1	0.592
10	4 4 39.92	2.4881	24 29 51.6	8.918	10	6 8 17.67	2.6148	28 19 51.0	0.404
11	4 7 9.36	2.4933	24 38 42.0	8.762	11	6 10 54.54	2.6140	28 20 9.6	0.217
12	4 9 39.11	2.4983	24 47 23.0	8.604	12	6 13 31.36	2.6130	28 20 17.0	+0.030
13	4 12 9.16	2.5033	24 55 54.5	8.446	13	6 16 8.11	2.6118	28 20 13.2	-0.157
14	4 14 39.51	2.5083	25 4 16.5	8.286	14	6 18 44.78	2.6105	28 19 58.2	0.344
15	4 17 10.15	2.5132	25 12 28.8	8.124	15	6 21 21.38	2.6091	28 19 32.0	0.530
16	4 19 41.08	2.5180	25 20 31.4	7.962	16	6 23 57.88	2.6075	28 18 54.6	0.716
17	4 22 12.29	2.5226	25 28 24.2	7.798	17	6 26 34.28	2.6057	28 18 6.1	0.901
18	4 24 43.79	2.5273	25 36 7.1	7.633	18	6 29 10.57	2.6038	28 17 6.5	1.086
19	4 27 15.56	2.5318	25 43 40.1	7.467	19	6 31 46.74	2.6017	28 15 55.8	1.271
20	4 29 47.60	2.5362	25 51 3.1	7.300	20	6 34 22.77	2.5994	28 14 34.0	1.456
21	4 32 19.90	2.5405	25 58 16.1	7.132	21	6 36 58.67	2.5971	28 13 1.1	1.639
22	4 34 52.46	2.5448	26 5 19.0	6.963	22	6 39 34.42	2.5944	28 11 17.3	1.822
23	4 37 25.28	2.5491	N.26° 12' 11.7	6.793	23	6 42 10.01	2.5917	N.28° 9' 22.5	2.005
SUNDAY 14.					TUESDAY 16.				
0	4 39 58.35	2.5539	N.26° 18' 54.1	6.621	0	6 44 45.43	2.5898	N.28° 7' 16.7	2.187
1	4 42 31.66	2.5571	26 25 26.2	6.449	1	6 47 20.67	2.5858	28 5 0.0	2.368
2	4 45 5.20	2.5609	26 31 48.0	6.276	2	6 49 55.73	2.5897	28 2 32.5	2.548
3	4 47 38.97	2.5647	26 37 59.3	6.102	3	6 52 30.60	2.5794	27 59 54.2	2.739
4	4 50 12.97	2.5684	26 44 0.2	5.926	4	6 55 5.26	2.5759	27 57 5.1	2.907
5	4 52 47.18	2.5719	26 49 50.5	5.750	5	6 57 39.71	2.5734	27 54 5.3	3.086
6	4 55 21.60	2.5753	26 55 30.2	5.573	6	7 0 13.95	2.5687	27 50 54.8	3.263
7	4 57 56.22	2.5786	27 0 59.3	5.396	7	7 2 47.96	2.5648	27 47 33.7	3.440
8	5 0 31.03	2.5819	27 6 17.7	5.217	8	7 5 21.73	2.5607	27 44 2.0	3.616
9	5 3 6.04	2.5850	27 11 25.4	5.038	9	7 7 55.25	2.5566	27 40 19.8	3.790
10	5 5 41.23	2.5879	27 16 22.3	4.858	10	7 10 28.52	2.5523	27 36 27.2	3.964
11	5 8 16.58	2.5906	27 21 8.3	4.677	11	7 13 1.53	2.5480	27 32 24.1	4.137
12	5 10 52.10	2.5933	27 25 43.5	4.496	12	7 15 34.28	2.5435	27 28 10.7	4.309
13	5 13 27.78	2.5958	27 30 7.8	4.314	13	7 18 6.75	2.5388	27 23 47.0	4.480
14	5 16 3.60	2.5983	27 34 21.1	4.131	14	7 20 38.94	2.5340	27 19 13.1	4.650
15	5 18 39.57	2.6006	27 38 23.5	3.948	15	7 23 10.84	2.5291	27 14 29.0	4.819
16	5 21 15.67	2.6027	27 42 14.9	3.764	16	7 25 42.44	2.5241	27 9 34.8	4.987
17	5 23 51.89	2.6046	27 45 55.2	3.579	17	7 28 13.74	2.5190	27 4 30.6	5.153
18	5 26 28.22	2.6064	27 49 24.4	3.394	18	7 30 44.73	2.5138	26 59 16.4	5.318
19	5 29 4.66	2.6081	27 52 42.5	3.209	19	7 33 15.40	2.5085	26 53 52.4	5.483
20	5 31 41.19	2.6097	27 55 49.5	3.024	20	7 35 45.75	2.5032	26 48 18.5	5.648
21	5 34 17.82	2.6111	27 58 45.4	2.838	21	7 38 15.78	2.4977	26 42 34.9	5.807
22	5 36 54.52	2.6123	28 1 30.1	2.652	22	7 40 45.47	2.4920	26 36 41.7	5.967
23	5 39 31.29	2.6133	28 4 3.6	2.466	23	7 43 14.82	2.4863	26 30 38.8	6.127
24	5 42 8.12	2.6143	N.28° 6' 26.0	2.279	24	7 45 43.83	2.4805	N.26° 24' 26.4	6.285

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 17.					FRIDAY 19.				
0	7 45 43.83	2.4805	N.26° 24' 26.4"	6.285	0	9 37 6.03	2.1533	N.18° 48' 32.9"	12.117
1	7 48 12.48	2.4746	26 18 4.6	6.442	1	9 39 15.03	2.1465	18 36 23.4	12.200
2	7 50 40.77	2.4686	26 11 33.4	6.597	2	9 41 23.62	2.1398	18 24 9.0	12.281
3	7 53 8.71	2.4625	26 4 52.9	6.751	3	9 43 31.81	2.1332	18 11 49.7	12.362
4	7 55 36.28	2.4563	25 58 3.3	6.904	4	9 45 39.60	2.1266	17 59 25.6	12.441
5	7 58 3.48	2.4501	25 51 4.5	7.055	5	9 47 47.00	2.1200	17 46 56.8	12.518
6	8 0 30.30	2.4438	25 43 56.7	7.204	6	9 49 54.01	2.1135	17 34 23.5	12.593
7	8 2 56.74	2.4374	25 36 40.0	7.353	7	9 52 0.62	2.1070	17 21 45.7	12.667
8	8 5 22.80	2.4310	25 29 14.4	7.500	8	9 54 6.85	2.1006	17 9 3.5	12.740
9	8 7 48.47	2.4246	25 21 40.0	7.645	9	9 56 12.69	2.0942	16 56 16.9	12.812
10	8 10 13.75	2.4180	25 13 57.0	7.789	10	9 58 18.15	2.0878	16 43 26.1	12.882
11	8 12 38.63	2.4114	25 6 5.3	7.932	11	10 0 23.23	2.0815	16 30 31.1	12.950
12	8 15 3.11	2.4047	24 58 5.1	8.073	12	10 2 27.94	2.0753	16 17 32.1	13.016
13	8 17 27.19	2.3980	24 49 56.5	8.212	13	10 4 32.27	2.0692	16 4 20.1	13.082
14	8 19 50.87	2.3913	24 41 39.6	8.351	14	10 6 36.24	2.0631	15 51 22.2	13.146
15	8 22 14.15	2.3846	24 33 14.4	8.486	15	10 8 39.84	2.0570	15 38 11.5	13.208
16	8 24 37.02	2.3777	24 24 41.1	8.623	16	10 10 43.08	2.0510	15 24 57.1	13.270
17	8 26 59.47	2.3707	24 15 59.7	8.756	17	10 12 45.96	2.0450	15 11 39.1	13.330
18	8 29 21.50	2.3638	24 7 10.4	8.887	18	10 14 48.48	2.0391	14 58 17.5	13.389
19	8 31 43.12	2.3568	23 58 13.2	9.018	19	10 16 50.65	2.0333	14 44 52.4	13.446
20	8 34 4.32	2.3499	23 49 8.2	9.147	20	10 18 52.48	2.0275	14 31 24.0	13.501
21	8 36 25.11	2.3430	23 39 55.5	9.275	21	10 20 53.96	2.0218	14 17 52.3	13.555
22	8 38 45.48	2.3359	23 30 35.2	9.401	22	10 22 55.10	2.0162	14 4 17.4	13.608
23	8 41 5.42	2.3288	N.23° 21' 7.4"	9.525	23	10 24 55.91	2.0106	N.13° 50' 39.3"	13.660
THURSDAY 18.					SATURDAY 20.				
0	8 43 24.94	2.3218	N.23° 11' 32.2"	9.647	0	10 26 56.38	2.0051	N.13° 36' 58.2"	13.710
1	8 45 44.03	2.3147	23 1 49.7	9.768	1	10 28 56.52	1.9997	13 23 14.1	13.759
2	8 48 2.70	2.3076	22 52 0.0	9.887	2	10 30 56.34	1.9943	13 9 27.1	13.806
3	8 50 20.94	2.3005	22 42 3.2	10.005	3	10 32 55.84	1.9890	12 55 37.3	13.852
4	8 52 38.76	2.2934	22 31 59.3	10.122	4	10 34 55.02	1.9837	12 41 44.8	13.897
5	8 54 56.15	2.2863	22 21 48.5	10.237	5	10 36 53.88	1.9784	12 27 49.6	13.941
6	8 57 13.11	2.2791	22 11 30.9	10.350	6	10 38 52.43	1.9733	12 13 51.8	13.984
7	8 59 29.64	2.2720	22 1 6.6	10.461	7	10 40 50.67	1.9683	11 59 51.5	14.025
8	9 1 45.75	2.2649	21 50 35.6	10.571	8	10 42 48.62	1.9633	11 45 48.8	14.064
9	9 4 1.43	2.2578	21 39 58.0	10.680	9	10 44 46.27	1.9584	11 31 43.8	14.102
10	9 6 16.68	2.2507	21 29 14.0	10.787	10	10 46 43.63	1.9536	11 17 36.5	14.140
11	9 8 31.51	2.2437	21 18 23.6	10.892	11	10 48 40.70	1.9488	11 3 26.9	14.177
12	9 10 45.92	2.2366	21 7 26.9	10.996	12	10 50 37.48	1.9440	10 49 15.2	14.212
13	9 12 59.90	2.2295	20 56 24.1	11.098	13	10 52 33.98	1.9394	10 35 1.5	14.245
14	9 15 13.46	2.2224	20 45 15.2	11.198	14	10 54 30.21	1.9349	10 20 45.8	14.278
15	9 17 26.59	2.2153	20 34 0.3	11.297	15	10 56 26.17	1.9304	10 6 28.1	14.310
16	9 19 39.30	2.2083	20 22 39.5	11.395	16	10 58 21.86	1.9259	9 52 8.6	14.340
17	9 21 51.59	2.2014	20 11 12.9	11.490	17	11 0 17.28	1.9215	9 37 47.3	14.368
18	9 24 3.47	2.1945	19 59 40.7	11.583	18	11 2 12.44	1.9173	9 23 24.4	14.395
19	9 26 14.93	2.1875	19 48 2.9	11.676	19	11 4 7.35	1.9131	9 8 59.9	14.422
20	9 28 25.97	2.1806	19 36 19.6	11.767	20	11 6 2.01	1.9089	8 54 33.8	14.448
21	9 30 36.60	2.1738	19 24 30.8	11.857	21	11 7 56.42	1.9048	8 40 6.1	14.473
22	9 32 46.82	2.1669	19 12 36.7	11.945	22	11 9 50.59	1.9009	8 25 37.0	14.496
23	9 34 56.63	2.1601	19 0 37.4	12.032	23	11 11 44.53	1.8970	8 11 6.6	14.517
24	9 37 6.03	2.1533	N.18° 48' 32.9"	12.117	24	11 13 38.23	1.8931	N. 7° 56' 34.9"	14.538

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 21.					TUESDAY 23.				
0	11 13 38.23	1.8931	N. 7 56 34.9	14.538	0	12 41 29.25	1.7957	S. 3 46 20.2	14.398
1	11 15 31.70	1.8993	7 42 2.0	14.558	1	12 43 16.98	1.7954	4 0 43.4	14.374
2	11 17 24.95	1.8957	7 27 27.9	14.577	2	12 45 4.70	1.7953	4 15 5.1	14.349
3	11 19 17.98	1.8990	7 12 52.7	14.595	3	12 46 52.42	1.7953	4 29 25.3	14.394
4	11 21 10.79	1.8785	6 58 16.5	14.612	4	12 48 40.13	1.7952	4 43 44.0	14.297
5	11 23 3.40	1.8751	6 43 39.3	14.627	5	12 50 27.84	1.7950	4 58 1.0	14.970
6	11 24 55.80	1.8717	6 29 1.3	14.641	6	12 52 15.55	1.7953	5 12 16.4	14.942
7	11 26 48.00	1.8683	6 14 22.4	14.655	7	12 54 3.27	1.7955	5 26 30.1	14.913
8	11 28 40.00	1.8650	5 59 42.7	14.667	8	12 55 51.01	1.7957	5 40 42.0	14.184
9	11 30 31.80	1.8618	5 45 2.3	14.679	9	12 57 38.76	1.7960	5 54 52.2	14.154
10	11 32 23.42	1.8587	5 30 21.2	14.690	10	12 59 26.53	1.7964	6 9 0.5	14.192
11	11 34 14.85	1.8557	5 15 39.5	14.699	11	13 1 14.33	1.7969	6 23 6.9	14.091
12	11 36 6.10	1.8528	5 0 57.4	14.706	12	13 3 2.16	1.7974	6 37 11.4	14.058
13	11 37 57.18	1.8499	4 46 14.8	14.714	13	13 4 50.02	1.7980	6 51 13.9	14.025
14	11 39 48.09	1.8471	4 31 31.7	14.721	14	13 6 37.92	1.7987	7 5 14.4	13.992
15	11 41 38.83	1.8443	4 16 48.3	14.726	15	13 8 25.87	1.7995	7 19 12.9	13.957
16	11 43 29.41	1.8417	4 2 4.6	14.731	16	13 10 13.86	1.8003	7 33 9.3	13.922
17	11 45 19.83	1.8391	3 47 20.6	14.734	17	13 12 1.90	1.8011	7 47 3.5	13.885
18	11 47 10.10	1.8366	3 32 36.5	14.736	18	13 13 49.99	1.8020	8 0 55.5	13.848
19	11 49 0.22	1.8342	3 17 52.2	14.738	19	13 15 38.14	1.8031	8 14 45.3	13.811
20	11 50 50.20	1.8318	3 3 7.9	14.738	20	13 17 26.36	1.8042	8 28 32.8	13.772
21	11 52 40.04	1.8295	2 48 23.6	14.738	21	13 19 14.64	1.8053	8 42 17.9	13.733
22	11 54 29.74	1.8273	2 33 39.4	14.737	22	13 21 2.99	1.8065	8 56 0.7	13.693
23	11 56 19.32	1.8252	N. 2 18 55.2	14.735	23	13 22 51.42	1.8078	S. 9 9 41.1	13.652
MONDAY 22.					WEDNESDAY 24.				
0	11 58 8.77	1.8231	N. 2 4 11.2	14.731	0	13 24 39.93	1.8092	S. 9 23 19.0	13.611
1	11 59 58.09	1.8211	1 49 27.5	14.727	1	13 26 28.52	1.8108	9 36 54.4	13.569
2	12 1 47.30	1.8193	1 34 44.0	14.722	2	13 28 17.20	1.8121	9 50 27.3	13.527
3	12 3 36.40	1.8175	1 20 0.8	14.717	3	13 30 5.97	1.8136	10 3 57.6	13.483
4	12 5 25.39	1.8157	1 5 18.0	14.710	4	13 31 54.83	1.8152	10 17 25.3	13.439
5	12 7 14.28	1.8139	0 50 35.6	14.702	5	13 33 43.79	1.8168	10 30 50.3	13.394
6	12 9 3.06	1.8123	0 35 53.7	14.694	6	13 35 32.85	1.8186	10 44 12.6	13.348
7	12 10 51.75	1.8108	0 21 12.3	14.685	7	13 37 22.02	1.8204	10 57 32.1	13.302
8	12 12 40.35	1.8093	N. 0 6 31.5	14.674	8	13 39 11.30	1.8223	11 10 48.8	13.255
9	12 14 28.87	1.8079	S. 0 8 8.6	14.663	9	13 41 0.69	1.8242	11 24 2.7	13.907
10	12 16 17.30	1.8066	0 22 48.1	14.652	10	13 42 50.20	1.8262	11 37 13.7	13.158
11	12 18 5.66	1.8053	0 37 26.8	14.639	11	13 44 39.84	1.8283	11 50 21.7	13.109
12	12 19 53.94	1.8042	0 52 4.7	14.625	12	13 46 29.60	1.8304	12 3 26.8	13.059
13	12 21 42.16	1.8031	1 6 41.8	14.611	13	13 48 19.49	1.8326	12 16 28.8	13.008
14	12 23 30.31	1.8020	1 21 18.0	14.596	14	13 50 9.51	1.8348	12 29 27.7	12.957
15	12 25 18.40	1.8010	1 35 53.3	14.580	15	13 51 59.67	1.8371	12 42 23.6	12.905
16	12 27 6.43	1.8002	1 50 27.6	14.563	16	13 53 49.97	1.8395	12 55 16.3	12.852
17	12 28 54.42	1.7994	2 5 0.8	14.544	17	13 55 40.41	1.8419	13 8 5.8	12.798
18	12 30 42.36	1.7987	2 19 32.9	14.526	18	13 57 31.00	1.8444	13 20 52.1	12.744
19	12 32 30.26	1.7980	2 34 3.9	14.508	19	13 59 21.74	1.8470	13 33 35.1	12.689
20	12 34 18.12	1.7973	2 48 33.7	14.488	20	14 1 12.64	1.8496	13 46 14.7	12.633
21	12 36 5.94	1.7968	3 3 2.3	14.466	21	14 3 3.70	1.8523	13 58 51.0	12.576
22	12 37 53.73	1.7963	3 17 29.6	14.444	22	14 4 54.92	1.8550	14 11 23.8	12.519
23	12 39 41.50	1.7960	3 31 55.6	14.422	23	14 6 46.31	1.8578	14 23 53.2	12.461
24	12 41 29.25	1.7957	S. 3 46 20.2	14.398	24	14 8 37.86	1.8607	S. 14 36 19.1	12.403

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 25.					SATURDAY 27.				
0	14 8 37.86	1.8607	S. 14 36 19.1	12.403	0	15 42 12.84	2.0549	S. 23 9 12.0	8.658
1	14 10 29.59	1.8636	14 48 41.5	12.343	1	15 44 16.28	2.0598	23 17 48.5	8.580
2	14 12 21.49	1.8665	15 1 0.2	12.282	2	15 46 20.02	2.0647	23 26 19.1	8.461
3	14 14 13.57	1.8696	15 13 15.3	12.221	3	15 48 24.05	2.0697	23 34 43.8	8.361
4	14 16 5.84	1.8727	15 25 26.7	12.159	4	15 50 28.38	2.0746	23 43 2.4	8.280
5	14 17 58.30	1.8758	15 37 34.4	12.097	5	15 52 33.01	2.0796	23 51 14.9	8.158
6	14 19 50.94	1.8790	15 49 38.3	12.033	6	15 54 37.93	2.0846	23 59 21.3	8.055
7	14 21 43.78	1.8823	16 1 38.4	11.969	7	15 56 43.16	2.0896	24 7 21.5	7.952
8	14 23 36.82	1.8856	16 13 34.6	11.904	8	15 58 48.68	2.0945	24 15 15.5	7.847
9	14 25 30.05	1.8890	16 25 26.9	11.839	9	16 0 54.50	2.0995	24 23 3.1	7.741
10	14 27 23.49	1.8924	16 37 15.3	11.773	10	16 3 0.62	2.1045	24 30 44.4	7.635
11	14 29 17.14	1.8958	16 48 59.6	11.705	11	16 5 7.04	2.1095	24 38 19.3	7.527
12	14 31 10.99	1.8994	17 0 39.9	11.637	12	16 7 13.76	2.1145	24 45 47.7	7.419
13	14 33 5.06	1.9030	17 12 16.1	11.569	13	16 9 20.78	2.1195	24 53 9.6	7.311
14	14 34 59.35	1.9066	17 23 48.2	11.500	14	16 11 28.10	2.1245	25 0 25.0	7.203
15	14 36 53.85	1.9102	17 35 16.1	11.430	15	16 13 35.72	2.1295	25 7 33.8	7.091
16	14 38 48.57	1.9139	17 46 39.8	11.358	16	16 15 43.64	2.1345	25 14 35.9	6.979
17	14 40 43.52	1.9177	17 57 59.1	11.286	17	16 17 51.86	2.1396	25 21 31.3	6.866
18	14 42 38.70	1.9216	18 9 14.1	11.213	18	16 20 0.99	2.1446	25 28 19.8	6.752
19	14 44 34.11	1.9255	18 20 24.7	11.140	19	16 22 9.21	2.1495	25 35 1.5	6.638
20	14 46 29.76	1.9294	18 31 30.9	11.067	20	16 24 18.33	2.1545	25 41 36.4	6.523
21	14 48 25.64	1.9333	18 42 32.7	10.992	21	16 26 27.74	2.1594	25 48 4.3	6.407
22	14 50 21.76	1.9373	18 53 29.9	10.916	22	16 28 37.45	2.1643	25 54 25.2	6.290
23	14 52 18.12	1.9414	S. 19 4 22.6	10.840	23	16 30 47.46	2.1692	S. 26 0 39.1	6.173
FRIDAY 26.					SUNDAY 28.				
0	14 54 14.73	1.9455	S. 19 15 10.7	10.763	0	16 32 57.76	2.1742	S. 26 6 46.0	6.055
1	14 56 11.58	1.9497	19 25 54.1	10.684	1	16 35 8.36	2.1791	26 12 45.7	5.935
2	14 58 8.69	1.9539	19 36 32.8	10.605	2	16 37 19.25	2.1839	26 18 38.2	5.814
3	15 0 6.05	1.9581	19 47 6.7	10.525	3	16 39 30.43	2.1888	26 24 23.4	5.692
4	15 2 3.66	1.9623	19 57 35.8	10.445	4	16 41 41.90	2.1936	26 30 1.3	5.570
5	15 4 1.53	1.9666	20 8 0.1	10.364	5	16 43 53.66	2.1984	26 35 31.8	5.447
6	15 5 59.66	1.9710	20 18 19.5	10.282	6	16 46 5.70	2.2031	26 40 55.0	5.324
7	15 7 58.05	1.9754	20 28 33.9	10.199	7	16 48 18.03	2.2078	26 46 10.7	5.199
8	15 9 56.71	1.9798	20 38 43.3	10.115	8	16 50 30.64	2.2125	26 51 18.9	5.073
9	15 11 55.63	1.9843	20 48 47.7	10.030	9	16 52 43.53	2.2172	26 56 19.5	4.947
10	15 13 54.82	1.9888	20 58 46.9	9.944	10	16 54 56.70	2.2218	27 1 12.5	4.820
11	15 15 54.29	1.9934	21 8 41.0	9.858	11	16 57 10.15	2.2264	27 5 57.9	4.692
12	15 17 54.03	1.9979	21 18 29.9	9.771	12	16 59 23.87	2.2310	27 10 35.5	4.563
13	15 19 54.04	2.0025	21 28 13.5	9.683	13	17 1 37.87	2.2355	27 15 5.4	4.433
14	15 21 54.33	2.0071	21 37 51.8	9.594	14	17 3 52.13	2.2400	27 19 27.4	4.309
15	15 23 54.90	2.0118	21 47 24.8	9.505	15	17 6 6.66	2.2444	27 23 41.6	4.171
16	15 25 55.75	2.0165	21 56 52.4	9.414	16	17 8 21.46	2.2487	27 27 47.9	4.039
17	15 27 56.88	2.0213	22 6 14.5	9.323	17	17 10 36.51	2.2530	27 31 46.3	3.906
18	15 29 58.30	2.0260	22 15 31.1	9.230	18	17 12 51.82	2.2573	27 35 36.6	3.778
19	15 32 0.00	2.0308	22 24 42.1	9.137	19	17 15 7.39	2.2616	27 39 18.9	3.637
20	15 34 1.99	2.0356	22 33 47.5	9.043	20	17 17 23.21	2.2658	27 42 53.1	3.502
21	15 36 4.27	2.0404	22 42 47.3	8.948	21	17 19 39.28	2.2699	27 46 19.1	3.366
22	15 38 6.83	2.0452	22 51 41.3	8.853	22	17 21 55.60	2.2740	27 49 37.0	3.229
23	15 40 9.69	2.0501	23 0 29.6	8.756	23	17 24 12.16	2.2779	27 52 46.6	3.092
24	15 42 12.84	2.0549	S. 23 9 12.0	8.658	24	17 26 28.95	2.2818	S. 27 55 48.0	2.953

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

PHASES OF THE MOON.

	d	h	m
● New Moon,	5	19	54.9
☽ First Quarter,	12	17	20.4
○ Full Moon,	19	20	1.3
☾ Last Quarter,	27	21	51.5

	d	h
☾ Perigee,	10	14.6
☾ Apogee,	26	0.3

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
1	Regulus W.	106° 39' 24"	2952	108° 10' 37"	2942	109° 42' 2"	2931	111° 13' 41"	2920
	Spica W.	52 37 15	2947	54 8 34	2936	55 40 7	2925	57 11 54	2913
	Jupiter W.	43 43 19	2966	45 14 14	2955	46 45 23	2943	48 16 47	2931
	Mars W.	21 20 43	3215	22 46 34	3198	24 12 46	3180	25 39 19	3163
	SUN E.	57 36 22	3342	56 12 59	3331	54 49 23	3320	53 25 35	3308
2	Spica W.	64 54 31	2854	66 27 49	2841	68 1 24	2828	69 35 15	2815
	Jupiter W.	55 57 35	2870	57 30 32	2857	59 3 46	2844	60 37 17	2831
	Mars W.	32 57 2	3082	34 25 33	3067	35 54 23	3052	37 23 32	3036
	Antares W.	19 0 33	2855	20 33 50	2842	22 7 24	2828	23 41 15	2815
	SUN E.	46 23 7	3248	44 57 55	3236	43 32 28	3223	42 6 46	3210
3	Spica W.	77 28 51	2748	79 4 27	2734	80 40 22	2720	82 16 35	2706
	Jupiter W.	68 29 14	2762	70 4 32	2748	71 40 8	2734	73 16 3	2720
	Mars W.	44 54 3	2959	46 25 7	2944	47 56 30	2929	49 28 12	2913
	Antares W.	31 34 54	2747	33 10 32	2733	34 46 28	2719	36 22 42	2705
	SUN E.	34 54 34	3149	33 27 24	3138	32 0 0	3126	30 32 22	3116
8	SUN W.	28 4 38	2689	29 41 32	2678	31 18 41	2669	32 56 3	2660
	α Arietis E.	50 0 9	2391	48 16 22	2391	46 32 35	2392	44 48 49	2394
	Aldebaran E.	80 30 27	2369	78 46 6	2363	77 1 38	2359	75 17 5	2356
	Pollux E.	124 14 10	2311	122 28 26	2305	120 42 34	2301	118 56 36	2296
9	SUN W.	41 5 24	2629	42 43 40	2624	44 22 2	2621	46 0 29	2618
	α Arietis E.	36 11 14	2423	34 28 12	2434	32 45 26	2448	31 2 59	2465
	Aldebaran E.	66 33 23	2348	64 48 33	2347	63 3 42	2347	61 18 51	2348
	Pollux E.	110 5 17	2260	108 18 48	2277	106 32 15	2275	104 45 39	2274
10	SUN W.	54 13 38	2607	55 52 24	2607	57 31 10	2606	59 9 57	2606
	α Pegasi W.	30 36 41	2307	31 51 36	2359	33 9 7	2331	34 28 57	2491
	Aldebaran E.	52 35 15	2362	50 50 45	2367	49 6 23	2373	47 22 9	2380
	Pollux E.	95 52 10	2269	94 5 25	2269	92 18 40	2270	90 31 56	2270
11	SUN W.	67 23 49	2609	69 2 32	2610	70 41 14	2612	72 19 53	2613
	α Pegasi W.	41 34 36	2052	43 3 44	2003	44 33 53	2061	46 4 55	2023
	Aldebaran E.	38 43 52	2430	37 1 0	2445	35 18 30	2462	33 36 24	2483
	Pollux E.	81 38 28	2275	79 51 52	2277	78 5 18	2279	76 18 47	2281
	Regulus E.	118 17 1	2283	116 30 37	2285	114 44 15	2287	112 57 56	2289
12	SUN W.	80 32 29	2625	82 10 50	2628	83 49 7	2631	85 27 20	2634
	α Pegasi W.	53 50 27	2790	55 25 8	2772	57 0 13	2756	58 35 38	2742
	Pollux E.	67 27 0	2292	65 40 49	2298	63 54 43	2298	62 8 41	2302
	Regulus E.	104 7 3	2300	102 21 3	2302	100 35 6	2304	98 49 13	2308
13	SUN W.	93 37 19	2652	95 15 4	2655	96 52 44	2660	98 30 18	2663
	α Pegasi W.	66 36 40	2696	68 13 25	2690	69 50 18	2685	71 27 18	2681
	α Arietis W.	22 59 21	2624	24 37 43	2589	26 16 53	2562	27 56 40	2540
	Pollux E.	53 19 44	2319	51 34 12	2323	49 48 46	2326	48 3 25	2331
	Regulus E.	90 1 0	2324	88 15 36	2328	86 30 18	2332	84 45 5	2335
14	SUN W.	106 36 45	2686	108 13 44	2690	109 50 37	2695	111 27 23	2701
	α Pegasi W.	79 33 5	2677	81 10 16	2678	82 47 26	2680	84 24 33	2682
	α Arietis W.	36 21 35	2480	38 3 17	2475	39 45 6	2470	41 27 1	2467
	Pollux E.	39 18 10	2352	37 33 26	2357	35 48 49	2362	34 4 19	2366

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
1	Regulus	W.	112° 45' 34"	2909	114° 17' 41"	2998	115° 50' 3"	2986	117° 22' 40"	2974
	Spica	W.	58 43 56	2902	60 16 12	2991	61 48 43	2979	63 21 29	2966
	Jupiter	W.	49 48 26	2920	51 20 20	2908	52 52 29	2995	54 24 54	2983
	Mars	W.	27 6 12	3147	28 33 25	3130	30 0 58	3114	31 28 50	3098
	Sun	E.	52 1 33	3296	50 37 17	3285	49 12 48	3273	47 48 5	3260
2	Spica	W.	71 9 23	2901	72 43 49	2788	74 18 32	2775	75 53 33	2762
	Jupiter	W.	62 11 5	2917	63 45 11	2904	65 19 34	2790	66 54 15	2776
	Mars	W.	38 53 0	3021	40 22 47	3005	41 52 53	2990	43 23 18	2974
	Antares	W.	25 15 23	2901	26 49 49	2789	28 24 33	2775	29 59 34	2760
	Sun	E.	40 40 49	3198	39 14 37	3186	37 48 11	3173	36 21 30	3161
3	Spica	W.	83 53 7	2992	85 29 57	2978	87 7 6	2965	88 44 33	2951
	Jupiter	W.	74 52 16	2706	76 28 48	2992	78 5 39	2978	79 42 49	2964
	Mars	W.	51 0 14	2996	52 32 35	2983	54 5 15	2968	55 38 15	2953
	Antares	W.	37 59 15	2991	39 36 7	2978	41 13 17	2963	42 50 46	2949
	Sun	E.	29 4 32	3106	27 36 30	3097	26 8 17	3090	24 39 55	3083
6	Sun	W.	34 33 36	2952	36 11 20	2946	37 49 13	2939	39 27 15	2934
	α Arietis	E.	43 5 6	2997	41 21 27	2901	39 37 54	2907	37 54 29	2914
	Aldebaran	E.	73 32 27	2253	71 47 45	2261	70 3 0	2249	68 18 12	2246
	Pollux	E.	117 10 31	2292	115 24 20	2289	113 38 4	2285	111 51 43	2282
9	Sun	W.	47 39 0	2915	49 17 35	2912	50 56 13	2910	52 34 54	2908
	α Arietis	E.	29 20 56	2496	27 39 23	2512	25 58 27	2545	24 18 17	2566
	Aldebaran	E.	59 34 2	2250	57 49 15	2252	56 4 31	2255	54 19 51	2257
	Pollux	E.	102 59 1	2272	101 12 21	2271	99 25 39	2270	97 38 55	2269
10	Sun	W.	60 48 44	2906	62 27 31	2906	64 6 18	2907	65 45 4	2907
	α Pegasi	W.	35 50 50	2295	37 14 32	2292	38 39 51	2170	40 6 36	2108
	Aldebaran	E.	45 38 5	2287	43 54 11	2296	42 10 30	2405	40 27 3	2417
	Pollux	E.	88 45 12	2270	86 58 29	2271	85 11 47	2272	83 25 7	2273
11	Sun	W.	73 58 30	2915	75 37 4	2917	77 15 36	2920	78 54 4	2922
	α Pegasi	W.	47 36 45	2289	49 9 18	2289	50 42 29	2234	52 16 13	2211
	Aldebaran	E.	31 54 47	2507	30 13 43	2534	28 33 17	2566	26 53 36	2606
	Pollux	E.	74 32 19	2283	72 45 54	2285	70 59 33	2287	69 13 15	2289
	Regulus	E.	111 11 40	2290	109 25 26	2292	107 39 15	2294	105 53 7	2297
12	Sun	W.	87 5 29	2937	88 43 34	2940	90 21 34	2944	91 59 29	2948
	α Pegasi	W.	60 11 22	2730	61 47 22	2719	63 23 36	2710	65 0 3	2702
	Pollux	E.	60 22 44	2205	58 36 52	2208	56 51 4	2211	55 5 21	2215
	Regulus	E.	97 3 25	2211	95 17 42	2214	93 32 3	2217	91 46 29	2221
13	Sun	W.	100 7 47	2968	101 45 10	2972	103 22 28	2976	104 59 40	2981
	α Pegasi	W.	73 4 23	2979	74 41 31	2978	76 18 41	2976	77 55 53	2976
	α Arietis	W.	29 36 58	2522	31 17 41	2507	32 58 44	2496	34 40 3	2487
	Pollux	E.	46 18 10	2235	44 33 1	2239	42 47 58	2243	41 3 1	2247
	Regulus	E.	82 59 57	2239	81 14 55	2244	79 29 59	2248	77 45 9	2253
14	Sun	W.	113 4 2	2705	114 40 35	2710	116 17 1	2716	117 53 19	2722
	α Pegasi	W.	86 1 37	2685	87 38 37	2689	89 15 31	2694	90 52 19	2699
	α Arietis	W.	43 9 1	2465	44 51 4	2464	46 33 8	2463	48 15	2464
	Pollux	E.	32 19 56	2272	30 35 41	2278	28 51 34	2282	27 7 34	2288

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14	Regulus E.	76° 0' 26"	2357	74° 15' 49"	2361	72° 31' 18"	2366	70° 46' 54"	2370
15	Sun W.	119 29 29	2739	121 5 31	2734	122 41 26	2739	124 17 14	2745
	α Pegasi W.	92 29 0	2705	94 5 33	2711	95 41 58	2719	97 18 13	2726
	α Arietis W.	49 57 17	2465	51 39 20	2465	53 21 22	2467	55 3 21	2470
	Aldebaran W.	20 39 55	2692	22 13 3	2691	23 47 30	2753	25 23 0	2716
	Regulus E.	62 6 38	2396	60 22 57	2401	58 39 24	2407	56 55 59	2412
	Spica E.	116 7 39	2387	114 23 46	2393	112 40 1	2396	110 56 23	2403
	Jupiter E.	125 19 23	2391	123 35 36	2396	121 51 55	2401	120 8 21	2406
16	Sun W.	132 14 5	2779	133 49 0	2787	135 23 45	2795	136 58 20	2803
	α Pegasi W.	105 16 36	2776	106 51 35	2788	108 26 18	2801	110 0 44	2816
	α Arietis W.	63 32 14	2487	65 13 45	2492	66 55 10	2497	68 36 28	2501
	Aldebaran W.	33 29 59	2616	35 8 32	2607	36 47 17	2601	38 26 11	2596
	Regulus E.	48 21 2	2444	46 38 30	2451	44 56 8	2456	43 13 56	2465
	Spica E.	102 20 10	2431	100 37 20	2438	98 54 39	2443	97 12 6	2450
	Jupiter E.	111 32 24	2433	109 49 36	2438	108 6 56	2445	106 24 25	2450
17	α Arietis W.	77 1 7	2531	78 41 37	2538	80 21 58	2544	82 2 10	2551
	Aldebaran W.	46 41 50	2569	48 21 0	2591	50 0 7	2593	51 39 11	2596
	Regulus E.	34 45 39	2507	33 4 36	2517	31 23 47	2527	29 43 12	2538
	Spica E.	88 41 39	2483	87 0 2	2491	85 18 36	2498	83 37 20	2506
	Jupiter E.	97 54 2	2484	96 12 26	2491	94 31 0	2498	92 49 44	2505
18	α Arietis W.	90 20 34	2591	91 59 42	2599	93 38 38	2606	95 17 22	2617
	Aldebaran W.	59 53 11	2621	61 31 38	2626	63 9 57	2633	64 48 7	2640
	Pollux W.	15 38 50	2564	17 18 34	2569	18 58 11	2575	20 37 40	2582
	Spica E.	75 13 44	2546	73 33 35	2554	71 53 37	2563	70 13 51	2572
	Jupiter E.	84 26 3	2545	82 45 52	2553	81 5 53	2559	79 26 6	2571
	Mars E.	116 3 48	2738	114 27 58	2746	112 52 19	2754	111 16 51	2763
	Antares E.	121 7 8	2544	119 26 56	2553	117 46 56	2561	116 7 8	2570
19	α Arietis W.	103 27 52	2660	105 5 18	2676	106 42 30	2687	108 19 27	2698
	Aldebaran W.	72 56 29	2630	74 33 36	2638	76 10 32	2647	77 47 16	2656
	Pollux W.	28 52 33	2633	30 30 57	2632	32 9 9	2641	33 47 8	2650
	Spica E.	61 58 9	2618	60 19 39	2629	58 41 23	2638	57 3 20	2648
	Jupiter E.	71 10 14	2617	69 31 42	2626	67 53 23	2636	66 15 17	2646
	Mars E.	103 22 30	2610	101 48 15	2620	100 14 13	2630	98 40 24	2640
	Antares E.	107 51 13	2616	106 12 40	2626	104 34 20	2636	102 56 14	2646
20	Aldebaran W.	85 47 48	2755	87 23 15	2766	88 58 28	2776	90 33 27	2787
	Pollux W.	41 53 50	2700	43 30 30	2710	45 6 56	2721	46 43 8	2731
	Spica E.	48 56 30	2700	47 19 50	2710	45 43 24	2722	44 7 13	2732
	Jupiter E.	58 8 10	2698	56 31 27	2708	54 54 58	2719	53 18 43	2729
	Mars E.	90 54 40	2694	89 22 13	2694	87 49 59	2695	86 17 59	2696
	Antares E.	94 49 6	2697	93 12 22	2707	91 35 51	2718	89 59 35	2729
21	Aldebaran W.	98 24 51	2842	99 58 21	2853	101 31 43	2865	103 4 47	2876
	Pollux W.	54 40 42	2785	56 15 30	2795	57 50 5	2805	59 24 26	2816
	Regulus W.	18 16 35	2857	19 49 49	2859	21 23 1	2861	22 56 10	2865
	Spica E.	36 9 53	2788	34 35 9	2798	33 0 39	2810	31 26 24	2821
	Jupiter E.	45 21 3	2785	43 46 15	2795	42 11 41	2807	40 37 22	2818
	Antares E.	78 41 31	2842	77 10 56	2853	75 40 35	2865	74 10 29	2876
	Venus E.	82 1 46	2782	80 26 55	2793	78 52 18	2804	77 17 55	2814
		119 17 49	3211	117 51 53	3221	116 26 9	3232	115 0 38	3242

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14	Regulus	E.	69° 2' 36"	2375	67° 18' 25"	2380	65° 34' 22"	2385	63° 50' 26"	2391
15	SUN	W.	125 52 54	2752	127 28 25	2759	129 3 47	2765	130 39 1	2772
	α Pegasi	W.	98 54 18	2735	100 30 12	2744	102 5 54	2754	103 41 22	2765
	α Arietis	W.	56 45 16	2473	58 27 7	2476	60 8 54	2479	61 50 37	2483
	Aldebaran	W.	26 59 19	2686	28 36 18	2663	30 13 48	2644	31 51 43	2629
	Regulus	E.	55 12 42	2419	53 29 34	2494	51 46 34	2431	50 3 43	2438
	Spica	E.	109 12 53	2408	107 29 30	2414	105 46 15	2419	104 3 8	2426
	Jupiter	E.	118 24 55	2411	116 41 36	2416	114 58 24	2422	113 15 20	2427
16	SUN	W.	138 32 44	2811	140 6 57	2820	141 40 59	2828	143 14 50	2837
	α Pegasi	W.	111 34 51	2831	113 8 38	2848	114 42 4	2865	116 15 8	2883
	α Arietis	W.	70 17 40	2507	71 58 44	2512	73 39 40	2518	75 20 28	2525
	Aldebaran	W.	40 5 12	2592	41 44 18	2589	43 23 28	2588	45 2 39	2588
	Regulus	E.	41 31 54	2473	39 50 3	2481	38 8 23	2489	36 26 55	2498
	Spica	E.	95 29 42	2456	93 47 27	2463	92 5 22	2470	90 23 26	2476
	Jupiter	E.	104 42 2	2457	102 59 48	2463	101 17 43	2470	99 35 48	2477
17	α Arietis	W.	83 42 12	2559	85 22 4	2566	87 1 45	2574	88 41 15	2583
	Aldebaran	W.	53 18 11	2600	54 57 6	2605	56 35 54	2610	58 14 36	2615
	Regulus	E.	28 2 52	2551	26 22 49	2563	24 43 3	2577	23 3 36	2592
	Spica	E.	81 56 15	2513	80 15 20	2521	78 34 36	2530	76 54 4	2538
	Jupiter	E.	91 8 38	2513	89 27 43	2520	87 46 58	2529	86 6 25	2537
18	α Arietis	W.	96 55 54	2626	98 34 13	2636	100 12 19	2646	101 50 12	2655
	Aldebaran	W.	66 26 8	2647	68 3 59	2655	69 41 40	2663	71 19 10	2671
	Pollux	W.	22 17 0	2589	23 56 10	2597	25 35 9	2605	27 13 57	2614
	Spica	E.	68 34 18	2581	66 54 57	2590	65 15 48	2599	63 36 52	2609
	Jupiter	E.	77 46 31	2580	76 7 8	2588	74 27 57	2598	72 48 59	2607
	Mars	E.	109 41 34	2772	108 6 29	2782	106 31 37	2791	104 56 57	2801
	Antares	E.	114 27 32	2579	112 48 8	2588	111 8 57	2598	109 29 59	2607
19	α Arietis	W.	109 56 10	2708	111 32 39	2720	113 8 52	2732	114 44 50	2744
	Aldebaran	W.	79 23 48	2716	81 0 7	2725	82 36 14	2735	84 12 8	2745
	Pollux	W.	35 24 55	2660	37 2 29	2670	38 39 49	2680	40 16 56	2689
	Spica	E.	55 25 30	2658	53 47 54	2669	52 10 32	2679	50 33 24	2689
	Jupiter	E.	64 37 24	2656	62 59 45	2666	61 22 19	2676	59 45 7	2687
	Mars	E.	97 6 48	2850	95 33 25	2861	94 0 16	2872	92 27 21	2883
	Antares	E.	101 18 21	2656	99 40 42	2666	98 3 16	2676	96 26 4	2687
20	Aldebaran	W.	92 8 12	2798	93 42 43	2808	95 17 0	2819	96 51 3	2831
	Pollux	W.	48 19 7	2741	49 54 52	2752	51 30 23	2763	53 5 40	2774
	Spica	E.	42 31 16	2743	40 55 33	2754	39 20 5	2766	37 44 52	2776
	Jupiter	E.	51 42 42	2740	50 6 55	2751	48 31 23	2763	46 56 6	2773
	Mars	E.	84 46 13	2937	83 14 41	2948	81 43 23	2960	80 12 20	2971
	Antares	E.	88 23 33	2739	86 47 45	2750	85 12 11	2760	83 36 51	2772
21	Aldebaran	W.	104 37 36	2888	106 10 10	2899	107 42 30	2911	109 14 35	2923
	Pollux	W.	60 58 33	2827	62 32 26	2837	64 6 6	2848	65 39 32	2856
	Regulus	W.	24 29 14	2869	26 2 12	2875	27 35 3	2881	29 7 46	2889
	Spica	E.	29 52 24	2853	28 18 39	2844	26 45 8	2855	25 11 52	2867
	Jupiter	E.	39 3 17	2829	37 29 27	2841	35 55 52	2852	34 22 32	2863
	Mars	E.	72 40 37	3028	71 10 59	3039	69 41 35	3050	68 12 24	3061
	Antares	E.	75 43 45	2825	74 9 49	2835	72 36 7	2846	71 2 39	2857
	Venus	E.	113 35 19	3253	112 10 12	3264	110 45 18	3274	109 20 36	3285

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22	Aldebaran W.	110 46 25	2935	112 18 0	2946	113 49 20	2958	115 20 25	2969
	Pollux W.	67 12 45	2868	68 45 45	2879	70 18 31	2889	71 51 4	2898
	Regulus W.	30 40 19	2897	32 12 42	2904	33 44 56	2912	35 17 0	2920
	Jupiter E.	32 49 26	2875	31 16 35	2887	29 43 59	2898	28 11 38	2910
	Mars E.	66 43 27	3073	65 14 44	3084	63 46 15	3095	62 17 59	3105
	Antares E.	69 29 25	2867	67 56 24	2877	66 23 36	2887	64 51 1	2897
	Venus α Aquilæ E.	107 56 7	3295	106 31 50	3306	105 7 45	3316	103 43 52	3327
		115 57 8	3838	114 44 27	3922	113 31 30	3909	112 18 19	3896
23	Pollux W.	79 30 45	2946	81 2 6	2954	82 33 16	2964	84 4 14	2973
	Regulus W.	42 54 41	2962	44 25 42	2969	45 56 33	2977	47 27 14	2985
	Mars E.	54 59 54	3158	53 32 55	3168	52 6 8	3178	50 39 33	3188
	Antares E.	57 11 12	2945	55 39 50	2954	54 8 39	2962	52 37 39	2971
	Venus E.	96 47 26	3377	95 24 43	3386	94 2 11	3396	92 39 50	3405
	α Aquilæ E.	106 9 46	3856	104 55 42	3854	103 41 35	3851	102 27 25	3849
	Sun E.	143 29 18	3343	142 5 56	3351	140 42 44	3360	139 19 42	3368
24	Pollux W.	91 36 33	3010	93 6 33	3017	94 36 25	3023	96 6 9	3030
	Regulus W.	54 58 20	3021	56 28 7	3027	57 57 46	3033	59 27 18	3039
	Mars E.	43 29 29	3235	42 4 1	3243	40 38 43	3253	39 13 36	3261
	Antares E.	45 5 13	3009	43 35 12	3016	42 5 19	3022	40 35 34	3028
	Venus E.	85 50 36	3447	84 29 13	3455	83 7 59	3463	81 46 53	3470
	α Aquilæ E.	96 16 23	3852	95 2 14	3855	93 48 8	3858	92 34 6	3862
	Sun E.	132 26 41	3404	131 4 29	3411	129 42 25	3417	128 20 28	3423
25	Pollux W.	103 33 3	3055	105 2 8	3059	106 31 8	3062	108 0 4	3065
	Regulus W.	66 53 17	3063	68 22 12	3066	69 51 3	3069	71 19 50	3073
	Spica W.	12 52 1	3087	14 20 27	3085	15 48 55	3084	17 17 24	3083
	Mars E.	32 10 30	3303	30 46 22	3313	29 22 25	3321	27 58 38	3329
	Antares E.	33 8 34	3054	31 39 28	3058	30 10 27	3061	28 41 30	3065
	Venus E.	75 3 13	3500	73 42 49	3505	72 22 30	3508	71 2 15	3512
	α Aquilæ E.	86 25 11	3893	85 11 44	3900	83 58 24	3908	82 45 12	3917
Sun E.	121 32 18	3448	120 10 56	3452	118 49 38	3455	117 28 24	3458	
26	Regulus W.	78 43 1	3081	80 11 34	3081	81 40 7	3081	83 8 40	3080
	Spica W.	24 39 56	3082	26 8 27	3082	27 36 59	3081	29 5 32	3079
	Jupiter W.	15 48 16	3116	17 16 6	3109	18 44 5	3101	20 12 13	3095
	Venus E.	64 21 59	3526	63 2 4	3528	61 42 11	3530	60 22 20	3530
	α Aquilæ E.	76 41 38	3909	75 29 28	3911	74 17 30	3906	73 5 46	4010
	Sun E.	110 42 53	3466	109 21 51	3466	108 0 49	3466	106 39 47	3465
27	Regulus W.	90 31 48	3070	92 0 34	3067	93 29 24	3063	94 58 19	3059
	Spica W.	36 28 51	3067	37 57 41	3064	39 26 35	3059	40 55 35	3055
	Jupiter W.	27 34 38	3068	29 3 27	3063	30 32 22	3058	32 1 23	3052
	Venus E.	53 43 4	3527	52 23 10	3525	51 3 14	3524	49 43 16	3522
	α Aquilæ E.	67 10 53	4096	66 0 47	4116	64 51 1	4139	63 41 37	4153
Sun E.	99 54 12	3453	98 32 55	3449	97 11 34	3446	95 50 9	3441	
28	Regulus W.	102 24 26	3030	103 54 2	3022	105 23 47	3015	106 53 41	3006
	Spica W.	48 22 10	3024	49 51 53	3017	51 21 45	3009	52 51 47	3001
	Jupiter W.	39 28 27	3018	40 58 18	3009	42 28 19	3001	43 58 31	2991
	Venus E.	43 2 42	3506	41 42 24	3502	40 22 2	3497	39 1 35	3494
	α Aquilæ E.	58 0 55	4314	56 54 15	4353	55 48 11	4395	54 42 45	4439
	Sun E.	89 1 27	3408	87 39 19	3400	86 17 2	3391	84 54 35	3382

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22	Aldebaran W.	116° 51' 16"	2981	118° 21' 52"	2994	119° 52' 12"	3008	121° 22' 17"	3018
	Pollux W.	73° 23' 25"	2909	74° 55' 33"	2918	76° 27' 29"	2927	77° 59' 13"	2937
	Regulus W.	36° 48' 53"	2928	38° 20' 36"	2937	39° 52' 8"	2945	41° 23' 30"	2954
	Jupiter E.	26° 39' 32"	2923	25° 7' 42"	2935	23° 36' 7"	2947	22° 4' 48"	2961
	Mars E.	60° 49' 56"	3116	59° 22' 6"	3127	57° 54' 29"	3138	56° 27' 5"	3148
	Antares E.	63° 18' 38"	2907	61° 46' 28"	2917	60° 14' 31"	2927	58° 42' 46"	2935
	Venus E.	102° 20' 12"	3337	100° 56' 43"	3347	99° 33' 26"	3357	98° 10' 20"	3367
α Aquilæ E.	111° 4' 55"	3685	109° 51' 20"	3676	108° 37' 36"	3668	107° 23' 44"	3662	
23	Pollux W.	85° 35' 1"	2981	87° 5' 38"	2988	88° 36' 6"	2996	90° 6' 24"	3003
	Regulus W.	48° 57' 46"	2993	50° 28' 8"	3000	51° 58' 21"	3007	53° 28' 25"	3014
	Mars E.	49° 13' 10"	3198	47° 46' 58"	3207	46° 20' 57"	3217	44° 55' 8"	3225
	Antares E.	51° 6' 50"	2979	49° 36' 11"	2987	48° 5' 42"	2995	46° 35' 23"	3002
	Venus E.	91° 17' 39"	3415	89° 55' 39"	3423	88° 33' 49"	3431	87° 12' 8"	3439
	α Aquilæ E.	101° 13' 13"	2848	99° 50' 0"	2848	98° 44' 47"	2848	97° 30' 34"	2850
	Sun E.	137° 56' 49"	3376	136° 34' 5"	3383	135° 11' 29"	3390	133° 49' 1"	3397
24	Pollux W.	97° 35' 45"	3035	99° 5' 14"	3041	100° 34' 36"	3046	102° 3' 52"	3050
	Regulus W.	60° 56' 42"	3045	62° 25' 59"	3049	63° 55' 11"	3054	65° 24' 17"	3059
	Mars E.	37° 48' 39"	2970	36° 23' 52"	2978	34° 59' 15"	2987	33° 34' 48"	2994
	Antares E.	39° 5' 56"	3034	37° 36' 26"	3039	36° 7' 2"	3045	34° 37' 45"	3050
	Venus E.	80° 25' 55"	3476	79° 5' 4"	3482	77° 44' 20"	3488	76° 23' 43"	3493
	α Aquilæ E.	91° 20' 8"	3866	90° 6' 14"	3873	88° 52' 26"	3879	87° 38' 45"	3886
	Sun E.	126° 58' 38"	3429	125° 36' 54"	3435	124° 15' 17"	3439	122° 53' 45"	3444
25	Pollux W.	109° 28' 56"	3068	110° 57' 45"	3070	112° 26' 31"	3078	113° 55' 15"	3079
	Regulus W.	72° 48' 33"	3075	74° 17' 13"	3077	75° 45' 51"	3078	77° 14' 27"	3080
	Spica W.	18° 45' 54"	3063	20° 14' 24"	3062	21° 42' 55"	3063	23° 11' 25"	3062
	Mars E.	26° 35' 3"	3342	25° 11' 40"	3352	23° 48' 29"	3364	22° 25' 31"	3377
	Antares E.	27° 12' 37"	3067	25° 43' 47"	3062	24° 15' 0"	3072	22° 46' 16"	3073
	Venus E.	69° 42' 4"	3515	68° 21' 57"	3520	67° 1' 55"	3523	65° 41' 56"	3525
	α Aquilæ E.	81° 32' 9"	3926	80° 19' 16"	3936	79° 6' 33"	3946	77° 54' 0"	3957
Sun E.	116° 7' 13"	3461	114° 46' 5"	3463	113° 24' 59"	3464	112° 3' 55"	3466	
26	Regulus W.	84° 37' 14"	3079	86° 5' 49"	3078	87° 34' 26"	3075	89° 3' 6"	3073
	Spica W.	30° 34' 7"	3078	32° 2' 44"	3076	33° 31' 23"	3073	35° 0' 5"	3070
	Jupiter W.	21° 40' 29"	3089	23° 8' 52"	3084	24° 37' 21"	3079	26° 5' 56"	3073
	Venus E.	59° 2' 29"	3530	57° 42' 38"	3530	56° 22' 47"	3530	55° 2' 56"	3529
	α Aquilæ E.	71° 54' 16"	4025	70° 43' 1"	4040	69° 32' 1"	4058	68° 21' 18"	4078
	Sun E.	105° 18' 44"	3464	103° 57' 40"	3463	102° 36' 31"	3460	101° 15' 25"	3456
27	Regulus W.	96° 27' 19"	3054	97° 56' 25"	3048	99° 25' 38"	3043	100° 54' 58"	3036
	Spica W.	42° 24' 40"	3050	43° 53' 51"	3044	45° 23' 9"	3038	46° 52' 35"	3030
	Jupiter W.	33° 30' 31"	3046	34° 59' 47"	3039	36° 29' 12"	3032	37° 58' 45"	3025
	Venus E.	48° 23' 16"	3519	47° 3' 13"	3515	45° 43' 6"	3513	44° 22' 56"	3509
	α Aquilæ E.	62° 32' 36"	4126	61° 23' 59"	4217	60° 15' 49"	4247	59° 8' 7"	4279
	Sun E.	94° 28' 39"	3436	93° 7' 3"	3429	91° 45' 19"	3422	90° 23' 27"	3415
28	Regulus W.	108° 23' 46"	2997	109° 54' 2"	2989	111° 24' 28"	2980	112° 55' 6"	2969
	Spica W.	54° 21' 59"	2992	55° 52' 22"	2982	57° 22' 57"	2973	58° 53' 44"	2962
	Jupiter W.	45° 28' 55"	2982	46° 59' 30"	2973	48° 30' 17"	2962	50° 1' 17"	2952
	Venus E.	37° 41' 4"	3490	36° 20' 29"	3487	34° 59' 50"	3484	33° 39' 8"	3471
	α Aquilæ E.	53° 37' 59"	4489	52° 33' 57"	4543	51° 30' 43"	4601	50° 28' 19"	4668
	Sun E.	83° 31' 58"	3372	82° 9' 10"	3362	80° 46' 10"	3351	79° 22' 58"	3341

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sideral Time of the Semi-diameter passing the Meridian.	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.					
		Apparent Right Ascension.		Diff. for 1 hour.	Apparent Declination.		Diff. for 1 hour.				Semi-diameter.				
		h	m		s	°						'	"		
Mon.	1	22	48	9.41	9.364	S. 7	37	18.5	+56.95	16	10.39	65.44	12	35.51	0.492
Tues.	2	22	51	53.90	9.344	7	14	28.3	57.22	16	10.14	65.36	12	23.48	0.512
Wed.	3	22	55	37.91	9.324	6	51	31.8	57.47	16	9.89	65.29	12	10.97	0.532
Thur.	4	22	59	21.45	9.305	6	28	29.4	57.71	16	9.64	65.22	11	57.99	0.551
Frid.	5	23	3	4.54	9.287	6	5	21.5	57.93	16	9.38	65.16	11	44.56	0.569
Sat.	6	23	6	47.20	9.268	5	42	8.6	58.13	16	9.13	65.10	11	30.71	0.587
Sun.	7	23	10	29.45	9.251	5	18	51.0	58.32	16	8.87	65.04	11	16.44	0.604
Mon.	8	23	14	11.30	9.235	4	55	29.3	58.49	16	8.62	64.98	11	1.77	0.620
Tues.	9	23	17	52.75	9.219	4	32	3.7	58.64	16	8.36	64.93	10	46.72	0.636
Wed.	10	23	21	33.85	9.204	4	8	34.7	58.77	16	8.10	64.88	10	31.31	0.651
Thur.	11	23	25	14.60	9.190	3	45	2.6	58.89	16	7.84	64.83	10	15.55	0.665
Frid.	12	23	28	55.02	9.177	3	21	28.0	58.99	16	7.58	64.78	9	59.46	0.678
Sat.	13	23	32	35.12	9.164	2	57	51.2	59.07	16	7.32	64.74	9	43.05	0.691
Sun.	14	23	36	14.92	9.153	2	34	12.7	59.14	16	7.06	64.70	9	26.34	0.702
Mon.	15	23	39	54.45	9.142	2	10	32.8	59.19	16	6.80	64.66	9	9.35	0.713
Tues.	16	23	43	33.72	9.132	1	46	51.8	59.23	16	6.54	64.63	8	52.11	0.723
Wed.	17	23	47	12.76	9.123	1	23	9.9	59.25	16	6.27	64.60	8	34.65	0.732
Thur.	18	23	50	51.59	9.115	0	59	27.7	59.26	16	6.00	64.57	8	16.99	0.740
Frid.	19	23	54	30.24	9.107	0	35	45.7	59.25	16	5.73	64.55	7	59.14	0.748
Sat.	20	23	58	8.73	9.101	S. 0	12	4.0	59.23	16	5.46	64.53	7	41.12	0.754
Sun.	21	0	1	47.08	9.095	N. 0	11	37.2	59.20	16	5.19	64.51	7	22.95	0.760
Mon.	22	0	5	25.30	9.090	0	35	17.3	59.15	16	4.92	64.49	7	4.68	0.765
Tues.	23	0	9	3.44	9.087	0	58	56.0	59.09	16	4.64	64.48	6	46.31	0.768
Wed.	24	0	12	41.50	9.084	1	22	33.0	59.01	16	4.36	64.47	6	27.87	0.771
Thur.	25	0	16	19.51	9.083	1	46	8.0	58.92	16	4.08	64.47	6	9.37	0.772
Frid.	26	0	19	57.50	9.082	2	9	40.7	58.81	16	3.80	64.46	5	50.86	0.773
Sat.	27	0	23	35.49	9.083	2	33	10.8	58.69	16	3.52	64.46	5	32.36	0.772
Sun.	28	0	27	13.52	9.085	2	56	37.8	58.56	16	3.24	64.46	5	13.88	0.770
Mon.	29	0	30	51.60	9.087	3	20	1.5	58.41	16	2.95	64.47	4	55.44	0.768
Tues.	30	0	34	29.73	9.090	3	43	21.5	58.25	16	2.67	64.48	4	37.08	0.765
Wed.	31	0	38	7.94	9.094	4	6	37.6	58.08	16	2.38	64.49	4	18.78	0.761
Thur.	32	0	41	46.25	9.099	N. 4	29	49.3	+57.89	16	2.10	64.50	4	0.59	0.756

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sideral Time.

+ prefixed to the hourly change of declination, indicates that north declinations are increasing, and south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be subtracted from Mean Time.	Diff. for 1 hour.	Sidereal Time or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		h m s	s	° ' "	"	m s	s	h m s
Mon.	1	22 48 7.46	9.365	S. 7 37 30.4	+56.96	12 35.61	0.492	22 35 31.85
Tues.	2	22 51 51.98	9.345	7 14 40.1	57.23	12 23.58	0.512	22 39 28.40
Wed.	3	22 55 36.02	9.325	6 51 43.4	57.48	12 11.07	0.532	22 43 24.95
Thur.	4	22 59 19.60	9.306	6 28 40.9	57.72	11 58.10	0.551	22 47 21.50
Frid.	5	23 3 2.73	9.288	6 5 32.8	57.94	11 44.67	0.569	22 51 18.06
Sat.	6	23 6 45.43	9.270	5 42 19.7	58.14	11 30.82	0.587	22 55 14.61
Sun.	7	23 10 27.72	9.253	5 19 1.9	58.33	11 16.55	0.604	22 59 11.17
Mon.	8	23 14 9.61	9.237	4 55 40.0	58.50	11 1.89	0.620	23 3 7.72
Tues.	9	23 17 51.11	9.221	4 32 14.1	58.65	10 46.83	0.636	23 7 4.28
Wed.	10	23 21 32.25	9.206	4 8 44.9	58.78	10 31.42	0.651	23 11 0.83
Thur.	11	23 25 13.04	9.192	3 45 12.6	58.90	10 15.66	0.665	23 14 57.38
Frid.	12	23 28 53.50	9.179	3 21 37.8	59.00	9 59.57	0.678	23 18 53.93
Sat.	13	23 32 33.64	9.166	2 58 0.7	59.08	9 43.15	0.691	23 22 50.49
Sun.	14	23 36 13.49	9.155	2 34 21.9	59.15	9 26.45	0.702	23 26 47.04
Mon.	15	23 39 53.06	9.144	2 10 41.7	59.20	9 9.46	0.713	23 30 43.60
Tues.	16	23 43 32.38	9.134	1 47 0.4	59.24	8 52.23	0.723	23 34 40.15
Wed.	17	23 47 11.37	9.125	1 23 18.2	59.26	8 34.76	0.732	23 38 36.71
Thur.	18	23 50 50.35	9.117	0 59 35.8	59.27	8 17.09	0.740	23 42 33.26
Frid.	19	23 54 29.05	9.109	0 35 53.5	59.26	7 59.24	0.748	23 46 29.81
Sat.	20	23 58 7.58	9.103	S. 0 12 11.5	59.24	7 41.22	0.754	23 50 26.36
Sun.	21	0 1 45.97	9.097	N. 0 11 30.0	59.21	7 23.05	0.760	23 54 22.92
Mon.	22	0 5 24.24	9.092	0 35 10.4	59.16	7 4.77	0.765	23 58 19.47
Tues.	23	0 9 2.42	9.089	0 58 49.4	59.10	6 46.39	0.768	0 2 16.03
Wed.	24	0 12 40.53	9.086	1 22 26.7	59.02	6 27.95	0.771	0 6 12.58
Thur.	25	0 16 18.59	9.085	1 46 2.1	58.93	6 9.45	0.772	0 10 9.14
Frid.	26	0 19 56.63	9.084	2 9 35.1	58.82	5 50.94	0.773	0 14 5.69
Sat.	27	0 23 34.67	9.085	2 33 5.5	58.70	5 32.43	0.772	0 18 2.24
Sun.	28	0 27 12.74	9.087	2 56 32.8	58.57	5 13.95	0.770	0 21 58.79
Mon.	29	0 30 50.86	9.089	3 19 56.8	58.42	4 55.51	0.768	0 25 55.35
Tues.	30	0 34 29.04	9.092	3 43 17.1	58.26	4 37.14	0.765	0 29 51.90
Wed.	31	0 38 7.30	9.096	4 6 33.5	58.09	4 18.84	0.761	0 33 48.46
Thur.	32	0 41 45.65	9.101	N. 4 29 45.5	+57.90	4 0.64	0.756	0 37 45.01

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

Diff. for 1 hour.
+9°.8565

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S					Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE.				
		λ	λ'						
1	60	340° 32' 6.5"	32' 3.2"	150.44	-0.49	9.9962286	+46.5	^h 1 ^m 24 ^s 14.31	
2	61	341 32 16.3	32 12.8	150.37	0.53	.9963407	46.8	1 20 18.40	
3	62	342 32 24.4	32 20.8	150.30	0.54	.9964536	47.1	1 16 22.49	
4	63	343 32 30.8	32 27.1	150.23	0.50	.9965671	47.3	1 12 26.59	
5	64	344 32 35.6	32 31.8	150.16	0.43	.9966811	47.5	1 8 30.68	
6	65	345 32 38.7	32 34.7	150.08	0.36	.9967956	47.7	1 4 34.77	
7	66	346 32 39.9	32 35.8	150.00	0.27	.9969104	47.8	1 0 38.86	
8	67	347 32 39.1	32 35.0	149.92	0.15	.9970254	47.9	0 56 42.95	
9	68	348 32 36.5	32 32.2	149.84	-0.03	.9971405	48.0	0 52 47.05	
10	69	349 32 31.6	32 27.3	149.75	+0.10	.9972559	48.1	0 48 51.15	
11	70	350 32 24.8	32 20.3	149.66	0.24	.9973717	48.3	0 44 55.24	
12	71	351 32 15.8	32 11.1	149.57	0.35	.9974879	48.5	0 40 59.33	
13	72	352 32 4.4	31 59.7	149.48	0.45	.9976045	48.7	0 37 3.42	
14	73	353 31 50.8	31 46.0	149.39	0.54	.9977215	48.9	0 33 7.51	
15	74	354 31 35.0	31 30.1	149.30	0.59	.9978391	49.1	0 29 11.60	
16	75	355 31 17.0	31 12.0	149.21	0.59	.9979573	49.4	0 25 15.70	
17	76	356 30 56.7	30 51.6	149.11	0.59	.9980762	49.7	0 21 19.79	
18	77	357 30 34.2	30 29.0	149.02	0.55	.9981960	50.1	0 17 23.88	
19	78	358 30 9.4	30 4.1	148.93	0.49	.9983167	50.5	0 13 27.97	
20	79	359 29 42.4	29 37.0	148.84	0.38	.9984383	50.9	0 9 32.05	
21	80	0 29 13.3	29 7.8	148.75	0.28	.9985609	51.3	0 5 36.16	
22	81	1 28 42.2	28 36.5	148.66	0.15	.9986845	51.7	{ 0 1 40.25 }	
23	82	2 28 9.0	28 3.2	148.58	+0.02	.9988090	52.1	{ 23 57 44.34 }	
24	83	3 27 33.8	27 27.9	148.49	-0.11	.9989344	52.4	23 49 52.53	
25	84	4 26 56.7	26 50.7	148.41	0.25	.9990606	52.7	23 45 56.62	
26	85	5 26 17.7	26 11.6	148.33	0.36	.9991875	53.0	23 42 0.71	
27	86	6 25 36.9	25 30.7	148.26	0.46	.9993149	53.2	23 38 4.81	
28	87	7 24 54.4	24 48.1	148.19	0.53	.9994426	53.3	23 34 8.90	
29	88	8 24 10.1	24 3.7	148.12	0.57	.9995705	53.4	23 30 12.99	
30	89	9 23 24.1	23 17.6	148.04	0.57	.9996986	53.4	23 26 17.08	
31	90	10 22 36.3	22 29.6	147.97	0.56	.9998267	53.3	23 22 21.17	
32	91	11 21 46.8	21 40.0	147.89	-0.51	9.9999545	+53.1	23 18 25.26	

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 0d.

Diff. for 1 hour.

-9°.8296

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.

	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.
							h m	m	d
1	15' 0.4	15' 4.9	54' 57.8	+1.27	55' 14.2	+1.46	19 33.0	2.26	23.2
2	15 9.9	15 15.5	55 32.8	1.63	55 53.3	1.79	20 27.9	2.30	24.2
3	15 21.6	15 28.0	56 15.6	1.91	56 39.1	2.01	21 22.8	2.27	25.2
4	15 34.7	15 41.4	57 3.6	2.06	57 28.5	2.08	22 16.6	2.20	26.2
5	15 48.2	15 54.8	57 53.4	2.05	58 17.7	1.98	23 8.5	2.13	27.2
6	16 1.1	16 7.0	58 40.8	1.87	59 2.4	1.71	23 58.8	2.06	28.2
7	16 12.3	16 16.8	59 21.7	1.51	59 38.4	1.27	♄		
8	16 20.5	16 23.4	59 52.1	1.01	60 2.6	0.73	0 47.9	2.04	0.7
9	16 25.3	16 26.3	60 9.6	+0.44	60 13.2	+0.15	1 37.1	2.07	1.7
10	16 26.3	16 25.5	60 13.3	-0.12	60 10.3	-0.38	2 27.6	2.14	2.7
11	16 23.9	16 21.5	60 4.4	0.61	59 55.8	0.82	3 20.4	2.27	3.7
12	16 18.6	16 15.1	59 44.9	0.99	59 32.2	1.12	4 16.4	2.40	4.7
13	16 11.3	16 7.1	59 16.1	1.23	59 2.8	1.31	5 15.6	2.52	5.7
14	16 2.8	15 58.3	58 46.8	1.36	58 30.3	1.39	6 16.7	2.56	6.7
15	15 53.7	15 49.1	58 13.5	1.40	57 56.8	1.39	7 17.6	2.49	7.7
16	15 44.6	15 40.2	57 40.2	1.38	57 23.8	1.35	8 15.9	2.35	8.7
17	15 35.8	15 31.5	57 7.7	1.33	56 52.0	1.29	9 10.2	2.17	9.7
18	15 27.3	15 23.2	56 36.6	1.26	56 21.6	1.23	10 0.1	1.99	10.7
19	15 19.3	15 15.4	56 7.1	1.19	55 53.0	1.16	10 46.1	1.85	11.7
20	15 11.7	15 8.1	55 39.3	1.12	55 26.2	1.07	11 29.1	1.74	12.7
21	15 4.7	15 1.5	55 13.7	1.02	55 1.8	0.96	12 10.1	1.69	13.7
22	14 58.5	14 55.7	54 50.7	0.89	54 40.5	0.81	12 50.3	1.67	14.7
23	14 53.2	14 51.0	54 31.3	0.72	54 23.2	0.62	13 30.8	1.70	15.7
24	14 49.1	14 47.7	54 16.5	0.51	54 11.2	0.38	14 12.4	1.77	16.7
25	14 46.7	14 46.2	54 7.5	-0.23	54 5.6	-0.08	14 56.1	1.87	17.7
26	14 46.2	14 46.8	54 5.6	+0.09	54 7.8	+0.27	15 42.4	1.99	18.7
27	14 48.0	14 49.8	54 12.2	0.46	54 18.9	0.65	16 31.5	2.10	19.7
28	14 52.3	14 55.4	54 27.9	0.85	54 39.4	1.06	17 23.2	2.19	20.7
29	14 59.2	15 3.6	54 53.3	1.26	55 9.7	1.46	18 16.5	2.24	21.7
30	15 8.7	15 14.4	55 28.4	1.65	55 49.3	1.84	19 10.3	2.23	22.7
31	15 20.7	15 27.5	56 12.4	2.00	56 37.3	2.14	20 3.4	2.18	23.7
32	15 34.7	15 42.1	57 3.6	+2.25	57 31.1	+2.32	20 55.1	2.12	24.7

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 1.					WEDNESDAY 3.				
0	h m s 17 26 28.95	2.2818	S. 27 55' 48.0"	2.953	0	h m s 19 19 6.11	2.3769	S. 27 27' 10.5"	4.283
1	17 28 45.98	2.2857	27 58 41.0	2.814	1	19 21 28.72	2.3766	27 22 48.2	4.450
2	17 31 3.24	2.2896	28 1 25.6	2.674	2	19 23 51.30	2.3762	27 18 16.5	4.606
3	17 33 20.73	2.2934	28 4 1.9	2.534	3	19 26 13.86	2.3758	27 13 35.5	4.762
4	17 35 38.45	2.2971	28 6 29.7	2.393	4	19 28 36.39	2.3753	27 8 45.1	4.918
5	17 37 56.38	2.3007	28 8 49.0	2.251	5	19 30 58.89	2.3747	27 3 45.3	5.075
6	17 40 14.53	2.3043	28 10 59.8	2.108	6	19 33 21.35	2.3740	26 58 36.1	5.231
7	17 42 32.89	2.3078	28 13 2.0	1.965	7	19 35 43.77	2.3732	26 53 17.6	5.386
8	17 44 51.46	2.3111	28 14 55.6	1.821	8	19 38 6.14	2.3723	26 47 49.8	5.542
9	17 47 10.23	2.3144	28 16 40.5	1.676	9	19 40 28.45	2.3713	26 42 12.6	5.697
10	17 49 29.19	2.3177	28 18 16.7	1.531	10	19 42 50.70	2.3703	26 36 26.1	5.852
11	17 51 48.35	2.3209	28 19 44.2	1.386	11	19 45 12.89	2.3692	26 30 30.4	6.006
12	17 54 7.70	2.3240	28 21 3.0	1.240	12	19 47 35.01	2.3680	26 24 25.4	6.161
13	17 56 27.23	2.3270	28 22 13.0	1.092	13	19 49 57.05	2.3667	26 18 11.1	6.315
14	17 58 46.94	2.3300	28 23 14.1	0.944	14	19 52 19.01	2.3654	26 11 47.6	6.468
15	18 1 6.83	2.3329	28 24 6.3	0.796	15	19 54 40.90	2.3641	26 5 14.9	6.622
16	18 3 26.89	2.3357	28 24 49.6	0.648	16	19 57 2.70	2.3628	25 58 33.0	6.775
17	18 5 47.11	2.3383	28 25 24.0	0.499	17	19 59 24.41	2.3610	25 51 41.9	6.927
18	18 8 7.49	2.3409	28 25 49.5	0.350	18	20 1 46.02	2.3594	25 44 41.7	7.079
19	18 10 28.02	2.3434	28 26 6.0	0.199	19	20 4 7.53	2.3577	25 37 32.4	7.231
20	18 12 48.70	2.3459	28 26 13.4	-0.048	20	20 6 28.94	2.3559	25 30 14.0	7.382
21	18 15 9.53	2.3482	28 26 11.7	+0.103	21	20 8 50.24	2.3540	25 22 46.6	7.532
22	18 17 30.49	2.3505	28 26 1.0	0.254	22	20 11 11.42	2.3521	25 15 10.2	7.682
23	18 19 51.59	2.3527	S. 28 25 41.2	0.406	23	20 13 32.49	2.3502	S. 25 7 24.8	7.832
TUESDAY 2.					THURSDAY 4.				
0	h m s 18 22 12.82	2.3548	S. 28 25 12.2	0.559	0	h m s 20 15 53.44	2.3481	S. 24 59 30.4	7.981
1	18 24 34.17	2.3568	28 24 34.1	0.719	1	20 18 14.26	2.3460	24 51 27.1	8.139
2	18 26 55.63	2.3587	28 23 46.8	0.885	2	20 20 34.96	2.3439	24 43 14.9	8.296
3	18 29 17.21	2.3606	28 22 50.3	1.018	3	20 22 55.53	2.3417	24 34 53.9	8.453
4	18 31 38.90	2.3623	28 21 44.6	1.179	4	20 25 15.96	2.3394	24 26 24.1	8.570
5	18 34 0.68	2.3639	28 20 29.6	1.327	5	20 27 36.26	2.3372	24 17 45.5	8.716
6	18 36 22.56	2.3654	28 19 5.3	1.489	6	20 29 56.42	2.3348	24 8 58.1	8.861
7	18 38 44.53	2.3668	28 17 31.8	1.636	7	20 32 16.43	2.3324	24 0 2.1	9.005
8	18 41 6.58	2.3682	28 15 49.0	1.791	8	20 34 36.30	2.3299	23 50 57.5	9.149
9	18 43 28.71	2.3694	28 13 56.9	1.947	9	20 36 56.02	2.3274	23 41 44.2	9.293
10	18 45 50.91	2.3706	28 11 55.4	2.103	10	20 39 15.59	2.3249	23 32 22.3	9.435
11	18 48 13.18	2.3717	28 9 44.6	2.258	11	20 41 35.00	2.3223	23 22 52.0	9.576
12	18 50 35.51	2.3728	28 7 24.5	2.414	12	20 43 54.26	2.3197	23 13 13.2	9.717
13	18 52 57.89	2.3738	28 4 55.0	2.570	13	20 46 13.36	2.3170	23 3 25.9	9.857
14	18 55 20.32	2.3743	28 2 16.1	2.726	14	20 48 32.30	2.3143	22 53 30.3	9.996
15	18 57 42.80	2.3750	27 59 27.9	2.889	15	20 50 51.07	2.3115	22 43 26.4	10.134
16	19 0 5.32	2.3755	27 56 30.3	3.039	16	20 53 9.68	2.3087	22 33 14.2	10.272
17	19 2 27.86	2.3759	27 53 23.2	3.196	17	20 55 28.12	2.3059	22 22 53.8	10.408
18	19 4 50.43	2.3763	27 50 6.7	3.353	18	20 57 46.39	2.3031	22 12 25.2	10.544
19	19 7 13.02	2.3767	27 46 40.8	3.510	19	21 0 4.49	2.3003	22 1 48.5	10.678
20	19 9 35.63	2.3769	27 43 5.5	3.666	20	21 2 22.42	2.2975	21 51 3.8	10.812
21	19 11 58.25	2.3770	27 39 20.9	3.822	21	21 4 40.18	2.2946	21 40 11.1	10.945
22	19 14 20.87	2.3770	27 35 26.9	3.979	22	21 6 57.77	2.2917	21 29 10.4	11.077
23	19 16 43.49	2.3770	27 31 23.4	4.136	23	21 9 15.18	2.2887	21 18 1.9	11.208
24	19 19 6.11	2.3769	S. 27 27 10.5	4.293	24	21 11 32.41	2.2857	S. 21 6 45.5	11.338

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 5.					SUNDAY 7.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	21 11 32.41	2.2857	S. 21 6 45.5	11.338	0	22 57 59.26	2.1600	S. 9 55 18.1	16.129
1	21 13 49.46	2.2828	20 55 21.4	11.466	1	23 0 8.81	2.1583	9 39 8.4	16.194
2	21 16 6.34	2.2798	20 43 49.6	11.504	2	23 2 18.26	2.1568	9 22 54.8	16.258
3	21 18 23.04	2.2768	20 32 10.1	11.721	3	23 4 27.62	2.1553	9 6 37.4	16.320
4	21 20 39.56	2.2738	20 20 23.0	11.847	4	23 6 36.89	2.1538	8 50 16.3	16.380
5	21 22 55.90	2.2707	20 8 28.5	11.971	5	23 8 46.07	2.1523	8 33 51.7	16.439
6	21 25 12.05	2.2677	19 56 26.5	12.095	6	23 10 55.16	2.1509	8 17 23.6	16.496
7	21 27 28.02	2.2648	19 44 17.1	12.217	7	23 13 4.17	2.1496	8 0 52.1	16.552
8	21 29 43.82	2.2618	19 32 0.4	12.338	8	23 15 13.11	2.1484	7 44 17.3	16.606
9	21 31 59.44	2.2588	19 19 36.5	12.458	9	23 17 21.98	2.1473	7 27 39.4	16.658
10	21 34 14.87	2.2558	19 7 5.4	12.577	10	23 19 30.78	2.1462	7 10 58.4	16.709
11	21 36 30.13	2.2528	18 54 27.2	12.695	11	23 21 39.52	2.1451	6 54 14.3	16.759
12	21 38 45.21	2.2498	18 41 42.0	12.812	12	23 23 48.19	2.1441	6 37 27.3	16.807
13	21 41 0.11	2.2468	18 28 49.8	12.928	13	23 25 56.81	2.1432	6 20 37.5	16.852
14	21 43 14.83	2.2438	18 15 50.7	13.043	14	23 28 5.38	2.1424	6 3 45.1	16.895
15	21 45 29.37	2.2408	18 2 44.7	13.156	15	23 30 13.90	2.1417	5 46 50.1	16.937
16	21 47 43.73	2.2379	17 49 32.0	13.268	16	23 32 22.38	2.1410	5 29 52.6	16.978
17	21 49 57.92	2.2350	17 36 12.6	13.378	17	23 34 30.82	2.1404	5 12 52.7	17.017
18	21 52 11.93	2.2321	17 22 46.7	13.487	18	23 36 39.23	2.1399	4 55 50.5	17.055
19	21 54 25.77	2.2292	17 9 14.2	13.596	19	23 38 47.61	2.1394	4 38 46.1	17.091
20	21 56 39.43	2.2263	16 55 35.2	13.703	20	23 40 55.96	2.1389	4 21 39.6	17.125
21	21 58 52.92	2.2234	16 41 49.9	13.808	21	23 43 4.28	2.1386	4 4 31.1	17.158
22	22 1 6.24	2.2206	16 27 58.3	13.912	22	23 45 12.59	2.1384	3 47 20.7	17.188
23	22 3 19.39	2.2178	S. 16 14 0.5	14.015	23	23 47 20.89	2.1383	S. 3 30 8.6	17.216
SATURDAY 6.					MONDAY 8.				
0	h m s	s	° ' "	"	0	h m s	s	° ' "	"
0	22 5 32.37	2.2150	S. 15 59 56.5	14.117	0	23 49 29.18	2.1382	S. 3 12 54.8	17.243
1	22 7 45.19	2.2122	15 45 46.5	14.217	1	23 51 37.47	2.1382	2 55 39.4	17.269
2	22 9 57.84	2.2095	15 31 30.5	14.316	2	23 53 45.76	2.1382	2 38 22.5	17.293
3	22 12 10.33	2.2068	15 17 8.6	14.413	3	23 55 54.05	2.1383	2 21 4.3	17.315
4	22 14 22.66	2.2042	15 2 40.9	14.509	4	23 58 2.35	2.1385	2 3 44.8	17.335
5	22 16 34.83	2.2016	14 48 7.5	14.604	5	0 0 10.67	2.1388	1 46 24.1	17.353
6	22 18 46.85	2.1990	14 33 28.4	14.697	6	0 2 19.01	2.1392	1 29 2.4	17.370
7	22 20 58.71	2.1964	14 18 43.8	14.789	7	0 4 27.37	2.1396	1 11 39.7	17.385
8	22 23 10.42	2.1939	14 3 53.7	14.880	8	0 6 35.76	2.1402	0 54 16.2	17.398
9	22 25 21.98	2.1914	13 48 58.2	14.969	9	0 8 44.19	2.1408	0 36 52.0	17.409
10	22 27 33.39	2.1890	13 33 57.4	15.057	10	0 10 52.65	2.1414	0 19 27.1	17.419
11	22 29 44.66	2.1866	13 18 51.4	15.143	11	0 13 1.16	2.1422	S. 0 2 1.7	17.428
12	22 31 55.78	2.1842	13 3 40.2	15.228	12	0 15 9.72	2.1431	N. 0 15 24.2	17.434
13	22 34 6.76	2.1819	12 48 24.0	15.311	13	0 17 18.33	2.1440	0 32 50.4	17.438
14	22 36 17.61	2.1797	12 23 2.8	15.393	14	0 19 27.00	2.1449	0 50 16.8	17.440
15	22 38 28.33	2.1776	12 17 36.8	15.473	15	0 21 35.72	2.1459	1 7 43.2	17.441
16	22 40 38.92	2.1754	12 2 6.0	15.553	16	0 23 44.51	2.1471	1 25 9.7	17.441
17	22 42 49.38	2.1733	11 46 30.5	15.631	17	0 25 53.38	2.1484	1 42 36.1	17.438
18	22 44 59.71	2.1712	11 30 50.3	15.707	18	0 28 2.32	2.1497	2 0 2.2	17.433
19	22 47 9.92	2.1692	11 15 5.6	15.781	19	0 30 11.34	2.1511	2 17 28.0	17.426
20	22 49 20.01	2.1672	10 59 16.6	15.853	20	0 32 20.45	2.1526	2 34 53.4	17.418
21	22 51 29.99	2.1653	10 43 23.3	15.925	21	0 34 29.65	2.1542	2 52 18.2	17.408
22	22 53 39.85	2.1635	10 27 25.7	15.995	22	0 36 38.95	2.1558	3 9 42.4	17.397
23	22 55 49.61	2.1617	10 11 23.4	16.063	23	0 38 48.35	2.1575	3 27 5.8	17.383
24	22 57 59.26	2.1600	S. 9 55 18.1	16.129	24	0 40 57.85	2.1593	N. 3 44 28.3	17.367

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 9.					THURSDAY 11.				
0	h 40 57.85	2.1593	N. 3° 44' 28.3"	17.367	0	2 28 6.22	2.3203	N. 16° 45' 31.8"	14.473
1	0 43 7.46	2.1612	4 1 49.8	17.350	1	2 30 26.19	2.3352	16 59 57.0	14.368
2	0 45 17.19	2.1632	4 19 10.3	17.332	2	2 32 46.45	2.3499	17 14 15.9	14.261
3	0 47 27.04	2.1652	4 36 29.6	17.311	3	2 35 7.01	2.3642	17 28 29.3	14.153
4	0 49 37.01	2.1673	4 53 47.6	17.288	4	2 37 27.88	2.3563	17 42 34.2	14.043
5	0 51 47.11	2.1694	5 11 4.1	17.263	5	2 39 49.05	2.3554	17 56 33.4	13.931
6	0 53 57.34	2.1717	5 28 19.1	17.236	6	2 42 10.53	2.3606	18 10 25.9	13.818
7	0 56 7.71	2.1741	5 45 32.5	17.208	7	2 44 32.32	2.3657	18 24 11.5	13.702
8	0 58 18.23	2.1765	6 2 44.1	17.178	8	2 46 54.41	2.3708	18 37 50.1	13.584
9	1 0 28.89	2.1789	6 19 53.9	17.146	9	2 49 16.81	2.3759	18 51 21.6	13.466
10	1 2 39.70	2.1815	6 37 1.7	17.113	10	2 51 39.52	2.3811	19 4 46.0	13.346
11	1 4 50.67	2.1842	6 54 7.5	17.078	11	2 54 2.54	2.3864	19 18 3.1	13.223
12	1 7 1.81	2.1870	7 11 11.1	17.041	12	2 56 25.88	2.3916	19 31 12.8	13.099
13	1 9 13.11	2.1898	7 28 12.4	17.002	13	2 58 49.53	2.3968	19 44 15.0	12.974
14	1 11 24.58	2.1927	7 45 11.3	16.960	14	3 1 13.49	2.4019	19 57 9.7	12.847
15	1 13 36.23	2.1957	8 2 7.6	16.917	15	3 3 37.76	2.4071	20 9 56.7	12.718
16	1 15 48.06	2.1988	8 19 1.3	16.873	16	3 6 2.35	2.4124	20 22 35.9	12.588
17	1 18 0.08	2.2019	8 35 52.3	16.826	17	3 8 27.25	2.4176	20 35 7.2	12.456
18	1 20 12.28	2.2050	8 52 40.4	16.778	18	3 10 52.46	2.4228	20 47 30.6	12.322
19	1 22 24.68	2.2083	9 9 25.6	16.728	19	3 13 17.98	2.4280	20 59 45.9	12.187
20	1 24 37.28	2.2116	9 26 7.7	16.675	20	3 15 43.82	2.4332	21 11 53.0	12.050
21	1 26 50.07	2.2149	9 42 46.6	16.621	21	3 18 9.97	2.4384	21 23 51.9	11.912
22	1 29 3.07	2.2184	9 59 22.2	16.565	22	3 20 36.43	2.4436	21 35 42.4	11.772
23	1 31 16.28	2.2220	N. 10° 15' 54.4"	16.507	23	3 23 3.20	2.4488	N. 21° 47' 24.5"	11.631
WEDNESDAY 10.					FRIDAY 12.				
0	1 33 29.71	2.2257	N. 10° 32' 23.1"	16.448	0	3 25 30.28	2.4539	N. 21° 58' 58.1"	11.488
1	1 35 43.36	2.2294	10 48 48.2	16.386	1	3 27 57.67	2.4590	22 10 23.1	11.343
2	1 37 57.23	2.2331	11 5 9.5	16.323	2	3 30 25.36	2.4640	22 21 39.3	11.197
3	1 40 11.33	2.2369	11 21 27.0	16.258	3	3 32 53.35	2.4691	22 32 46.7	11.049
4	1 42 25.66	2.2408	11 37 40.5	16.191	4	3 35 21.65	2.4741	22 43 45.2	10.901
5	1 44 40.22	2.2447	11 53 50.0	16.123	5	3 37 50.25	2.4791	22 54 34.8	10.751
6	1 46 55.02	2.2487	12 9 55.3	16.052	6	3 40 19.14	2.4840	23 5 15.3	10.599
7	1 49 10.06	2.2528	12 25 56.3	15.980	7	3 42 48.33	2.4889	23 15 46.7	10.446
8	1 51 25.35	2.2569	12 41 52.9	15.906	8	3 45 17.81	2.4938	23 26 8.8	10.291
9	1 53 40.89	2.2611	12 57 45.0	15.830	9	3 47 47.58	2.4986	23 36 21.6	10.135
10	1 55 56.69	2.2654	13 13 32.5	15.753	10	3 50 17.64	2.5033	23 46 25.0	9.978
11	1 58 12.74	2.2697	13 29 15.3	15.673	11	3 52 47.98	2.5080	23 56 19.0	9.820
12	2 0 29.05	2.2741	13 44 53.2	15.591	12	3 55 18.60	2.5127	24 6 3.4	9.660
13	2 2 45.63	2.2785	14 0 26.2	15.508	13	3 57 49.50	2.5173	24 15 38.2	9.499
14	2 5 2.47	2.2829	14 15 54.1	15.423	14	4 0 20.67	2.5218	24 25 3.3	9.336
15	2 7 19.58	2.2875	14 31 16.9	15.336	15	4 2 52.11	2.5263	24 34 18.5	9.172
16	2 9 36.97	2.2921	14 46 34.4	15.247	16	4 5 23.82	2.5306	24 43 23.9	9.007
17	2 11 54.63	2.2967	15 1 46.5	15.157	17	4 7 55.78	2.5349	24 52 19.4	8.841
18	2 14 12.57	2.3013	15 16 53.2	15.065	18	4 10 28.00	2.5391	25 1 4.8	8.674
19	2 16 30.79	2.3060	15 31 54.3	14.970	19	4 13 0.47	2.5433	25 9 40.2	8.506
20	2 18 49.30	2.3108	15 46 49.6	14.873	20	4 15 33.19	2.5473	25 18 5.5	8.337
21	2 21 8.09	2.3156	16 1 39.1	14.776	21	4 18 6.15	2.5513	25 26 20.6	8.166
22	2 23 27.17	2.3205	16 16 22.7	14.677	22	4 20 39.35	2.5552	25 34 25.4	7.994
23	2 25 46.55	2.3254	16 31 0.3	14.576	23	4 23 12.78	2.5590	25 42 19.9	7.822
24	2 28 6.22	2.3303	N. 16° 45' 31.8"	14.473	24	4 25 46.43	2.5627	N. 25° 50' 4.0"	7.648

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 13.					MONDAY 15.				
0	4 25 46.43	2.5627	N.25 50 4.0	7.648	0	6 30 42.03	2.5879	N.28 25 42.7	1.322
1	4 28 20.30	2.5663	25 57 37.7	7.474	1	6 33 17.22	2.5848	28 24 23.3	1.414
2	4 20 54.39	2.5699	26 5 0.9	7.298	2	6 35 52.21	2.5816	28 22 53.0	1.597
3	4 33 28.69	2.5733	26 12 13.5	7.123	3	6 38 27.01	2.5783	28 21 11.7	1.778
4	4 36 3.19	2.5768	26 19 15.5	6.944	4	6 41 1.61	2.5748	28 19 19.6	1.958
5	4 38 37.88	2.5797	26 26 6.8	6.766	5	6 43 35.99	2.5719	28 17 16.8	2.137
6	4 41 12.75	2.5828	26 32 47.4	6.587	6	6 46 10.15	2.5674	28 15 3.2	2.316
7	4 43 47.81	2.5858	26 39 17.2	6.408	7	6 48 44.08	2.5636	28 12 38.9	2.493
8	4 46 23.04	2.5886	26 45 36.3	6.228	8	6 51 17.78	2.5596	28 10 4.0	2.670
9	4 48 58.44	2.5913	26 51 44.5	6.046	9	6 53 51.24	2.5555	28 7 18.5	2.846
10	4 51 34.00	2.5939	26 57 41.8	5.863	10	6 56 24.44	2.5512	28 4 22.5	3.021
11	4 54 9.71	2.5964	27 3 28.1	5.680	11	6 58 57.38	2.5468	28 1 16.0	3.195
12	4 56 45.57	2.5988	27 9 3.4	5.497	12	7 1 30.06	2.5423	27 57 59.1	3.368
13	4 59 21.57	2.6010	27 14 27.7	5.313	13	7 4 2.46	2.5377	27 54 31.8	3.541
14	5 1 57.69	2.6031	27 19 40.9	5.129	14	7 6 34.58	2.5330	27 50 54.2	3.719
15	5 4 33.94	2.6051	27 24 43.1	4.944	15	7 9 6.42	2.5282	27 47 6.4	3.892
16	5 7 10.30	2.6069	27 29 34.2	4.758	16	7 11 37.96	2.5232	27 43 8.4	4.052
17	5 9 46.77	2.6086	27 34 14.1	4.572	17	7 14 9.20	2.5181	27 39 0.2	4.220
18	5 12 23.34	2.6102	27 38 42.8	4.386	18	7 16 40.13	2.5129	27 34 42.0	4.387
19	5 14 59.99	2.6116	27 43 0.4	4.199	19	7 19 10.75	2.5077	27 30 13.8	4.553
20	5 17 36.73	2.6129	27 47 6.7	4.012	20	7 21 41.05	2.5023	27 25 35.7	4.717
21	5 20 13.54	2.6140	27 51 1.8	3.824	21	7 24 11.02	2.4968	27 20 47.8	4.880
22	5 22 50.41	2.6150	27 54 45.6	3.636	22	7 26 40.66	2.4913	27 15 50.1	5.043
23	5 25 27.34	2.6159	N.27 58 18.1	3.448	23	7 29 9.97	2.4857	N.27 10 42.7	5.204
SUNDAY 14.					TUESDAY 16.				
0	5 28 4.32	2.6166	N.28 1 39.4	3.261	0	7 31 38.94	2.4799	N.27 5 25.6	5.364
1	5 30 41.34	2.6171	28 4 49.4	3.072	1	7 34 7.56	2.4741	26 59 59.0	5.523
2	5 33 18.38	2.6175	28 7 48.0	2.883	2	7 36 35.83	2.4682	26 54 22.9	5.680
3	5 35 55.44	2.6177	28 10 35.3	2.694	3	7 39 3.74	2.4622	26 48 37.4	5.836
4	5 38 32.51	2.6178	28 13 11.3	2.506	4	7 41 31.29	2.4561	26 42 42.6	5.991
5	5 41 9.58	2.6178	28 15 36.0	2.317	5	7 43 58.47	2.4499	26 36 38.5	6.145
6	5 43 46.65	2.6176	28 17 49.3	2.128	6	7 46 25.28	2.4437	26 30 25.2	6.298
7	5 46 23.70	2.6173	28 19 51.3	1.939	7	7 48 51.71	2.4374	26 24 2.8	6.448
8	5 49 0.72	2.6168	28 21 42.0	1.750	8	7 51 17.77	2.4311	26 17 31.4	6.598
9	5 51 37.71	2.6161	28 23 21.3	1.561	9	7 53 43.45	2.4248	26 10 51.1	6.746
10	5 54 14.65	2.6153	28 24 49.3	1.373	10	7 56 8.75	2.4183	26 4 1.9	6.893
11	5 56 51.54	2.6143	28 26 6.0	1.185	11	7 58 33.65	2.4118	25 57 3.9	7.038
12	5 59 28.36	2.6131	28 27 11.5	0.998	12	8 0 58.16	2.4052	25 49 57.3	7.183
13	6 2 5.11	2.6118	28 28 5.7	0.809	13	8 3 22.27	2.3986	25 42 42.0	7.326
14	6 4 41.78	2.6104	28 28 48.6	0.621	14	8 5 45.99	2.3920	25 35 18.2	7.467
15	6 7 18.36	2.6088	28 29 20.2	0.433	15	8 8 9.31	2.3853	25 27 46.0	7.607
16	6 9 54.84	2.6071	28 29 40.6	0.247	16	8 10 32.22	2.3785	25 20 5.4	7.745
17	6 12 31.21	2.6052	28 29 49.8	+0.060	17	8 12 54.73	2.3717	25 12 16.6	7.882
18	6 15 7.47	2.6032	28 29 47.8	-0.126	18	8 15 16.83	2.3649	25 4 19.6	8.018
19	6 17 43.60	2.6010	28 29 34.7	0.312	19	8 17 38.52	2.3581	24 56 14.5	8.152
20	6 20 19.59	2.5987	28 29 10.4	0.498	20	8 19 59.80	2.3512	24 48 1.4	8.285
21	6 22 55.44	2.5962	28 28 35.0	0.683	21	8 22 20.67	2.3443	24 39 40.3	8.417
22	6 25 31.14	2.5936	28 27 48.5	0.866	22	8 24 41.12	2.3373	24 31 11.4	8.546
23	6 28 6.67	2.5908	28 26 51.1	1.048	23	8 27 1.15	2.3304	24 22 34.8	8.674
24	6 30 42.03	2.5879	N.28 25 42.7	1.232	24	8 29 20.77	2.3235	N.24 13 50.5	8.802

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 17.					FRIDAY 19.				
0	8 29 20.77	2.3235	N. 24 13 50.5	8.802	0	10 13 2.59	2.0098	N. 15 12 51.1	13.196
1	8 31 39.97	2.3165	24 4 58.6	8.928	1	10 15 3.01	2.0043	14 59 37.6	13.254
2	8 33 58.75	2.3095	23 55 59.2	9.051	2	10 17 3.11	1.9990	14 46 20.6	13.311
3	8 36 17.11	2.3025	23 46 52.5	9.173	3	10 19 2.89	1.9937	14 33 0.3	13.366
4	8 38 35.05	2.2955	23 37 38.5	9.294	4	10 21 2.35	1.9884	14 19 36.7	13.420
5	8 40 52.57	2.2884	23 28 17.2	9.414	5	10 23 1.50	1.9832	14 6 9.9	13.473
6	8 43 9.66	2.2814	23 18 48.8	9.532	6	10 25 0.34	1.9781	13 52 39.9	13.525
7	8 45 26.34	2.2744	23 9 13.4	9.648	7	10 26 58.87	1.9730	13 39 6.9	13.575
8	8 47 42.59	2.2673	22 59 31.0	9.764	8	10 28 57.10	1.9680	13 25 30.9	13.625
9	8 49 58.42	2.2603	22 49 41.7	9.878	9	10 30 55.03	1.9630	13 11 51.9	13.673
10	8 52 13.83	2.2533	22 39 45.6	9.990	10	10 32 52.66	1.9582	12 58 10.1	13.720
11	8 54 28.82	2.2464	22 29 42.9	10.100	11	10 34 50.01	1.9534	12 44 25.5	13.767
12	8 56 43.40	2.2394	22 19 33.6	10.209	12	10 36 47.07	1.9487	12 30 38.1	13.812
13	8 58 57.55	2.2324	22 9 17.8	10.317	13	10 38 43.85	1.9440	12 16 48.1	13.855
14	9 1 11.29	2.2255	21 58 55.5	10.424	14	10 40 40.35	1.9393	12 2 55.5	13.897
15	9 3 24.61	2.2185	21 48 26.9	10.529	15	10 42 36.57	1.9348	11 49 0.5	13.937
16	9 5 37.51	2.2116	21 37 52.0	10.632	16	10 44 32.58	1.9304	11 35 3.0	13.977
17	9 7 50.00	2.2047	21 27 11.0	10.734	17	10 46 28.22	1.9260	11 21 3.2	14.016
18	9 10 2.07	2.1978	21 16 23.9	10.834	18	10 48 23.65	1.9217	11 7 1.1	14.054
19	9 12 13.73	2.1909	21 5 30.9	10.933	19	10 50 18.82	1.9174	10 52 56.7	14.091
20	9 14 24.98	2.1841	20 54 31.9	11.032	20	10 52 13.74	1.9132	10 38 50.2	14.126
21	9 16 35.83	2.1774	20 43 27.1	11.128	21	10 54 8.41	1.9091	10 24 41.6	14.160
22	9 18 46.27	2.1706	20 32 16.6	11.222	22	10 56 2.83	1.9050	10 10 31.0	14.193
23	9 20 56.30	2.1638	N. 20 21 0.5	11.315	23	10 57 57.01	1.9011	N. 9 56 18.5	14.225
THURSDAY 18.					SATURDAY 20.				
0	9 23 5.92	2.1570	N. 20 9 38.8	11.407	0	10 59 50.96	1.8973	N. 9 42 4.0	14.257
1	9 25 15.14	2.1504	19 58 11.6	11.498	1	11 1 44.68	1.8934	9 27 47.7	14.286
2	9 27 23.97	2.1438	19 46 39.1	11.586	2	11 3 38.17	1.8896	9 13 29.7	14.315
3	9 29 32.40	2.1373	19 35 1.3	11.673	3	11 5 31.43	1.8859	8 59 9.9	14.343
4	9 31 40.44	2.1307	19 23 18.3	11.760	4	11 7 24.47	1.8823	8 44 48.5	14.369
5	9 33 48.08	2.1241	19 11 30.1	11.845	5	11 9 17.30	1.8788	8 30 25.6	14.394
6	9 35 55.33	2.1177	18 59 36.9	11.928	6	11 11 9.92	1.8753	8 16 1.2	14.419
7	9 38 2.20	2.1113	18 47 38.7	12.010	7	11 13 2.33	1.8719	8 1 35.3	14.443
8	9 40 8.68	2.1049	18 35 35.7	12.090	8	11 14 54.54	1.8686	7 47 8.0	14.465
9	9 42 14.78	2.0985	18 23 27.9	12.169	9	11 16 46.56	1.8653	7 32 39.5	14.486
10	9 44 20.50	2.0922	18 11 15.4	12.247	10	11 18 38.38	1.8621	7 18 9.7	14.507
11	9 46 25.85	2.0860	17 58 58.3	12.323	11	11 20 30.01	1.8589	7 3 38.7	14.527
12	9 48 30.82	2.0798	17 46 36.6	12.399	12	11 22 21.45	1.8558	6 49 6.5	14.545
13	9 50 35.42	2.0737	17 34 10.4	12.473	13	11 24 12.71	1.8529	6 34 33.3	14.562
14	9 52 39.66	2.0677	17 21 39.9	12.544	14	11 26 3.80	1.8501	6 19 59.1	14.578
15	9 54 43.54	2.0616	17 9 5.1	12.615	15	11 27 54.72	1.8472	6 5 23.9	14.594
16	9 56 47.05	2.0556	16 56 26.1	12.685	16	11 29 45.47	1.8444	5 50 47.8	14.609
17	9 58 50.21	2.0497	16 43 42.9	12.754	17	11 31 36.05	1.8417	5 36 10.9	14.622
18	10 0 53.01	2.0438	16 30 55.6	12.822	18	11 33 26.47	1.8391	5 21 33.2	14.634
19	10 2 55.46	2.0380	16 18 4.3	12.888	19	11 35 16.74	1.8366	5 6 54.8	14.646
20	10 4 57.57	2.0322	16 5 9.1	12.951	20	11 37 6.86	1.8341	4 52 15.7	14.656
21	10 6 59.33	2.0265	15 52 10.2	13.014	21	11 38 56.83	1.8317	4 37 36.1	14.665
22	10 9 0.75	2.0209	15 39 7.5	13.076	22	11 40 46.66	1.8293	4 22 55.9	14.674
23	10 11 1.84	2.0153	15 26 1.1	13.137	23	11 42 36.35	1.8271	4 8 15.2	14.681
24	10 13 2.59	2.0098	N. 15 12 51.1	13.196	24	11 44 25.91	1.8249	N. 3 53 34.2	14.687

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 21.					TUESDAY 23.				
0	h m s	s	N. ° ' "	"	0	h m s	s	S. ° ' "	"
1	11 44 25.91	1.8949	3 53 34.2	14.687	1	13 10 49.76	1.8009	7 42 3.4	13.969
2	11 46 15.34	1.8928	3 38 52.8	14.693	2	13 12 37.85	1.8021	7 56 0.5	13.933
3	11 48 4.65	1.8907	3 24 11.0	14.698	3	13 14 26.01	1.8033	8 9 55.4	13.897
4	11 49 53.83	1.8187	3 9 29.0	14.702	4	13 16 14.25	1.8046	8 23 48.1	13.860
5	11 51 42.89	1.8168	2 54 46.8	14.705	5	13 18 2.57	1.8059	8 37 38.6	13.823
6	11 53 31.85	1.8151	2 40 4.4	14.708	6	13 19 50.96	1.8072	8 51 26.8	13.784
7	11 55 20.70	1.8133	2 25 21.9	14.708	7	13 21 39.43	1.8086	9 5 12.7	13.745
8	11 57 9.44	1.8116	2 10 39.4	14.708	8	13 23 27.99	1.8102	9 18 56.2	13.705
9	11 58 58.09	1.8100	1 55 56.9	14.708	9	13 25 16.65	1.8118	9 32 37.3	13.664
10	12 0 46.64	1.8084	1 41 14.5	14.706	10	13 27 5.40	1.8134	9 46 15.9	13.623
11	12 2 35.10	1.8069	1 26 32.2	14.703	11	13 28 54.25	1.8150	9 59 52.0	13.580
12	12 4 23.47	1.8055	1 11 50.1	14.699	12	13 30 43.20	1.8168	10 13 25.5	13.536
13	12 6 11.76	1.8042	0 57 8.3	14.694	13	13 32 32.26	1.8186	10 26 56.3	13.492
14	12 7 59.97	1.8029	0 42 26.8	14.689	14	13 34 21.43	1.8204	10 40 24.5	13.448
15	12 9 48.11	1.8017	0 27 45.6	14.684	15	13 36 10.71	1.8223	10 53 50.0	13.402
16	12 11 36.18	1.8006	N. 0 13 4.7	14.677	16	13 38 0.10	1.8243	11 7 12.7	13.355
17	12 13 24.18	1.7995	S. 0 1 35.7	14.668	17	13 39 49.62	1.8263	11 20 32.6	13.308
18	12 15 12.12	1.7985	0 16 15.5	14.659	18	13 41 39.26	1.8284	11 33 49.7	13.260
19	12 17 0.00	1.7976	0 30 54.8	14.650	19	13 43 29.03	1.8306	11 47 3.8	13.211
20	12 18 47.83	1.7967	0 45 33.5	14.640	20	13 45 18.93	1.8328	12 0 15.0	13.162
21	12 20 35.61	1.7959	1 0 11.6	14.629	21	13 47 8.96	1.8350	12 13 23.2	13.112
22	12 22 23.34	1.7952	1 14 48.9	14.616	22	13 48 59.13	1.8373	12 26 28.4	13.061
23	12 24 11.03	1.7946	1 29 25.5	14.603	23	13 50 49.44	1.8397	12 39 30.5	13.008
24	12 25 58.69	1.7940	S. 1 44 1.2	14.588	24	13 52 39.89	1.8421	S. 12 52 29.4	12.955
MONDAY 22.					WEDNESDAY 24.				
0	12 27 46.31	1.7934	S. 1 58 36.1	14.574	0	13 54 30.49	1.8446	S. 13 5 25.1	12.902
1	12 29 33.90	1.7930	2 13 10.1	14.558	1	13 56 21.24	1.8471	13 18 17.6	12.848
2	12 31 21.47	1.7926	2 27 43.1	14.542	2	13 58 12.14	1.8497	13 31 6.8	12.793
3	12 33 9.02	1.7923	2 42 15.1	14.524	3	14 0 3.20	1.8524	13 43 52.7	12.737
4	12 34 56.55	1.7921	2 56 46.0	14.506	4	14 1 54.42	1.8551	13 56 35.2	12.680
5	12 36 44.07	1.7919	3 11 15.8	14.487	5	14 3 45.81	1.8578	14 9 14.2	12.622
6	12 38 31.58	1.7918	3 25 44.4	14.467	6	14 5 37.36	1.8606	14 21 49.8	12.564
7	12 40 19.08	1.7917	3 40 11.8	14.447	7	14 7 29.08	1.8635	14 34 21.9	12.505
8	12 42 6.58	1.7918	3 54 38.0	14.425	8	14 9 20.98	1.8664	14 46 50.4	12.444
9	12 43 54.09	1.7919	4 9 2.8	14.402	9	14 11 13.05	1.8693	14 59 15.2	12.383
10	12 45 41.60	1.7920	4 23 26.2	14.378	10	14 13 5.30	1.8723	15 11 36.4	12.322
11	12 47 29.13	1.7922	4 37 48.2	14.355	11	14 14 57.73	1.8753	15 23 53.9	12.260
12	12 49 16.67	1.7925	4 52 8.8	14.331	12	14 16 50.34	1.8784	15 36 7.6	12.197
13	12 51 4.23	1.7928	5 6 27.9	14.305	13	14 18 43.14	1.8816	15 48 17.5	12.133
14	12 52 51.81	1.7933	5 20 45.4	14.278	14	14 20 36.13	1.8848	16 0 23.5	12.068
15	12 54 39.42	1.7938	5 35 1.2	14.250	15	14 22 29.32	1.8881	16 12 25.7	12.003
16	12 56 27.06	1.7943	5 49 15.4	14.222	16	14 24 22.70	1.8914	16 24 23.9	11.936
17	12 58 14.74	1.7949	6 3 27.9	14.193	17	14 26 16.28	1.8948	16 36 18.0	11.868
18	13 0 2.45	1.7955	6 17 38.6	14.163	18	14 28 10.07	1.8982	16 48 8.1	11.801
19	13 1 50.20	1.7963	6 31 47.5	14.133	19	14 30 4.06	1.9016	16 59 54.1	11.732
20	13 3 38.00	1.7972	6 45 54.6	14.103	20	14 31 58.26	1.9050	17 11 35.9	11.663
21	13 5 25.86	1.7981	6 59 59.8	14.070	21	14 33 52.66	1.9085	17 23 13.6	11.593
22	13 7 13.77	1.7990	7 14 3.0	14.037	22	14 35 47.28	1.9121	17 34 47.0	11.521
23	13 9 1.74	1.7999	7 28 4.2	14.003	23	14 37 42.12	1.9157	17 46 16.1	11.448
24	13 10 49.76	1.8009	S. 7 42 3.4	13.969	24	14 39 37.17	1.9194	S. 17 57 40.8	11.375

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 25.					SATURDAY 27.				
0	h m s 14 39 37.17	1.9194	S. 17° 57' 40.8"	11.375	0	h m s 16 16 32.19	2.1256	S. 25° 24' 2.0"	6.903
1	14 41 32.44	1.9231	18 9 1.1	11.308	1	16 18 39.86	2.1301	25 30 52.8	6.789
2	14 43 27.94	1.9268	18 20 17.0	11.228	2	16 20 47.80	2.1346	25 37 36.7	6.674
3	14 45 23.66	1.9305	18 31 28.4	11.153	3	16 22 56.01	2.1391	25 44 13.7	6.559
4	14 47 19.60	1.9343	18 42 35.3	11.077	4	16 25 4.49	2.1435	25 50 43.8	6.443
5	14 49 15.78	1.9382	18 53 37.6	10.999	5	16 27 13.23	2.1478	25 57 6.9	6.326
6	14 51 12.19	1.9421	19 4 35.2	10.921	6	16 29 22.23	2.1522	26 3 22.9	6.208
7	14 53 8.83	1.9460	19 15 28.1	10.843	7	16 31 31.40	2.1566	26 9 31.8	6.090
8	14 55 5.71	1.9500	19 26 16.3	10.763	8	16 33 41.02	2.1610	26 15 33.7	5.972
9	14 57 2.83	1.9540	19 36 59.7	10.683	9	16 35 50.81	2.1653	26 21 28.4	5.852
10	14 59 0.19	1.9580	19 47 38.3	10.603	10	16 38 0.85	2.1695	26 27 15.9	5.731
11	15 0 57.79	1.9621	19 58 12.0	10.520	11	16 40 11.15	2.1738	26 32 56.1	5.609
12	15 2 55.64	1.9662	20 8 40.7	10.437	12	16 42 21.71	2.1781	26 38 29.0	5.487
13	15 4 53.73	1.9703	20 19 4.4	10.353	13	16 44 32.52	2.1823	26 43 54.5	5.364
14	15 6 52.07	1.9744	20 29 23.1	10.269	14	16 46 43.58	2.1864	26 49 12.6	5.241
15	15 8 50.66	1.9786	20 39 36.7	10.184	15	16 48 54.89	2.1906	26 54 23.4	5.117
16	15 10 49.50	1.9828	20 49 45.2	10.098	16	16 51 6.45	2.1947	26 59 26.7	4.991
17	15 12 48.60	1.9871	20 59 48.5	10.011	17	16 53 18.25	2.1987	27 4 22.4	4.864
18	15 14 47.95	1.9913	21 9 46.5	9.923	18	16 55 30.29	2.2027	27 9 10.4	4.737
19	15 16 47.56	1.9956	21 19 39.2	9.834	19	16 57 42.57	2.2067	27 13 50.8	4.610
20	15 18 47.42	1.9998	21 29 26.6	9.746	20	16 59 55.09	2.2107	27 18 23.6	4.483
21	15 20 47.54	2.0042	21 39 8.7	9.656	21	17 2 7.85	2.2146	27 22 48.8	4.355
22	15 22 47.92	2.0086	21 48 45.3	9.564	22	17 4 20.84	2.2184	27 27 6.2	4.225
23	15 24 48.57	2.0130	S. 21° 58' 16.4"	9.472	23	17 6 34.06	2.2222	S. 27° 31' 15.8"	4.094
FRIDAY 26.					SUNDAY 28.				
0	h m s 15 26 49.48	2.0174	S. 22° 7' 41.9"	9.378	0	h m s 17 8 47.50	2.2259	S. 27° 35' 17.5"	3.963
1	15 28 50.65	2.0218	22 17 1.8	9.285	1	17 11 1.17	2.2296	27 39 11.4	3.831
2	15 30 52.09	2.0263	22 26 16.1	9.192	2	17 13 15.06	2.2332	27 42 57.3	3.699
3	15 32 53.80	2.0307	22 35 24.8	9.097	3	17 15 29.16	2.2368	27 46 35.3	3.567
4	15 34 55.77	2.0351	22 44 27.7	9.000	4	17 17 43.48	2.2404	27 50 5.3	3.434
5	15 36 58.01	2.0396	22 53 24.8	8.902	5	17 19 58.01	2.2439	27 53 27.3	3.299
6	15 39 0.52	2.0441	23 2 16.0	8.804	6	17 22 12.75	2.2474	27 56 41.2	3.164
7	15 41 3.30	2.0486	23 11 1.3	8.706	7	17 24 27.70	2.2508	27 59 47.0	3.028
8	15 43 6.35	2.0532	23 19 40.7	8.607	8	17 26 42.84	2.2540	28 2 44.6	2.893
9	15 45 9.68	2.0578	23 28 14.2	8.507	9	17 28 58.18	2.2572	28 5 34.1	2.757
10	15 47 13.28	2.0623	23 36 41.6	8.405	10	17 31 13.71	2.2604	28 8 15.4	2.619
11	15 49 17.15	2.0667	23 45 2.8	8.303	11	17 33 29.43	2.2636	28 10 48.4	2.481
12	15 51 21.28	2.0712	23 53 17.9	8.200	12	17 35 45.34	2.2667	28 13 13.1	2.343
13	15 53 25.69	2.0758	24 1 26.8	8.097	13	17 38 1.43	2.2697	28 15 29.5	2.204
14	15 55 30.37	2.0803	24 9 29.5	7.993	14	17 40 17.70	2.2727	28 17 37.5	2.065
15	15 57 35.33	2.0849	24 17 25.9	7.887	15	17 42 34.14	2.2755	28 19 37.2	1.925
16	15 59 40.56	2.0894	24 25 15.9	7.780	16	17 44 50.76	2.2783	28 21 28.5	1.784
17	16 1 46.06	2.0940	24 32 59.5	7.674	17	17 47 7.54	2.2810	28 23 11.3	1.643
18	16 3 51.84	2.0986	24 40 36.8	7.567	18	17 49 24.48	2.2837	28 24 45.6	1.501
19	16 5 57.89	2.1031	24 48 7.6	7.458	19	17 51 41.58	2.2863	28 26 11.4	1.359
20	16 8 4.21	2.1076	24 55 31.8	7.348	20	17 53 58.83	2.2888	28 27 28.7	1.217
21	16 10 10.80	2.1121	25 2 49.3	7.237	21	17 56 16.23	2.2912	28 28 37.4	1.074
22	16 12 17.66	2.1166	25 10 0.2	7.126	22	17 58 33.78	2.2936	28 29 37.5	0.930
23	16 14 24.79	2.1211	25 17 4.4	7.015	23	18 0 51.46	2.2959	28 30 29.0	0.786
24	16 16 32.19	2.1256	S. 25° 24' 2.0"	6.903	24	18 3 9.28	2.2981	S. 28° 31' 11.8"	0.642

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 29.					WEDNESDAY 31.				
0	18 3 9.28	2.2981	S. 28 31 11.8	0.642	0	19 54 30.00	2.3114	S. 26 11 13.9	6.490
1	18 5 27.23	2.3002	28 31 46.0	0.497	1	19 56 48.64	2.3100	26 4 40.1	6.636
2	18 7 45.30	2.3023	28 32 11.5	0.352	2	19 59 7.20	2.3086	25 57 57.6	6.782
3	18 10 3.50	2.3043	28 32 28.2	0.206	3	20 1 25.07	2.3070	25 51 6.3	6.928
4	18 12 21.82	2.3062	28 32 36.2	-0.060	4	20 3 44.04	2.3053	25 44 6.3	7.073
5	18 14 40.24	2.3080	28 32 35.4	+0.086	5	20 6 2.30	2.3035	25 36 57.6	7.218
6	18 16 58.77	2.3097	28 32 25.9	0.232	6	20 8 20.46	2.3018	25 29 40.2	7.362
7	18 19 17.40	2.3113	28 32 7.6	0.379	7	20 10 38.52	2.3001	25 22 14.2	7.506
8	18 21 36.13	2.3130	28 31 40.4	0.527	8	20 12 56.47	2.2982	25 14 39.5	7.650
9	18 23 54.96	2.3145	28 31 4.4	0.674	9	20 15 14.30	2.2963	25 6 56.2	7.792
10	18 26 13.87	2.3159	28 30 19.5	0.822	10	20 17 32.02	2.2943	24 59 4.4	7.934
11	18 28 32.87	2.3173	28 29 25.8	0.970	11	20 19 49.62	2.2924	24 51 4.1	8.076
12	18 30 51.95	2.3186	28 28 23.2	1.118	12	20 22 7.11	2.2904	24 42 55.2	8.218
13	18 33 11.10	2.3198	28 27 11.7	1.266	13	20 24 24.47	2.2883	24 34 37.9	8.359
14	18 35 30.32	2.3208	28 25 51.3	1.415	14	20 26 41.71	2.2862	24 26 12.1	8.500
15	18 37 49.60	2.3218	28 24 21.9	1.564	15	20 28 58.82	2.2842	24 17 37.9	8.640
16	18 40 8.94	2.3227	28 22 43.6	1.714	16	20 31 15.81	2.2820	24 8 55.3	8.779
17	18 42 28.33	2.3236	28 20 56.3	1.863	17	20 33 32.66	2.2798	24 0 4.4	8.918
18	18 44 47.77	2.3243	28 19 0.0	2.013	18	20 35 49.38	2.2776	23 51 5.2	9.056
19	18 47 7.25	2.3250	28 16 54.7	2.163	19	20 38 5.97	2.2753	23 41 57.7	9.193
20	18 49 26.77	2.3257	28 14 40.5	2.312	20	20 40 22.42	2.2730	23 32 42.0	9.330
21	18 51 46.33	2.3262	28 12 17.3	2.462	21	20 42 38.73	2.2707	23 23 18.1	9.467
22	18 54 5.91	2.3266	28 9 45.1	2.612	22	20 44 54.91	2.2684	23 13 46.0	9.602
23	18 56 25.52	2.3270	S. 28 7 3.9	2.762	23	20 47 10.94	2.2660	S. 23 4 5.9	9.736
TUESDAY 30.					THURSDAY, APRIL 1.				
0	18 58 45.15	2.3273	S. 28 4 13.7	2.912	0	20 49 26.83	2.2637	S. 22 54 17.7	9.870
1	19 1 4.79	2.3274	28 1 14.5	3.062	<p>PHASES OF THE MOON.</p> <p>● New Moon, . . . 7 8 20.4</p> <p>☽ First Quarter, . . . 14 1 5.6</p> <p>○ Full Moon, . . . 21 11 51.7</p> <p>☾ Last Quarter, . . . 29 16 25.1</p> <hr/> <p>☾ Perigee, 9 18.7</p> <p>☾ Apogee, 25 17.6</p>				
2	19 3 24.44	2.3276	27 58 6.3	3.213					
3	19 5 44.10	2.3277	27 54 49.0	3.363					
4	19 8 3.76	2.3278	27 51 22.7	3.513					
5	19 10 23.41	2.3274	27 47 47.4	3.663					
6	19 12 43.05	2.3272	27 44 3.2	3.813					
7	19 15 2.68	2.3270	27 40 10.0	3.963					
8	19 17 22.29	2.3267	27 36 7.7	4.113					
9	19 19 41.88	2.3262	27 31 56.4	4.263					
10	19 22 1.44	2.3257	27 27 36.1	4.413					
11	19 24 20.97	2.3252	27 23 6.8	4.563					
12	19 26 40.46	2.3245	27 18 28.6	4.712					
13	19 28 59.91	2.3238	27 13 41.4	4.861					
14	19 31 19.32	2.3231	27 8 45.3	5.010					
15	19 33 38.68	2.3222	27 3 40.2	5.159					
16	19 35 57.98	2.3212	26 58 26.2	5.308					
17	19 38 17.22	2.3202	26 53 3.2	5.457					
18	19 40 36.41	2.3192	26 47 31.3	5.606					
19	19 42 55.53	2.3181	26 41 50.5	5.754					
20	19 45 14.58	2.3168	26 36 0.9	5.901					
21	19 47 33.55	2.3156	26 30 2.4	6.048					
22	19 49 52.45	2.3143	26 23 55.1	6.196					
23	19 52 11.27	2.3129	26 17 38.9	6.343					
24	19 54 30.00	2.3114	S. 26 11 13.9	6.490					

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
1	Spica W.	60° 24' 44"	2952	61° 55' 57"	2941	63° 27' 24"	2930	64° 59' 5"	2918
	Jupiter W.	51 32 30	2941	53 3 57	2930	54 35 38	2919	56 7 33	2906
	Venus E.	32 18 23	3479	30 57 35	3478	29 36 46	3478	28 15 57	3460
	Sun E.	77 59 34	3330	76 35 57	3318	75 12 6	3305	73 48 0	3292
2	Spica W.	72 41 26	2853	74 14 45	2839	75 48 22	2825	77 22 17	2811
	Jupiter W.	63 51 11	2841	65 24 46	2826	66 58 40	2812	68 32 52	2797
	Antares W.	26 47 28	2852	28 20 48	2838	29 54 26	2824	31 28 23	2809
	Mars W.	25 53 39	3108	27 21 39	3087	28 50 4	3066	30 18 55	3046
	Sun E.	66 43 37	3222	65 17 54	3208	63 51 54	3192	62 25 35	3178
3	Spica W.	85 16 46	2733	86 52 42	2718	88 28 58	2702	90 5 35	2686
	Jupiter W.	76 28 51	2720	78 5 4	2704	79 41 39	2687	81 18 36	2671
	Antares W.	39 23 0	2732	40 58 57	2716	42 35 15	2700	44 11 55	2684
	Mars W.	37 49 24	2947	39 20 43	2927	40 52 27	2909	42 24 35	2890
	Sun E.	55 9 10	3093	53 40 52	3077	52 12 14	3060	50 43 15	3042
4	Jupiter W.	89 28 54	2588	91 8 6	2571	92 47 41	2554	94 27 39	2537
	Antares W.	52 20 45	2601	53 59 39	2584	55 38 56	2567	57 18 36	2550
	Mars W.	50 11 18	2785	51 45 52	2777	53 20 50	2758	54 56 13	2740
	Sun E.	43 12 52	2954	41 41 41	2938	40 10 8	2919	38 38 13	2901
9	Sun W.	22 20 57	2470	24 2 52	2465	25 44 55	2460	27 27 5	2456
	Aldebaran E.	57 15 51	2222	55 27 56	2224	53 40 4	2227	51 52 16	2231
	Pollux E.	100 36 56	2136	98 46 52	2134	96 56 45	2133	95 6 36	2132
10	Sun W.	35 58 43	2453	37 41 3	2454	39 23 21	2455	41 5 37	2458
	Aldebaran E.	42 55 25	2270	41 8 42	2283	39 22 18	2298	37 36 15	2315
	Pollux E.	85 55 48	2136	84 5 44	2138	82 15 43	2141	80 25 46	2144
11	Sun W.	49 35 43	2480	51 17 24	2486	52 58 57	2492	54 40 22	2498
	Pollux E.	71 17 30	2167	69 28 13	2173	67 39 5	2179	65 50 6	2185
	Regulus E.	107 58 10	2174	106 9 4	2180	104 20 7	2186	102 31 18	2192
12	Sun W.	63 4 58	2537	64 45 20	2545	66 25 30	2554	68 5 28	2564
	α Arietis W.	19 44 9	2622	21 22 34	2571	23 2 9	2533	24 42 37	2504
	Pollux E.	56 47 46	2223	54 59 52	2231	53 12 11	2239	51 24 42	2249
	Regulus E.	93 29 49	2229	91 42 5	2237	89 54 33	2246	88 7 14	2254
13	Sun W.	76 22 4	2612	78 0 43	2622	79 39 8	2632	81 17 19	2643
	α Arietis W.	33 12 11	2441	34 54 47	2438	36 37 28	2436	38 20 11	2437
	Pollux E.	42 30 41	2295	40 44 34	2305	38 58 42	2315	37 13 5	2325
	Regulus E.	79 13 54	2300	77 27 55	2311	75 42 11	2320	73 56 41	2331
14	Sun W.	89 24 42	2695	91 1 28	2707	92 37 59	2717	94 14 16	2729
	α Arietis W.	46 53 2	2455	48 35 18	2460	50 17 27	2467	51 59 27	2473
	Pollux E.	28 28 40	2378	26 44 33	2388	25 0 41	2399	23 17 5	2410
	Regulus E.	65 12 50	2381	63 28 48	2391	61 45 1	2402	60 1 29	2412
15	Sun W.	102 12 6	2789	103 46 58	2792	105 21 36	2804	106 55 59	2814
	α Arietis W.	60 26 59	2511	62 7 57	2519	63 48 44	2527	65 29 19	2535
	Aldebaran W.	30 35 38	2621	32 12 44	2670	33 50 4	2663	35 27 34	2657
	Regulus E.	51 27 34	2465	49 45 32	2475	48 3 44	2487	46 22 12	2497
	Spica E.	105 26 54	2453	103 44 35	2463	102 2 30	2473	100 20 39	2482
	Jupiter E.	113 26 0	2431	111 43 9	2440	110 0 31	2450	108 18 7	2460

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.		Midnight.	P. L. of Diff.	XV ^h .	P. L. of Diff.	XVIII ^h .	P. L. of Diff.	XXI ^h .	P. L. of Diff.
1	Spica	W.	66 31 1	2905	68 3 13	2893	69 35 41	2880	71 8 25	2867
	Jupiter	W.	57 39 44	2894	59 12 11	2881	60 44 54	2868	62 17 54	2855
	Venus	E.	26 55 10	3483	25 34 27	3488	24 13 50	3497	22 53 23	3511
	SUN	E.	72 23 39	3278	70 59 2	3265	69 34 10	3232	68 9 2	3237
2	Spica	W.	78 56 31	2796	80 31 4	2781	82 5 57	2765	83 41 11	2749
	Jupiter	W.	70 7 24	2782	71 42 15	2768	73 17 27	2751	74 52 50	2736
	Antares	W.	33 2 30	2785	34 37 14	2779	36 12 9	2764	37 47 24	2748
	Mars	W.	31 48 11	3098	33 17 52	3005	34 47 58	2985	36 18 29	2966
	SUN	E.	60 58 57	3160	59 32 0	3143	58 4 43	3128	56 37 7	3110
3	Spica	W.	91 42 34	2669	93 19 56	2652	94 57 40	2636	96 35 46	2619
	Jupiter	W.	82 55 55	2655	84 33 36	2638	86 11 39	2621	87 50 5	2604
	Antares	W.	45 48 56	2667	47 26 20	2651	49 4 6	2635	50 42 14	2618
	Mars	W.	43 57 7	2871	45 30 3	2852	47 3 24	2833	48 37 9	2815
	SUN	E.	49 13 54	3084	47 44 11	3067	46 14 7	3049	44 43 41	3071
4	Jupiter	W.	96 8 1	2520	97 48 46	2504	99 29 54	2487	101 11 26	2470
	Antares	W.	58 58 40	2533	60 39 7	2517	62 19 57	2500	64 1 10	2484
	Mars	W.	56 32 0	2722	58 8 11	2703	59 44 47	2685	61 21 47	2667
	SUN	E.	37 5 56	2883	35 33 16	2867	34 0 15	2850	32 26 52	2834
9	SUN	W.	29 9 20	2453	30 51 39	2452	32 34 0	2451	34 16 22	2452
	Aldebaran	E.	50 4 34	2236	48 17 0	2243	46 29 36	2251	44 42 24	2260
	Pollux	E.	93 16 26	2132	91 26 15	2132	89 36 4	2133	87 45 55	2134
10	SUN	W.	42 47 49	2462	44 29 56	2465	46 11 58	2470	47 53 54	2475
	Aldebaran	E.	35 50 37	2234	34 5 27	2257	32 20 51	2284	30 36 54	2415
	Pollux	E.	78 35 54	2148	76 46 8	2152	74 56 28	2157	73 6 55	2162
11	SUN	W.	56 21 38	2505	58 2 44	2513	59 43 39	2520	61 24 24	2528
	Pollux	E.	64 1 16	2192	62 12 37	2200	60 24 9	2207	58 35 52	2214
	Regulus	E.	100 42 39	2199	98 54 10	2206	97 5 52	2214	95 17 45	2221
12	SUN	W.	69 45 13	2572	71 24 46	2582	73 4 6	2592	74 43 12	2602
	α Arietis	W.	26 23 45	2482	28 5 24	2468	29 47 25	2455	31 29 42	2446
	Pollux	E.	49 37 27	2258	47 50 25	2267	46 3 37	2278	44 17 2	2285
	Regulus	E.	86 20 7	2263	84 33 13	2272	82 46 33	2282	81 0 7	2291
13	SUN	W.	82 55 16	2653	84 32 59	2663	86 10 28	2675	87 47 42	2685
	α Arietis	W.	40 2 53	2438	41 45 33	2441	43 28 9	2445	45 10 39	2450
	Pollux	E.	35 27 42	2235	33 42 34	2246	31 57 41	2256	30 13 3	2266
	Regulus	E.	72 11 26	2240	70 26 25	2250	68 41 39	2260	66 57 7	2271
14	SUN	W.	95 50 18	2739	97 26 6	2750	99 1 40	2760	100 37 0	2771
	α Arietis	W.	53 41 18	2480	55 22 59	2487	57 4 30	2495	58 45 50	2503
	Pollux	E.	21 33 45	2422	19 50 42	2434	18 7 56	2447	16 25 28	2461
	Regulus	E.	58 18 12	2423	56 35 10	2433	54 52 23	2444	53 9 51	2455
15	SUN	W.	108 30 9	2825	110 4 5	2835	111 37 47	2845	113 11 16	2855
	α Arietis	W.	67 9 43	2544	68 49 55	2553	70 29 55	2561	72 9 44	2569
	Aldebaran	W.	37 5 11	2654	38 42 53	2652	40 20 37	2652	41 58 22	2652
	Regulus	E.	44 40 55	2508	42 59 53	2519	41 19 6	2530	39 38 34	2541
	Spica	E.	98 39 1	2492	96 57 37	2503	95 16 27	2512	93 35 31	2522
	Jupiter	E.	106 35 57	2469	104 54 0	2478	103 12 16	2488	101 30 46	2497

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.	
16	SUN	W.	114 44 32	2866	116 17 35	2876	117 50 24	2887	119 23 0	2896
	α Arietis	W.	73 49 21	2578	75 28 46	2587	77 7 59	2596	78 46 59	2805
	Aldebaran	W.	43 36 6	2654	45 13 48	2657	46 51 26	2660	48 29 0	2663
	Regulus	E.	37 58 18	2552	36 18 17	2564	34 38 32	2575	32 59 3	2588
	Spica	E.	91 54 48	2531	90 14 18	2540	88 34 1	2551	86 53 58	2560
	Jupiter	E.	99 49 29	2507	98 8 25	2516	96 27 34	2525	94 46 56	2535
17	SUN	W.	127 2 50	2946	128 34 10	2956	130 5 18	2966	131 36 13	2976
	α Arietis	W.	86 58 59	2649	88 36 47	2658	90 14 23	2667	91 51 47	2677
	Aldebaran	W.	56 35 22	2689	58 12 17	2695	59 49 4	2701	61 25 42	2706
	Spica	E.	78 36 54	2606	76 58 7	2615	75 19 32	2624	73 41 9	2632
	Jupiter	E.	86 26 55	2579	84 47 31	2588	83 8 20	2598	81 29 22	2607
	18	Aldebaran	W.	69 26 39	2742	71 2 23	2750	72 37 57	2757	74 13 21	2764
Pollux		W.	25 18 50	2681	26 55 55	2689	28 32 49	2697	30 9 33	2705
Spica		E.	65 32 15	2677	63 55 4	2685	62 18 4	2693	60 41 15	2702
Jupiter		E.	73 17 27	2649	71 39 39	2657	70 2 2	2666	68 24 37	2675
19	Aldebaran	W.	82 7 54	2803	83 42 18	2811	85 16 32	2819	86 50 35	2827
	Pollux	W.	38 10 32	2745	39 46 12	2753	41 21 41	2762	42 56 59	2769
	Spica	E.	52 40 3	2744	51 4 22	2753	49 28 52	2762	47 53 34	2770
	Jupiter	E.	60 20 21	2716	58 44 3	2725	57 7 56	2733	55 32 0	2742
	Antares	E.	98 32 47	2742	96 57 3	2750	95 21 30	2757	93 46 8	2766
	Mars	E.	108 3 25	2919	106 31 30	2927	104 59 46	2935	103 28 12	2944
20	Aldebaran	W.	94 38 15	2868	96 11 15	2876	97 44 4	2885	99 16 42	2893
	Pollux	W.	50 50 54	2809	52 25 10	2818	53 59 15	2825	55 33 10	2833
	Spica	E.	39 59 47	2811	38 25 34	2820	36 51 32	2828	35 17 40	2837
	Jupiter	E.	47 35 7	2783	46 0 17	2792	44 25 38	2800	42 51 10	2808
	Antares	E.	85 51 57	2808	84 17 39	2815	82 43 31	2824	81 9 34	2831
	Mars	E.	95 52 58	2985	94 22 26	2993	92 52 4	3001	91 21 52	3009
21	Pollux	W.	63 20 13	2872	64 53 7	2880	66 25 52	2887	67 58 27	2894
	Regulus	W.	26 49 20	2909	28 21 28	2913	29 53 30	2918	31 25 26	2923
	Jupiter	E.	35 1 34	2851	33 28 12	2860	31 55 2	2869	30 22 3	2878
	Antares	E.	73 22 20	2871	71 49 24	2878	70 16 37	2886	68 44 0	2894
	Mars	E.	83 53 23	3049	82 24 11	3057	80 55 9	3065	79 26 16	3073
22	Pollux	W.	75 39 0	2932	77 10 38	2939	78 42 7	2946	80 13 27	2953
	Regulus	W.	39 3 28	2950	40 34 43	2957	42 5 50	2963	43 36 49	2969
	Antares	E.	61 3 21	2931	59 31 41	2939	58 0 11	2945	56 28 49	2952
	Mars	E.	72 4 17	3111	70 36 21	3119	69 8 35	3127	67 40 58	3134
23	Pollux	W.	87 48 0	2986	89 18 30	2993	90 48 52	2999	92 19 6	3005
	Regulus	W.	51 9 53	2998	52 40 8	3005	54 10 15	3009	55 40 16	3015
	Antares	E.	48 54 10	2985	47 23 39	2992	45 53 16	2997	44 23 0	3004
	Mars	E.	60 25 7	3171	58 58 23	3178	57 31 47	3184	56 5 19	3192
	α Aquilæ	E.	99 26 44	3847	98 12 30	3847	96 58 16	3848	95 44 3	3850
24	Pollux	W.	99 48 32	3031	101 18 6	3036	102 47 34	3041	104 16 56	3046
	Regulus	W.	63 8 40	3041	64 38 2	3045	66 7 19	3049	67 36 31	3054
	Antares	E.	36 53 29	3030	35 23 54	3035	33 54 25	3040	32 25 2	3045
	Mars	E.	48 55 1	3224	47 29 20	3231	46 3 47	3236	44 38 21	3242
	α Aquilæ	E.	89 33 37	3868	88 19 45	3874	87 5 59	3881	85 52 20	3889
	Venus	E.	108 18 57	3481	106 58 12	3487	105 37 33	3493	104 17 0	3497

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Dif.	XVh.	P. L. of Dif.	XVIIIh.	P. L. of Dif.	XXIh.	P. L. of Dif.		
16	SUN	W.	120 55 24	2906	122 27 35	2716	123 59 33	2927	125 31 18	2937	
	α Arietis	W.	80 25 47	2614	82 4 23	2623	83 42 47	2632	85 20 50	2640	
	Aldebaran	W.	50 6 29	2668	51 43 52	2672	53 21 9	2678	54 58 19	2683	
	Regulus	E.	31 19 51	2600	29 40 56	2612	28 2 18	2625	26 23 57	2638	
	Spica	E.	85 14 8	2569	83 34 31	2578	81 55 6	2588	80 15 54	2596	
	Jupiter	E.	93 6 31	2544	91 26 19	2553	89 46 19	2561	88 6 31	2570	
17	SUN	W.	133 6 56	2985	134 37 27	2995	136 7 46	3004	137 37 54	3014	
	α Arietis	W.	93 28 58	2688	95 5 57	2694	96 42 45	2703	98 19 21	2712	
	Aldebaran	W.	63 2 11	2715	64 38 31	2721	66 14 43	2728	67 50 46	2735	
	Spica	E.	72 2 58	2641	70 24 59	2651	68 47 13	2659	67 9 38	2668	
	Jupiter	E.	79 50 36	2615	78 12 1	2624	76 33 38	2632	74 55 27	2640	
	18	Aldebaran	W.	75 48 36	2772	77 23 41	2779	78 58 36	2788	80 33 20	2795
Pollux		W.	31 46 6	2713	33 22 28	2721	34 58 40	2729	36 34 41	2737	
Spica		E.	59 4 38	2710	57 28 12	2719	55 51 58	2728	54 15 55	2736	
Jupiter		E.	66 47 23	2684	65 10 21	2692	63 33 30	2700	61 56 50	2708	
19		Aldebaran	W.	88 24 28	2835	89 58 11	2843	91 31 43	2852	93 5 4	2859
		Pollux	W.	44 32 7	2778	46 7 4	2785	47 41 51	2793	49 16 28	2801
	Spica	E.	46 18 27	2779	44 43 31	2787	43 8 46	2795	41 34 11	2803	
	Jupiter	E.	53 56 16	2750	52 20 43	2758	50 45 20	2766	49 10 8	2775	
	Antares	E.	92 10 56	2775	90 35 55	2783	89 1 5	2792	87 26 26	2799	
	Mars	E.	101 56 49	2852	100 25 36	2860	98 54 33	2868	97 23 40	2877	
20	Aldebaran	W.	100 49 10	2901	102 21 27	2911	103 53 32	2920	105 25 26	2928	
	Pollux	W.	57 6 55	2841	58 40 30	2848	60 13 55	2857	61 47 9	2865	
	Spica	E.	33 44 0	2845	32 10 31	2853	30 37 12	2862	29 4 4	2870	
	Jupiter	E.	41 16 53	2817	39 42 47	2825	38 8 51	2834	36 35 7	2842	
	Antares	E.	79 35 47	2839	78 2 10	2847	76 28 43	2855	74 55 26	2863	
	Mars	E.	89 51 50	3018	88 21 59	3025	86 52 17	3033	85 22 45	3041	
21	Pollux	W.	69 30 53	2902	71 3 9	2910	72 35 15	2917	74 7 12	2924	
	Regulus	W.	32 57 16	2928	34 28 59	2933	36 0 36	2939	37 32 6	2945	
	Jupiter	E.	28 49 16	2887	27 16 41	2897	25 44 18	2907	24 12 8	2917	
	Antares	E.	67 11 33	2901	65 39 16	2909	64 7 8	2916	62 35 10	2924	
	Mars	E.	77 57 33	3081	76 29 0	3088	75 0 36	3096	73 32 22	3104	
	22	Pollux	W.	81 44 39	2960	83 15 42	2967	84 46 36	2973	86 17 22	2980
Regulus		W.	45 7 41	2975	46 38 25	2981	48 9 2	2987	49 39 31	2993	
Antares		E.	54 57 36	2959	53 26 32	2965	51 55 36	2973	50 24 49	2979	
Mars		E.	66 13 30	3142	64 46 11	3149	63 19 1	3157	61 52 0	3163	
23		Pollux	W.	93 49 13	3010	95 19 13	3016	96 49 6	3022	98 18 52	3028
		Regulus	W.	57 10 10	3021	58 39 57	3026	60 9 38	3031	61 39 12	3036
	Antares	E.	42 52 52	3009	41 22 51	3015	39 52 57	3021	38 23 10	3026	
	Mars	E.	54 39 0	3198	53 12 49	3204	51 46 45	3211	50 20 49	3218	
	α Aquilæ	E.	94 29 52	3852	93 15 43	3855	92 1 37	3858	90 47 35	3862	
	24	Pollux	W.	105 46 12	3050	107 15 23	3053	108 44 30	3057	110 13 32	3060
Regulus		W.	69 5 37	3058	70 34 38	3061	72 3 35	3065	73 32 28	3068	
Antares		E.	30 55 45	3049	29 26 33	3052	27 57 25	3056	26 28 22	3060	
Mars		E.	43 13 2	3248	41 47 50	3254	40 22 45	3259	38 57 47	3266	
α Aquilæ		E.	84 38 49	3897	83 25 26	3906	82 12 12	3916	80 59 8	3926	
Venus		E.	102 56 32	3500	101 36 8	3504	100 15 48	3509	98 55 33	3511	

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.
24	Saturn E.	110° 46' 24"	3075	109° 17' 44"	3080	107° 49' 10"	3084	106° 20' 41"	3088
25	Regulus W.	75 1 17	3070	76 30 3	3073	77 58 45	3078	79 27 24	3078
	Spica W.	20 58 10	3073	22 26 52	3076	23 55 31	3077	25 24 9	3078
	Mars E.	37 32 56	3272	36 8 12	3277	34 43 34	3283	33 19 3	3290
	α Aquilæ E.	79 46 15	3337	78 33 33	3349	77 21 3	3362	76 8 46	3376
	Venus E.	07 35 21	3515	06 15 13	3517	04 55 8	3519	03 35 5	3522
	Saturn E.	98 59 28	3105	97 31 25	3109	96 3 26	3111	94 35 30	3113
26	Regulus W.	86 50 11	3083	88 18 41	3082	89 47 12	3082	91 15 43	3082
	Spica W.	32 47 2	3081	34 15 35	3080	35 44 9	3079	37 12 44	3078
	Jupiter W.	25 55 4	3058	27 24 5	3056	28 53 8	3054	30 22 14	3052
	α Aquilæ E.	70 11 4	4059	69 0 22	4079	67 50 0	4101	66 39 59	4122
	Venus E.	86 55 21	3527	85 35 27	3528	84 15 34	3527	82 55 40	3526
	Saturn E.	87 16 17	3119	85 48 30	3119	84 20 43	3118	82 52 55	3118
	Fomalhaut E.	95 31 54	3277	94 7 16	3276	92 42 37	3276	91 17 58	3276
	Sun E.	130 27 7	3454	129 5 52	3454	127 44 37	3454	126 23 21	3454
27	Spica W.	44 36 5	3068	46 4 54	3065	47 33 46	3061	49 2 43	3057
	Jupiter W.	37 48 32	3036	39 18 0	3033	40 47 32	3029	42 17 9	3034
	α Aquilæ E.	60 55 48	4362	59 48 20	4366	58 41 24	4332	57 35 1	4372
	Saturn E.	75 33 36	3108	74 5 36	3105	72 37 33	3101	71 9 25	3098
	Venus E.	76 15 47	3516	74 55 41	3513	73 35 31	3509	72 15 17	3506
	Fomalhaut E.	84 14 23	3289	82 49 35	3267	81 24 45	3265	79 59 53	3263
	Sun E.	119 36 40	3443	118 15 12	3439	116 53 40	3435	115 32 3	3431
	28	Spica W.	56 28 54	3030	57 58 29	3024	59 28 12	3017	60 58 4	3009
Jupiter W.		49 46 50	2996	51 17 8	2989	52 47 35	2981	54 18 11	2973
Saturn E.		63 47 27	3073	62 18 44	3065	60 49 52	3059	59 20 52	3052
Venus E.		65 32 45	3477	64 11 55	3470	62 50 57	3462	61 29 50	3454
Fomalhaut E.		72 54 52	3251	71 29 43	3248	70 4 31	3246	68 39 16	3243
Sun E.		108 42 34	3401	107 20 19	3395	105 57 57	3387	104 35 26	3379
29	Spica W.	68 29 57	2965	70 0 54	2955	71 32 3	2944	73 3 26	2933
	Jupiter W.	61 53 48	2928	63 25 31	2918	64 57 27	2908	66 29 36	2897
	Saturn E.	51 53 28	3009	50 23 26	2999	48 53 12	2989	47 22 46	2979
	Venus E.	54 41 51	3407	53 19 42	3396	51 57 21	3386	50 34 48	3373
	Fomalhaut E.	61 32 15	3231	60 6 43	3229	58 41 9	3223	57 15 32	3226
	Sun E.	97 40 17	3331	96 16 41	3319	94 52 52	3307	93 28 49	3296
30	Spica W.	80 44 2	2872	82 16 57	2858	83 50 10	2844	85 23 41	2830
	Jupiter W.	74 14 6	2835	75 47 49	2821	77 21 49	2809	78 56 7	2793
	Antares W.	34 50 12	2670	36 23 9	2656	37 56 24	2643	39 29 56	2628
	Mars W.	21 0 21	3142	22 27 40	3113	23 55 34	3087	25 24 0	3062
	Saturn E.	39 47 8	2921	38 15 16	2909	36 43 8	2896	35 10 44	2883
	Venus E.	43 38 31	3309	42 14 30	3295	40 50 13	3282	39 25 40	3267
	Fomalhaut E.	50 7 25	3231	48 41 53	3226	47 16 26	3212	45 51 6	3219
	Sun E.	86 24 56	3229	84 59 21	3214	83 33 28	3199	82 7 18	3183
31	Spica W.	93 16 2	2753	94 51 32	2737	96 27 23	2720	98 3 36	2704
	Jupiter W.	86 52 28	2717	88 28 45	2701	90 5 24	2684	91 42 26	2667
	Antares W.	47 22 26	2752	48 57 57	2735	50 63 50	2719	52 10 5	2702
	Mars W.	32 53 31	2948	34 24 49	2937	35 56 33	2926	37 28 44	2915
	Venus E.	32 18 34	3193	30 52 16	3177	29 25 39	3162	27 58 44	3147
	Sun E.	74 51 37	3100	73 23 27	3082	71 54 56	3065	70 26 3	3047

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.	
24	Saturn E.	104° 52' 17"	3092	103° 23' 58"	3096	101° 55' 44"	3100	100° 27' 34"	3103	
25	Regulus W.	80 56 1	3079	82 24 36	3081	83 53 9	3082	85 21 40	3082	
	Spica W.	26 52 45	3079	28 21 20	3079	29 49 55	3080	31 18 29	3081	
	Mars E.	31 54 40	3296	30 30 24	3303	29 6 16	3310	27 42 16	3319	
	α Aquilæ E.	74 56 43	3990	73 44 54	4007	72 33 21	4023	71 22 4	4040	
	Venus E.	92 15 5	3524	90 55 7	3525	89 35 10	3526	88 15 15	3527	
	Saturn E.	93 7 36	3114	91 39 44	3116	90 11 54	3117	88 44 5	3118	
26	Regulus W.	92 44 14	3082	94 12 46	3080	95 41 20	3078	97 9 57	3076	
	Spica W.	38 41 20	3077	40 9 58	3075	41 38 38	3073	43 7 20	3071	
	Jupiter W.	31 51 23	3049	33 20 35	3047	34 49 50	3043	36 19 9	3040	
	α Aquilæ E.	65 30 19	4146	64 21 2	4173	63 12 10	4201	62 3 45	4231	
	Venus E.	81 35 45	3525	80 15 49	3524	78 55 51	3521	77 35 50	3519	
	Saturn E.	81 25 7	3117	79 57 18	3115	78 29 27	3113	77 1 33	3110	
	Fomalhaut E.	89 53 18	3275	88 28 37	3273	87 3 54	3271	85 39 9	3270	
	SUN E.	125 2 5	3452	123 40 47	3450	122 19 27	3448	120 58 5	3446	
27	Spica W.	50 31 45	3052	52 0 53	3047	53 30 7	3043	54 59 27	3037	
	Jupiter W.	43 46 52	3019	45 16 41	3014	46 46 37	3008	48 16 40	3002	
	α Aquilæ E.	56 29 14	4414	55 24 5	4459	54 19 37	4510	53 15 54	4564	
	Saturn E.	69 41 13	3094	68 12 56	3089	66 44 33	3083	65 16 3	3078	
	Venus E.	70 54 58	3500	69 34 34	3495	68 14 4	3489	66 53 28	3483	
	Fomalhaut E.	78 34 58	3261	77 10 1	3259	75 45 1	3256	74 19 58	3253	
	SUN E.	114 10 21	3426	112 48 34	3421	111 26 41	3415	110 4 41	3408	
	28	Spica W.	62 28 6	3001	63 58 17	2993	65 28 39	2984	66 59 12	2974
Jupiter W.		55 48 57	2965	57 19 53	2957	58 51 0	2948	60 22 18	2939	
Saturn E.		57 51 43	3044	56 22 25	3036	54 52 57	3027	53 23 18	3018	
Venus E.		60 8 34	3446	58 47 9	3437	57 25 24	3427	56 3 48	3417	
Fomalhaut E.		67 13 58	3240	65 48 36	3238	64 23 12	3236	62 57 45	3233	
SUN E.		103 12 45	3370	101 49 54	3361	100 26 53	3351	99 3 41	3341	
29	Spica W.	74 35 3	2921	76 6 55	2909	77 39 2	2898	79 11 24	2885	
	Jupiter W.	68 1 59	2985	69 34 37	2973	71 7 31	2961	72 40 40	2948	
	Saturn E.	45 52 7	2968	44 21 14	2957	42 50 7	2945	41 18 45	2933	
	Venus E.	49 12 1	3361	47 49 0	3349	46 25 45	3337	45 2 16	3323	
	Fomalhaut E.	55 49 54	3225	54 24 15	3226	52 58 37	3227	51 33 0	3229	
	SUN E.	92 4 33	3283	90 40 2	3270	89 15 16	3257	87 50 14	3243	
30	Spica W.	86 57 30	2815	88 31 38	2800	90 6 6	2785	91 40 54	2769	
	Jupiter W.	80 30 44	2779	82 5 40	2763	83 40 56	2748	85 16 32	2733	
	Antares W.	41 3 47	2814	42 37 57	2799	44 12 26	2783	45 47 16	2768	
	Mars W.	26 52 56	3038	28 22 22	3014	29 52 17	2992	31 22 40	2969	
	Saturn E.	33 38 4	2870	32 5 7	2858	30 31 54	2845	28 58 24	2831	
	Venus E.	38 0 50	3252	36 35 42	3237	35 10 17	3222	33 44 34	3208	
	Fomalhaut E.	44 25 55	3259	43 0 55	3270	41 36 9	3236	40 11 41	3204	
	SUN E.	80 40 49	3168	79 14 1	3151	77 46 53	3134	76 19 25	3118	
	31	Spica W.	99 40 11	2687	101 17 9	2669	102 54 31	2652	104 32 16	2634
		Jupiter W.	93 19 50	2650	94 57 37	2633	96 35 47	2615	98 14 21	2596
Antares W.		53 46 42	2685	55 23 42	2667	57 1 6	2650	58 38 53	2632	
Mars W.		39 1 22	2965	40 34 26	2844	42 7 57	2823	43 41 55	2803	
Venus E.		26 31 31	3133	25 4 1	3110	23 36 14	3105	22 8 11	3094	
SUN E.		68 56 48	3022	67 27 10	3009	65 57 8	2990	64 26 43	2970	

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sideral Time of the Semi-diameter passing the Meridian.	Equation of Time, to be added to subtracted from Apparent Time.	Diff. for 1 hour.					
		Apparent Right Ascension.		Diff. for 1 hour.	Apparent Declination.		Diff. for 1 hour.				Semi-diameter.				
		^h	^m ^s	^s	[°] ['] ["]	["]	['] ["]								
Thur.	1	0	41	46.25	9.099	N. 4	29	49.3	+57.89	16	2.10	64.50	4	0.59	0.756
Frid.	2	0	45	24.69	9.104	4	52	56.3	57.68	16	1.82	64.52	3	42.52	0.751
Sat.	3	0	49	3.26	9.110	5	15	58.0	57.46	16	1.54	64.54	3	24.58	0.745
Sun.	4	0	52	41.98	9.117	5	38	54.2	57.22	16	1.26	64.56	3	6.80	0.738
Mon.	5	0	56	20.86	9.124	6	1	44.6	56.97	16	0.98	64.58	2	49.19	0.731
Tues.	6	0	59	59.93	9.132	6	24	28.8	56.71	16	0.71	64.61	2	31.76	0.723
Wed.	7	1	3	39.21	9.140	6	47	6.5	56.43	16	0.43	64.64	2	14.52	0.715
Thur.	8	1	7	18.69	9.149	7	9	37.1	56.13	16	0.16	64.67	1	57.49	0.706
Frid.	9	1	10	58.40	9.159	7	32	0.5	55.81	15	59.89	64.71	1	40.69	0.696
Sat.	10	1	14	38.36	9.169	7	54	16.1	55.48	15	59.62	64.75	1	24.14	0.686
Sun.	11	1	18	18.57	9.180	8	16	23.7	55.14	15	59.35	64.79	1	7.84	0.675
Mon.	12	1	21	59.04	9.192	8	38	22.8	54.78	15	59.09	64.83	0	51.81	0.663
Tues.	13	1	25	39.81	9.204	9	0	13.1	54.41	15	58.82	64.88	0	36.06	0.651
Wed.	14	1	29	20.88	9.217	9	21	54.4	54.02	15	58.56	64.93	0	20.62	0.638
Thur.	15	1	33	2.27	9.231	9	43	26.3	53.62	15	58.30	64.98	0	5.50	0.624
Frid.	16	1	36	44.00	9.245	10	4	48.3	53.21	15	58.04	65.04	0	9.29	0.610
Sat.	17	1	40	26.07	9.261	10	26	0.3	52.78	15	57.78	65.09	0	23.74	0.595
Sun.	18	1	44	8.50	9.277	10	47	2.0	52.34	15	57.52	65.15	0	37.81	0.579
Mon.	19	1	47	51.33	9.294	11	7	53.0	51.90	15	57.26	65.21	0	51.49	0.562
Tues.	20	1	51	34.57	9.311	11	28	33.0	51.43	15	57.00	65.27	1	4.77	0.545
Wed.	21	1	55	18.24	9.329	11	49	1.7	50.95	15	56.74	65.33	1	17.63	0.527
Thur.	22	1	59	2.34	9.348	12	9	18.9	50.46	15	56.49	65.40	1	30.05	0.508
Frid.	23	2	2	46.90	9.367	12	29	24.1	49.96	15	56.23	65.46	1	42.01	0.489
Sat.	24	2	6	31.93	9.387	12	49	17.2	49.45	15	55.97	65.53	1	53.50	0.469
Sun.	25	2	10	17.44	9.407	13	8	57.8	48.92	15	55.71	65.60	2	4.51	0.449
Mon.	26	2	14	3.45	9.428	13	28	25.5	48.38	15	55.46	65.67	2	15.03	0.428
Tues.	27	2	17	49.97	9.449	13	47	40.1	47.84	15	55.20	65.74	2	25.05	0.407
Wed.	28	2	21	37.01	9.471	14	6	41.3	47.27	15	54.95	65.82	2	34.54	0.385
Thur.	29	2	25	24.59	9.493	14	25	28.7	46.69	15	54.70	65.89	2	43.49	0.363
Frid.	30	2	29	12.71	9.515	14	44	2.0	46.09	15	54.46	65.97	2	51.91	0.341
Sat.	31	2	33	1.37	9.538	N.15	2	20.9	+45.48	15	54.22	66.04	2	59.78	0.318

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sideral Time.

+ prefixed to the hourly change of declination, indicates that north declinations are increasing, and south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be subtracted from		Sidereal Time or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	added to Mean Time.		
						m	s	
Thur.	1	0 41 45.65	9.101	N. 4 29 45.5	+57.90	4 0.64	0.756	0 37 45.01
Frid.	2	0 45 24.13	9.106	4 52 52.8	57.69	3 42.56	0.751	0 41 41.57
Sat.	3	0 49 2.74	9.112	5 15 54.8	57.47	3 24.62	0.745	0 45 38.12
Sun.	4	0 52 41.51	9.119	5 38 51.3	57.23	3 6.84	0.738	0 49 34.67
Mon.	5	0 56 20.44	9.126	6 1 42.0	56.98	2 49.22	0.731	0 53 31.22
Tues.	6	0 59 59.56	9.134	6 24 26.5	56.72	2 31.78	0.723	0 57 27.78
Wed.	7	1 3 38.88	9.142	6 47 4.5	56.44	2 14.55	0.715	1 1 24.33
Thur.	8	1 7 18.41	9.151	7 9 35.4	56.14	1 57.52	0.706	1 5 20.89
Frid.	9	1 10 58.16	9.161	7 31 59.0	55.82	1 40.72	0.696	1 9 17.44
Sat.	10	1 14 38.16	9.171	7 54 14.9	55.49	1 24.16	0.686	1 13 14.00
Sun.	11	1 18 18.41	9.182	8 16 22.7	55.15	1 7.86	0.675	1 17 10.55
Mon.	12	1 21 58.92	9.194	8 38 22.1	54.79	0 51.81	0.663	1 21 7.11
Tues.	13	1 25 39.73	9.206	9 0 12.6	54.42	0 36.07	0.651	1 25 3.66
Wed.	14	1 29 20.84	9.219	9 21 54.1	54.03	0 20.62	0.638	1 29 0.22
Thur.	15	1 33 2.27	9.233	9 43 26.2	53.63	0 5.50	0.624	1 32 56.77
Frid.	16	1 36 44.03	9.247	10 4 48.5	53.22	0 9.29	0.610	1 36 53.32
Sat.	17	1 40 26.11	9.262	10 26 0.8	52.79	0 23.75	0.595	1 40 49.86
Sun.	18	1 44 8.61	9.278	10 47 2.6	52.35	0 37.82	0.579	1 44 46.43
Mon.	19	1 47 51.48	9.295	11 7 53.8	51.91	0 51.50	0.563	1 48 42.98
Tues.	20	1 51 34.75	9.312	11 28 34.0	51.44	1 4.79	0.545	1 52 39.54
Wed.	21	1 55 18.45	9.330	11 49 2.9	50.96	1 17.64	0.527	1 56 36.09
Thur.	22	1 59 2.59	9.349	12 9 20.2	50.47	1 30.06	0.508	2 0 32.65
Frid.	23	2 2 47.18	9.368	12 29 25.6	49.97	1 42.02	0.489	2 4 29.20
Sat.	24	2 6 32.24	9.388	12 49 18.9	49.46	1 53.52	0.469	2 8 25.76
Sun.	25	2 10 17.78	9.408	13 8 59.6	48.93	2 4.53	0.449	2 12 22.31
Mon.	26	2 14 3.82	9.429	13 28 27.4	48.39	2 15.05	0.428	2 16 18.87
Tues.	27	2 17 50.36	9.450	13 47 42.1	47.84	2 25.07	0.407	2 20 15.43
Wed.	28	2 21 37.43	9.472	14 6 43.4	47.27	2 34.56	0.385	2 24 11.99
Thur.	29	2 25 25.03	9.494	14 25 30.9	46.69	2 43.51	0.363	2 28 8.54
Frid.	30	2 29 13.17	9.516	14 44 4.3	46.09	2 51.93	0.341	2 32 5.10
Sat.	31	2 33 1.85	9.539	N.15 2 23.2	+45.48	2 59.80	0.318	2 36 1.65

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

Diff. for 1 hour.
+9°.8565

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S					Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE.				
		λ	λ'						
1	91	11° 21' 46.8	21' 40.0	147.89	-0.51	9.9999545	+53.1	23 ^h 18 ^m 25.26 ^s	
2	92	12 20 55.4	20 48.5	147.82	0.43	0.0000818	52.9	23 14 29.35	
3	93	13 20 2.1	19 55.2	147.74	0.32	.0002085	52.7	23 10 33.43	
4	94	14 19 6.9	18 59.8	147.66	0.22	.0003345	52.4	23 6 37.53	
5	95	15 18 9.8	18 2.6	147.58	-0.10	.0004599	52.1	23 2 41.63	
6	96	16 17 10.5	17 3.4	147.49	+0.03	.0005846	51.8	22 58 45.72	
7	97	17 16 9.7	16 2.1	147.40	0.16	.0007084	51.5	22 54 49.81	
8	98	18 15 6.3	14 58.8	147.31	0.29	.0008314	51.1	22 50 53.90	
9	99	19 14 0.9	13 53.2	147.22	0.39	.0009535	50.7	22 46 58.00	
10	100	20 12 53.2	12 45.4	147.13	0.48	.0010747	50.4	22 43 2.09	
11	101	21 11 43.3	11 35.3	147.04	0.53	.0011952	50.1	22 39 6.18	
12	102	22 10 31.1	10 23.0	146.94	0.55	.0013151	49.8	22 35 10.27	
13	103	23 9 16.7	9 8.5	146.85	0.55	.0014345	49.6	22 31 14.36	
14	104	24 8 0.0	7 51.7	146.76	0.52	.0015534	49.4	22 27 18.45	
15	105	25 6 41.0	6 32.6	146.67	0.46	.0016720	49.3	22 23 22.54	
16	106	26 5 19.8	5 11.3	146.57	0.39	.0017902	49.2	22 19 26.63	
17	107	27 3 56.5	3 47.8	146.48	0.27	.0019081	49.1	22 15 30.73	
18	108	28 2 31.0	2 22.1	146.39	0.15	.0020258	49.0	22 11 34.82	
19	109	29 1 3.4	0 54.4	146.30	+0.02	.0021435	49.0	22 7 38.91	
20	110	29 59 33.8	59 24.7	146.22	-0.12	.0022611	48.9	22 3 43.00	
21	111	30 58 2.4	57 53.1	146.14	0.25	.0023786	48.9	21 59 47.10	
22	112	31 56 29.1	56 19.7	146.07	0.38	.0024959	48.8	21 55 51.19	
23	113	32 54 54.1	54 44.6	146.00	0.48	.0026130	48.7	21 51 55.28	
24	114	33 53 17.4	53 7.7	145.93	0.55	.0027297	48.5	21 47 59.37	
25	115	34 51 39.0	51 29.1	145.86	0.60	.0028460	48.3	21 44 3.46	
26	116	35 49 59.0	49 49.0	145.80	0.62	.0029618	48.1	21 40 7.55	
27	117	36 48 17.5	48 7.4	145.73	0.61	.0030770	47.8	21 36 11.64	
28	118	37 46 34.4	46 24.2	145.67	0.58	.0031913	47.4	21 32 15.73	
29	119	38 44 49.9	44 39.5	145.60	0.50	.0033045	46.9	21 28 19.82	
30	120	39 43 4.0	42 53.4	145.54	0.42	.0034165	46.4	21 24 23.91	
31	121	40 41 16.5	41 5.8	145.48	-0.30	0.0035272	+45.8	21 20 28.00	

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 0d.

Diff. for 1 hour.

-9°.8206

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.
							h m	m	d
1	15' 34.7"	15' 42.1"	57' 3.6"	+2.25	57' 31.1"	+2.32	20 55.1	2.12	24.7
2	15 49.8	15 57.5	57 59.2	2.35	58 27.3	2.33	21 45.3	2.07	25.7
3	16 5.0	16 12.1	58 54.9	2.25	59 21.2	2.12	22 34.6	2.05	26.7
4	16 18.7	16 24.7	59 45.6	1.94	60 7.5	1.69	23 23.9	2.07	27.7
5	16 29.8	16 33.8	60 26.1	1.40	60 41.0	1.07	δ		28.7
6	16 36.8	16 38.5	60 51.8	+0.72	60 58.2	+0.34	0 14.4	2.15	0.2
7	16 39.0	16 38.3	61 0.0	-0.04	60 57.3	-0.40	1 7.5	2.28	1.2
8	16 36.4	16 33.4	60 50.4	0.75	60 39.5	1.06	2 4.1	2.44	2.2
9	16 29.5	16 24.8	60 25.2	1.33	60 7.9	1.55	3 4.4	2.58	3.2
10	16 19.5	16 13.6	59 48.2	1.72	59 26.7	1.85	4 7.2	2.64	4.2
11	16 7.4	16 1.1	59 4.0	1.92	58 40.7	1.96	5 10.2	2.59	5.2
12	15 54.7	15 48.3	58 17.1	1.96	57 53.7	1.93	6 10.8	2.44	6.2
13	15 42.1	15 36.1	57 30.9	1.87	57 8.9	1.79	7 6.9	2.24	7.2
14	15 30.4	15 25.0	56 47.9	1.70	56 28.1	1.60	7 58.1	2.03	8.2
15	15 19.9	15 15.2	56 9.5	1.50	55 52.2	1.39	8 44.8	1.87	9.2
16	15 10.8	15 6.8	55 36.1	1.28	55 21.3	1.18	9 28.1	1.75	10.2
17	15 3.1	14 59.8	55 7.8	1.07	54 55.6	0.97	10 9.2	1.68	11.2
18	14 56.8	14 54.1	54 44.6	0.87	54 34.7	0.77	10 49.1	1.66	12.2
19	14 51.8	14 49.8	54 26.1	0.67	54 18.6	0.57	11 29.1	1.68	13.2
20	14 48.0	14 46.6	54 12.4	0.47	54 7.2	0.37	12 10.1	1.74	14.2
21	14 45.6	14 44.9	54 3.4	0.27	54 0.8	-0.16	12 52.9	1.84	15.2
22	14 44.5	14 44.6	53 59.5	-0.04	53 59.8	+0.08	13 38.3	1.95	16.2
23	14 45.1	14 46.0	54 1.5	+0.23	54 5.0	0.36	14 26.4	2.06	17.2
24	14 47.5	14 49.4	54 10.3	0.51	54 17.4	0.68	15 17.1	2.15	18.2
25	14 51.9	14 54.9	54 26.5	0.84	54 37.7	1.01	16 9.4	2.20	19.2
26	14 58.5	15 2.7	54 50.9	1.19	55 6.3	1.37	17 2.3	2.20	20.2
27	15 7.5	15 12.8	55 23.8	1.55	55 43.4	1.72	17 54.5	2.15	21.2
28	15 18.7	15 25.2	56 5.3	1.89	56 28.8	2.05	18 45.3	2.08	22.2
29	15 32.1	15 39.4	56 54.2	2.18	57 21.0	2.29	19 34.5	2.02	23.2
30	15 47.0	15 54.8	57 48.9	2.36	58 17.6	2.40	20 22.6	1.99	24.2
31	16 2.6	16 10.3	58 46.3	+2.38	59 14.6	+2.32	21 10.4	2.01	25.2

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 1.					SATURDAY 3.				
0	20 49 26.83	2.2637	S. 22° 54' 17.7"	9.870	0	22 35 24.33	2.1592	S. 12° 41' 56.4"	15.261
1	20 51 42.58	2.2613	22 44 21.4	10.004	1	22 37 33.84	2.1578	12 26 38.2	15.246
2	20 53 58.19	2.2569	22 34 17.2	10.137	2	22 39 43.27	2.1565	12 11 14.9	15.430
3	20 56 13.65	2.2565	22 24 5.0	10.269	3	22 41 52.62	2.1552	11 55 46.6	15.513
4	20 58 28.97	2.2541	22 13 44.9	10.400	4	22 44 1.89	2.1540	11 40 13.4	15.594
5	21 0 44.14	2.2517	22 3 17.0	10.531	5	22 46 11.10	2.1529	11 24 35.3	15.675
6	21 2 59.17	2.2493	21 52 41.2	10.661	6	22 48 20.24	2.1518	11 8 52.4	15.754
7	21 5 14.05	2.2468	21 41 57.6	10.790	7	22 50 29.31	2.1507	10 53 4.9	15.831
8	21 7 28.78	2.2443	21 31 6.4	10.918	8	22 52 38.32	2.1497	10 37 12.7	15.907
9	21 9 43.36	2.2418	21 20 7.5	11.046	9	22 54 47.28	2.1488	10 21 16.0	15.982
10	21 11 57.79	2.2393	21 9 0.9	11.172	10	22 56 56.18	2.1479	10 5 14.9	16.055
11	21 14 12.08	2.2369	20 57 46.8	11.298	11	22 59 5.03	2.1472	9 49 9.4	16.127
12	21 16 26.22	2.2344	20 46 25.1	11.424	12	23 1 13.84	2.1465	9 32 59.7	16.197
13	21 18 40.21	2.2319	20 34 55.9	11.548	13	23 3 22.61	2.1458	9 16 45.8	16.266
14	21 20 54.05	2.2295	20 23 19.4	11.670	14	23 5 31.34	2.1452	9 0 27.8	16.333
15	21 23 7.75	2.2271	20 11 35.5	11.792	15	23 7 40.03	2.1446	8 44 5.8	16.400
16	21 25 21.30	2.2246	19 59 44.3	11.914	16	23 9 48.69	2.1442	8 27 39.8	16.465
17	21 27 34.70	2.2221	19 47 45.8	12.035	17	23 11 57.33	2.1438	8 11 10.0	16.528
18	21 29 47.95	2.2197	19 35 40.1	12.155	18	23 14 5.94	2.1434	7 54 36.5	16.590
19	21 32 1.06	2.2173	19 23 27.2	12.273	19	23 16 14.54	2.1431	7 37 59.3	16.650
20	21 34 14.03	2.2149	19 11 7.3	12.391	20	23 18 23.12	2.1429	7 21 18.5	16.708
21	21 36 26.85	2.2125	18 58 40.3	12.508	21	23 20 31.69	2.1428	7 4 34.3	16.765
22	21 38 39.53	2.2102	18 46 6.3	12.624	22	23 22 40.25	2.1428	6 47 46.7	16.821
23	21 40 52.07	2.2078	S. 18° 33' 25.4"	12.739	23	23 24 48.82	2.1428	S. 6° 30' 55.8"	16.875
FRIDAY 2.					SUNDAY 4.				
0	21 43 4.46	2.2054	S. 18° 20' 37.6"	12.853	0	23 26 57.39	2.1428	S. 6° 14' 1.7"	16.927
1	21 45 16.72	2.2031	18 7 43.0	12.966	1	23 29 5.96	2.1430	5 57 4.5	16.978
2	21 47 28.84	2.2008	17 54 41.7	13.078	2	23 31 14.55	2.1433	5 40 4.3	17.027
3	21 49 40.82	2.1986	17 41 33.7	13.189	3	23 33 23.16	2.1437	5 23 1.2	17.075
4	21 51 52.67	2.1963	17 28 19.0	13.299	4	23 35 31.79	2.1441	5 5 55.3	17.121
5	21 54 4.38	2.1941	17 14 57.8	13.408	5	23 37 40.45	2.1445	4 48 46.7	17.166
6	21 56 15.96	2.1919	17 1 30.1	13.516	6	23 39 49.13	2.1450	4 31 35.4	17.209
7	21 58 27.41	2.1898	16 47 55.9	13.623	7	23 41 57.85	2.1457	4 14 21.6	17.250
8	22 0 38.73	2.1877	16 34 15.4	13.728	8	23 44 6.61	2.1463	3 57 5.4	17.289
9	22 2 49.93	2.1857	16 20 28.6	13.832	9	23 46 15.41	2.1471	3 39 46.9	17.327
10	22 5 1.01	2.1836	16 6 35.5	13.936	10	23 48 24.26	2.1480	3 22 26.2	17.363
11	22 7 11.96	2.1815	15 52 36.3	14.038	11	23 50 33.17	2.1489	3 5 3.3	17.398
12	22 9 22.79	2.1795	15 38 31.0	14.139	12	23 52 42.13	2.1498	2 47 38.4	17.431
13	22 11 33.50	2.1776	15 24 19.6	14.239	13	23 54 51.15	2.1509	2 30 11.6	17.462
14	22 13 44.10	2.1757	15 10 2.3	14.338	14	23 57 0.24	2.1522	2 12 43.0	17.491
15	22 15 54.59	2.1739	14 55 39.1	14.436	15	23 59 9.41	2.1534	1 55 12.7	17.518
16	22 18 4.97	2.1721	14 41 10.0	14.533	16	0 1 18.65	2.1548	1 37 40.8	17.543
17	22 20 15.24	2.1703	14 26 35.2	14.628	17	0 3 27.98	2.1562	1 20 7.5	17.568
18	22 22 25.40	2.1685	14 11 54.7	14.722	18	0 5 37.39	2.1577	1 2 32.7	17.591
19	22 24 35.46	2.1668	13 57 8.6	14.815	19	0 7 46.90	2.1592	0 44 56.6	17.611
20	22 26 45.42	2.1652	13 42 16.9	14.907	20	0 9 56.50	2.1608	0 27 19.4	17.629
21	22 28 55.29	2.1637	13 27 19.8	14.997	21	0 12 6.20	2.1626	S. 0° 9' 41.1"	17.646
22	22 31 5.06	2.1621	13 12 17.3	15.086	22	0 14 16.01	2.1644	N. 0° 7' 58.1"	17.661
23	22 33 14.74	2.1606	12 57 9.5	15.174	23	0 16 25.93	2.1663	0 25 38.2	17.674
24	22 35 24.33	2.1592	S. 12° 41' 56.4"	15.261	24	0 18 35.96	2.1683	N. 0° 43' 19.0"	17.688

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 5.					WEDNESDAY 7.				
0	0 18 35.96	2.1683	N. 0 43 19.0	17.685	0	2 6 28.57	2.3548	N. 14 27 37.4	15.865
1	0 20 46.12	2.1703	1 1 0.4	17.694	1	2 8 50.02	2.3603	14 43 26.6	15.775
2	0 22 56.40	2.1724	1 18 42.3	17.702	2	2 11 11.80	2.3658	14 59 10.3	15.683
3	0 25 6.81	2.1747	1 36 24.7	17.708	3	2 13 33.91	2.3713	15 14 48.5	15.589
4	0 27 17.36	2.1770	1 54 7.3	17.712	4	2 15 56.36	2.3770	15 30 21.0	15.492
5	0 29 28.05	2.1794	2 11 50.1	17.714	5	2 18 19.15	2.3827	15 45 47.6	15.393
6	0 31 38.89	2.1819	2 29 32.9	17.714	6	2 20 42.28	2.3883	16 1 8.2	15.293
7	0 33 49.88	2.1845	2 47 15.7	17.712	7	2 23 5.75	2.3940	16 16 22.8	15.191
8	0 36 1.03	2.1871	3 4 58.3	17.708	8	2 25 29.56	2.3998	16 31 31.1	15.086
9	0 38 12.33	2.1898	3 22 40.6	17.702	9	2 27 53.72	2.4056	16 46 33.1	14.979
10	0 40 23.80	2.1926	3 40 22.5	17.693	10	2 30 18.23	2.4114	17 1 28.6	14.870
11	0 42 35.44	2.1955	3 58 3.8	17.683	11	2 32 43.09	2.4173	17 16 17.5	14.759
12	0 44 47.26	2.1985	4 15 44.5	17.672	12	2 35 8.29	2.4230	17 30 59.7	14.646
13	0 46 59.26	2.2015	4 33 24.4	17.658	13	2 37 33.85	2.4289	17 45 35.0	14.530
14	0 49 11.44	2.2046	4 51 3.4	17.643	14	2 39 59.76	2.4348	18 0 3.3	14.413
15	0 51 23.81	2.2078	5 8 41.5	17.625	15	2 42 26.02	2.4407	18 14 24.6	14.294
16	0 53 36.38	2.2112	5 26 18.4	17.604	16	2 44 52.64	2.4466	18 28 38.6	14.179
17	0 55 49.15	2.2145	5 43 54.0	17.582	17	2 47 19.61	2.4524	18 42 45.2	14.048
18	0 58 2.12	2.2179	6 1 28.3	17.559	18	2 49 46.93	2.4583	18 56 44.4	13.922
19	1 0 15.30	2.2215	6 19 1.1	17.533	19	2 52 14.61	2.4643	19 10 35.9	13.794
20	1 2 28.70	2.2251	6 36 32.3	17.505	20	2 54 42.64	2.4702	19 24 19.7	13.665
21	1 4 42.31	2.2288	6 54 1.7	17.475	21	2 57 11.03	2.4761	19 37 55.7	13.533
22	1 6 56.15	2.2326	7 11 29.3	17.443	22	2 59 39.77	2.4819	19 51 23.7	13.399
23	1 9 10.22	2.2364	N. 7 28 54.9	17.408	23	3 2 8.86	2.4878	N. 20 4 43.6	13.264
TUESDAY 6.					THURSDAY 8.				
0	1 11 24.52	2.2403	N. 7 46 18.3	17.372	0	3 4 38.31	2.4938	N. 20 17 55.4	13.127
1	1 13 39.06	2.2443	8 3 39.5	17.334	1	3 7 8.11	2.4996	20 30 58.8	12.987
2	1 15 53.84	2.2483	8 20 58.4	17.294	2	3 9 38.26	2.5054	20 43 53.8	12.845
3	1 18 8.86	2.2525	8 38 14.8	17.252	3	3 12 8.76	2.5113	20 56 40.2	12.702
4	1 20 24.14	2.2567	8 55 28.6	17.207	4	3 14 39.61	2.5170	21 9 18.0	12.557
5	1 22 39.67	2.2610	9 12 39.6	17.160	5	3 17 10.80	2.5228	21 21 47.0	12.409
6	1 24 55.46	2.2654	9 29 47.7	17.111	6	3 19 42.34	2.5285	21 34 7.1	12.260
7	1 27 11.52	2.2698	9 46 52.9	17.060	7	3 22 14.22	2.5343	21 46 18.2	12.109
8	1 29 27.84	2.2743	10 3 54.9	17.007	8	3 24 46.44	2.5398	21 58 20.2	11.957
9	1 31 44.43	2.2788	10 20 53.7	16.952	9	3 27 19.00	2.5454	22 10 13.0	11.803
10	1 34 1.30	2.2835	10 37 49.1	16.894	10	3 29 51.89	2.5509	22 21 56.5	11.646
11	1 36 18.45	2.2882	10 54 41.0	16.834	11	3 32 25.11	2.5564	22 33 30.5	11.488
12	1 38 35.88	2.2929	11 11 29.2	16.772	12	3 34 58.66	2.5619	22 44 55.0	11.328
13	1 40 53.60	2.2978	11 28 13.7	16.709	13	3 37 32.54	2.5673	22 56 9.9	11.166
14	1 43 11.61	2.3027	11 44 54.3	16.643	14	3 40 6.73	2.5725	23 7 15.0	11.003
15	1 45 29.92	2.3077	12 1 30.8	16.575	15	3 42 41.24	2.5778	23 18 10.3	10.839
16	1 47 48.53	2.3127	12 18 3.2	16.504	16	3 45 16.07	2.5830	23 28 55.7	10.673
17	1 50 7.44	2.3178	12 34 31.3	16.432	17	3 47 51.20	2.5881	23 39 31.1	10.505
18	1 52 26.66	2.3229	12 50 55.1	16.358	18	3 50 26.64	2.5932	23 49 56.3	10.336
19	1 54 46.19	2.3281	13 7 14.3	16.281	19	3 53 2.38	2.5981	24 0 11.4	10.165
20	1 57 6.03	2.3333	13 23 28.8	16.201	20	3 55 38.41	2.6029	24 10 16.1	9.992
21	1 59 26.18	2.3385	13 39 38.4	16.119	21	3 58 14.73	2.6077	24 20 10.4	9.817
22	2 1 46.65	2.3438	13 55 43.1	16.037	22	4 0 51.33	2.6123	24 29 54.2	9.642
23	2 4 7.45	2.3493	14 11 42.8	15.952	23	4 3 28.21	2.6170	24 39 27.5	9.469
24	2 6 28.57	2.3548	N. 14 27 37.4	15.865	24	4 6 5.37	2.6215	N. 24 48 50.1	9.298

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 9.					SUNDAY 11.				
0	h m s	"	N. 24 48 50.1	"	0	h m s	"	N. 28 32 49.1	"
1	4 6 5.37	2.6215	24 58 2.0	9.288	1	6 14 29.97	2.6669	28 32 37.9	-0.384
2	4 8 42.79	2.6258	25 7 3.1	9.108	2	6 17 9.89	2.6637	28 32 15.0	0.478
3	4 11 20.47	2.6301	25 15 53.3	8.746	3	6 19 49.62	2.6604	28 31 40.5	0.672
4	4 13 58.41	2.6343	25 24 32.6	8.583	4	6 22 29.14	2.6569	28 30 54.4	0.864
5	4 16 36.50	2.6385	25 33 0.8	8.378	5	6 25 8.45	2.6532	28 29 56.8	1.056
6	4 19 15.01	2.6423	25 41 17.9	8.192	6	6 27 47.53	2.6404	28 28 47.7	1.247
7	4 21 53.67	2.6462	25 49 23.8	8.005	7	6 30 26.38	2.6455	28 27 27.2	1.437
8	4 24 32.55	2.6499	25 57 18.5	7.817	8	6 33 4.99	2.6414	28 25 55.3	1.627
9	4 27 11.65	2.6534	26 5 1.9	7.628	9	6 35 43.35	2.6371	28 24 12.0	1.815
10	4 29 50.96	2.6568	26 12 33.9	7.438	10	6 38 21.44	2.6326	28 22 17.5	2.002
11	4 32 30.47	2.6601	26 19 54.5	7.248	11	6 40 59.26	2.6280	28 20 11.8	2.188
12	4 35 10.18	2.6633	26 27 3.7	7.056	12	6 43 36.80	2.6233	28 17 54.9	2.374
13	4 37 50.07	2.6663	26 34 1.3	6.863	13	6 46 14.06	2.6185	28 15 26.9	2.558
14	4 40 30.14	2.6692	26 40 47.3	6.670	14	6 48 51.02	2.6135	28 12 48.0	2.740
15	4 43 10.38	2.6720	26 47 21.7	6.476	15	6 51 27.68	2.6083	28 9 58.1	2.922
16	4 45 50.78	2.6746	26 53 44.4	6.281	16	6 54 4.02	2.6030	28 6 57.4	3.102
17	4 48 31.33	2.6771	26 59 55.4	6.086	17	6 56 40.04	2.5976	28 3 45.8	3.282
18	4 51 12.03	2.6794	27 5 54.7	5.889	18	6 59 15.73	2.5921	28 0 23.5	3.460
19	4 53 52.86	2.6815	27 11 42.1	5.692	19	7 1 51.09	2.5864	27 56 50.6	3.637
20	4 56 33.81	2.6835	27 17 17.7	5.495	20	7 4 26.10	2.5806	27 53 7.1	3.813
21	4 59 14.88	2.6853	27 22 41.5	5.297	21	7 7 0.76	2.5748	27 49 13.0	3.988
22	5 1 56.05	2.6869	27 27 53.4	5.098	22	7 9 35.07	2.5688	27 45 8.5	4.161
23	5 4 37.31	2.6884	N. 27 32 53.3	4.899	23	7 12 9.01	2.5626	N. 27 40 53.7	4.332
24	5 7 18.66	2.6898				7 14 42.58	2.5564		
SATURDAY 10.					MONDAY 12.				
0	5 10 0.09	2.6910	N. 27 37 41.3	4.700	0	7 17 15.78	2.5501	N. 27 36 28.6	4.500
1	5 12 41.58	2.6930	27 42 17.3	4.500	1	7 19 48.59	2.5436	27 31 53.4	4.672
2	5 15 23.13	2.6923	27 46 41.3	4.300	2	7 22 21.01	2.5371	27 27 8.0	4.840
3	5 18 4.72	2.6935	27 50 53.3	4.100	3	7 24 53.04	2.5305	27 22 12.6	5.006
4	5 20 46.35	2.6940	27 54 53.3	3.899	4	7 27 24.67	2.5238	27 17 7.3	5.170
5	5 23 28.00	2.6943	27 58 41.2	3.696	5	7 29 55.89	2.5170	27 11 52.2	5.334
6	5 26 9.66	2.6944	28 2 17.1	3.497	6	7 32 26.70	2.5101	27 6 27.3	5.496
7	5 28 51.33	2.6944	28 5 40.9	3.297	7	7 34 57.10	2.5031	27 0 52.7	5.656
8	5 31 32.99	2.6943	28 8 52.7	3.097	8	7 37 27.07	2.4960	26 55 8.6	5.814
9	5 34 14.64	2.6939	28 11 52.5	2.896	9	7 39 56.62	2.4889	26 49 15.0	5.972
10	5 36 56.26	2.6933	28 14 40.2	2.694	10	7 42 25.74	2.4818	26 43 12.0	6.128
11	5 39 37.84	2.6925	28 17 15.8	2.493	11	7 44 54.43	2.4746	26 36 59.7	6.283
12	5 42 19.36	2.6916	28 19 39.4	2.293	12	7 47 22.69	2.4673	26 30 38.1	6.436
13	5 45 0.83	2.6906	28 21 51.0	2.092	13	7 49 50.51	2.4599	26 24 7.4	6.587
14	5 47 42.23	2.6893	28 23 50.5	1.892	14	7 52 17.88	2.4524	26 17 27.7	6.736
15	5 50 23.54	2.6878	28 25 38.0	1.692	15	7 54 44.80	2.4449	26 10 39.1	6.884
16	5 53 4.76	2.6862	28 27 13.5	1.492	16	7 57 11.27	2.4374	26 3 41.6	7.030
17	5 55 45.88	2.6844	28 28 37.1	1.293	17	7 59 37.29	2.4299	25 56 35.4	7.175
18	5 58 26.89	2.6824	28 29 48.7	1.094	18	8 2 2.86	2.4223	25 49 20.6	7.318
19	6 1 7.77	2.6803	28 30 48.4	0.896	19	8 4 27.97	2.4147	25 41 57.2	7.461
20	6 3 48.52	2.6780	28 31 36.2	0.697	20	8 6 52.62	2.4070	25 34 25.3	7.602
21	6 6 29.13	2.6755	28 32 12.1	0.500	21	8 9 16.81	2.3993	25 26 45.0	7.741
22	6 9 9.58	2.6730	28 32 36.2	0.303	22	8 11 40.54	2.3916	25 18 56.4	7.878
23	6 11 49.86	2.6699	28 32 48.5	+0.107	23	8 14 3.80	2.3838	25 10 59.7	8.013
24	6 14 29.97	2.6669	N. 28 32 49.1	-0.089	24	8 16 26.60	2.3761	N. 25 2 54.9	8.147

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 13.					THURSDAY 15.				
0	8 16 26.60	2.3761	N.25 2 54.9	8.147	0	10 1 45.10	2.0261	N.16 27 17.1	12.770
1	8 18 48.93	2.3683	24 54 42.1	8.279	1	10 3 46.48	2.0200	16 14 29.0	12.832
2	8 21 10.79	2.3604	24 46 21.4	8.409	2	10 5 47.50	2.0141	16 1 37.2	12.893
3	8 23 32.18	2.3526	24 37 53.0	8.538	3	10 7 48.17	2.0082	15 48 41.9	12.952
4	8 25 53.10	2.3448	24 29 16.9	8.666	4	10 9 48.48	2.0023	15 35 43.0	13.011
5	8 28 13.55	2.3369	24 20 33.1	8.792	5	10 11 48.44	1.9965	15 22 40.6	13.068
6	8 30 33.53	2.3290	24 11 41.8	8.916	6	10 13 48.06	1.9908	15 9 34.9	13.123
7	8 32 53.03	2.3212	24 2 43.2	9.038	7	10 15 47.33	1.9851	14 56 25.9	13.178
8	8 35 12.07	2.3134	23 53 37.2	9.160	8	10 17 46.27	1.9796	14 43 13.6	13.231
9	8 37 30.64	2.3056	23 44 24.0	9.280	9	10 19 44.88	1.9741	14 29 58.2	13.283
10	8 39 48.74	2.2978	23 35 3.7	9.398	10	10 21 43.16	1.9687	14 16 39.7	13.334
11	8 42 6.37	2.2899	23 25 36.3	9.514	11	10 23 41.12	1.9633	14 3 18.1	13.384
12	8 44 23.53	2.2821	23 16 2.0	9.628	12	10 25 38.76	1.9580	13 49 53.6	13.433
13	8 46 40.22	2.2743	23 6 20.9	9.741	13	10 27 36.08	1.9528	13 36 26.2	13.480
14	8 48 56.45	2.2666	22 56 33.0	9.853	14	10 29 33.10	1.9477	13 22 56.0	13.526
15	8 51 12.21	2.2588	22 46 38.5	9.963	15	10 31 29.81	1.9427	13 9 23.1	13.571
16	8 53 27.50	2.2510	22 36 37.4	10.071	16	10 33 26.22	1.9377	12 55 47.5	13.616
17	8 55 42.33	2.2433	22 26 20.9	10.178	17	10 35 22.33	1.9328	12 42 9.2	13.659
18	8 57 56.70	2.2357	22 16 16.0	10.284	18	10 37 18.15	1.9279	12 28 28.4	13.701
19	9 0 10.61	2.2280	22 5 55.8	10.388	19	10 39 13.68	1.9230	12 14 45.1	13.742
20	9 2 24.06	2.2203	21 55 20.4	10.490	20	10 41 8.93	1.9186	12 0 59.4	13.782
21	9 4 37.05	2.2128	21 44 57.0	10.590	21	10 43 3.91	1.9140	11 47 11.3	13.821
22	9 6 49.59	2.2053	21 34 18.6	10.690	22	10 44 58.61	1.9094	11 33 20.9	13.858
23	9 9 1.68	2.1978	N.21 23 34.2	10.788	23	10 46 53.04	1.9050	N.11 19 28.3	13.894
WEDNESDAY 14.					FRIDAY 16.				
0	9 11 13.32	2.1903	N.21 12 44.0	10.884	0	10 48 47.21	1.9007	N.11 5 33.6	13.929
1	9 13 24.51	2.1828	21 1 48.1	10.979	1	10 50 41.12	1.8964	10 51 36.8	13.964
2	9 15 35.26	2.1754	20 50 46.5	11.072	2	10 52 34.78	1.8921	10 37 37.9	13.998
3	9 17 45.56	2.1680	20 39 30.4	11.164	3	10 54 28.18	1.8879	10 23 37.0	14.031
4	9 19 55.42	2.1607	20 28 26.8	11.255	4	10 56 21.33	1.8839	10 9 34.2	14.063
5	9 22 4.84	2.1534	20 17 8.8	11.344	5	10 58 14.25	1.8800	9 55 29.5	14.093
6	9 24 13.83	2.1462	20 5 45.5	11.432	6	11 0 6.93	1.8761	9 41 23.1	14.122
7	9 26 22.39	2.1391	19 54 17.0	11.518	7	11 1 59.38	1.8723	9 27 14.9	14.151
8	9 28 30.52	2.1319	19 42 43.4	11.603	8	11 3 51.60	1.8685	9 13 5.0	14.178
9	9 30 38.22	2.1248	19 31 4.7	11.686	9	11 5 43.60	1.8648	8 58 53.6	14.203
10	9 32 45.50	2.1178	19 19 21.1	11.768	10	11 7 35.38	1.8613	8 44 40.6	14.229
11	9 34 52.36	2.1109	19 7 32.6	11.848	11	11 9 26.95	1.8578	8 30 26.1	14.254
12	9 36 58.81	2.1040	18 55 39.4	11.926	12	11 11 18.31	1.8543	8 16 10.1	14.278
13	9 39 4.84	2.0972	18 43 41.5	12.004	13	11 13 9.47	1.8510	8 1 52.8	14.300
14	9 41 10.47	2.0904	18 31 38.9	12.081	14	11 15 0.43	1.8477	7 47 34.1	14.322
15	9 43 15.69	2.0837	18 19 31.8	12.156	15	11 16 51.19	1.8445	7 33 14.1	14.343
16	9 45 20.51	2.0771	18 7 20.2	12.229	16	11 18 41.77	1.8414	7 18 52.9	14.363
17	9 47 24.94	2.0705	17 55 4.3	12.301	17	11 20 32.16	1.8383	7 4 30.6	14.381
18	9 49 28.97	2.0639	17 42 44.1	12.372	18	11 22 22.37	1.8353	6 50 7.2	14.398
19	9 51 32.61	2.0575	17 30 19.7	12.442	19	11 24 12.40	1.8324	6 35 42.8	14.416
20	9 53 35.87	2.0511	17 17 51.1	12.510	20	11 26 2.26	1.8297	6 21 17.3	14.432
21	9 55 38.74	2.0447	17 5 18.5	12.577	21	11 27 51.96	1.8269	6 6 50.9	14.447
22	9 57 41.23	2.0384	16 52 41.9	12.643	22	11 29 41.49	1.8243	5 52 23.7	14.461
23	9 59 43.35	2.0322	16 40 1.4	12.707	23	11 31 30.87	1.8217	5 37 55.6	14.475
24	10 1 45.10	2.0261	N.16 27 17.1	12.770	24	11 33 20.09	1.8191	N. 5 23 26.7	14.488

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 17.					MONDAY 19.				
0	11 33 20.09	1.8191	N. 5 23 26.7	14.488	0	12 59 9.28	1.7838	S. 6 10 4.5	14.094
1	11 35 9.16	1.8167	5 8 57.1	14.499	1	13 0 56.34	1.7848	6 24 9.3	14.066
2	11 36 58.09	1.8143	4 54 26.8	14.509	2	13 2 43.46	1.7859	6 38 12.4	14.038
3	11 38 46.88	1.8120	4 39 56.0	14.519	3	13 4 30.65	1.7870	6 52 13.8	14.008
4	11 40 35.53	1.8098	4 25 24.6	14.528	4	13 6 17.90	1.7881	7 6 13.4	13.978
5	11 42 24.06	1.8078	4 10 52.7	14.536	5	13 8 5.22	1.7893	7 20 11.1	13.947
6	11 44 12.46	1.8057	3 56 20.3	14.543	6	13 9 52.61	1.7905	7 34 7.0	13.915
7	11 46 0.74	1.8037	3 41 47.5	14.549	7	13 11 40.08	1.7918	7 48 0.9	13.882
8	11 47 48.90	1.8018	3 27 14.4	14.554	8	13 13 27.63	1.7933	8 1 52.8	13.846
9	11 49 36.95	1.7999	3 12 41.0	14.559	9	13 15 15.27	1.7948	8 15 42.6	13.813
10	11 51 24.89	1.7982	2 58 7.3	14.563	10	13 17 3.00	1.7963	8 29 30.4	13.778
11	11 53 12.73	1.7964	2 43 33.4	14.566	11	13 18 50.82	1.7978	8 43 16.0	13.743
12	11 55 0.46	1.7948	2 28 59.4	14.568	12	13 20 38.74	1.7994	8 56 59.5	13.707
13	11 56 48.10	1.7933	2 14 25.3	14.569	13	13 22 26.75	1.8011	9 10 40.8	13.668
14	11 58 35.65	1.7918	1 59 51.2	14.569	14	13 24 14.87	1.8029	9 24 19.7	13.629
15	12 0 23.12	1.7904	1 45 17.0	14.569	15	13 26 3.10	1.8048	9 37 56.3	13.590
16	12 2 10.50	1.7891	1 30 42.9	14.568	16	13 27 51.44	1.8067	9 51 30.5	13.550
17	12 3 57.81	1.7879	1 16 8.9	14.565	17	13 29 39.90	1.8086	10 5 2.3	13.510
18	12 5 45.05	1.7868	1 1 35.1	14.569	18	13 31 28.47	1.8105	10 18 31.7	13.468
19	12 7 32.22	1.7856	0 47 1.5	14.558	19	13 33 17.16	1.8126	10 31 58.5	13.425
20	12 9 19.32	1.7845	0 32 28.2	14.553	20	13 35 5.98	1.8148	10 45 22.7	13.383
21	12 11 6.36	1.7835	0 17 55.1	14.548	21	13 36 54.93	1.8169	10 58 44.4	13.339
22	12 12 53.34	1.7827	N. 0 3 22.4	14.542	22	13 38 44.01	1.8192	11 12 3.4	13.294
23	12 14 40.28	1.7819	S. 0 11 9.9	14.535	23	13 40 33.23	1.8214	S. 11 25 19.6	13.248
SUNDAY 18.					TUESDAY 20.				
0	12 16 27.17	1.7811	S. 0 25 41.8	14.527	0	13 42 22.58	1.8237	S. 11 38 33.1	13.202
1	12 18 14.01	1.7804	0 40 13.2	14.518	1	13 44 12.07	1.8261	11 51 43.8	13.154
2	12 20 0.82	1.7798	0 54 44.0	14.508	2	13 46 1.71	1.8286	12 4 51.6	13.106
3	12 21 47.59	1.7793	1 9 14.2	14.498	3	13 47 51.50	1.8311	12 17 56.5	13.057
4	12 23 34.33	1.7788	1 23 43.8	14.487	4	13 49 41.44	1.8337	12 30 58.4	13.007
5	12 25 21.05	1.7785	1 38 12.6	14.474	5	13 51 31.54	1.8362	12 43 57.3	12.957
6	12 27 7.75	1.7782	1 52 40.7	14.461	6	13 53 21.79	1.8388	12 56 53.2	12.905
7	12 28 54.43	1.7779	2 7 8.0	14.448	7	13 55 12.20	1.8416	13 9 45.9	12.853
8	12 30 41.10	1.7777	2 21 34.5	14.434	8	13 57 2.78	1.8444	13 22 35.5	12.800
9	12 32 27.75	1.7775	2 36 0.1	14.419	9	13 58 53.53	1.8473	13 35 21.9	12.746
10	12 34 14.40	1.7775	2 50 24.8	14.403	10	14 0 44.45	1.8501	13 48 5.0	12.691
11	12 36 1.05	1.7776	3 4 48.4	14.385	11	14 2 35.54	1.8530	14 0 44.8	12.636
12	12 37 47.71	1.7777	3 19 11.0	14.368	12	14 4 26.81	1.8560	14 13 21.3	12.579
13	12 39 34.37	1.7778	3 33 32.5	14.349	13	14 6 18.26	1.8590	14 25 54.3	12.522
14	12 41 21.04	1.7780	3 47 52.9	14.331	14	14 8 9.89	1.8621	14 38 23.9	12.464
15	12 43 7.73	1.7783	4 2 12.2	14.311	15	14 10 1.71	1.8652	14 50 50.0	12.405
16	12 44 54.44	1.7787	4 16 30.2	14.289	16	14 11 53.71	1.8683	15 3 12.5	12.345
17	12 46 41.17	1.7791	4 30 46.9	14.268	17	14 13 45.91	1.8716	15 15 31.4	12.285
18	12 48 27.93	1.7796	4 45 2.4	14.247	18	14 15 38.30	1.8748	15 27 46.7	12.223
19	12 50 14.72	1.7802	4 59 16.5	14.223	19	14 17 30.88	1.8781	15 39 58.2	12.160
20	12 52 1.55	1.7808	5 13 29.1	14.198	20	14 19 23.67	1.8815	15 52 5.9	12.098
21	12 53 48.41	1.7814	5 27 40.3	14.173	21	14 21 16.66	1.8849	16 4 9.9	12.034
22	12 55 35.32	1.7822	5 41 49.9	14.148	22	14 23 9.86	1.8883	16 16 10.0	11.969
23	12 57 22.28	1.7830	5 55 58.0	14.122	23	14 25 3.26	1.8918	16 28 6.2	11.903
24	12 59 9.28	1.7838	S. 6 10 4.5	14.094	24	14 26 56.87	1.8953	S. 16 39 58.4	11.837

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 21.					FRIDAY 23.				
0	14 26 56.87	1.8853	S. 16° 39' 58.4"	11.837	0	16 2 34.21	2.0959	S. 24° 35' 0.5"	7.623
1	14 28 50.69	1.8938	16 51 46.6	11.769	1	16 4 40.09	2.1003	24 42 34.6	7.514
2	14 30 44.73	1.9025	17 3 30.7	11.701	2	16 6 46.24	2.1047	24 50 2.2	7.405
3	14 32 38.99	1.9092	17 15 10.7	11.632	3	16 8 52.65	2.1090	24 57 23.2	7.294
4	14 34 33.47	1.9098	17 26 46.5	11.562	4	16 10 59.32	2.1133	25 4 37.5	7.183
5	14 36 28.17	1.9135	17 38 18.1	11.491	5	16 13 6.24	2.1175	25 11 45.1	7.071
6	14 38 23.09	1.9173	17 49 45.4	11.419	6	16 15 13.42	2.1218	25 18 46.0	6.958
7	14 40 18.24	1.9211	18 1 8.4	11.347	7	16 17 20.86	2.1261	25 25 40.1	6.844
8	14 42 13.62	1.9249	18 12 27.0	11.273	8	16 19 28.55	2.1303	25 32 27.3	6.729
9	14 44 9.23	1.9288	18 23 41.2	11.199	9	16 21 36.50	2.1346	25 39 7.6	6.614
10	14 46 5.07	1.9327	18 34 50.9	11.122	10	16 23 44.70	2.1388	25 45 41.0	6.498
11	14 48 1.15	1.9367	18 45 56.0	11.048	11	16 25 53.15	2.1429	25 52 7.4	6.382
12	14 49 57.47	1.9406	18 56 56.6	10.972	12	16 28 1.85	2.1471	25 58 26.8	6.264
13	14 51 54.02	1.9446	19 7 52.6	10.894	13	16 30 10.80	2.1512	26 4 39.1	6.146
14	14 53 50.82	1.9487	19 18 43.8	10.814	14	16 32 19.99	2.1552	26 10 44.3	6.027
15	14 55 47.86	1.9527	19 29 30.3	10.735	15	16 34 29.42	2.1592	26 16 42.3	5.907
16	14 57 45.14	1.9568	19 40 12.0	10.654	16	16 36 39.09	2.1632	26 22 33.1	5.786
17	14 59 42.67	1.9608	19 50 48.8	10.573	17	16 38 49.00	2.1672	26 28 16.6	5.664
18	15 1 40.44	1.9649	20 1 20.8	10.491	18	16 40 59.15	2.1711	26 33 52.8	5.543
19	15 3 38.46	1.9692	20 11 47.8	10.408	19	16 43 9.53	2.1749	26 39 21.7	5.420
20	15 5 36.74	1.9734	20 22 9.8	10.324	20	16 45 20.14	2.1788	26 44 43.2	5.296
21	15 7 35.27	1.9776	20 32 26.7	10.239	21	16 47 30.99	2.1827	26 49 57.2	5.172
22	15 9 34.05	1.9818	20 42 38.5	10.153	22	16 49 42.06	2.1864	26 55 3.8	5.047
23	15 11 33.09	1.9861	S. 20° 52' 45.1"	10.068	23	16 51 53.35	2.1901	S. 27° 0' 2.8"	4.921
THURSDAY 22.					SATURDAY 24.				
0	15 13 32.38	1.9903	S. 21° 2' 46.6"	9.981	0	16 54 4.87	2.1938	S. 27° 4' 54.3"	4.795
1	15 15 31.93	1.9947	21 12 42.8	9.892	1	16 56 16.60	2.1974	27 9 38.2	4.668
2	15 17 31.74	1.9990	21 22 33.6	9.803	2	16 58 28.55	2.2009	27 14 14.4	4.540
3	15 19 31.81	2.0033	21 32 19.1	9.713	3	17 0 40.71	2.2044	27 18 43.0	4.413
4	15 21 32.14	2.0077	21 41 59.2	9.622	4	17 2 53.08	2.2079	27 23 3.8	4.283
5	15 23 32.73	2.0120	21 51 33.8	9.530	5	17 5 5.65	2.2113	27 27 16.9	4.153
6	15 25 33.58	2.0164	22 1 2.8	9.438	6	17 7 18.43	2.2147	27 31 22.2	4.023
7	15 27 34.69	2.0208	22 10 26.3	9.344	7	17 9 31.41	2.2179	27 35 19.6	3.892
8	15 29 36.07	2.0252	22 19 44.1	9.249	8	17 11 44.58	2.2211	27 39 9.2	3.761
9	15 31 37.71	2.0296	22 28 56.2	9.154	9	17 13 57.94	2.2243	27 42 50.9	3.629
10	15 33 39.62	2.0340	22 38 2.6	9.058	10	17 16 11.49	2.2274	27 46 24.6	3.496
11	15 35 41.79	2.0384	22 47 3.2	8.962	11	17 18 25.23	2.2305	27 49 50.4	3.363
12	15 37 44.23	2.0428	22 55 58.0	8.864	12	17 20 39.15	2.2334	27 53 8.2	3.229
13	15 39 46.93	2.0473	23 4 46.9	8.765	13	17 22 53.24	2.2363	27 56 17.9	3.095
14	15 41 49.90	2.0518	23 13 29.8	8.665	14	17 25 7.51	2.2392	27 59 19.6	2.961
15	15 43 53.14	2.0562	23 22 6.7	8.565	15	17 27 21.95	2.2421	28 2 13.2	2.825
16	15 45 56.64	2.0606	23 30 37.6	8.463	16	17 29 36.56	2.2448	28 4 58.6	2.689
17	15 48 0.41	2.0650	23 39 2.3	8.361	17	17 31 51.32	2.2474	28 7 35.8	2.553
18	15 50 4.44	2.0694	23 47 20.9	8.258	18	17 34 6.24	2.2499	28 10 4.9	2.416
19	15 52 8.74	2.0738	23 55 33.3	8.154	19	17 36 21.31	2.2524	28 12 25.7	2.279
20	15 54 13.30	2.0783	24 3 39.4	8.050	20	17 38 36.53	2.2549	28 14 38.3	2.141
21	15 56 18.13	2.0828	24 11 39.3	7.945	21	17 40 51.90	2.2573	28 16 42.6	2.003
22	15 58 23.23	2.0872	24 19 32.8	7.838	22	17 43 7.41	2.2596	28 18 38.6	1.864
23	16 0 28.59	2.0915	24 27 19.9	7.731	23	17 45 23.05	2.2618	28 20 26.3	1.725
24	16 2 34.21	2.0959	S. 24° 35' 0.5"	7.623	24	17 47 38.82	2.2639	S. 28° 22' 5.6"	1.586

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 25.					TUESDAY 27.				
0	17 47 38.82	2.2639	S. 28° 22' 5.6"	1.586	0	19 37 16.84	2.2744	S. 26° 53' 21.6"	5.296
1	17 49 54.72	2.2660	28 23 36.6	1.446	1	19 39 33.26	2.2728	26 47 59.6	5.438
2	17 52 10.74	2.2680	28 24 59.1	1.305	2	19 41 49.58	2.2719	26 42 29.1	5.578
3	17 54 26.88	2.2699	28 26 13.2	1.164	3	19 44 5.80	2.2695	26 36 50.2	5.718
4	17 56 43.13	2.2718	28 27 18.8	1.023	4	19 46 21.92	2.2678	26 31 2.9	5.858
5	17 58 59.49	2.2735	28 28 16.0	0.882	5	19 48 37.94	2.2661	26 25 7.2	5.998
6	18 1 15.95	2.2752	28 29 4.7	0.741	6	19 50 53.85	2.2643	26 19 3.1	6.138
7	18 3 32.51	2.2768	28 29 44.9	0.599	7	19 53 9.65	2.2624	26 12 50.7	6.277
8	18 5 49.16	2.2783	28 30 16.6	0.457	8	19 55 25.33	2.2604	26 6 29.9	6.416
9	18 8 5.90	2.2798	28 30 39.7	0.314	9	19 57 40.90	2.2585	26 0 0.8	6.554
10	18 10 22.73	2.2811	28 30 54.3	0.171	10	19 59 56.35	2.2565	25 53 23.4	6.691
11	18 12 39.63	2.2823	28 31 0.3	-0.098	11	20 2 11.68	2.2544	25 46 37.8	6.828
12	18 14 56.61	2.2836	28 30 57.7	+0.115	12	20 4 26.88	2.2523	25 39 44.0	6.965
13	18 17 13.66	2.2847	28 30 46.5	0.258	13	20 6 41.96	2.2502	25 32 42.0	7.102
14	18 19 30.77	2.2857	28 30 26.7	0.402	14	20 8 56.90	2.2479	25 25 31.8	7.238
15	18 21 47.94	2.2867	28 29 58.3	0.545	15	20 11 11.71	2.2458	25 18 13.4	7.374
16	18 24 5.17	2.2876	28 29 21.3	0.689	16	20 13 26.39	2.2435	25 10 46.9	7.509
17	18 26 22.45	2.2883	28 28 35.6	0.833	17	20 15 40.93	2.2413	25 3 12.4	7.643
18	18 28 39.77	2.2890	28 27 41.3	0.978	18	20 17 55.34	2.2390	24 55 29.8	7.777
19	18 30 57.13	2.2897	28 26 38.3	1.123	19	20 20 9.61	2.2366	24 47 39.2	7.910
20	18 33 14.53	2.2903	28 25 26.6	1.267	20	20 22 23.73	2.2342	24 39 40.6	8.043
21	18 35 31.96	2.2906	28 24 6.3	1.411	21	20 24 37.71	2.2318	24 31 34.0	8.176
22	18 37 49.42	2.2911	28 22 37.3	1.556	22	20 26 51.54	2.2294	24 23 19.5	8.308
23	18 40 6.89	2.2913	S. 28° 20' 59.6"	1.700	23	20 29 5.23	2.2269	S. 24° 14' 57.1"	8.438
MONDAY 26.					WEDNESDAY 28.				
0	18 42 24.38	2.2916	S. 28° 19' 13.3"	1.844	0	20 31 18.77	2.2244	S. 24° 6' 26.9"	8.568
1	18 44 41.88	2.2918	28 17 18.3	1.989	1	20 33 32.16	2.2219	23 57 48.9	8.698
2	18 46 59.39	2.2918	28 15 14.6	2.135	2	20 35 45.40	2.2194	23 49 3.1	8.828
3	18 49 16.90	2.2918	28 13 2.1	2.280	3	20 37 58.49	2.2169	23 40 9.5	8.957
4	18 51 34.41	2.2916	28 10 40.9	2.425	4	20 40 11.43	2.2144	23 31 8.2	9.085
5	18 53 51.90	2.2914	28 8 11.1	2.569	5	20 42 24.22	2.2118	23 21 59.3	9.213
6	18 56 9.38	2.2912	28 5 32.6	2.714	6	20 44 36.85	2.2093	23 12 42.7	9.340
7	18 58 26.85	2.2909	28 2 45.4	2.859	7	20 46 49.33	2.2067	23 3 18.5	9.466
8	19 0 44.29	2.2904	27 59 49.5	3.003	8	20 49 1.05	2.2041	22 53 46.8	9.592
9	19 3 1.70	2.2900	27 56 45.0	3.148	9	20 51 13.82	2.2015	22 44 7.5	9.717
10	19 5 19.09	2.2895	27 53 31.8	3.293	10	20 53 25.83	2.1989	22 34 20.8	9.841
11	19 7 36.44	2.2889	27 50 9.9	3.437	11	20 55 37.69	2.1963	22 24 26.6	9.965
12	19 9 53.75	2.2883	27 46 39.4	3.581	12	20 57 49.39	2.1937	22 14 25.0	10.088
13	19 12 11.02	2.2874	27 43 0.2	3.725	13	21 0 0.93	2.1911	22 4 16.0	10.210
14	19 14 28.24	2.2865	27 39 12.4	3.869	14	21 2 12.32	2.1885	21 53 59.8	10.331
15	19 16 45.40	2.2856	27 35 15.9	4.013	15	21 4 23.55	2.1858	21 43 36.3	10.452
16	19 19 2.51	2.2847	27 31 10.9	4.156	16	21 6 34.62	2.1833	21 33 5.6	10.572
17	19 21 19.56	2.2836	27 26 57.2	4.300	17	21 8 45.54	2.1808	21 22 27.7	10.692
18	19 23 36.54	2.2824	27 22 34.9	4.443	18	21 10 56.31	2.1782	21 11 42.6	10.811
19	19 25 53.45	2.2813	27 18 4.0	4.586	19	21 13 6.92	2.1756	21 0 50.4	10.928
20	19 28 10.29	2.2800	27 13 24.6	4.728	20	21 15 17.38	2.1730	20 49 51.2	11.045
21	19 30 27.05	2.2787	27 8 36.6	4.871	21	21 17 27.68	2.1704	20 38 45.0	11.162
22	19 32 43.73	2.2773	27 3 40.1	5.013	22	21 19 37.83	2.1679	20 27 31.8	11.278
23	19 35 0.33	2.2759	26 58 35.1	5.154	23	21 21 47.83	2.1654	20 16 11.7	11.392
24	19 37 16.84	2.2744	S. 26° 53' 21.6"	5.296	24	21 23 57.68	2.1629	S. 20° 4' 44.8"	11.506

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 29.					FRIDAY 30.				
0	21 23 57.68	2.1629	S. 20° 4' 44.8"	11.506	0	22 15 13.23	2.1122	S. 14° 57' 47.7"	13.988
1	21 26 7.38	2.1604	19 53 11.0	11.619	1	22 17 19.91	2.1106	14 43 45.6	14.081
2	21 28 16.93	2.1580	19 41 30.5	11.732	2	22 19 26.50	2.1091	14 29 38.0	14.172
3	21 30 26.34	2.1556	19 29 43.2	11.843	3	22 21 33.00	2.1076	14 15 25.0	14.262
4	21 32 35.60	2.1532	19 17 49.3	11.954	4	22 23 39.41	2.1062	14 1 6.6	14.350
5	21 34 44.72	2.1507	19 5 48.8	12.064	5	22 25 45.74	2.1048	13 46 42.9	14.438
6	21 36 53.69	2.1483	18 53 41.6	12.174	6	22 27 51.99	2.1035	13 32 14.0	14.526
7	21 39 2.52	2.1461	18 41 27.9	12.282	7	22 29 58.16	2.1023	13 17 39.8	14.612
8	21 41 11.22	2.1438	18 29 7.8	12.389	8	22 32 4.26	2.1010	13 3 0.5	14.697
9	21 43 19.78	2.1415	18 16 41.2	12.496	9	22 34 10.28	2.0998	12 48 16.2	14.780
10	21 45 28.20	2.1393	18 4 8.2	12.602	10	22 36 16.24	2.0988	12 33 26.9	14.863
11	21 47 36.49	2.1371	17 51 29.0	12.706	11	22 38 22.14	2.0978	12 18 32.6	14.946
12	21 49 44.65	2.1349	17 38 43.5	12.810	12	22 40 27.98	2.0968	12 3 33.4	15.027
13	21 51 52.68	2.1328	17 25 51.7	12.914	13	22 42 33.76	2.0959	11 48 29.4	15.106
14	21 54 0.59	2.1308	17 12 53.8	13.018	14	22 44 39.49	2.0952	11 33 20.7	15.184
15	21 56 8.37	2.1287	16 59 49.8	13.117	15	22 46 45.18	2.0944	11 18 7.3	15.262
16	21 58 16.03	2.1267	16 46 39.7	13.218	16	22 48 50.82	2.0938	11 2 49.3	15.338
17	22 0 23.57	2.1247	16 33 23.6	13.318	17	22 50 56.43	2.0932	10 47 26.7	15.414
18	22 2 30.99	2.1228	16 20 1.6	13.416	18	22 53 2.00	2.0926	10 31 59.6	15.488
19	22 4 38.30	2.1209	16 6 33.7	13.514	19	22 55 7.54	2.0921	10 16 28.2	15.560
20	22 6 45.50	2.1191	15 52 59.9	13.611	20	22 57 13.05	2.0917	10 0 52.4	15.632
21	22 8 52.59	2.1173	15 39 20.4	13.707	21	22 59 18.54	2.0913	9 45 12.3	15.703
22	22 10 59.57	2.1155	15 25 35.1	13.802	22	23 1 24.01	2.0911	9 29 28.0	15.773
23	22 13 6.45	2.1138	15 11 44.2	13.895	23	23 3 29.47	2.0900	9 13 39.6	15.841
24	22 15 13.23	2.1122	S. 14 57 47.7	13.988	24	23 5 34.92	2.0908	S. 8 57 47.1	15.908

PHASES OF THE MOON.

● New Moon,	d	h	m
☽ First Quarter,	12	9	33.4
○ Full Moon,	20	4	30.1
☾ Last Quarter,	28	7	17.4

☾ Perigee,	d	h
☾ Apogee,	22	4.2

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.
1	Jupiter W.	99° 53' 19"	2580	101° 32' 42"	2563	103° 12' 29"	2544	104° 52' 41"	2525
	Antares W.	60 17 5	2613	61 55 42	2596	63 34 43	2578	65 14 8	2560
	Mars W.	45 16 19	2732	46 51 10	2762	48 26 28	2741	50 2 13	2720
	SUN E.	62 55 53	2851	61 24 39	2831	59 53 0	2819	58 20 56	2802
2	Antares W.	73 37 38	2467	75 19 38	2448	77 2 4	2429	78 44 57	2411
	Mars W.	58 7 49	2619	59 46 18	2599	61 25 15	2579	63 4 39	2559
	α Aquilæ W.	39 41 32	2577	40 30 14	2525	41 21 51	2517	42 16 15	4991
	SUN E.	50 34 13	2792	48 59 34	2772	47 24 29	2752	45 48 58	2732
3	Antares W.	87 25 52	2291	89 11 21	2204	90 57 15	2227	92 43 33	2271
	Mars W.	71 28 25	2463	73 10 30	2445	74 53 1	2426	76 35 58	2409
	α Aquilæ W.	47 25 17	4205	48 33 38	4086	49 43 53	3975	50 55 57	3873
	SUN E.	37 44 49	2635	36 6 42	2616	34 28 9	2598	32 49 11	2580
8	SUN W.	31 17 39	2343	33 2 36	2350	34 47 23	2357	36 31 59	2366
	Pollux E.	61 56 21	2051	60 4 6	2058	58 12 2	2065	56 20 9	2073
	Regulus E.	98 38 13	2057	96 46 8	2064	94 54 14	2072	93 2 31	2080
9	SUN W.	45 11 39	2417	46 54 50	2429	48 37 44	2441	50 20 21	2453
	Pollux E.	47 4 6	2121	45 13 39	2132	43 23 29	2144	41 33 37	2157
	Regulus E.	83 47 18	2128	81 57 1	2138	80 7 0	2149	78 17 16	2162
10	SUN W.	58 48 48	2522	60 29 31	2536	62 9 54	2551	63 49 56	2566
	Pollux E.	32 29 0	2221	30 41 4	2225	28 53 29	2250	27 6 16	2265
	Regulus E.	69 13 19	2227	67 25 31	2241	65 38 4	2254	63 50 57	2269
11	SUN W.	72 4 53	2644	73 42 48	2660	75 20 22	2675	76 57 35	2692
	Aldebaran W.	27 16 0	2618	28 54 31	2604	30 33 21	2593	32 12 25	2587
	Regulus E.	55 0 47	2344	53 15 51	2359	51 31 17	2374	49 47 5	2390
	Spica E.	109 0 39	2533	107 15 27	2548	105 30 37	2562	103 46 8	2577
	Jupiter E.	114 3 23	2297	112 17 19	2311	110 31 36	2326	108 46 14	2340
12	SUN W.	84 58 17	2772	86 33 22	2787	88 8 7	2803	89 42 31	2818
	Aldebaran W.	40 28 46	2591	42 7 53	2597	43 46 52	2604	45 25 42	2611
	Regulus E.	41 11 45	2470	39 29 49	2485	37 48 15	2502	36 7 4	2519
	Spica E.	95 9 2	2451	93 26 40	2466	91 44 39	2480	90 2 58	2495
	Jupiter E.	100 4 41	2413	98 21 25	2428	96 38 30	2443	94 55 56	2457
13	SUN W.	97 29 31	2825	99 1 56	2809	100 34 3	2824	102 5 51	2839
	Aldebaran W.	53 37 5	2856	55 14 44	2866	56 52 9	2877	58 29 20	2887
	Regulus E.	27 47 1	2605	26 8 13	2634	24 29 50	2643	22 51 54	2665
	Spica E.	81 39 33	2566	79 59 53	2580	78 20 30	2593	76 41 25	2607
	Jupiter E.	86 28 4	2527	84 47 28	2540	83 7 10	2553	81 27 11	2567
14	SUN W.	109 40 25	3007	111 10 29	3021	112 40 16	3034	114 9 47	3047
	Aldebaran W.	66 31 46	2739	68 7 34	2750	69 43 7	2761	71 18 26	2771
	Pollux W.	22 20 57	2677	23 58 8	2688	25 35 4	2699	27 11 45	2710
	Spica E.	68 30 30	2671	66 53 11	2683	65 16 8	2694	63 39 20	2706
	Jupiter E.	73 11 45	2629	71 33 30	2642	69 55 32	2655	68 17 51	2666
15	SUN W.	121 33 33	3106	123 1 35	3118	124 29 23	3129	125 56 58	3139
	Aldebaran W.	79 11 40	2822	80 45 39	2832	82 19 25	2842	83 52 59	2852
	Pollux W.	35 11 35	2763	36 46 51	2773	38 21 54	2784	39 56 43	2793
	Spica E.	55 39 13	2763	54 3 56	2772	52 28 52	2783	50 54 2	2793

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXh.	P. L. of Diff.
1	Jupiter W.	106° 33' 19"	2507	108° 14' 22"	2489	109° 55' 51"	2471	111° 37' 45"	2453
	Antares W.	66 53 58	2541	68 34 14	2522	70 14 56	2504	71 56 4	2485
	Mars W.	51 38 26	2700	53 15 6	2680	54 52 13	2660	56 29 47	2639
	Sun E.	56 48 27	2873	55 15 32	2852	53 42 12	2832	52 8 26	2811
2	Antares W.	80 28 16	2383	82 12 1	2375	83 56 12	2357	85 40 49	2339
	Mars W.	64 44 30	2539	66 24 49	2520	68 5 35	2501	69 46 47	2483
	α Aquilæ W.	43 13 17	4804	44 12 50	4633	45 14 46	4479	46 18 57	4335
	Sun E.	44 13 0	2712	42 36 36	2692	40 59 46	2673	39 22 30	2655
3	Antares W.	94 30 15	2284	96 17 22	2238	98 4 53	2222	99 52 48	2206
	Mars W.	78 19 20	2391	80 3 7	2375	81 47 18	2358	83 31 53	2343
	α Aquilæ W.	52 9 44	3779	53 25 8	3693	54 42 2	3613	56 0 22	3540
	Sun E.	31 9 49	2563	29 30 3	2545	27 49 53	2528	26 9 19	2512
8	Sun W.	38 16 23	2375	40 0 34	2385	41 44 30	2395	43 28 12	2405
	Pollux E.	54 28 28	2081	52 37 0	2091	50 45 47	2101	48 54 49	2111
	Regulus E.	91 11 1	2086	89 19 44	2097	87 28 40	2107	85 37 51	2117
9	Sun W.	52 2 40	2467	53 44 40	2480	55 26 22	2493	57 7 45	2507
	Pollux E.	39 44 4	2169	37 54 50	2181	36 5 54	2194	34 17 17	2207
	Regulus E.	76 27 51	2174	74 38 44	2186	72 49 56	2200	71 1 28	2212
10	Sun W.	65 29 38	2581	67 8 59	2597	68 47 58	2612	70 26 36	2628
	Pollux E.	25 19 25	2290	23 32 56	2296	21 46 50	2312	20 1 8	2328
	Regulus E.	62 4 12	2284	60 17 49	2296	58 31 47	2313	56 46 6	2328
11	Sun W.	78 34 26	2707	80 10 56	2724	81 47 4	2740	83 22 51	2756
	Aldebaran W.	33 51 38	2583	35 30 56	2583	37 10 15	2584	38 49 32	2586
	Regulus E.	48 3 16	2405	46 19 49	2422	44 36 45	2428	42 54 4	2433
	Spica E.	102 2 0	2392	100 18 14	2407	98 34 49	2422	96 51 45	2436
	Jupiter E.	107 1 13	2355	105 16 33	2370	103 32 15	2384	101 48 18	2398
12	Sun W.	91 16 35	2834	92 50 19	2840	94 23 43	2865	95 56 47	2880
	Aldebaran W.	47 4 22	2619	48 42 51	2628	50 21 8	2637	51 59 13	2646
	Regulus E.	34 26 17	2535	32 45 53	2552	31 5 52	2569	29 26 14	2587
	Spica E.	88 21 38	2510	86 40 38	2523	84 59 57	2538	83 19 36	2552
	Jupiter E.	93 13 42	2471	91 31 48	2485	89 50 14	2499	88 8 59	2513
13	Sun W.	103 37 21	2953	105 8 33	2966	106 39 28	2981	108 10 5	2994
	Aldebaran W.	60 6 17	2696	61 43 0	2706	63 19 29	2719	64 55 44	2729
	Regulus E.	21 14 27	2686	19 37 31	2713	18 1 8	2741	16 25 22	2773
	Spica E.	75 2 39	2620	73 24 11	2632	71 46 0	2645	70 8 6	2658
	Jupiter E.	79 47 31	2580	78 8 9	2593	76 29 4	2605	74 50 16	2618
14	Sun W.	115 39 2	3050	117 8 2	3071	118 36 47	3083	120 5 17	3095
	Aldebaran W.	72 53 32	2782	74 28 24	2792	76 3 3	2802	77 37 28	2812
	Pollux W.	28 48 12	2790	30 24 25	2738	32 0 23	2743	33 36 6	2753
	Spica E.	62 2 48	2718	60 26 32	2729	58 50 31	2741	57 14 45	2751
	Jupiter E.	66 40 26	2678	65 3 16	2689	63 26 21	2700	61 49 41	2710
15	Sun W.	127 24 20	3150	128 51 29	3161	130 18 25	3171	131 45 9	3181
	Aldebaran W.	85 26 20	2861	86 59 29	2870	88 32 26	2880	90 5 11	2889
	Pollux W.	41 31 20	2892	43 5 45	2812	44 39 57	2821	46 13 57	2831
	Spica E.	49 19 25	2893	47 45 1	2813	46 10 50	2822	44 36 51	2831

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.
15	Jupiter E.	60 13 15	2722	58 37 4	2722	57 1 6	2742	55 25 22	2752
	Antares E.	101 32 7	2760	99 56 47	2770	98 21 40	2780	96 46 46	2790
16	Aldebaran W.	91 37 44	2808	93 10 6	2908	94 42 17	2916	96 14 16	2924
	Pollux W.	47 47 45	2840	49 21 21	2848	50 54 46	2856	52 28 1	2864
	Spica E.	43 3 4	2841	41 29 29	2850	39 56 6	2859	38 22 54	2867
	Jupiter E.	47 29 56	2800	45 55 28	2809	44 21 12	2818	42 47 7	2827
	Antares E.	88 55 28	2837	87 21 48	2846	85 48 20	2855	84 15 3	2862
	Mars E.	109 32 40	2965	108 1 44	2974	106 30 59	2982	105 0 24	2989
17	Pollux W.	60 11 42	2903	61 43 57	2910	63 16 3	2917	64 48 0	2924
	Regulus W.	23 42 50	2950	25 14 5	2952	26 45 18	2955	28 16 27	2958
	Spica E.	30 39 37	2909	29 7 29	2916	27 35 31	2924	26 3 43	2931
	Jupiter E.	34 59 29	2868	33 26 29	2876	31 53 40	2884	30 21 1	2893
	Antares E.	76 31 12	2902	74 58 56	2909	73 26 49	2916	71 54 50	2922
	Mars E.	97 29 51	3027	96 0 12	3034	94 30 42	3041	93 1 20	3047
18	Pollux W.	72 25 39	2956	73 56 47	2962	75 27 48	2968	76 58 41	2973
	Regulus W.	35 51 5	2977	37 21 46	2982	38 52 21	2986	40 22 51	2991
	Antares E.	64 17 1	2954	62 45 51	2961	61 14 49	2968	59 43 54	2972
	Mars E.	85 36 29	3078	84 7 53	3084	82 39 24	3090	81 11 2	3096
19	Pollux W.	84 31 28	2992	86 1 42	3003	87 31 51	3008	89 1 54	3012
	Regulus W.	47 53 58	3012	49 23 56	3017	50 53 48	3020	52 23 36	3024
	Antares E.	52 11 0	2997	50 40 44	3002	49 10 34	3007	47 40 30	3011
	Mars E.	73 50 49	3120	72 23 4	3125	70 55 25	3130	69 27 52	3134
	α Aquilæ E.	102 7 26	3878	100 53 44	3874	99 39 58	3870	98 26 8	3868
20	Pollux W.	96 30 50	3032	98 0 23	3036	99 29 51	3039	100 59 15	3043
	Regulus W.	59 51 25	3042	61 20 46	3048	62 50 2	3049	64 19 14	3052
	Antares E.	40 11 29	3031	38 41 55	3035	37 12 26	3039	35 43 1	3043
	Mars E.	62 11 24	3155	60 44 21	3159	59 17 23	3163	57 50 29	3166
	α Aquilæ E.	92 16 41	3669	91 2 50	3672	89 49 2	3676	88 35 18	3680
	Saturn E.	116 23 44	3065	114 54 52	3069	113 26 4	3072	111 57 20	3074
21	Regulus W.	71 44 24	3065	73 13 17	3067	74 42 7	3069	76 10 54	3071
	Spica W.	17 41 29	3073	19 10 12	3073	20 38 54	3073	22 7 36	3073
	Mars E.	50 37 1	3183	49 10 31	3185	47 44 4	3188	46 17 41	3192
	α Aquilæ E.	82 27 59	3914	81 14 53	3923	80 1 57	3933	78 49 11	3944
	Saturn E.	104 34 32	3088	103 6 8	3091	101 37 47	3092	100 9 28	3095
22	Regulus W.	83 34 20	3078	85 2 57	3078	86 31 33	3079	88 0 8	3080
	Spica W.	29 30 58	3076	30 59 37	3077	32 28 15	3077	33 56 53	3077
	Jupiter W.	25 54 24	3042	27 23 45	3040	28 53 8	3039	30 22 32	3039
	Mars E.	39 6 37	3205	37 40 34	3208	36 14 34	3210	34 48 37	3213
	α Aquilæ E.	72 48 25	4014	71 36 59	4032	70 25 51	4050	69 15 1	4070
	Saturn E.	92 48 25	3101	91 20 17	3102	89 52 10	3102	88 24 3	3103
	Fomalhaut E.	98 39 34	3278	97 14 54	3275	95 50 13	3275	94 25 32	3274
23	Regulus W.	95 23 0	3078	96 51 36	3078	98 20 13	3078	99 48 52	3074
	Spica W.	41 20 8	3074	42 48 49	3073	44 17 32	3071	45 46 17	3069
	Jupiter W.	37 49 46	3033	39 19 18	3032	40 48 51	3030	42 18 26	3028
	Mars E.	27 30 50	3232	26 14 19	3237	24 48 54	3244	23 23 37	3252
	α Aquilæ E.	63 26 7	4193	62 17 34	4223	61 9 30	4255	60 1 56	4291
	Saturn E.	81 3 31	3101	79 35 23	3101	78 7 14	3099	76 39 3	3097

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
15	Jupiter E.	53 49 51	2762	52 14 33	2772	50 39 28	2782	49 4 36	2791
	Antares E.	95 12 5	2800	93 37 37	2810	92 3 22	2819	90 29 19	2828
16	Aldebaran W.	97 46 4	2923	99 17 41	2941	100 49 8	2950	102 20 24	2958
	Pollux W.	54 1 6	2873	55 34 0	2880	57 6 44	2886	58 39 18	2896
	Spica E.	36 49 53	2878	35 17 3	2884	33 44 24	2892	32 11 55	2901
	Jupiter E.	41 13 14	2835	39 30 32	2843	38 6 0	2852	36 32 39	2860
	Antares E.	82 41 56	2871	81 9 0	2879	79 36 14	2887	78 3 38	2894
Mars E.	103 29 58	2997	101 59 42	3005	100 29 36	3013	98 59 39	3020	
17	Pollux W.	66 19 48	2931	67 51 28	2937	69 23 0	2944	70 54 23	2950
	Regulus W.	29 47 32	2962	31 18 32	2965	32 49 28	2969	34 20 19	2973
	Spica E.	24 32 4	2939	23 0 35	2948	21 29 17	2956	19 58 9	2965
	Jupiter E.	28 48 33	2901	27 16 15	2909	25 44 7	2917	24 12 10	2927
	Antares E.	70 22 50	2929	68 51 17	2936	67 19 44	2942	65 48 19	2948
	Mars E.	91 32 6	3054	90 3 0	3060	88 34 2	3067	87 5 12	3073
18	Pollux W.	78 29 28	2978	80 0 8	2984	81 30 41	2989	83 1 8	2994
	Regulus W.	41 53 15	2985	43 23 34	3000	44 53 47	3004	46 23 55	3008
	Antares E.	58 13 6	2977	56 42 25	2982	55 11 50	2988	53 41 22	2993
	Mars E.	79 42 47	3101	78 14 38	3108	76 46 36	3111	75 18 40	3115
19	Pollux W.	90 31 52	3017	92 1 44	3021	93 31 31	3025	95 1 13	3029
	Regulus W.	53 53 19	3028	55 22 57	3031	56 52 31	3035	58 22 0	3039
	Antares E.	46 10 31	3016	44 40 38	3020	43 10 50	3024	41 41 7	3028
	Mars E.	68 0 24	3138	66 33 1	3143	65 5 44	3148	63 38 32	3151
	α Aquilæ E.	97 12 16	3266	95 58 22	3266	94 44 28	3266	93 30 34	3267
20	Pollux W.	102 28 34	3047	103 57 49	3049	105 27 1	3052	106 56 10	3055
	Regulus W.	65 48 23	3054	67 17 29	3057	68 46 31	3060	70 15 29	3063
	Antares E.	34 13 41	3046	32 44 25	3048	31 15 12	3051	29 46 2	3053
	Mars E.	56 23 39	3169	54 56 53	3173	53 30 12	3177	52 3 35	3179
	α Aquilæ E.	87 21 38	3286	86 8 4	3292	84 54 36	3296	83 41 14	3295
	Saturn E.	110 28 39	3078	109 0 2	3081	107 31 29	3083	106 2 59	3086
21	Regulus W.	77 39 39	3073	79 8 22	3074	80 37 3	3076	82 5 42	3077
	Spica W.	23 36 18	3074	25 4 59	3075	26 33 39	3075	28 2 19	3076
	Mars E.	44 51 22	3194	43 25 6	3197	41 58 53	3199	40 32 43	3203
	α Aquilæ E.	77 36 36	3256	76 24 13	3269	75 12 3	3283	74 0 7	3298
	Saturn E.	98 41 12	3096	97 12 58	3097	95 44 45	3099	94 16 34	3101
22	Regulus W.	89 28 42	3080	90 57 16	3080	92 25 50	3079	93 54 25	3079
	Spica W.	35 25 31	3076	36 54 10	3076	38 22 49	3076	39 51 28	3075
	Jupiter W.	31 51 56	3039	33 21 21	3037	34 50 48	3036	36 20 16	3034
	Mars E.	33 22 43	3216	31 56 53	3220	30 31 8	3224	29 5 27	3227
	α Aquilæ E.	68 4 30	4091	66 54 20	4114	65 44 32	4138	64 35 7	4164
	Saturn E.	86 55 57	3103	85 27 51	3103	83 59 45	3108	82 31 38	3102
	Fomalhaut E.	93 0 50	3274	91 36 8	3273	90 11 25	3273	88 46 42	3273
23	Regulus W.	101 17 33	3073	102 46 16	3071	104 15 1	3069	105 43 49	3066
	Spica W.	47 15 4	3068	48 43 53	3065	50 12 45	3063	51 41 40	3060
	Jupiter W.	43 48 4	3096	45 17 45	3093	46 47 29	3091	48 17 16	3018
	Mars E.	21 58 29	3262	20 33 33	3274	19 8 51	3288	17 44 25	3306
	α Aquilæ E.	58 54 55	4298	57 48 28	4368	56 42 38	4411	55 37 27	4459
	Saturn E.	75 10 50	3085	73 42 34	3093	72 14 16	3091	70 45 56	3089

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^b .	P. L. of Diff.	VI ^b .	P. L. of Diff.	IX ^b .	P. L. of Diff.
23	Fomalhaut E.	87° 21' 59"	3273	85° 57' 16"	3272	84° 32' 32"	3272	83° 7' 48"	3271
	Venus E.	110 39 8	3522	109 19 8	3520	107 59 6	3519	106 39 3	3517
24	Spica W.	53 10 39	3056	54 39 42	3054	56 8 48	3050	57 37 59	3045
	Jupiter W.	49 47 6	3015	51 17 0	3011	52 46 59	3007	54 17 3	3003
	Saturn E.	69 17 33	3086	67 49 6	3082	66 20 34	3078	64 51 58	3075
	Fomalhaut E.	76 4 2	3270	74 39 16	3270	73 14 30	3270	71 49 44	3270
	α Pegasi E.	97 31 28	3376	96 8 44	3371	94 45 54	3365	93 22 58	3361
	Venus E.	99 58 12	3504	98 37 52	3500	97 17 28	3497	95 57 0	3493
	SUN E.	138 21 42	3426	136 59 55	3423	135 38 4	3418	134 16 8	3415
25	Spica W.	65 5 19	3021	66 35 6	3014	68 5 1	3009	69 35 3	3001
	Jupiter W.	61 48 46	2978	63 19 26	2972	64 50 14	2966	66 21 9	2959
	Saturn E.	57 27 42	3051	55 58 32	3045	54 29 15	3039	52 59 51	3033
	Fomalhaut E.	64 45 54	3271	63 21 9	3272	61 56 25	3273	60 31 42	3275
	α Pegasi E.	86 26 56	3337	85 3 27	3332	83 39 53	3328	82 16 14	3323
	Venus E.	89 13 20	3465	87 52 17	3458	86 31 6	3451	85 9 47	3444
	SUN E.	127 25 8	3326	126 2 36	3320	124 39 57	3373	123 17 10	3326
26	Spica W.	77 7 31	2962	78 38 31	2954	80 9 42	2944	81 41 5	2934
	Jupiter W.	73 58 3	2920	75 29 57	2911	77 2 2	2902	78 34 18	2893
	Antares W.	31 13 29	2961	32 44 31	2952	34 15 44	2942	35 47 9	2933
	Saturn E.	45 30 42	2996	44 0 24	2987	42 29 55	2979	40 59 16	2969
	Fomalhaut E.	53 28 42	3289	52 4 18	3294	50 39 59	3299	49 15 46	3305
	α Pegasi E.	75 16 43	3303	73 52 35	3300	72 28 23	3296	71 4 7	3293
	Venus E.	78 20 59	3401	76 58 44	3391	75 36 17	3380	74 13 38	3370
	SUN E.	116 21 1	3222	114 57 16	3213	113 33 20	3204	112 9 13	3204
27	Spica W.	89 21 16	2880	90 54 0	2868	92 27 0	2855	94 0 16	2842
	Jupiter W.	86 18 54	2838	87 52 32	2827	89 26 25	2815	91 0 34	2802
	Antares W.	43 27 27	2879	45 0 13	2866	46 33 15	2854	48 6 33	2842
	Saturn E.	33 23 3	2921	31 51 11	2911	30 19 6	2901	28 46 48	2891
	Fomalhaut E.	42 17 22	3267	40 54 28	3267	39 31 57	3260	38 9 52	3258
	α Pegasi E.	64 1 57	3282	62 37 25	3282	61 12 52	3282	59 48 19	3283
	Venus E.	67 17 10	3310	65 53 10	3297	64 28 55	3283	63 4 24	3269
	SUN E.	105 5 23	3224	103 39 54	3221	102 14 10	3208	100 48 10	3194
28	Jupiter W.	98 55 34	2734	100 31 29	2719	102 7 44	2704	103 44 18	2689
	Antares W.	55 57 19	2772	57 32 23	2757	59 7 47	2742	60 43 31	2726
	Mars W.	32 14 54	2892	33 47 23	2873	35 20 16	2854	36 53 34	2835
	α Pegasi E.	52 46 19	3206	51 22 14	3215	49 58 20	3226	48 34 39	3240
	Venus E.	55 57 32	3193	54 31 14	3177	53 4 37	3160	51 37 40	3143
	SUN E.	93 33 53	3119	92 6 6	3103	90 38 0	3087	89 9 34	3070
29	Antares W.	68 47 29	2645	70 25 23	2628	72 3 40	2610	73 42 21	2593
	Mars W.	44 46 10	2741	46 21 55	2722	47 58 6	2702	49 34 43	2683
	α Pegasi E.	41 41 33	3465	40 20 30	3506	39 0 12	3554	37 40 47	3610
	Venus E.	44 17 40	3054	42 48 34	3034	41 19 4	3016	39 49 11	2997
	SUN E.	81 42 9	2922	80 11 34	2903	78 40 35	2845	77 9 13	2826
30	Antares W.	82 1 53	2502	83 43 3	2484	85 24 39	2465	87 6 41	2446
	Mars W.	57 44 21	2585	59 23 37	2565	61 3 20	2545	62 43 30	2525
	α Aquilæ W.	44 5 4	4775	45 5 1	4619	46 7 9	4479	47 11 20	4349
	Venus E.	32 13 39	2988	30 41 17	2877	29 8 29	2858	27 35 16	2837
	SUN E.	69 26 16	2928	67 52 25	2809	66 18 9	2789	64 43 27	2769

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Dist.	XVh.	P. L. of Dist.	XVIIIh.	P. L. of Dist.	XXIh.	P. L. of Dist.
23	Fomalhaut E.	81° 43' 3"	3271	80° 18' 18"	3271	78° 53' 33"	3271	77° 28' 48"	3270
	Venus E.	105 18 58	3515	103 58 51	3513	102 38 41	3510	101 18 28	3507
24	Spica W.	59 7 16	3041	60 36 38	3037	62 6 5	3031	63 35 39	3026
	Jupiter W.	55 47 12	2999	57 17 26	2994	58 47 46	2989	60 18 13	2984
	Saturn E.	63 23 18	3071	61 54 33	3066	60 25 42	3061	58 56 45	3056
	Fomalhaut E.	70 24 58	3270	69 0 12	3270	67 35 26	3270	66 10 40	3270
	α Pegasi E.	91 59 57	3356	90 36 50	3351	89 13 37	3346	87 50 19	3342
	Venus E.	94 36 28	3488	93 15 50	3482	91 55 6	3477	90 34 16	3471
	Sun E.	132 54 8	3409	131 32 2	3404	130 9 50	3399	128 47 32	3393
25	Spica W.	71 5 14	2994	72 35 34	2987	74 6 3	2979	75 36 42	2971
	Jupiter W.	67 52 13	2952	69 23 26	2945	70 54 48	2937	72 26 20	2928
	Saturn E.	51 30 19	3026	50 0 38	3019	48 30 49	3011	47 0 50	3004
	Fomalhaut E.	59 7 1	3276	57 42 22	3278	56 17 45	3281	54 53 11	3285
	α Pegasi E.	80 52 29	3319	79 28 39	3315	78 4 45	3311	76 40 46	3307
	Venus E.	83 48 20	3436	82 26 44	3428	81 4 59	3419	79 43 4	3410
	Sun E.	121 54 15	3358	120 31 11	3351	119 7 58	3342	117 44 35	3332
26	Spica W.	83 12 41	2994	84 44 30	2913	86 16 32	2903	87 48 47	2899
	Jupiter W.	80 6 46	2983	81 39 27	2979	83 12 22	2961	84 45 31	2950
	Antares W.	37 18 46	2923	38 50 36	2912	40 22 39	2901	41 54 56	2891
	Saturn E.	39 28 25	2960	37 57 22	2951	36 26 8	2942	34 54 42	2931
	Fomalhaut E.	47 51 41	3315	46 27 47	3325	45 4 4	3337	43 40 35	3351
	α Pegasi E.	69 39 47	3290	68 15 24	3287	66 50 57	3285	65 26 28	3283
	Venus E.	72 50 47	3358	71 27 43	3347	70 4 26	3335	68 40 55	3323
	Sun E.	110 44 54	3262	109 20 22	3270	107 55 36	3259	106 30 37	3247
	27	Spica W.	95 33 49	2929	97 7 39	2916	98 41 46	2909	100 16 11	2908
Jupiter W.		92 34 59	2769	94 9 41	2775	95 44 41	2763	97 19 58	2748
Antares W.		49 40 7	2928	51 13 58	2915	52 48 7	2901	54 22 34	2787
Saturn E.		27 14 18	2981	25 41 35	2971	24 8 39	2962	22 35 31	2952
Fomalhaut E.		36 48 18	3470	35 27 20	3507	34 7 4	3559	32 47 37	3606
α Pegasi E.		58 23 48	2985	56 59 19	2988	55 34 54	2993	54 10 33	2998
Venus E.		61 39 36	3255	60 14 32	3241	58 49 11	3225	57 23 31	3209
Sun E.		99 21 54	3180	97 55 21	3165	96 28 30	3150	95 1 21	3134
28		Jupiter W.	105 21 13	2674	106 58 28	2657	108 36 5	2641	110 14 4	2625
	Antares W.	62 19 36	2710	63 56 2	2695	65 32 49	2678	67 9 58	2662
	Mars W.	38 27 16	2916	40 1 23	2798	41 35 54	2779	43 10 50	2760
	α Pegasi E.	47 11 14	3358	45 48 9	3379	44 25 28	3402	43 3 14	3431
	Venus E.	50 10 23	3126	48 42 45	3108	47 14 45	3090	45 46 23	3073
	Sun E.	87 40 48	3053	86 11 41	3036	84 42 13	3018	83 12 22	3000
29	Antares W.	75 21 26	2574	77 0 56	2557	78 40 50	2539	80 21 9	2521
	Mars W.	51 11 46	2963	52 49 15	2944	54 27 10	2924	56 5 32	2904
	α Pegasi E.	36 22 23	2676	35 5 10	2753	33 49 19	2846	32 35 4	2854
	Venus E.	38 18 54	2977	36 48 12	2958	35 17 6	2938	33 45 35	2918
	Sun E.	75 37 27	2906	74 5 16	2887	72 32 41	2866	70 59 41	2848
30	Antares W.	88 49 10	2428	90 32 5	2409	92 15 27	2391	93 59 15	2372
	Mars W.	64 24 8	2506	66 5 13	2486	67 46 46	2467	69 28 46	2447
	α Aquilæ W.	48 17 28	4229	49 25 27	4117	50 35 12	4014	51 46 38	3919
	Venus E.	26 1 36	2817	24 27 30	2797	22 52 58	2777	21 18 9	2756
	Sun E.	63 8 18	2749	61 32 43	2729	59 56 42	2710	58 20 15	2690

AT GREENWICH APPARENT NOON.

		THE SUN'S						Sidereal Time of the Semi-diameter passing the Meridian.	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
Day of the Week.	Day of the Month.	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Semi-diameter.				
		^h ^m ^s	^s	^o ['] ["]	["]	['] ["]	^s	^m ^s	^s	
Sat.	1	2 33 1.37	9.538	N.15 2 20.9	+45.48	15 54.22	66.04	2 59.78	0.318	
Sun.	2	2 36 50.58	9.561	15 20 24.9	44.86	15 53.98	66.12	3 7.11	0.295	
Mon.	3	2 40 40.35	9.584	15 38 13.8	44.32	15 53.74	66.20	3 13.88	0.272	
Tues.	4	2 44 30.68	9.608	15 55 47.3	43.57	15 53.51	66.28	3 20.09	0.248	
Wed.	5	2 48 21.57	9.631	16 13 5.1	42.91	15 53.28	66.36	3 25.73	0.225	
Thur.	6	2 52 13.02	9.655	16 30 6.6	42.22	15 53.06	66.44	3 30.82	0.201	
Frid.	7	2 56 5.04	9.679	16 46 51.6	41.53	15 52.84	66.52	3 35.35	0.178	
Sat.	8	2 59 57.62	9.703	17 3 19.9	40.82	15 52.62	66.61	3 39.31	0.154	
Sun.	9	3 3 50.77	9.726	17 19 31.2	40.10	15 52.41	66.69	3 42.70	0.131	
Mon.	10	3 7 44.48	9.750	17 35 25.0	39.37	15 52.20	66.77	3 45.54	0.107	
Tues.	11	3 11 38.75	9.774	17 51 1.0	38.63	15 51.99	66.85	3 47.82	0.083	
Wed.	12	3 15 33.57	9.797	18 6 19.0	37.87	15 51.79	66.94	3 49.56	0.060	
Thur.	13	3 19 28.95	9.820	18 21 18.7	37.10	15 51.59	67.02	3 50.74	0.037	
Frid.	14	3 23 24.89	9.843	18 35 59.9	36.32	15 51.39	67.11	3 51.36	+0.014	
Sat.	15	3 27 21.38	9.866	18 50 22.1	35.53	15 51.20	67.19	3 51.42	-0.009	
Sun.	16	3 31 18.44	9.889	19 4 25.3	34.73	15 51.01	67.27	3 50.92	0.032	
Mon.	17	3 35 16.05	9.912	19 18 9.3	33.91	15 50.82	67.35	3 49.87	0.055	
Tues.	18	3 39 14.21	9.935	19 31 33.6	33.09	15 50.64	67.43	3 48.27	0.078	
Wed.	19	3 43 12.92	9.958	19 44 37.9	32.26	15 50.45	67.51	3 46.13	0.101	
Thur.	20	3 47 12.18	9.981	19 57 22.1	31.42	15 50.27	67.59	3 43.44	0.124	
Frid.	21	3 51 11.99	10.004	20 9 46.1	30.57	15 50.09	67.67	3 40.20	0.147	
Sat.	22	3 55 12.35	10.027	20 21 49.5	29.71	15 49.91	67.74	3 36.41	0.169	
Sun.	23	3 59 13.24	10.049	20 33 32.1	28.83	15 49.73	67.82	3 32.08	0.191	
Mon.	24	4 3 14.67	10.071	20 44 53.6	27.95	15 49.56	67.89	3 27.22	0.213	
Tues.	25	4 7 16.63	10.093	20 55 53.9	27.06	15 49.39	67.96	3 21.84	0.235	
Wed.	26	4 11 19.10	10.114	21 6 32.7	26.16	15 49.22	68.03	3 15.94	0.256	
Thur.	27	4 15 22.08	10.135	21 16 49.7	25.25	15 49.06	68.10	3 9.54	0.277	
Frid.	28	4 19 25.56	10.155	21 26 44.7	24.33	15 48.90	68.16	3 2.64	0.297	
Sat.	29	4 23 29.53	10.175	21 36 17.7	23.40	15 48.75	68.22	2 55.25	0.317	
Sun.	30	4 27 33.96	10.194	21 45 28.3	22.46	15 48.60	68.28	2 47.40	0.336	
Mon.	31	4 31 38.85	10.212	21 54 16.3	21.51	15 48.45	68.34	2 39.09	0.354	
Tues.	32	4 35 44.18	10.230	N.22 2 41.4	+20.56	15 48.31	68.40	2 30.34	0.373	

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0°.18 from the Sidereal Time.

+ prefixed to the hourly change of declination, indicates that north declinations are increasing, and south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be added to Mean Time.	Diff. for 1 hour.	Sidereal Time or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
Sat.	1	h m s 2 33 1.85	9.539	N. 15° 2' 23.2"	+45.48	m s 2 59.80	0.318	h m s 2 36 1.65
Sun.	2	2 36 51.08	9.562	15 20 27.3	44.86	3 7.13	0.295	2 39 58.21
Mon.	3	2 40 40.87	9.585	15 38 16.3	44.22	3 13.89	0.272	2 43 54.76
Tues.	4	2 44 31.22	9.609	15 55 49.8	43.57	3 20.10	0.248	2 47 51.32
Wed.	5	2 48 22.13	9.632	16 13 7.6	42.91	3 25.74	0.225	2 51 47.87
Thur.	6	2 52 13.60	9.656	16 30 9.1	42.22	3 30.83	0.201	2 55 44.43
Frid.	7	2 56 5.63	9.679	16 46 54.1	41.53	3 35.36	0.178	2 59 40.98
Sat.	8	2 59 58.22	9.703	17 3 22.4	40.82	3 39.32	0.154	3 3 37.54
Sun.	9	3 3 51.38	9.726	17 19 33.7	40.10	3 42.71	0.131	3 7 34.09
Mon.	10	3 7 45.10	9.750	17 35 27.5	39.37	3 45.55	0.107	3 11 30.65
Tues.	11	3 11 39.37	9.774	17 51 3.5	38.63	3 47.83	0.083	3 15 27.20
Wed.	12	3 15 34.20	9.797	18 6 21.4	37.87	3 49.57	0.060	3 19 23.77
Thur.	13	3 19 29.59	9.820	18 21 21.1	37.10	3 50.74	0.037	3 23 20.33
Frid.	14	3 23 25.53	9.843	18 36 2.2	36.32	3 51.36	+0.014	3 27 16.89
Sat.	15	3 27 22.02	9.866	18 50 24.4	35.53	3 51.42	-0.009	3 31 13.44
Sun.	16	3 31 19.08	9.889	19 4 27.5	34.73	3 50.92	0.032	3 35 10.00
Mon.	17	3 35 16.69	9.912	19 18 11.4	33.91	3 49.87	0.055	3 39 6.56
Tues.	18	3 39 14.85	9.935	19 31 35.6	33.09	3 48.27	0.078	3 43 3.12
Wed.	19	3 43 13.55	9.958	19 44 39.9	32.26	3 46.12	0.101	3 46 59.67
Thur.	20	3 47 12.80	9.981	19 57 24.0	31.42	3 43.43	0.124	3 50 56.23
Frid.	21	3 51 12.60	10.004	20 9 48.0	30.57	3 40.19	0.147	3 54 52.79
Sat.	22	3 55 12.95	10.026	20 21 51.3	29.71	3 36.40	0.169	3 58 49.35
Sun.	23	3 59 13.84	10.048	20 33 33.8	28.83	3 32.06	0.191	4 2 45.90
Mon.	24	4 3 15.25	10.070	20 44 55.2	27.95	3 27.21	0.213	4 6 42.46
Tues.	25	4 7 17.19	10.092	20 55 55.4	27.06	3 21.83	0.235	4 10 39.02
Wed.	26	4 11 19.65	10.113	21 6 34.0	26.16	3 15.93	0.256	4 14 35.58
Thur.	27	4 15 22.61	10.134	21 16 51.0	25.25	3 9.52	0.277	4 18 32.13
Frid.	28	4 19 26.07	10.154	21 26 46.0	24.33	3 2.62	0.297	4 22 28.69
Sat.	29	4 23 30.02	10.174	21 36 18.9	23.40	2 55.23	0.317	4 26 25.25
Sun.	30	4 27 34.43	10.193	21 45 29.3	22.46	2 47.38	0.336	4 30 21.81
Mon.	31	4 31 39.30	10.211	21 54 17.2	21.51	2 39.07	0.354	4 34 18.37
Tues.	32	4 35 44.60	10.229	N. 22° 2' 42.2"	+20.56	2 30.32	0.372	4 38 14.92

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

Diff. for 1 hour.

+9^m.8665

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.	
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE				
		λ	λ'						
1	121	40° 41' 16.5"	41' 5.8"	145.48	-0.30	0.0035272	+45.8	21 ^h 20 ^m 28.00 ^s	
2	122	41 39 27.4	39 16.6	145.42	0.17	.0036364	45.1	21 16 32.09	
3	123	42 37 36.8	37 25.9	145.36	-0.03	.0037440	44.4	21 12 36.18	
4	124	43 35 44.6	35 33.5	145.29	+0.10	.0038499	43.7	21 8 40.28	
5	125	44 33 50.8	33 39.5	145.22	0.23	.0039541	43.0	21 4 44.37	
6	126	45 31 55.4	31 44.0	145.15	0.33	.0040566	42.3	21 0 48.46	
7	127	46 29 58.4	29 46.8	145.08	0.43	.0041573	41.6	20 56 52.54	
8	128	47 27 59.6	27 47.9	145.01	0.48	.0042562	40.8	20 52 56.63	
9	129	48 25 59.0	25 47.1	144.94	0.52	.0043532	40.1	20 49 0.72	
10	130	49 23 56.6	23 44.5	144.86	0.52	.0044485	39.4	20 45 4.81	
11	131	50 21 52.4	21 40.2	144.79	0.48	.0045422	38.7	20 41 8.90	
12	132	51 19 46.3	19 34.0	144.71	0.43	.0046344	38.1	20 37 12.99	
13	133	52 17 38.4	17 25.9	144.64	0.34	.0047252	37.5	20 33 17.08	
14	134	53 15 28.8	15 16.1	144.56	0.24	.0048147	37.0	20 29 21.17	
15	135	54 13 17.5	13 4.6	144.49	+0.11	.0049029	36.5	20 25 25.25	
16	136	55 11 4.5	10 51.5	144.42	-0.02	.0049900	36.0	20 21 29.34	
17	137	56 8 49.9	8 36.8	144.35	0.16	.0050760	35.6	20 17 33.43	
18	138	57 6 33.7	6 20.5	144.29	0.29	.0051611	35.2	20 13 37.52	
19	139	58 4 16.0	4 2.5	144.23	0.40	.0052453	34.8	20 9 41.60	
20	140	59 1 56.9	1 43.2	144.18	0.51	.0053285	34.4	20 5 45.69	
21	141	59 59 36.6	59 22.8	144.13	0.58	.0054108	34.0	20 1 49.78	
22	142	60 57 15.2	57 1.2	144.08	0.64	.0054920	33.6	19 57 53.87	
23	143	61 54 52.6	54 38.4	144.03	0.66	.0055722	33.1	19 53 57.95	
24	144	62 52 28.9	52 14.5	143.99	0.66	.0056511	32.6	19 50 2.04	
25	145	63 50 4.2	49 49.6	143.95	0.61	.0057288	32.0	19 46 6.13	
26	146	64 47 38.6	47 23.9	143.91	0.55	.0058051	31.4	19 42 10.22	
27	147	65 45 12.1	44 57.2	143.87	0.45	.0058799	30.7	19 38 14.31	
28	148	66 42 44.7	42 29.6	143.84	0.35	.0059530	30.0	19 34 18.40	
29	149	67 40 16.4	40 1.1	143.80	0.22	.0060242	29.2	19 30 22.49	
30	150	68 37 47.3	37 31.9	143.77	-0.09	.0060935	28.4	19 26 26.58	
31	151	69 35 17.5	35 1.9	143.73	+0.05	.0061608	27.5	19 22 30.66	
32	152	70 32 46.9	32 31.1	143.70	+0.16	0.0062259	+26.6	19 18 34.75	

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 0d.

Diff. for 1 hour.

-9^s.8296

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.
				"	"	"	h m	m	d
1	16' 2.6	16' 10.3	58' 46.3	+2.38	59' 14.6	+2.32	21 10.4	2.01	25.2
2	16 17.7	16 24.6	59 41.7	2.19	60 6.9	2.00	21 59.4	2.08	26.2
3	16 30.7	16 36.0	60 29.5	1.75	60 48.7	1.45	22 50.8	2.21	27.2
4	16 40.1	16 43.1	61 4.1	1.10	61 14.9	+0.71	23 45.9	2.39	28.2
5	16 44.7	16 45.0	61 21.0	+0.30	61 22.1	-0.12	♄		29.2
6	16 44.0	16 41.6	61 18.2	-0.53	61 9.4	0.92	0 45.6	2.58	0.9
7	16 38.0	16 33.2	60 56.1	1.28	60 38.8	1.59	1 49.4	2.71	1.9
8	16' 27.6	16 21.2	60 18.1	1.85	59 54.6	2.05	2 55.0	2.73	2.9
9	16 14.3	16 6.9	59 29.1	2.19	59 2.2	2.28	3 59.3	2.60	3.9
10	15 59.5	15 51.9	58 34.6	2.31	58 7.0	2.30	4 59.2	2.39	4.9
11	15 44.5	15 37.3	57 39.7	2.24	57 13.3	2.15	5 53.6	2.15	5.9
12	15 30.4	15 24.0	56 48.1	2.04	56 24.3	1.91	6 42.6	1.94	6.9
13	15 17.9	15 12.4	56 2.3	1.77	55 42.0	1.62	7 27.3	1.79	7.9
14	15 7.4	15 2.9	55 23.5	1.46	55 7.0	1.30	8 9.0	1.69	8.9
15	14 58.9	14 55.5	54 52.4	1.14	54 39.7	0.98	8 49.1	1.65	9.9
16	14 52.5	14 50.0	54 28.8	0.83	54 19.7	0.69	9 28.8	1.66	10.9
17	14 48.0	14 46.4	54 12.2	0.55	54 6.5	0.41	10 9.1	1.71	11.9
18	14 45.3	14 44.5	54 2.3	0.29	53 59.5	-0.17	10 51.2	1.80	12.9
19	14 44.2	14 44.2	53 58.2	-0.06	53 58.2	+0.05	11 35.7	1.91	13.9
20	14 44.5	14 45.2	53 59.4	+0.16	54 2.0	0.27	12 23.0	2.03	14.9
21	14 46.3	14 47.6	54 5.9	0.38	54 11.1	0.49	13 13.0	2.13	15.9
22	14 49.5	14 51.7	54 17.7	0.61	54 25.8	0.73	14 5.0	2.19	16.9
23	14 54.3	14 57.3	54 35.3	0.85	54 46.3	0.98	14 57.7	2.19	17.9
24	15 0.7	15 4.6	54 58.9	1.12	55 13.2	1.26	15 49.8	2.14	18.9
25	15 8.9	15 13.7	55 29.1	1.40	55 46.7	1.53	16 40.3	2.06	19.9
26	15 18.9	15 24.6	56 5.9	1.67	56 26.7	1.80	17 28.9	1.99	20.9
27	15 30.7	15 37.1	56 49.0	1.92	57 12.7	2.02	18 15.9	1.93	21.9
28	15 43.9	15 50.9	57 37.5	2.11	58 3.1	2.16	19 2.1	1.92	22.9
29	15 58.0	16 5.1	58 29.3	2.19	58 55.4	2.17	19 48.7	1.97	23.9
30	16 12.1	16 18.8	59 21.1	2.10	59 45.7	1.98	20 37.2	2.08	24.9
31	16 25.0	16 30.6	60 8.5	1.81	60 28.9	1.58	21 29.0	2.25	25.9
32	16 35.3	16 39.0	60 46.3	+1.30	61 0.0	+0.97	22 25.5	2.47	26.9

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 1.					MONDAY 3.				
0	23 5 34.92	2.0008	S. 8 57 47.1	15.908	0	0 47 20.59	2.1825	N. 4 37 17.2	17.465
1	23 7 40.36	2.0007	8 41 50.7	15.073	1	0 49 31.66	2.1867	4 54 44.9	17.457
2	23 9 45.80	2.0007	8 25 50.3	16.038	2	0 51 42.99	2.1909	5 12 12.0	17.447
3	23 11 51.25	2.0008	8 9 46.1	16.102	3	0 53 54.57	2.1952	5 29 38.5	17.435
4	23 13 56.70	2.0010	7 53 38.1	16.164	4	0 56 6.41	2.1995	5 47 4.2	17.421
5	23 16 2.17	2.0013	7 37 26.4	16.225	5	0 58 18.51	2.2039	6 4 29.0	17.404
6	23 18 7.66	2.0017	7 21 11.1	16.284	6	1 0 30.88	2.2084	6 21 52.7	17.386
7	23 20 13.17	2.0021	7 4 52.3	16.343	7	1 2 43.52	2.2131	6 39 15.3	17.366
8	23 22 18.71	2.0025	6 48 30.0	16.400	8	1 4 56.45	2.2178	6 56 36.6	17.344
9	23 24 24.27	2.0030	6 32 4.3	16.456	9	1 7 9.66	2.2226	7 13 56.6	17.321
10	23 26 29.87	2.0038	6 15 35.3	16.510	10	1 9 23.16	2.2274	7 31 15.1	17.295
11	23 28 35.52	2.0046	5 59 3.1	16.563	11	1 11 36.95	2.2323	7 48 31.9	17.266
12	23 30 41.22	2.0054	5 42 27.7	16.615	12	1 13 51.04	2.2374	8 5 47.0	17.235
13	23 32 46.97	2.0063	5 25 49.2	16.666	13	1 16 5.44	2.2426	8 23 0.2	17.203
14	23 34 52.77	2.0072	5 9 7.8	16.715	14	1 18 20.15	2.2478	8 40 11.4	17.169
15	23 36 58.63	2.0083	4 52 23.5	16.763	15	1 20 35.17	2.2531	8 57 20.5	17.133
16	23 39 4.56	2.0094	4 35 36.3	16.809	16	1 22 50.52	2.2585	9 14 27.4	17.094
17	23 41 10.56	2.1006	4 18 46.4	16.853	17	1 25 6.19	2.2639	9 31 31.8	17.053
18	23 43 16.63	2.1019	4 1 53.9	16.897	18	1 27 22.19	2.2694	9 48 33.7	17.009
19	23 45 22.79	2.1034	3 44 58.8	16.939	19	1 29 38.52	2.2751	10 5 32.9	16.964
20	23 47 29.04	2.1048	3 28 1.2	16.979	20	1 31 55.20	2.2808	10 22 29.4	16.917
21	23 49 35.37	2.1064	3 11 1.3	17.018	21	1 34 12.22	2.2866	10 39 23.0	16.866
22	23 51 41.80	2.1081	2 53 59.0	17.056	22	1 36 29.59	2.2924	10 56 13.5	16.816
23	23 53 48.34	2.1098	S. 2 36 54.5	17.093	23	1 38 47.31	2.2983	N. 11 13 0.9	16.762
SUNDAY 2.					TUESDAY 4.				
0	23 55 54.98	2.1116	S. 2 19 47.9	17.128	0	1 41 5.39	2.3043	N. 11 29 45.0	16.706
1	23 58 1.73	2.1136	2 2 39.2	17.161	1	1 43 23.83	2.3104	11 46 25.6	16.647
2	0 0 8.61	2.1157	1 45 28.6	17.192	2	1 45 42.64	2.3166	12 3 2.6	16.586
3	0 2 15.61	2.1177	1 28 16.2	17.222	3	1 48 1.82	2.3228	12 19 35.9	16.523
4	0 4 22.73	2.1198	1 11 2.0	17.250	4	1 50 21.37	2.3290	12 36 5.4	16.458
5	0 6 29.99	2.1221	0 53 46.2	17.277	5	1 52 41.30	2.3353	12 52 30.9	16.390
6	0 8 37.39	2.1245	0 36 28.8	17.302	6	1 55 1.61	2.3418	13 8 52.2	16.320
7	0 10 44.93	2.1270	0 19 9.9	17.326	7	1 57 22.31	2.3483	13 25 9.3	16.248
8	0 12 52.63	2.1296	S. 0 1 49.7	17.348	8	1 59 43.40	2.3548	13 41 22.0	16.173
9	0 15 0.48	2.1322	N. 0 15 31.8	17.368	9	2 2 4.88	2.3613	13 57 30.1	16.096
10	0 17 8.49	2.1349	0 32 54.5	17.387	10	2 4 26.75	2.3679	14 13 33.5	16.017
11	0 19 16.67	2.1377	0 50 18.3	17.404	11	2 6 49.03	2.3747	14 29 32.1	15.936
12	0 21 25.02	2.1406	1 7 43.0	17.419	12	2 9 11.71	2.3813	14 45 25.8	15.852
13	0 23 33.54	2.1436	1 25 8.6	17.433	13	2 11 34.79	2.3881	15 1 14.4	15.766
14	0 25 42.25	2.1467	1 42 35.0	17.445	14	2 13 58.22	2.3950	15 16 57.7	15.677
15	0 27 51.15	2.1499	2 0 2.0	17.455	15	2 16 22.19	2.4019	15 32 35.6	15.586
16	0 30 0.24	2.1532	2 17 29.6	17.463	16	2 18 46.51	2.4088	15 48 8.0	15.492
17	0 32 9.53	2.1566	2 34 57.6	17.469	17	2 21 11.25	2.4158	16 3 34.7	15.396
18	0 34 19.03	2.1600	2 52 25.9	17.474	18	2 23 36.40	2.4228	16 18 55.5	15.298
19	0 36 28.73	2.1635	3 9 54.5	17.477	19	2 26 1.98	2.4298	16 34 10.4	15.198
20	0 38 38.65	2.1672	3 27 23.2	17.479	20	2 28 27.98	2.4368	16 49 19.2	15.095
21	0 40 48.79	2.1709	3 44 52.0	17.479	21	2 30 54.40	2.4439	17 4 21.8	14.990
22	0 42 59.16	2.1747	4 2 20.7	17.476	22	2 33 21.25	2.4511	17 19 18.0	14.882
23	0 45 9.76	2.1786	4 19 49.1	17.471	23	2 35 48.53	2.4583	17 34 7.6	14.771
24	0 47 20.59	2.1825	N. 4 37 17.2	17.465	24	2 38 16.24	2.4654	N. 17 48 50.5	14.658

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 5.					FRIDAY 7.				
0	2 38 16.24	2.4654	N.17 48 50.5	14.658	0	4 44 21.12	2.7577	N.26 40 43.4	6.754
1	2 40 44.38	2.4798	18 3 26.6	14.544	1	4 47 6.68	2.7609	26 47 22.5	6.549
2	2 43 12.95	2.4798	18 17 55.8	14.427	2	4 49 52.43	2.7639	26 53 49.3	6.342
3	2 45 41.95	2.4870	18 32 17.9	14.307	3	4 52 38.35	2.7668	27 0 3.6	6.135
4	2 48 11.39	2.4942	18 46 32.7	14.185	4	4 55 24.44	2.7695	27 6 5.5	5.926
5	2 50 41.26	2.5014	19 0 40.1	14.062	5	4 58 10.69	2.7721	27 11 54.9	5.719
6	2 53 11.56	2.5086	19 14 40.1	13.936	6	5 0 57.09	2.7744	27 17 31.7	5.509
7	2 55 42.29	2.5158	19 28 32.4	13.807	7	5 3 43.62	2.7765	27 22 55.9	5.298
8	2 58 13.46	2.5231	19 42 16.9	13.675	8	5 6 30.27	2.7784	27 28 7.4	5.087
9	3 0 45.06	2.5303	19 55 53.4	13.541	9	5 9 17.03	2.7802	27 33 6.3	4.876
10	3 3 17.09	2.5375	20 9 21.8	13.405	10	5 12 3.89	2.7817	27 37 52.5	4.663
11	3 5 49.55	2.5447	20 22 42.0	13.267	11	5 14 50.83	2.7829	27 42 25.9	4.450
12	3 8 22.45	2.5518	20 35 53.9	13.127	12	5 17 37.84	2.7840	27 46 46.5	4.237
13	3 10 55.77	2.5589	20 48 57.3	12.984	13	5 20 24.91	2.7849	27 50 54.3	4.024
14	3 13 29.52	2.5660	21 1 52.0	12.839	14	5 23 12.03	2.7857	27 54 49.3	3.810
15	3 16 3.69	2.5730	21 14 38.0	12.692	15	5 25 59.19	2.7862	27 58 31.5	3.596
16	3 18 38.28	2.5800	21 27 15.1	12.543	16	5 28 46.37	2.7864	28 2 0.8	3.381
17	3 21 13.29	2.5870	21 39 43.2	12.392	17	5 31 33.56	2.7864	28 5 17.2	3.167
18	3 23 48.72	2.5940	21 52 2.1	12.238	18	5 34 20.74	2.7862	28 8 20.8	2.952
19	3 26 24.57	2.6008	22 4 11.7	12.082	19	5 37 7.91	2.7858	28 11 11.5	2.737
20	3 29 0.82	2.6076	22 16 11.9	11.923	20	5 39 55.04	2.7852	28 13 49.3	2.523
21	3 31 37.48	2.6143	22 28 2.5	11.763	21	5 42 42.13	2.7844	28 16 14.3	2.309
22	3 34 14.54	2.6210	22 39 43.5	11.601	22	5 45 29.17	2.7834	28 18 26.4	2.095
23	3 36 52.00	2.6277	N.22 51 14.7	11.437	23	5 48 16.14	2.7821	N.28 20 25.7	1.881
THURSDAY 6.					SATURDAY 8.				
0	3 39 29.86	2.6343	N.23 2 35.9	11.270	0	5 51 3.02	2.7806	N.28 22 12.1	1.667
1	3 42 8.11	2.6407	23 13 47.1	11.102	1	5 53 49.81	2.7789	28 23 45.7	1.453
2	3 44 46.74	2.6471	23 24 48.1	10.932	2	5 56 36.49	2.7770	28 25 6.5	1.240
3	3 47 25.76	2.6534	23 35 38.9	10.760	3	5 59 23.05	2.7749	28 26 14.5	1.026
4	3 50 5.15	2.6596	23 46 19.3	10.586	4	6 2 9.48	2.7726	28 27 9.8	0.816
5	3 52 44.91	2.6658	23 56 49.2	10.409	5	6 4 55.76	2.7700	28 27 52.4	0.604
6	3 55 25.04	2.6718	24 7 8.4	10.231	6	6 7 41.88	2.7672	28 28 22.3	0.393
7	3 58 5.52	2.6778	24 17 16.9	10.052	7	6 10 27.83	2.7643	28 28 39.6	+0.183
8	4 0 46.35	2.6834	24 27 14.6	9.870	8	6 13 13.60	2.7612	28 28 44.3	-0.027
9	4 3 27.53	2.6891	24 37 1.3	9.687	9	6 15 59.17	2.7578	28 28 36.4	0.326
10	4 6 9.04	2.6947	24 46 37.0	9.502	10	6 18 44.53	2.7542	28 28 16.0	0.443
11	4 8 50.89	2.7002	24 56 1.5	9.314	11	6 21 29.67	2.7504	28 27 43.2	0.650
12	4 11 33.06	2.7055	25 5 14.7	9.126	12	6 24 14.58	2.7464	28 26 58.0	0.857
13	4 14 15.54	2.7106	25 14 16.6	8.936	13	6 26 59.24	2.7422	28 26 0.4	1.063
14	4 16 58.33	2.7156	25 23 7.0	8.744	14	6 29 43.65	2.7379	28 24 50.5	1.267
15	4 19 41.42	2.7205	25 31 45.9	8.552	15	6 32 27.79	2.7334	28 23 28.4	1.470
16	4 22 24.79	2.7253	25 40 13.2	8.358	16	6 35 11.66	2.7287	28 21 54.1	1.673
17	4 25 8.45	2.7299	25 48 28.8	8.162	17	6 37 55.23	2.7237	28 20 7.7	1.875
18	4 27 52.38	2.7343	25 56 32.6	7.964	18	6 40 38.50	2.7186	28 18 9.2	2.075
19	4 30 36.57	2.7386	26 4 24.5	7.766	19	6 43 21.46	2.7133	28 15 58.8	2.273
20	4 33 21.01	2.7427	26 12 4.5	7.566	20	6 46 4.10	2.7078	28 13 36.5	2.471
21	4 36 5.70	2.7467	26 19 32.5	7.365	21	6 48 46.40	2.7022	28 11 2.3	2.667
22	4 38 50.62	2.7505	26 26 48.3	7.163	22	6 51 28.36	2.6964	28 8 16.4	2.861
23	4 41 35.76	2.7542	26 33 52.0	6.959	23	6 54 9.97	2.6905	28 5 18.9	3.055
24	4 44 21.12	2.7577	N.26 40 43.4	6.754	24	6 56 51.22	2.6844	N.28 2 9.8	3.248

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 9.					TUESDAY 11.				
0	6 56 51.22	2.6844	N.28° 2' 9.8"	3.248	0	8 56 41.67	2.9892	N.22° 16' 27.0"	10.463
1	6 59 32.10	2.6781	27 58 49.2	3.439	1	8 58 58.76	2.9805	22 5 56.1	10.568
2	7 2 12.60	2.6717	27 55 17.2	3.629	2	9 1 15.33	2.9718	21 55 18.9	10.672
3	7 4 52.70	2.6651	27 51 33.8	3.817	3	9 3 31.37	2.9631	21 44 35.5	10.774
4	7 7 32.41	2.6584	27 47 30.2	4.003	4	9 5 46.90	2.9546	21 33 46.0	10.874
5	7 10 11.71	2.6516	27 43 33.5	4.187	5	9 8 1.92	2.9460	21 22 50.6	10.973
6	7 12 50.60	2.6447	27 39 16.8	4.370	6	9 10 16.42	2.9374	21 11 49.3	11.070
7	7 15 29.07	2.6376	27 34 49.1	4.552	7	9 12 30.41	2.9290	21 0 42.2	11.165
8	7 18 7.11	2.6303	27 30 10.5	4.732	8	9 14 43.90	2.9207	20 49 29.5	11.259
9	7 20 44.71	2.6229	27 25 21.2	4.911	9	9 16 56.89	2.9123	20 38 11.2	11.351
10	7 23 21.86	2.6155	27 20 21.2	5.088	10	9 19 9.37	2.9039	20 26 47.4	11.441
11	7 25 58.57	2.6080	27 15 10.6	5.263	11	9 21 21.36	2.8957	20 15 18.3	11.530
12	7 28 34.82	2.6003	27 9 49.6	5.436	12	9 23 32.85	2.8875	20 3 43.9	11.617
13	7 31 10.60	2.5925	27 4 18.2	5.607	13	9 25 43.85	2.8793	19 52 4.3	11.702
14	7 33 45.92	2.5847	26 58 36.6	5.777	14	9 27 54.37	2.8712	19 40 19.7	11.785
15	7 36 20.76	2.5767	26 52 44.9	5.946	15	9 30 4.40	2.8632	19 28 30.1	11.867
16	7 38 55.12	2.5686	26 46 43.1	6.113	16	9 32 13.95	2.8553	19 16 35.6	11.948
17	7 41 28.99	2.5605	26 40 31.4	6.278	17	9 34 23.03	2.8474	19 4 36.3	12.028
18	7 44 2.37	2.5523	26 34 9.8	6.441	18	9 36 31.64	2.8396	18 52 32.2	12.106
19	7 46 35.26	2.5440	26 27 38.5	6.601	19	9 38 39.78	2.8318	18 40 23.6	12.182
20	7 49 7.65	2.5356	26 20 57.7	6.759	20	9 40 47.46	2.8241	18 28 10.4	12.257
21	7 51 39.53	2.5272	26 14 7.4	6.917	21	9 42 54.68	2.8165	18 15 52.8	12.330
22	7 54 10.91	2.5187	26 7 7.7	7.073	22	9 45 1.44	2.8090	18 3 30.9	12.401
23	7 56 41.77	2.5101	N.25 59 58.7	7.227	23	9 47 7.76	2.8016	N.17 51 4.7	12.471
MONDAY 10.					WEDNESDAY 12.				
0	7 59 12.12	2.5015	N.25 52 40.5	7.379	0	9 49 13.63	2.0942	N.17 38 34.4	12.540
1	8 1 41.95	2.4928	25 45 13.3	7.528	1	9 51 19.06	2.0868	17 26 0.0	12.607
2	8 4 11.26	2.4841	25 37 37.2	7.676	2	9 53 24.05	2.0796	17 13 21.6	12.673
3	8 6 40.05	2.4754	25 29 52.2	7.822	3	9 55 28.61	2.0724	17 0 39.3	12.737
4	8 9 8.31	2.4667	25 21 58.5	7.966	4	9 57 32.74	2.0653	16 47 53.2	12.800
5	8 11 36.05	2.4579	25 13 56.2	8.109	5	9 59 36.45	2.0583	16 35 3.3	12.862
6	8 14 3.26	2.4491	25 5 45.4	8.250	6	10 1 39.73	2.0513	16 22 9.7	12.922
7	8 16 29.94	2.4402	24 57 26.2	8.389	7	10 3 42.60	2.0445	16 9 12.6	12.981
8	8 18 56.08	2.4313	24 48 58.8	8.526	8	10 5 45.07	2.0377	15 56 12.0	13.038
9	8 21 21.69	2.4223	24 40 23.2	8.661	9	10 7 47.13	2.0310	15 43 8.0	13.094
10	8 23 46.76	2.4134	24 31 39.6	8.794	10	10 9 48.79	2.0244	15 30 0.7	13.149
11	8 26 11.30	2.4045	24 22 48.0	8.925	11	10 11 50.06	2.0179	15 16 50.1	13.203
12	8 28 35.30	2.3955	24 13 48.6	9.054	12	10 13 50.94	2.0115	15 3 36.3	13.256
13	8 30 58.76	2.3866	24 4 41.5	9.182	13	10 15 51.44	2.0052	14 50 19.4	13.307
14	8 33 21.69	2.3777	23 55 26.8	9.307	14	10 17 51.56	1.9989	14 36 59.5	13.356
15	8 35 44.09	2.3688	23 46 4.7	9.430	15	10 19 51.30	1.9926	14 23 36.7	13.404
16	8 38 5.95	2.3599	23 36 35.2	9.552	16	10 21 50.67	1.9865	14 10 11.0	13.452
17	8 40 27.28	2.3510	23 26 58.4	9.672	17	10 23 49.68	1.9805	13 56 42.4	13.499
18	8 42 48.07	2.3421	23 17 14.5	9.790	18	10 25 48.33	1.9746	13 43 11.1	13.544
19	8 45 8.33	2.3333	23 7 23.6	9.906	19	10 27 46.63	1.9687	13 29 37.2	13.588
20	8 47 28.06	2.3244	22 57 25.7	10.021	20	10 29 44.58	1.9629	13 16 0.6	13.631
21	8 49 47.23	2.3155	22 47 21.0	10.134	21	10 31 42.18	1.9573	13 2 21.5	13.672
22	8 52 5.92	2.3067	22 37 9.6	10.245	22	10 33 39.45	1.9517	12 48 40.0	13.712
23	8 54 24.06	2.2979	22 26 51.6	10.355	23	10 35 36.39	1.9462	12 34 56.1	13.751
24	8 56 41.67	2.2892	N.22 16 27.0	10.463	24	10 37 32.99	1.9408	N.12 21 9.9	13.788

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 13.					SATURDAY 15.				
0	10 37 32.09	1.9408	N. 12° 21' 9.9"	13.788	0	12 6 6.52	1.7818	N. 0° 54' 22.9"	14.484
1	10 39 29.28	1.9355	12 7 21.5	13.826	1	12 7 53.39	1.7805	0 39 54.0	14.478
2	10 41 25.25	1.9302	11 53 30.8	13.863	2	12 9 40.18	1.7793	0 25 25.5	14.471
3	10 43 20.90	1.9250	11 39 38.0	13.897	3	12 11 26.90	1.7782	N. 0 10 57.5	14.463
4	10 45 16.25	1.9199	11 25 43.2	13.930	4	12 13 13.56	1.7772	S. 0 3 30.1	14.455
5	10 47 11.29	1.9149	11 11 46.4	13.962	5	12 15 0.16	1.7762	0 17 57.1	14.446
6	10 49 6.04	1.9101	10 57 47.7	13.994	6	12 16 46.70	1.7753	0 32 23.6	14.437
7	10 51 0.50	1.9053	10 43 47.1	14.025	7	12 18 33.19	1.7745	0 46 49.5	14.426
8	10 52 54.67	1.9005	10 29 44.7	14.054	8	12 20 19.64	1.7738	1 1 14.7	14.414
9	10 54 48.56	1.8959	10 15 40.6	14.082	9	12 22 6.04	1.7731	1 15 39.2	14.402
10	10 56 42.18	1.8914	10 1 34.8	14.110	10	12 23 52.41	1.7725	1 30 3.0	14.390
11	10 58 35.53	1.8869	9 47 27.4	14.136	11	12 25 38.74	1.7719	1 44 26.0	14.376
12	11 0 28.61	1.8825	9 33 18.5	14.161	12	12 27 25.04	1.7715	1 58 48.1	14.361
13	11 2 21.43	1.8783	9 19 8.1	14.186	13	12 29 11.32	1.7712	2 13 9.3	14.346
14	11 4 14.00	1.8741	9 4 56.2	14.210	14	12 30 57.58	1.7709	2 27 29.6	14.331
15	11 6 6.32	1.8700	8 50 42.9	14.233	15	12 32 43.83	1.7707	2 41 49.0	14.315
16	11 7 58.40	1.8659	8 36 28.3	14.255	16	12 34 30.07	1.7706	2 56 7.4	14.297
17	11 9 50.23	1.8619	8 22 12.4	14.276	17	12 36 16.30	1.7705	3 10 24.7	14.279
18	11 11 41.83	1.8581	8 7 55.3	14.295	18	12 38 2.53	1.7706	3 24 40.9	14.261
19	11 13 33.21	1.8544	7 53 37.1	14.313	19	12 39 48.77	1.7707	3 38 56.0	14.242
20	11 15 24.36	1.8507	7 39 17.8	14.331	20	12 41 35.01	1.7708	3 53 9.9	14.221
21	11 17 15.29	1.8471	7 24 57.4	14.348	21	12 43 21.26	1.7710	4 7 22.5	14.200
22	11 19 6.01	1.8436	7 10 36.1	14.364	22	12 45 7.53	1.7713	4 21 33.9	14.178
23	11 20 56.52	1.8402	N. 6° 56' 13.8"	14.379	23	12 46 53.82	1.7717	S. 4 35 43.9	14.156
FRIDAY 14.					SUNDAY 16.				
0	11 22 46.83	1.8368	N. 6 41 50.6	14.393	0	12 48 40.13	1.7721	S. 4 49 52.6	14.133
1	11 24 36.94	1.8336	6 27 26.7	14.406	1	12 50 26.47	1.7727	5 3 59.9	14.109
2	11 26 26.86	1.8304	6 13 1.9	14.419	2	12 52 12.85	1.7733	5 18 5.7	14.085
3	11 28 16.59	1.8273	5 58 36.4	14.431	3	12 53 59.27	1.7740	5 32 10.1	14.060
4	11 30 6.14	1.8243	5 44 10.2	14.441	4	12 55 45.73	1.7747	5 46 12.9	14.034
5	11 31 55.51	1.8214	5 29 43.4	14.451	5	12 57 32.24	1.7755	6 0 14.1	14.007
6	11 33 44.71	1.8186	5 15 16.1	14.460	6	12 59 18.79	1.7763	6 14 13.7	13.980
7	11 35 33.74	1.8158	5 0 48.2	14.468	7	13 1 5.40	1.7773	6 28 11.6	13.951
8	11 37 22.61	1.8132	4 46 19.9	14.475	8	13 2 52.07	1.7783	6 42 7.8	13.922
9	11 39 11.32	1.8106	4 31 51.2	14.482	9	13 4 38.80	1.7794	6 56 2.3	13.892
10	11 40 59.88	1.8081	4 17 22.1	14.489	10	13 6 25.60	1.7806	7 9 54.9	13.862
11	11 42 48.30	1.8057	4 2 52.6	14.495	11	13 8 12.47	1.7818	7 23 45.7	13.831
12	11 44 36.57	1.8033	3 48 22.9	14.499	12	13 9 59.41	1.7830	7 37 34.6	13.800
13	11 46 24.70	1.8011	3 33 52.9	14.501	13	13 11 46.43	1.7844	7 51 21.6	13.767
14	11 48 12.70	1.7990	3 19 22.8	14.503	14	13 13 33.54	1.7858	8 5 6.6	13.733
15	11 50 0.58	1.7969	3 4 52.6	14.505	15	13 15 20.73	1.7873	8 18 49.6	13.699
16	11 51 48.33	1.7949	2 50 22.3	14.506	16	13 17 8.02	1.7889	8 32 30.5	13.664
17	11 53 35.97	1.7930	2 35 52.0	14.506	17	13 18 55.40	1.7905	8 46 9.3	13.628
18	11 55 23.49	1.7912	2 21 21.7	14.505	18	13 20 42.88	1.7922	8 59 45.9	13.592
19	11 57 10.91	1.7894	2 6 51.5	14.503	19	13 22 30.46	1.7939	9 13 20.3	13.555
20	11 58 58.22	1.7877	1 52 21.4	14.501	20	13 24 18.15	1.7957	9 26 52.4	13.517
21	12 0 45.43	1.7861	1 37 51.1	14.498	21	13 26 5.95	1.7976	9 40 22.3	13.479
22	12 2 32.55	1.7846	1 23 21.6	14.494	22	13 27 53.86	1.7995	9 53 49.9	13.439
23	12 4 19.58	1.7831	1 8 52.1	14.489	23	13 29 41.89	1.8016	10 7 15.0	13.398
24	12 6 6.52	1.7818	N. 0° 54' 22.9"	14.484	24	13 31 30.05	1.8037	S. 10 20 37.7	13.357

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 17.					WEDNESDAY 19.				
0	13 31 30.05	1.8037	S. 10 20 37.7	13.357	0	15 1 30.17	1.9646	S. 19 59 23.0	10.435
1	13 33 18.33	1.8058	10 33 57.9	13.316	1	15 3 28.17	1.9689	20 9 46.6	10.353
2	13 35 6.74	1.8079	10 47 15.6	13.274	2	15 5 26.44	1.9733	20 20 5.3	10.370
3	13 36 55.28	1.8101	11 0 30.7	13.230	3	15 7 24.97	1.9777	20 30 19.0	10.186
4	13 38 43.95	1.8124	11 13 43.2	13.186	4	15 9 23.76	1.9821	20 40 27.6	10.102
5	13 40 32.77	1.8148	11 26 53.0	13.142	5	15 11 22.82	1.9865	20 50 31.2	10.017
6	13 42 21.73	1.8173	11 40 0.2	13.096	6	15 13 22.14	1.9909	21 0 29.6	9.930
7	13 44 10.84	1.8198	11 53 4.6	13.049	7	15 15 21.73	1.9954	21 10 22.7	9.842
8	13 46 0.10	1.8223	12 6 6.2	13.003	8	15 17 21.59	1.9999	21 20 10.6	9.754
9	13 47 49.51	1.8249	12 19 4.9	12.954	9	15 19 21.72	2.0044	21 29 53.2	9.665
10	13 49 39.08	1.8276	12 32 0.7	12.905	10	15 21 22.12	2.0089	21 39 30.4	9.575
11	13 51 28.82	1.8303	12 44 53.5	12.856	11	15 23 22.79	2.0134	21 49 2.2	9.484
12	13 53 18.72	1.8330	12 57 43.4	12.806	12	15 25 23.73	2.0180	21 58 28.5	9.392
13	13 55 8.78	1.8358	13 10 30.2	12.754	13	15 27 24.95	2.0226	22 7 49.2	9.300
14	13 56 59.02	1.8387	13 23 13.9	12.702	14	15 29 26.44	2.0271	22 17 4.4	9.206
15	13 58 49.43	1.8417	13 35 54.5	12.650	15	15 31 28.20	2.0317	22 26 13.9	9.111
16	14 0 40.02	1.8447	13 48 31.9	12.597	16	15 33 30.24	2.0363	22 35 17.7	9.015
17	14 2 30.79	1.8477	14 1 6.1	12.542	17	15 35 32.55	2.0408	22 44 15.7	8.918
18	14 4 21.75	1.8508	14 13 36.9	12.486	18	15 37 35.13	2.0454	22 53 7.9	8.821
19	14 6 12.89	1.8539	14 26 4.4	12.430	19	15 39 37.99	2.0500	23 1 54.2	8.723
20	14 8 4.22	1.8572	14 38 28.5	12.374	20	15 41 41.13	2.0546	23 10 34.6	8.625
21	14 9 55.75	1.8604	14 50 49.2	12.316	21	15 43 44.54	2.0592	23 19 9.1	8.525
22	14 11 47.47	1.8638	15 3 6.4	12.257	22	15 45 48.23	2.0638	23 27 37.5	8.424
23	14 13 39.40	1.8673	S. 15 15 20.1	12.198	23	15 47 52.19	2.0683	S. 23 35 59.9	8.322
TUESDAY 18.					THURSDAY 20.				
0	14 15 31.53	1.8705	S. 15 27 30.2	12.138	0	15 49 56.42	2.0728	S. 23 44 16.1	8.219
1	14 17 23.86	1.8739	15 39 36.7	12.077	1	15 52 0.93	2.0774	23 52 26.1	8.115
2	14 19 16.40	1.8774	15 51 39.5	12.015	2	15 54 5.71	2.0820	24 0 29.9	8.011
3	14 21 9.15	1.8810	16 3 38.5	11.952	3	15 56 10.77	2.0866	24 8 27.4	7.905
4	14 23 2.12	1.8846	16 15 33.7	11.888	4	15 58 16.10	2.0911	24 16 18.5	7.799
5	14 24 55.30	1.8882	16 27 25.1	11.824	5	16 0 21.70	2.0956	24 24 3.3	7.692
6	14 26 48.70	1.8918	16 39 12.6	11.759	6	16 2 27.57	2.1001	24 31 41.6	7.584
7	14 28 42.32	1.8956	16 50 56.1	11.693	7	16 4 33.71	2.1046	24 39 13.4	7.476
8	14 30 36.17	1.8994	17 2 35.7	11.626	8	16 6 40.12	2.1090	24 46 38.7	7.366
9	14 32 30.25	1.9032	17 14 11.2	11.558	9	16 8 46.79	2.1134	24 53 57.3	7.255
10	14 34 24.55	1.9070	17 25 42.6	11.490	10	16 10 53.73	2.1178	25 1 9.2	7.144
11	14 36 19.09	1.9109	17 37 9.9	11.421	11	16 13 0.93	2.1223	25 8 14.5	7.032
12	14 38 13.86	1.9148	17 48 33.0	11.350	12	16 15 8.40	2.1267	25 15 13.0	6.919
13	14 40 8.87	1.9188	17 59 51.8	11.278	13	16 17 16.13	2.1310	25 22 4.7	6.805
14	14 42 4.12	1.9228	18 11 6.3	11.206	14	16 19 24.12	2.1353	25 28 49.6	6.690
15	14 43 59.60	1.9268	18 22 16.5	11.133	15	16 21 32.36	2.1395	25 35 27.5	6.574
16	14 45 55.33	1.9309	18 33 22.2	11.059	16	16 23 40.86	2.1438	25 41 58.5	6.457
17	14 47 51.31	1.9350	18 44 23.5	10.984	17	16 25 49.62	2.1481	25 48 22.4	6.340
18	14 49 47.53	1.9391	18 55 20.3	10.908	18	16 27 58.63	2.1523	25 54 39.3	6.223
19	14 51 44.00	1.9433	19 6 12.5	10.831	19	16 30 7.89	2.1563	26 0 49.1	6.104
20	14 53 40.72	1.9475	19 17 0.0	10.754	20	16 32 17.39	2.1604	26 6 51.7	5.985
21	14 55 37.70	1.9518	19 27 42.9	10.676	21	16 34 27.14	2.1645	26 12 47.2	5.865
22	14 57 34.93	1.9560	19 38 21.1	10.596	22	16 36 37.14	2.1685	26 18 35.5	5.743
23	14 59 32.42	1.9603	19 48 54.5	10.516	23	16 38 47.37	2.1725	26 24 16.4	5.621
24	15 1 30.17	1.9646	S. 19 59 23.0	10.435	24	16 40 57.84	2.1765	S. 26 29 50.0	5.499

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 21.					SUNDAY 23.				
0	h m s	s	S. 26 29 50.0	"	0	h m s	s	S. 28 20 58.6	"
1	16 40 57.84	2.1765	26 29 50.0	5.499	1	18 28 45.70	2.2853	28 20 58.6	1.035
2	16 43 8.55	2.1803	26 35 16.3	5.376	2	18 31 2.83	2.2856	28 19 52.2	1.178
3	16 45 19.48	2.1841	26 40 35.1	5.251	3	18 33 19.97	2.2858	28 18 37.2	1.322
4	16 47 30.64	2.1879	26 45 46.4	5.126	4	18 35 37.12	2.2858	28 17 13.5	1.465
5	16 49 42.03	2.1917	26 50 50.2	5.000	5	18 37 54.27	2.2858	28 15 41.3	1.609
6	16 51 53.64	2.1954	26 55 46.4	4.874	6	18 40 11.42	2.2857	28 14 0.4	1.753
7	16 54 5.48	2.1991	27 0 35.1	4.748	7	18 42 28.55	2.2854	28 12 10.9	1.896
8	16 56 17.53	2.2026	27 5 16.1	4.620	8	18 44 45.67	2.2851	28 10 12.8	2.040
9	16 58 29.79	2.2061	27 9 49.4	4.492	9	18 47 2.77	2.2848	28 8 6.1	2.184
10	17 0 42.26	2.2096	27 14 15.1	4.363	10	18 49 19.84	2.2843	28 5 50.7	2.327
11	17 2 54.94	2.2130	27 18 33.0	4.233	11	18 51 36.88	2.2837	28 3 26.8	2.470
12	17 5 7.82	2.2163	27 22 43.1	4.102	12	18 53 53.88	2.2831	28 0 54.3	2.614
13	17 7 20.90	2.2196	27 26 45.3	3.971	13	18 56 10.85	2.2824	27 58 13.2	2.757
14	17 9 34.17	2.2228	27 30 39.7	3.841	14	18 58 27.77	2.2816	27 55 23.5	2.899
15	17 11 47.63	2.2259	27 34 26.2	3.709	15	19 0 44.64	2.2807	27 52 25.3	3.042
16	17 14 1.28	2.2290	27 38 4.7	3.576	16	19 3 1.45	2.2797	27 49 18.5	3.185
17	17 16 15.11	2.2320	27 41 35.3	3.443	17	19 5 18.20	2.2787	27 46 3.2	3.327
18	17 18 29.12	2.2349	27 44 57.8	3.309	18	19 7 34.89	2.2776	27 42 39.3	3.469
19	17 20 43.30	2.2378	27 48 12.3	3.175	19	19 9 51.51	2.2764	27 39 6.9	3.611
20	17 22 57.65	2.2405	27 51 18.8	3.040	20	19 12 8.06	2.2751	27 35 26.0	3.753
21	17 25 12.16	2.2432	27 54 17.1	2.904	21	19 14 24.52	2.2737	27 31 36.6	3.895
22	17 27 26.84	2.2459	27 57 7.3	2.768	22	19 16 40.90	2.2723	27 27 38.8	4.036
23	17 29 41.67	2.2484	27 59 49.3	2.632	23	19 18 57.20	2.2708	27 23 32.5	4.176
24	17 31 56.65	2.2509	S. 28 2 23.1	2.495	24	19 21 13.40	2.2693	S. 27 19 17.8	4.316
SATURDAY 22.					MONDAY 24.				
0	h m s	s	S. 28 4 48.7	2.357	0	h m s	s	S. 27 14 54.7	4.456
1	17 34 11.78	2.2533	28 4 48.7	2.357	1	19 23 29.51	2.2677	27 14 54.7	4.456
2	17 36 27.05	2.2556	28 7 6.0	2.220	2	19 25 45.52	2.2659	27 10 23.2	4.596
3	17 38 42.45	2.2578	28 9 15.0	2.082	3	19 28 1.42	2.2641	27 5 43.3	4.735
4	17 40 57.90	2.2600	28 11 15.8	1.944	4	19 30 17.21	2.2622	27 0 55.1	4.874
5	17 43 13.65	2.2621	28 13 8.2	1.805	5	19 32 32.89	2.2603	26 55 58.5	5.012
6	17 45 29.44	2.2642	28 14 52.3	1.666	6	19 34 48.45	2.2584	26 50 53.6	5.150
7	17 47 45.35	2.2661	28 16 28.0	1.526	7	19 37 3.90	2.2564	26 45 40.5	5.288
8	17 50 1.37	2.2679	28 17 55.3	1.386	8	19 39 19.22	2.2543	26 40 19.1	5.425
9	17 52 17.50	2.2696	28 19 14.2	1.245	9	19 41 34.41	2.2521	26 34 49.5	5.562
10	17 54 33.72	2.2712	28 20 24.6	1.104	10	19 43 49.47	2.2499	26 29 11.7	5.698
11	17 56 50.01	2.2728	28 21 26.6	0.963	11	19 46 4.39	2.2476	26 23 25.7	5.834
12	17 59 6.45	2.2743	28 22 20.1	0.822	12	19 48 19.18	2.2453	26 17 31.6	5.970
13	18 1 22.95	2.2757	28 23 5.2	0.680	13	19 50 33.83	2.2429	26 11 29.3	6.105
14	18 3 39.53	2.2770	28 23 41.7	0.538	14	19 52 48.33	2.2405	26 5 19.0	6.239
15	18 5 56.19	2.2782	28 24 9.7	0.396	15	19 55 2.69	2.2381	25 59 0.6	6.373
16	18 8 12.91	2.2793	28 24 29.2	0.254	16	19 57 16.90	2.2355	25 52 34.2	6.507
17	18 10 29.70	2.2803	28 24 40.1	-0.111	17	19 59 30.95	2.2329	25 45 59.8	6.640
18	18 12 46.55	2.2813	28 24 42.5	+0.032	18	20 1 44.85	2.2303	25 39 17.4	6.772
19	18 15 3.45	2.2821	28 24 36.3	0.175	19	20 3 58.59	2.2277	25 32 27.1	6.904
20	18 17 20.40	2.2829	28 24 21.5	0.318	20	20 6 12.17	2.2250	25 25 28.9	7.035
21	18 19 37.39	2.2836	28 23 58.1	0.461	21	20 8 25.59	2.2223	25 18 22.9	7.166
22	18 21 54.43	2.2842	28 23 26.2	0.604	22	20 10 38.85	2.2196	25 11 9.0	7.296
23	18 24 11.50	2.2847	28 22 45.6	0.748	23	20 12 51.94	2.2167	25 3 47.4	7.425
24	18 26 28.59	2.2850	28 21 56.4	0.892	24	20 15 4.86	2.2138	24 56 18.0	7.554
25	18 28 45.70	2.2853	S. 28 20 58.6	1.035	25	20 17 17.60	2.2109	S. 24 48 40.9	7.682

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 25.					THURSDAY 27.				
0	20 17 17.60	2.2109	S. 24 48 40.9	7.882	0	21 59 57.03	2.0709	S. 16 25 45.4	12.971
1	20 19 30.17	2.2081	24 40 56.1	7.810	1	22 2 1.21	2.0636	16 12 44.4	13.061
2	20 21 42.57	2.2052	24 33 3.7	7.837	2	22 4 5.26	2.0664	15 59 38.1	13.151
3	20 23 54.79	2.2022	24 25 3.7	8.063	3	22 6 9.18	2.0643	15 46 26.4	13.340
4	20 26 6.83	2.1993	24 16 56.1	8.189	4	22 8 12.97	2.0621	15 33 9.4	13.337
5	20 28 18.70	2.1963	24 8 41.0	8.314	5	22 10 16.63	2.0599	15 19 47.2	13.413
6	20 30 30.39	2.1933	24 0 18.4	8.438	6	22 12 20.16	2.0578	15 6 19.9	13.498
7	20 32 41.89	2.1902	23 51 48.4	8.562	7	22 14 23.57	2.0558	14 52 47.5	13.583
8	20 34 53.21	2.1872	23 43 11.0	8.685	8	22 16 26.86	2.0539	14 39 10.0	13.667
9	20 37 4.35	2.1842	23 34 26.2	8.807	9	22 18 30.04	2.0520	14 25 27.5	13.749
10	20 39 15.31	2.1811	23 25 34.1	8.928	10	22 20 33.11	2.0502	14 11 40.1	13.831
11	20 41 26.08	2.1779	23 16 34.8	9.049	11	22 22 36.07	2.0484	13 57 47.8	13.913
12	20 43 36.66	2.1748	23 7 28.2	9.170	12	22 24 38.92	2.0467	13 43 50.6	13.993
13	20 45 47.06	2.1717	22 58 14.4	9.289	13	22 26 41.67	2.0451	13 29 48.7	14.071
14	20 47 57.27	2.1686	22 48 53.5	9.407	14	22 28 44.33	2.0435	13 15 42.1	14.149
15	20 50 7.29	2.1654	22 39 25.5	9.525	15	22 30 46.89	2.0419	13 1 30.8	14.227
16	20 52 17.12	2.1623	22 29 50.4	9.643	16	22 32 49.36	2.0405	12 47 14.9	14.304
17	20 54 26.77	2.1592	22 20 8.3	9.759	17	22 34 51.75	2.0391	12 32 54.4	14.379
18	20 56 36.23	2.1561	22 10 19.3	9.875	18	22 36 54.05	2.0378	12 18 29.5	14.453
19	20 58 45.50	2.1530	22 0 23.3	9.990	19	22 38 56.28	2.0365	12 4 0.2	14.527
20	21 0 54.59	2.1499	21 50 20.5	10.104	20	22 40 58.43	2.0353	11 49 26.4	14.600
21	21 3 3.49	2.1468	21 40 10.8	10.218	21	22 43 0.51	2.0342	11 34 48.3	14.671
22	21 5 12.20	2.1437	21 29 54.4	10.330	22	22 45 2.53	2.0332	11 20 6.0	14.741
23	21 7 20.73	2.1407	S. 21 19 31.2	10.442	23	22 47 4.49	2.0322	S. 11 5 19.4	14.811
WEDNESDAY 26.					FRIDAY 28.				
0	21 9 29.08	2.1376	S. 21 9 1.3	10.553	0	22 49 6.39	2.0313	S. 10 50 28.7	14.880
1	21 11 37.24	2.1345	20 58 24.8	10.663	1	22 51 8.24	2.0304	10 35 33.9	14.947
2	21 13 45.22	2.1314	20 47 41.7	10.773	2	22 53 10.04	2.0296	10 20 35.1	15.013
3	21 15 53.01	2.1283	20 36 52.0	10.882	3	22 55 11.79	2.0289	10 5 32.4	15.079
4	21 18 0.62	2.1253	20 25 55.9	10.990	4	22 57 13.50	2.0283	9 50 25.7	15.144
5	21 20 8.05	2.1222	20 14 53.3	11.097	5	22 59 15.18	2.0278	9 35 15.2	15.207
6	21 22 15.30	2.1193	20 3 44.3	11.203	6	23 1 16.83	2.0273	9 20 0.9	15.269
7	21 24 22.37	2.1164	19 52 29.0	11.309	7	23 3 18.45	2.0268	9 4 42.9	15.331
8	21 26 29.27	2.1135	19 41 7.3	11.414	8	23 5 20.05	2.0265	8 49 21.2	15.392
9	21 28 35.99	2.1106	19 29 39.4	11.517	9	23 7 21.63	2.0263	8 33 55.9	15.451
10	21 30 42.54	2.1077	19 18 5.3	11.619	10	23 9 23.20	2.0261	8 18 27.1	15.509
11	21 32 48.91	2.1048	19 6 25.1	11.721	11	23 11 24.76	2.0261	8 2 54.8	15.567
12	21 34 55.11	2.1020	18 54 38.8	11.823	12	23 13 26.33	2.0262	7 47 19.1	15.624
13	21 37 1.15	2.0992	18 42 46.4	11.924	13	23 15 27.90	2.0262	7 31 40.0	15.679
14	21 39 7.02	2.0964	18 30 48.0	12.023	14	23 17 29.47	2.0263	7 15 57.7	15.732
15	21 41 12.72	2.0937	18 18 43.7	12.121	15	23 19 31.05	2.0265	7 0 12.2	15.785
16	21 43 18.26	2.0910	18 6 33.5	12.219	16	23 21 32.65	2.0268	6 44 23.6	15.837
17	21 45 23.64	2.0884	17 54 17.4	12.317	17	23 23 34.27	2.0273	6 28 31.8	15.889
18	21 47 28.87	2.0858	17 41 55.5	12.413	18	23 25 35.92	2.0278	6 12 37.0	15.939
19	21 49 33.94	2.0833	17 29 27.9	12.508	19	23 27 37.60	2.0283	5 56 39.2	15.987
20	21 51 38.86	2.0807	17 16 54.6	12.603	20	23 29 39.32	2.0290	5 40 38.6	16.034
21	21 53 43.62	2.0781	17 4 15.6	12.696	21	23 31 41.09	2.0298	5 24 35.2	16.081
22	21 55 48.23	2.0757	16 51 31.1	12.789	22	23 33 42.90	2.0306	5 8 29.0	16.126
23	21 57 52.70	2.0733	16 38 41.0	12.881	23	23 35 44.76	2.0316	4 52 20.1	16.169
24	21 59 57.03	2.0709	S. 16 25 45.4	12.971	24	23 37 46.69	2.0326	S. 4 36 8.7	16.212

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 29.					MONDAY 31.				
0	23 37 46.69	2.0396	S. 4 36 8.7	16.212	0	1 18 17.22	2.1922	N. 8 46 22.2	16.652
1	23 39 48.68	2.0337	4 19 54.7	16.265	1	1 20 28.92	2.1979	9 3 0.4	16.621
2	23 41 50.73	2.0349	4 3 38.2	16.296	2	1 22 40.97	2.2037	9 19 36.7	16.588
3	23 43 52.86	2.0362	3 47 19.3	16.335	3	1 24 53.37	2.2096	9 36 11.0	16.553
4	23 45 55.07	2.0375	3 30 58.1	16.372	4	1 27 6.12	2.2155	9 52 43.1	16.516
5	23 47 57.36	2.0390	3 14 34.7	16.408	5	1 29 19.23	2.2216	10 9 13.0	16.478
6	23 49 59.75	2.0406	2 58 9.1	16.444	6	1 31 32.71	2.2277	10 25 40.5	16.437
7	23 52 2.24	2.0423	2 41 41.4	16.479	7	1 33 46.56	2.2339	10 42 5.5	16.395
8	23 54 4.82	2.0440	2 25 11.7	16.512	8	1 36 0.78	2.2403	10 58 27.9	16.351
9	23 56 7.51	2.0458	2 8 40.0	16.543	9	1 38 15.39	2.2467	11 14 47.6	16.304
10	23 58 10.31	2.0477	1 52 6.5	16.574	10	1 40 30.39	2.2532	11 31 4.4	16.256
11	0 0 13.23	2.0498	1 35 31.1	16.604	11	1 42 45.77	2.2597	11 47 18.3	16.206
12	0 2 16.28	2.0519	1 18 54.0	16.632	12	1 45 1.55	2.2663	12 3 29.1	16.153
13	0 4 19.46	2.0541	1 2 15.3	16.659	13	1 47 17.73	2.2731	12 19 36.6	16.098
14	0 6 22.77	2.0564	0 45 35.0	16.684	14	1 49 34.32	2.2799	12 35 40.8	16.041
15	0 8 26.22	2.0588	0 28 53.2	16.708	15	1 51 51.32	2.2868	12 51 41.5	15.982
16	0 10 29.82	2.0613	S. 0 12 10.0	16.731	16	1 54 8.74	2.2938	13 7 38.6	15.921
17	0 12 33.57	2.0638	N. 0 4 34.5	16.752	17	1 56 26.57	2.3008	13 23 32.0	15.858
18	0 14 37.48	2.0665	0 21 20.2	16.772	18	1 58 44.83	2.3079	13 39 21.5	15.792
19	0 16 41.55	2.0693	0 38 7.1	16.791	19	2 1 3.52	2.3151	13 55 7.0	15.724
20	0 18 45.79	2.0722	0 54 55.1	16.808	20	2 3 22.64	2.3223	14 10 48.4	15.654
21	0 20 50.21	2.0752	1 11 44.0	16.823	21	2 5 42.20	2.3297	14 26 25.5	15.582
22	0 22 54.81	2.0783	1 28 33.8	16.837	22	2 8 2.20	2.3371	14 41 58.2	15.508
23	0 24 59.60	2.0814	N. 1 45 24.5	16.850	23	2 10 22.65	2.3445	N. 14 57 26.4	15.432
SUNDAY 30.					TUESDAY, JUNE 1.				
0	0 27 4.58	2.0847	N. 2 2 15.9	16.861	0	2 12 43.54	2.3520	N. 15 12 50.0	15.353
1	0 29 9.76	2.0880	2 19 7.9	16.871					
2	0 31 15.14	2.0915	2 36 0.5	16.880					
3	0 33 20.74	2.0951	2 52 53.6	16.887					
4	0 35 26.55	2.0987	3 9 47.0	16.892					
5	0 37 32.58	2.1024	3 26 40.7	16.895					
6	0 39 38.84	2.1063	3 43 34.5	16.898					
7	0 41 45.34	2.1103	4 0 28.5	16.899					
8	0 43 52.07	2.1143	4 17 22.4	16.898					
9	0 45 59.05	2.1184	4 34 16.2	16.895					
10	0 48 6.28	2.1227	4 51 9.8	16.891					
11	0 50 13.77	2.1271	5 8 3.1	16.885					
12	0 52 21.53	2.1315	5 24 56.0	16.878					
13	0 54 29.55	2.1360	5 41 48.4	16.869					
14	0 56 37.85	2.1406	5 58 40.2	16.858					
15	0 58 46.43	2.1453	6 15 31.3	16.845					
16	1 0 55.29	2.1501	6 32 21.6	16.831					
17	1 3 4.44	2.1551	6 49 11.0	16.815					
18	1 5 13.90	2.1602	7 5 59.4	16.796					
19	1 7 23.66	2.1653	7 22 46.6	16.776					
20	1 9 33.73	2.1704	7 39 32.6	16.756					
21	1 11 44.11	2.1757	7 56 17.3	16.733					
22	1 13 54.82	2.1812	8 13 0.5	16.708					
23	1 16 5.85	2.1867	8 29 42.2	16.681					
24	1 18 17.22	2.1922	N. 8 46 22.2	16.652					

PHASES OF THE MOON.

- New Moon, 5 3 4.0
- ☽ First Quarter, 11 19 37.1
- Full Moon, 19 20 50.0
- ☾ Last Quarter, 27 18 30.4

- ☾ Perigee, 5 8.6
- ☾ Apogee, 19 6.3

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
1	Mars W.	71 11 14	2427	72 54 10	2408	74 37 33	2389	76 21 23	2370
	α Aquilæ W.	52 59 39	2329	54 14 11	3746	55 30 9	3869	56 47 29	3506
	Saturn W.	19 0 52	2425	20 43 51	2398	22 27 28	2374	24 11 40	2350
	SUN E.	56 43 22	2671	55 6 3	2651	53 28 17	2631	51 50 4	2612
2	Mars W.	85 7 21	2279	86 53 52	2262	88 40 48	2245	90 28 8	2229
	α Aquilæ W.	63 32 25	3299	64 56 38	3251	66 21 47	3205	67 47 50	3163
	Saturn W.	33 0 39	2249	34 47 54	2230	36 35 37	2219	38 23 47	2194
	SUN E.	43 32 37	2521	41 51 53	2504	40 10 45	2487	38 29 14	2471
7	SUN W.	26 56 44	2344	28 41 40	2354	30 26 21	2364	32 10 47	2375
	Pollux E.	38 15 42	2042	36 23 13	2053	34 31 1	2064	32 39 7	2076
	Regulus E.	74 59 18	2046	73 6 56	2057	71 14 51	2068	69 23 3	2081
8	SUN W.	40 48 36	2442	42 31 11	2452	44 13 24	2473	45 55 15	2489
	Regulus E.	60 8 57	2148	58 19 11	2164	56 29 49	2179	54 40 50	2195
	Jupiter E.	115 55 3	2109	114 4 18	2124	112 13 55	2139	110 23 55	2154
9	SUN W.	54 18 42	2576	55 58 10	2593	57 37 14	2612	59 15 53	2631
	Regulus E.	45 42 5	2281	43 55 37	2299	42 9 36	2317	40 24 2	2336
	Spica E.	99 40 44	2266	97 53 55	2283	96 7 31	2301	94 21 33	2318
	Jupiter E.	101 19 52	2235	99 32 17	2253	97 45 8	2270	95 58 24	2287
10	SUN W.	67 22 46	2725	68 58 53	2744	70 34 34	2763	72 9 50	2782
	Regulus E.	31 43 9	2436	30 0 25	2457	28 18 11	2478	26 36 27	2501
	Spica E.	85 38 3	2407	83 54 38	2424	82 11 38	2442	80 29 3	2460
	Jupiter E.	87 11 7	2375	85 26 57	2393	83 43 12	2410	81 59 52	2429
11	SUN W.	79 59 59	2876	81 32 49	2894	83 5 15	2913	84 37 17	2931
	Pollux W.	18 49 50	2558	20 29 43	2574	22 9 14	2589	23 48 24	2605
	Spica E.	72 2 24	2548	70 22 17	2565	68 42 34	2583	67 3 14	2598
	Jupiter E.	73 29 29	2516	71 48 38	2533	70 8 10	2550	68 28 6	2566
12	SUN W.	92 11 53	3018	93 41 44	3034	95 11 14	3051	96 40 24	3067
	Pollux W.	31 58 56	2681	33 36 1	2696	35 12 46	2710	36 49 12	2725
	Spica E.	58 52 8	2679	57 15 0	2694	55 38 12	2709	54 1 44	2724
	Jupiter E.	60 13 22	2647	58 35 31	2662	56 58 0	2677	55 20 49	2692
	Antares E.	104 45 20	2677	103 8 9	2692	101 31 19	2707	99 54 49	2722
13	SUN W.	104 1 27	3142	105 28 46	3156	106 55 48	3170	108 22 33	3183
	Pollux W.	44 46 40	2793	46 21 17	2806	47 55 37	2819	49 29 40	2831
	Spica E.	46 4 13	2794	44 29 37	2807	42 55 18	2820	41 21 16	2832
	Jupiter E.	47 19 46	2763	45 44 29	2775	44 9 29	2788	42 34 45	2801
	Antares E.	91 57 1	2791	90 22 21	2804	88 47 58	2816	87 13 51	2828
	Mars E.	118 4 8	2824	116 30 11	2836	114 56 30	2848	113 23 5	2860
14	SUN W.	115 32 26	2946	116 57 41	2957	118 22 43	2968	119 47 32	2978
	Pollux W.	57 16 10	2887	58 48 46	2897	60 21 9	2906	61 53 20	2916
	Jupiter E.	34 45 6	2880	33 11 56	2871	31 39 0	2881	30 6 17	2891
	Antares E.	79 27 6	2885	77 54 28	2895	76 22 3	2905	74 49 50	2914
	Mars E.	105 39 31	2912	104 7 28	2922	102 35 37	2931	101 3 58	2940
15	SUN W.	126 48 39	3337	128 12 19	3336	129 35 49	3345	130 59 9	3352
	Pollux W.	69 31 19	2959	71 2 23	2966	72 33 18	2973	74 4 4	2981
	Regulus W.	32 57 14	2983	34 27 48	2989	35 58 14	2994	37 28 34	3000

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
1	Mars W.	78° 5' 41"	2351	79° 50' 26"	2333	81° 35' 38"	2315	83° 21' 16"	2296
	α Aquilæ W.	58. 6 8	3528	59 26 1	3466	60 47 3	3407	62 9 12	3351
	Saturn W.	25 56 26	2328	27 41 44	2307	29 27 33	2287	31 13 52	2268
	Sun E.	50 11 25	2503	48 32 21	2574	46 52 51	2556	45 12 56	2539
2	Mars W.	92 15 52	2213	94 4 0	2197	95 52 32	2182	97 41 26	2168
	α Aquilæ W.	69 14 43	3194	70 42 24	3087	72 10 49	3053	73 39 56	3021
	Saturn W.	40 12 23	2178	42 1 24	2163	43 50 48	2147	45 40 35	2132
	Sun E.	36 47 20	2455	35 5 4	2441	33 22 27	2426	31 39 30	2412
7	Sun W.	33 54 57	2367	35 38 50	2400	37 22 25	2414	39 5 40	2427
	Pollux E.	30 47 31	2069	28 56 15	2103	27 5 20	2117	25 14 47	2132
	Regulus E.	67 31 34	2093	65 40 24	2106	63 49 34	2120	61 59 5	2134
8	Sun W.	47 36 44	2506	49 17 49	2522	50 58 31	2540	52 38 49	2558
	Regulus E.	52 52 15	2212	51 4 5	2228	49 16 19	2245	47 28 59	2263
	Jupiter E.	108 34 18	2170	106 45 5	2186	104 56 16	2202	103 7 52	2218
9	Sun W.	60 54 6	2649	62 31 54	2668	64 9 17	2687	65 46 14	2706
	Regulus E.	38 38 55	2355	36 54 16	2375	35 10 5	2385	33 26 23	2415
	Spica E.	92 36 0	2336	90 50 53	2353	89 6 11	2371	87 21 54	2389
	Jupiter E.	94 12 5	2304	92 26 12	2322	90 40 45	2339	88 55 43	2357
10	Sun W.	73 44 41	2801	75 19 7	2820	76 53 9	2839	78 26 46	2858
	Regulus E.	24 55 15	2525	23 14 36	2549	21 34 31	2575	19 55 2	2604
	Spica E.	78 46 54	2478	77 5 10	2495	75 23 50	2513	73 42 55	2530
	Jupiter E.	80 16 58	2446	78 34 29	2463	76 52 24	2481	75 10 44	2499
11	Sun W.	86 8 56	2949	87 40 13	2966	89 11 8	2984	90 41 41	3001
	Pollux W.	25 27 12	2621	27 5 39	2636	28 43 45	2651	30 21 31	2666
	Spica E.	65 24 16	2615	63 45 41	2631	62 7 28	2647	60 29 37	2663
	Jupiter E.	66 48 24	2583	65 9 5	2599	63 30 9	2615	61 51 35	2631
12	Sun W.	98 9 14	3089	99 37 45	3098	101 5 57	3113	102 33 51	3128
	Pollux W.	38 25 18	2739	40 1 6	2753	41 36 35	2767	43 11 46	2780
	Spica E.	52 25 36	2738	50 49 47	2753	49 14 17	2767	47 39 6	2781
	Jupiter E.	53 43 58	2707	52 7 27	2721	50 31 15	2735	48 55 21	2749
	Antares E.	98 18 38	2736	96 42 46	2750	95 7 13	2764	93 31 58	2778
13	Sun W.	109 49 2	3196	111 15 16	3209	112 41 14	3222	114 6 57	3234
	Pollux W.	51 3 27	2843	52 36 59	2854	54 10 17	2866	55 43 20	2876
	Spica E.	39 47 30	2845	38 14 0	2856	36 40 45	2868	35 7 45	2879
	Jupiter E.	41 0 18	2813	39 26 7	2825	37 52 11	2837	36 18 31	2848
	Antares E.	85 40 0	2840	84 6 24	2852	82 33 4	2863	80 59 58	2874
	Mars E.	111 49 55	2871	110 16 59	2881	108 44 16	2892	107, 11 47	2902
14	Sun W.	121 12 9	3288	122 36 34	3299	124 0 47	3308	125 24 49	3319
	Pollux W.	63 25 18	2926	64 57 4	2934	66 28 40	2942	68 0 5	2951
	Jupiter E.	28 33 47	2902	27 1 31	2913	25 29 29	2924	23 57 40	2933
	Antares E.	73 17 49	2924	71 46 0	2933	70 14 23	2942	68 42 57	2950
	Mars E.	99 32 30	2949	98 1 13	2957	96 30 6	2965	94 59 10	2973
15	Sun W.	132 22 20	3360	133 45 22	3368	135 8 15	3376	136 30 59	3384
	Pollux W.	75 34 41	2988	77 5 9	2994	78 35 29	3000	80 5 42	3005
	Regulus W.	38 58 47	3005	40 28 53	3010	41 58 53	3015	43 28 47	3021

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
15	Antares E.	67 11 41	2958	65 40 35	2965	64 9 39	2973	62 38 52	2979
	Mars E.	93 28 23	2969	91 57 45	2987	90 27 16	2993	88 56 55	3001
16	Pollux W.	81 35 48	3011	83 5 47	3017	84 35 39	3022	86 5 25	3028
	Regulus W.	44 58 34	3026	46 28 15	3030	47 57 51	3034	49 27 22	3038
	Antares E.	55 6 59	3010	53 36 59	3015	52 7 5	3020	50 37 17	3025
	Mars E.	81 27 6	3028	79 57 28	3033	78 27 56	3037	76 58 29	3041
	α Aquilæ E.	104 32 24	3007	103 19 11	3000	102 5 51	3005	100 52 26	3001
17	Pollux W.	93 32 56	3046	95 2 12	3049	96 31 24	3053	98 0 33	3055
	Regulus W.	56 53 46	3056	58 22 50	3058	59 51 51	3060	61 20 49	3063
	Antares E.	43 9 39	3044	41 40 21	3048	40 11 8	3051	38 41 58	3054
	Mars E.	69 32 26	3058	68 3 25	3061	66 34 28	3064	65 5 34	3066
	α Aquilæ E.	94 44 35	3082	93 30 57	3082	92 17 19	3083	91 3 42	3085
18	Regulus W.	68 44 58	3073	70 13 41	3073	71 42 23	3074	73 11 4	3076
	Mars E.	57 41 40	3074	56 12 59	3075	54 44 19	3076	53 15 40	3078
	α Aquilæ E.	84 56 21	3905	83 43 6	3912	82 29 58	3919	81 16 57	3925
	Saturn E.	108 56 10	3080	107 27 36	3082	105 59 4	3082	104 30 33	3084
19	Regulus W.	80 34 14	3078	82 2 51	3077	83 31 29	3077	85 0 7	3077
	Spica W.	26 30 45	3077	27 59 23	3077	29 28 1	3076	30 56 40	3074
	Jupiter W.	25 50 48	3052	27 19 56	3051	28 49 6	3049	30 18 18	3048
	Mars E.	45 52 39	3079	44 24 4	3079	42 55 29	3078	41 26 53	3078
	α Aquilæ E.	75 14 5	3978	74 2 4	3991	72 50 16	4007	71 38 43	4023
	Saturn E.	97 8 13	3086	95 39 46	3086	94 11 19	3085	92 42 51	3084
20	Regulus W.	92 23 28	3071	93 52 13	3070	95 20 59	3069	96 49 46	3068
	Spica W.	38 20 17	3069	39 49 5	3067	41 17 55	3065	42 46 48	3063
	Jupiter W.	37 44 40	3041	39 14 2	3039	40 43 26	3038	42 12 52	3035
	Mars E.	34 3 48	3076	32 35 9	3076	31 6 30	3075	29 37 50	3075
	α Aquilæ E.	65 45 16	4192	64 35 36	4147	63 26 20	4175	62 17 30	4204
	Saturn E.	85 20 18	3079	83 51 43	3078	82 23 7	3077	80 54 29	3074
	Fomalhaut E.	90 14 52	3269	88 50 4	3268	87 25 15	3267	86 0 25	3265
21	Spica W.	50 11 51	3051	51 41 1	3047	53 10 15	3045	54 39 32	3042
	Jupiter W.	49 40 44	3023	51 10 28	3021	52 40 15	3018	54 10 6	3014
	α Aquilæ E.	56 40 57	4389	55 35 26	4435	54 30 36	4485	53 26 31	4540
	Saturn E.	73 30 39	3063	72 1 44	3060	70 32 46	3057	69 3 44	3055
	Fomalhaut E.	78 55 58	3263	77 31 3	3262	76 6 7	3262	74 41 11	3262
	α Pegasi E.	100 16 20	3371	98 53 30	3365	97 30 34	3361	96 7 33	3357
22	Spica W.	62 7 2	3022	63 36 46	3018	65 6 36	3014	66 36 32	3009
	Jupiter W.	61 40 25	2996	63 10 43	2992	64 41 6	2987	66 11 35	2982
	Saturn E.	61 37 34	3036	60 8 6	3032	58 38 33	3027	57 8 54	3023
	Fomalhaut E.	67 36 37	3265	66 11 45	3267	64 46 55	3269	63 22 7	3271
	α Pegasi E.	89 11 6	3334	87 47 34	3330	86 23 57	3327	85 0 17	3324
23	Spica W.	74 7 46	2982	75 38 21	2976	77 9 4	2969	78 39 55	2963
	Jupiter W.	73 45 32	2956	75 16 40	2950	76 47 55	2944	78 19 18	2938
	Antares W.	28 13 30	2981	29 44 6	2975	31 14 50	2969	32 45 42	2962
	Saturn E.	49 39 12	2997	48 8 56	2992	46 38 33	2985	45 8 2	2980
	Fomalhaut E.	56 18 56	3262	54 54 32	3265	53 30 15	3261	52 6 5	3260
	α Pegasi E.	78 1 3	3311	76 37 4	3308	75 13 2	3306	73 48 58	3305
	Venus E.	113 11 43	3438	111 50 9	3431	110 28 27	3423	109 6 37	3416

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XV ^h .	P. L. of Diff.	XVIII ^h .	P. L. of Diff.	XXI ^h .	P. L. of Diff.
15	Antares E.	61° 8' 13"	2986	59 37 43	2993	58 7 21	2998	56 37 6	3005
	Mars E.	87 26 43	3007	85 56 39	3013	84 26 42	3018	82 56 51	3022
16	Pollux W.	87 35 6	3030	89 4 41	3034	90 34 11	3039	92 3 36	3043
	Regulus W.	50 56 48	3049	52 26 9	3045	53 55 26	3049	55 24 38	3052
	Antares E.	49 7 35	3029	47 37 58	3034	46 8 27	3038	44 39 1	3041
	Mars E.	75 29 7	3045	73 59 50	3049	72 30 38	3052	71 1 30	3056
	α Aquilæ E.	99 38 57	3888	98 25 25	3885	97 11 50	3883	95 58 13	3882
17	Pollux W.	99 29 38	3057	100 58 40	3059	102 27 40	3061	103 56 37	3064
	Regulus W.	62 49 44	3065	64 18 36	3067	65 47 26	3069	67 16 13	3071
	Antares E.	37 12 52	3056	35 43 49	3058	34 14 48	3060	32 45 50	3062
	Mars E.	63 36 43	3068	62 7 54	3070	60 39 8	3071	59 10 23	3073
	α Aquilæ E.	89 50 7	3888	88 36 35	3891	87 23 6	3895	86 9 41	3900
18	Regulus W.	74 39 43	3077	76 8 21	3077	77 36 59	3077	79 5 37	3078
	Mars E.	51 47 3	3078	50 18 26	3078	48 49 50	3078	47 21 14	3079
	α Aquilæ E.	80 4 3	3934	78 51 18	3944	77 38 43	3954	76 26 18	3966
	Saturn E.	103 2 4	3065	101 33 36	3085	100 5 8	3085	98 36 40	3086
19	Regulus W.	86 28 45	3076	87 57 24	3075	89 26 4	3074	90 54 45	3073
	Spica W.	32 25 21	3073	33 54 3	3073	35 22 46	3071	36 51 31	3070
	Jupiter W.	31 47 31	3047	33 16 46	3046	34 46 2	3044	36 15 20	3043
	Mars E.	39 58 17	3078	38 29 40	3078	37 1 3	3078	35 32 26	3077
	α Aquilæ E.	70 27 25	4039	69 16 24	4056	68 5 41	4076	66 55 18	4100
	Saturn E.	91 14 22	3063	89 45 52	3083	88 17 22	3089	86 48 51	3081
20	Regulus W.	98 18 35	3065	99 47 27	3064	101 16 21	3061	102 45 18	3059
	Spica W.	44 15 43	3080	45 44 41	3059	47 13 41	3056	48 42 44	3053
	Jupiter W.	43 42 21	3034	45 11 52	3031	46 41 26	3029	48 11 3	3026
	Mars E.	28 9 10	3074	26 40 29	3075	25 11 49	3076	23 43 10	3077
	α Aquilæ E.	61 9 8	4935	60 1 15	4969	58 53 54	4306	57 47 7	4346
	Saturn E.	79 25 48	3079	77 57 4	3070	76 28 18	3069	74 59 30	3068
	Fomalhaut E.	84 35 33	3265	83 10 40	3265	81 45 47	3264	80 20 53	3263
21	Spica W.	56 8 53	3039	57 38 18	3034	59 7 48	3030	60 37 23	3027
	Jupiter W.	55 40 1	3011	57 10 0	3007	58 40 4	3004	60 10 12	3000
	α Aquilæ E.	52 23 14	4599	51 20 48	4604	50 19 18	4734	49 18 47	4810
	Saturn E.	67 34 39	3059	66 5 30	3047	64 36 16	3043	63 6 57	3040
	Fomalhaut E.	73 16 15	3962	71 51 19	3963	70 26 24	3964	69 1 30	3965
	α Pegasi E.	94 44 27	3351	93 21 15	3346	91 57 57	3342	90 34 34	3338
22	Spica W.	68 6 34	3004	69 36 42	2998	71 6 57	2993	72 37 18	2988
	Jupiter W.	67 42 10	2977	69 12 51	2973	70 43 38	2967	72 14 32	2962
	Saturn E.	55 39 10	3018	54 9 20	3014	52 39 24	3006	51 9 21	3003
	Fomalhaut E.	61 57 22	3274	60 32 40	3276	59 8 1	3260	57 43 26	3264
	α Pegasi E.	83 36 33	3320	82 12 45	3318	80 48 54	3315	79 25 0	3313
23	Spica W.	80 10 54	2956	81 42 2	2950	83 13 18	2942	84 44 43	2935
	Jupiter W.	79 50 49	2931	81 22 28	2924	82 54 16	2917	84 26 13	2909
	Antares W.	34 16 42	2953	35 47 51	2948	37 19 9	2941	38 50 36	2934
	Saturn E.	43 37 24	2973	42 6 38	2967	40 35 44	2960	39 4 41	2954
	Fomalhaut E.	50 42 4	3318	49 18 13	3326	47 54 34	3329	46 31 8	3333
	α Pegasi E.	72 24 52	3304	71 0 45	3304	69 36 38	3304	68 12 31	3304
	Venus E.	107 44 30	3468	106 22 32	3461	105 0 17	3393	103 37 53	3385

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LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
24	Spica W.	86° 16' 18"	2927	87° 48' 3"	2919	89° 19' 58"	2910	90° 52' 4"	2902
	Jupiter W.	85 58 20	2902	87 30 36	2894	89 3 2	2886	90 35 39	2878
	Antares W.	40 22 12	2926	41 53 58	2917	43 25 55	2909	44 58 2	2901
	Saturn E.	37 33 30	2946	36 2 10	2940	34 30 42	2933	32 59 5	2925
	Fomalhaut E.	45 7 58	3368	43 45 5	3366	42 22 32	3405	41 0 21	3429
	α Pegasi E.	66 48 24	3305	65 24 18	3306	64 0 13	3308	62 36 11	3311
	Venus E.	102 15 19	3377	100 52 36	3367	99 29 42	3358	98 6 38	3349
SUN E.	134 6 7	3296	132 41 51	3287	131 17 24	3277	129 52 46	3267	
25	Jupiter W.	98 21 31	2831	99 55 18	2821	101 29 18	2811	103 3 32	2801
	Antares W.	52 41 29	2853	54 14 48	2843	55 48 20	2833	57 22 5	2823
	Mars W.	26 43 0	2851	28 16 22	2837	29 50 2	2824	31 23 59	2811
	α Pegasi E.	55 37 6	3338	54 13 38	3347	52 50 21	3358	51 27 16	3371
	Venus E.	91 8 29	2897	89 44 14	2887	88 19 47	2876	86 55 7	2864
	α Arietis E.	95 46 3	2898	94 13 42	2888	92 41 8	2877	91 8 20	2866
	SUN E.	122 46 35	3214	121 20 42	3203	119 54 36	3192	118 28 17	3180
26	Antares W.	65 14 30	2763	66 49 46	2751	68 25 18	2738	70 1 7	2725
	Mars W.	39 18 2	2744	40 53 43	2730	42 29 43	2716	44 6 2	2702
	α Pegasi E.	44 36 19	3471	43 15 22	3502	41 55 0	3537	40 35 17	3579
	Venus E.	79 48 9	3199	78 21 59	3186	76 55 33	3173	75 28 51	3158
	α Arietis E.	83 20 44	2909	81 46 28	2797	80 11 56	2784	78 37 7	2771
	SUN E.	111 12 58	3115	109 45 7	3101	108 16 59	3087	106 48 34	3073
	27	Antares W.	78 4 40	2857	79 42 18	2842	81 20 16	2826	82 58 35	2811
Mars W.		52 12 23	2829	53 50 39	2813	55 29 16	2807	57 8 15	2791
Venus E.		68 10 58	3063	66 42 28	3068	65 13 39	3052	63 44 31	3036
α Arietis E.		70 38 51	2707	69 2 20	2693	67 25 31	2680	65 48 24	2666
SUN E.		99 22 3	2996	97 51 48	2983	96 21 14	2967	94 50 20	2950
28	Mars W.	65 28 39	2500	67 9 52	2484	68 51 28	2467	70 33 28	2450
	α Aquilæ W.	49 47 27	4197	50 55 56	4109	52 5 56	4013	53 17 23	3931
	Venus E.	56 13 45	2953	54 42 33	2936	53 11 0	2919	51 39 5	2901
	α Arietis E.	57 38 10	2597	55 59 11	2584	54 19 54	2571	52 40 19	2557
	SUN E.	87 10 37	2867	85 37 36	2850	84 4 13	2832	82 30 27	2815
29	Mars W.	79 9 26	2365	80 53 51	2348	82 38 40	2331	84 23 54	2313
	α Aquilæ W.	59 33 55	3588	60 52 42	3533	62 12 30	3490	63 33 16	3431
	Saturn W.	27 2 5	2429	28 44 58	2410	30 28 19	2391	32 12 7	2373
	Venus E.	43 54 0	2816	42 19 53	2799	40 45 24	2782	39 10 33	2766
	α Arietis E.	44 17 58	2497	42 36 41	2487	40 55 10	2478	39 13 26	2470
SUN E.	74 35 55	2727	72 59 51	2709	71 23 23	2692	69 46 32	2674	
30	Mars W.	93 16 20	2230	95 4 3	2214	96 52 10	2198	98 40 41	2182
	α Aquilæ W.	70 30 22	3219	71 56 9	3183	73 22 38	3150	74 49 47	3119
	Saturn W.	40 57 35	2985	42 43 57	2968	44 30 44	2951	46 17 55	2935
	Fomalhaut W.	39 38 49	2797	41 13 21	2744	42 49 2	2696	44 25 47	2653
	Venus E.	31 11 2	2690	29 34 9	2677	27 56 58	2664	26 19 30	2654
	SUN E.	61 36 24	2588	59 57 13	2572	58 17 39	2556	56 37 43	2540
31	α Aquilæ W.	82 14 10	2993	83 44 31	2973	85 15 17	2956	86 46 25	2940
	Saturn W.	55 19 42	2159	57 9 11	2145	58 59 1	2132	60 49 11	2120
	Fomalhaut W.	52 42 59	2477	54 24 44	2449	56 7 9	2423	57 50 11	2398
	α Pegasi W.	34 39 29	2358	36 4 30	2350	37 31 39	2355	39 0 44	2369
	SUN E.	48 12 42	2468	46 30 41	2453	44 48 21	2441	43 5 44	2429

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
24	Spica W.	92° 24' 20"	2883	93° 56' 48"	2883	95° 29' 28"	2874	97° 2' 20"	2865
	Jupiter W.	92 8 26	2869	93 41 24	2860	95 14 34	2851	96 47 56	2841
	Antares W.	46 30 20	2892	48 2 49	2883	49 35 30	2873	51 8 23	2863
	Saturn E.	31 27 18	2918	29 55 22	2911	28 23 17	2903	26 51 2	2896
	Fomalhaut E.	39 38 37	3455	38 17 23	3488	36 56 43	3522	35 36 43	3564
	α Pegasi E.	61 12 12	3314	59 48 17	3319	58 24 27	3394	57 0 43	3330
	Venus E.	96 43 23	3339	95 19 57	3330	93 56 20	3319	92 32 31	3308
Sun E.	128 27 56	3267	127 2 54	3247	125 37 40	3236	124 12 14	3225	
25	Jupiter W.	104 37 59	2789	106 12 41	2779	107 47 37	2767	109 22 48	2755
	Antares W.	58 56 4	2811	60 30 18	2800	62 4 46	2788	63 39 30	2775
	Mars W.	32 58 13	2798	34 32 44	2784	36 7 33	2771	37 42 39	2758
	α Pegasi E.	50 4 26	3385	48 41 52	3402	47 19 38	3422	45 57 46	3444
	Venus E.	85 30 13	3251	84 5 4	3239	82 39 41	3226	81 14 3	3213
	α Arietis E.	89 35 18	2855	88 2 2	2844	86 28 31	2832	84 54 45	2821
	Sun E.	117 1 44	3168	115 34 56	3154	114 7 52	3142	112 40 33	3129
26	Antares W.	71 37 13	2712	73 13 37	2698	74 50 20	2684	76 27 21	2671
	Mars W.	45 42 39	2688	47 19 35	2673	48 56 51	2658	50 34 27	2643
	α Pegasi E.	39 16 20	3686	37 58 14	3682	36 41 8	3746	35 25 9	3820
	Venus E.	74 1 52	3143	72 34 35	3129	71 7 1	3114	69 39 9	3099
	α Arietis E.	77 2 1	2759	75 26 39	2746	73 51 0	2733	72 15 4	2720
	Sun E.	105 19 52	3059	103 50 52	3044	102 21 34	3030	100 51 58	3014
	27	Antares W.	84 37 15	2596	86 16 15	2581	87 55 36	2566	89 35 18	2550
Mars W.		58 47 36	2566	60 27 18	2550	62 7 22	2533	63 47 49	2517
Venus E.		62 15 3	3020	60 45 15	3003	59 15 6	2986	57 44 36	2969
α Arietis E.		64 10 58	2652	62 33 14	2638	60 55 11	2625	59 16 50	2611
Sun E.		93 19 5	2935	91 47 30	2918	90 15 34	2901	88 43 16	2884
28		Mars W.	72 15 51	2433	73 58 38	2416	75 41 50	2399	77 25 26	2382
	α Aquilæ W.	54 30 11	3855	55 44 17	3781	56 59 39	3712	58 16 13	3649
	Venus E.	50 6 48	2884	48 34 9	2867	47 1 8	2850	45 27 45	2833
	α Arietis E.	51 0 25	2544	49 20 13	2532	47 39 44	2520	45 58 59	2509
	Sun E.	80 56 19	2798	79 21 48	2780	77 46 54	2762	76 11 36	2744
	29	Mars W.	86 9 34	2286	87 55 39	2280	89 42 8	2263	91 29 2	2247
α Aquilæ W.		64 54 58	3383	66 17 34	3338	67 41 2	3295	69 5 19	3256
Saturn W.		33 56 21	2255	35 41 1	2237	37 26 7	2220	39 11 38	2202
Venus E.		37 35 20	2750	35 59 46	2735	34 23 52	2719	32 47 37	2704
α Arietis E.		37 31 30	2462	35 49 24	2458	34 7 11	2455	32 24 54	2453
Sun E.		86 9 17	2657	86 31 39	2639	84 53 37	2622	83 15 12	2605
30		Mars W.	100 29 36	2167	102 18 54	2151	104 8 36	2136	105 58 40	2122
	α Aquilæ W.	76 17 33	3090	77 45 55	3063	79 14 50	3038	80 44 16	3015
	Saturn W.	48 5 30	2219	49 53 29	2204	51 41 51	2189	53 30 35	2174
	Fomalhaut W.	46 3 30	2612	47 42 8	2574	49 21 38	2540	51 1 56	2507
	Venus E.	24 41 48	2644	23 3 53	2638	21 25 49	2632	19 47 38	2620
	Sun E.	54 57 25	2524	53 16 45	2509	51 35 44	2494	49 54 23	2480
	31	α Aquilæ W.	88 17 53	2926	89 49 39	2914	91 21 40	2905	92 53 53	2896
Saturn W.		62 39 40	2107	64 30 29	2094	66 21 37	2083	68 13 2	2072
Fomalhaut W.		59 33 49	2375	61 18 0	2354	63 2 41	2334	64 47 51	2315
α Pegasi W.		40 31 35	2894	42 4 1	2828	43 37 53	2767	45 13 4	2713
Sun E.		41 22 50	2417	39 39 40	2407	37 56 15	2397	36 12 36	2389

AT GREENWICH APPARENT NOON.									
Day of the Week.	Day of the Month.	THE SUN'S					Sideral Time of the Semi-diameter passing the Meridian.	Equation of Time, to be subtracted from	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Semi-diameter.			
		h m s	s	° ' "	"	' "			
Tues.	1	4 35 44.18	10.230	N.22° 2' 41.4"	+20.56	15' 48.31"	68.40	2 30.34	0.372
Wed.	2	4 39 49.93	10.247	22 10 43.5	19.60	15 48.17	68.46	2 21.17	0.389
Thur.	3	4 43 56.07	10.263	22 18 22.4	18.63	15 48.04	68.51	2 11.62	0.405
Frid.	4	4 48 2.58	10.278	22 25 37.8	17.65	15 47.91	68.56	2 1.70	0.420
Sat.	5	4 52 9.43	10.292	22 32 29.8	16.67	15 47.79	68.61	1 51.43	0.434
Sun.	6	4 56 16.62	10.306	22 38 58.1	15.68	15 47.68	68.66	1 40.82	0.448
Mon.	7	5 0 24.12	10.318	22 45 2.5	14.68	15 47.57	68.70	1 29.91	0.460
Tues.	8	5 4 31.92	10.330	22 50 43.0	13.68	15 47.46	68.74	1 18.70	0.472
Wed.	9	5 8 39.97	10.340	22 55 59.4	12.67	15 47.36	68.78	1 7.24	0.482
Thur.	10	5 12 48.25	10.350	23 0 51.5	11.66	15 47.26	68.82	0 55.55	0.492
Frid.	11	5 16 56.74	10.358	23 5 19.2	10.65	15 47.17	68.85	0 43.65	0.500
Sat.	12	5 21 5.44	10.365	23 9 22.5	9.63	15 47.08	68.88	0 31.55	0.507
Sun.	13	5 25 14.30	10.372	23 13 1.4	8.61	15 47.00	68.90	0 19.29	0.514
Mon.	14	5 29 23.30	10.378	23 16 15.8	7.59	15 46.92	68.92	0 6.88	0.520
Tues.	15	5 33 32.44	10.383	23 19 5.6	6.56	15 46.84	68.94	0 5.67	0.525
Wed.	16	5 37 41.70	10.388	23 21 30.8	5.53	15 46.77	68.95	0 18.34	0.530
Thur.	17	5 41 51.04	10.391	23 23 31.2	4.50	15 46.70	68.96	0 31.10	0.533
Frid.	18	5 46 0.45	10.393	23 25 6.9	3.47	15 46.63	68.97	0 43.91	0.535
Sat.	19	5 50 9.91	10.395	23 26 17.9	2.44	15 46.57	68.98	0 56.78	0.537
Sun.	20	5 54 19.41	10.396	23 27 4.1	1.41	15 46.51	68.98	1 9.68	0.538
Mon.	21	5 58 28.93	10.396	23 27 25.6	+ 0.38	15 46.45	68.98	1 22.60	0.538
Tues.	22	6 2 38.45	10.395	23 27 22.3	- 0.65	15 46.40	68.98	1 35.52	0.537
Wed.	23	6 6 47.93	10.393	23 26 54.2	1.68	15 46.35	68.97	1 48.41	0.535
Thur.	24	6 10 57.36	10.390	23 26 1.4	2.71	15 46.30	68.96	2 1.25	0.532
Frid.	25	6 15 6.71	10.387	23 24 43.9	3.74	15 46.26	68.94	2 14.01	0.529
Sat.	26	6 19 15.98	10.383	23 23 1.6	4.77	15 46.22	68.92	2 26.69	0.525
Sun.	27	6 23 25.14	10.378	23 20 54.6	5.80	15 46.19	68.90	2 39.25	0.520
Mon.	28	6 27 34.16	10.371	23 18 23.0	6.82	15 46.16	68.88	2 51.67	0.514
Tues.	29	6 31 43.00	10.364	23 15 27.0	7.84	15 46.14	68.85	3 3.92	0.506
Wed.	30	6 35 51.65	10.355	23 12 6.4	8.86	15 46.12	68.82	3 15.98	0.497
Thur.	31	6 40 0.09	10.346	N.23 8 21.3	- 9.88	15 46.11	68.79	3 27.83	0.488

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0^h.19 from the Sideral Time.

+ prefixed to the hourly change of declination, indicates that north declinations are increasing, and south declinations are decreasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be added to		Diff. for 1 hour.	Sidereal Time or Right Ascension of Mean Sun.			
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	subtracted from Mean Time.			Diff. for 1 hour.	h	m	s
						m	s					
Tues.	1	4 35 44.60	10.229	N.22° 2' 42.2"	+20.56	2 30.32	0.372	4 38	14.92			
Wed.	2	4 39 50.33	10.246	22 10 44.2	19.60	2 21.15	0.389	4 42	11.48			
Thur.	3	4 43 56.44	10.262	22 18 23.0	18.63	2 11.60	0.405	4 46	8.04			
Frid.	4	4 48 2.92	10.277	22 25 38.4	17.65	2 1.68	0.420	4 50	4.60			
Sat.	5	4 52 9.75	10.291	22 32 30.3	16.67	1 51.41	0.434	4 54	1.16			
Sun.	6	4 56 16.91	10.305	22 38 58.5	15.68	1 40.81	0.448	4 57	57.72			
Mon.	7	5 0 24.38	10.317	22 45 2.9	14.68	1 29.90	0.460	5 1	54.28			
Tues.	8	5 4 32.14	10.329	22 50 43.3	13.68	1 18.69	0.472	5 5	50.83			
Wed.	9	5 8 40.16	10.339	22 55 59.6	12.67	1 7.23	0.482	5 9	47.39			
Thur.	10	5 12 48.41	10.349	23 0 51.6	11.66	0 55.54	0.492	5 13	43.95			
Frid.	11	5 16 56.87	10.357	23 5 19.3	10.65	0 43.64	0.500	5 17	40.51			
Sat.	12	5 21 5.53	10.364	23 9 22.6	9.63	0 31.54	0.507	5 21	37.07			
Sun.	13	5 25 14.35	10.371	23 13 1.4	8.61	0 19.28	0.514	5 25	33.63			
Mon.	14	5 29 23.31	10.377	23 16 15.8	7.59	0 6.88	0.520	5 29	30.19			
Tues.	15	5 33 32.42	10.382	23 19 5.6	6.56	0 5.67	0.525	5 33	26.75			
Wed.	16	5 37 41.64	10.387	23 21 30.8	5.53	0 18.34	0.530	5 37	23.30			
Thur.	17	5 41 50.95	10.390	23 23 31.2	4.50	0 31.09	0.533	5 41	19.86			
Frid.	18	5 46 0.32	10.392	23 25 6.9	3.47	0 43.90	0.535	5 45	16.42			
Sat.	19	5 50 9.75	10.394	23 26 17.9	2.44	0 56.77	0.537	5 49	12.98			
Sun.	20	5 54 19.21	10.395	23 27 4.1	1.41	1 9.67	0.538	5 53	9.54			
Mon.	21	5 58 28.69	10.395	23 27 25.6	+ 0.38	1 22.59	0.538	5 57	6.10			
Tues.	22	6 2 38.17	10.394	23 27 22.3	- 0.65	1 35.51	0.537	6 1	2.66			
Wed.	23	6 6 47.61	10.392	23 26 54.3	1.68	1 48.39	0.535	6 4	59.22			
Thur.	24	6 10 57.00	10.389	23 26 1.5	2.71	2 1.23	0.532	6 8	55.77			
Frid.	25	6 15 6.31	10.386	23 24 44.0	3.74	2 13.98	0.529	6 12	52.33			
Sat.	26	6 19 15.55	10.382	23 23 1.8	4.77	2 26.66	0.525	6 16	48.89			
Sun.	27	6 23 24.68	10.377	23 20 54.9	5.80	2 39.23	0.520	6 20	45.45			
Mon.	28	6 27 33.66	10.370	23 18 23.4	6.82	2 51.65	0.514	6 24	42.01			
Tues.	29	6 31 42.46	10.363	23 15 27.4	7.84	3 3.89	0.506	6 28	38.57			
Wed.	30	6 35 51.08	10.354	23 12 6.9	8.86	3 15.95	0.497	6 32	35.13			
Thur.	31	6 39 59.49	10.345	N.23 8 21.9	- 9.88	3 27.80	0.488	6 36	31.69			

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

Diff. for 1 hour.
+ 9°.8565

AT GREENWICH MEAN NOON.								
Day of the Month.	Day of the Year.	THE SUN'S				Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE.			
		λ	λ'					
1	152	70° 32' 46.9	32° 31' 1	143.70	+0.16	.0062259	+26.6	19 18 34.75
2	153	71 30 15.4	29 59.4	143.66	0.26	.0062886	25.6	19 14 38.84
3	154	72 27 43.0	27 26.8	143.63	0.36	.0063489	24.6	19 10 42.93
4	155	73 25 9.7	24 53.3	143.59	0.43	.0064067	23.6	19 6 47.01
5	156	74 22 35.5	22 18.9	143.55	0.47	.0064621	22.6	19 2 51.10
6	157	75 20 0.2	19 43.5	143.51	0.48	.0065150	21.6	18 58 55.19
7	158	76 17 24.1	17 7.1	143.47	0.45	.0065656	20.6	18 54 59.28
8	159	77 14 46.9	14 29.7	143.43	0.39	.0066140	19.6	18 51 3.36
9	160	78 12 8.7	11 51.4	143.39	0.33	.0066601	18.7	18 47 7.45
10	161	79 9 29.6	9 12.1	143.35	0.24	.0067089	17.8	18 43 11.54
11	162	80 6 49.5	6 31.8	143.31	+0.12	.0067456	17.0	18 39 15.63
12	163	81 4 8.3	3 50.4	143.27	-0.02	.0067855	16.2	18 35 19.71
13	164	82 1 26.2	1 8.1	143.23	0.15	.0068237	15.5	18 31 23.80
14	165	82 58 43.2	58 24.9	143.19	0.29	.0068602	14.8	18 27 27.89
15	166	83 55 59.4	55 40.9	143.16	0.40	.0068951	14.2	18 23 31.97
16	167	84 53 14.9	52 56.2	143.13	0.50	.0069285	13.6	18 19 36.06
17	168	85 50 29.7	50 10.8	143.10	0.59	.0069604	13.0	18 15 40.14
18	169	86 47 43.9	47 24.8	143.08	0.65	.0069908	12.4	18 11 44.23
19	170	87 44 57.7	44 38.4	143.06	0.67	.0070199	11.8	18 7 48.33
20	171	88 42 11.1	41 51.7	143.04	0.67	.0070476	11.2	18 3 52.41
21	172	89 39 24.1	39 4.5	143.03	0.63	.0070738	10.6	17 59 56.50
22	173	90 36 36.8	36 17.0	143.02	0.57	.0070985	10.0	17 56 0.59
23	174	91 33 49.3	33 29.3	143.02	0.49	.0071217	9.3	17 52 4.68
24	175	92 31 1.8	30 41.6	143.02	0.39	.0071432	8.6	17 48 8.76
25	176	93 28 14.4	27 54.0	143.02	0.27	.0071629	7.8	17 44 12.85
26	177	94 25 27.0	25 6.4	143.02	-0.13	.0071807	6.9	17 40 16.94
27	178	95 22 39.7	22 18.9	143.03	+0.01	.0071963	6.0	17 36 21.02
28	179	96 19 52.4	19 31.4	143.03	0.14	.0072097	5.0	17 32 25.10
29	180	97 17 5.1	16 43.9	143.03	0.25	.0072208	4.0	17 28 29.19
30	181	98 14 17.9	13 56.6	143.03	0.35	.0072294	3.0	17 24 33.28
31	182	99 11 30.8	11 9.3	143.04	+0.42	.0072354	+ 1.9	17 20 37.37

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 0d.

Diff. for 1 hour.

-9th.8296

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.

	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.
							h m	m	d
1	16 35.3	16 39.0	60 46.3	+1.30	61 0.0	+0.97	22 25.5	2.47	26.9
2	16 41.6	16 43.0	61 9.5	+0.61	61 14.5	+0.22	23 27.2	2.67	27.9
3	16 43.0	16 41.7	61 14.7	-0.19	61 10.0	-0.59	6		28.9
4	16 39.2	16 35.4	61 0.6	0.97	60 46.7	1.33	0 32.0	2.78	0.6
5	16 30.5	16 24.7	60 28.9	1.64	60 7.5	1.91	1 39.8	2.75	1.6
6	16 18.1	16 11.0	59 43.3	2.11	59 17.0	2.26	2 43.9	2.57	2.6
7	16 3.4	15 55.7	58 49.3	2.35	58 20.8	2.30	3 42.7	2.33	3.6
8	15 47.9	15 40.2	57 52.2	2.37	57 24.1	2.31	4 35.5	2.08	4.6
9	15 32.8	15 25.8	56 56.9	2.22	56 31.0	2.09	5 23.1	1.89	5.6
10	15 19.2	15 13.1	56 6.8	1.94	55 44.5	1.77	6 6.7	1.75	6.6
11	15 7.6	15 2.7	55 24.2	1.60	55 6.2	1.41	6 47.8	1.68	7.6
12	14 58.4	14 54.7	54 50.4	1.22	54 36.9	1.03	7 27.8	1.66	8.6
13	14 51.6	14 49.2	54 25.6	0.84	54 16.6	0.66	8 8.0	1.69	9.6
14	14 47.3	14 46.0	54 9.8	0.48	54 5.1	-0.31	8 49.4	1.77	10.6
15	14 45.3	14 45.1	54 2.3	-0.15	54 1.4	0.00	9 33.0	1.87	11.6
16	14 45.3	14 45.9	54 2.2	+0.14	54 4.7	+0.27	10 19.5	2.00	12.6
17	14 47.0	14 48.4	54 8.6	0.38	54 13.9	0.49	11 8.8	2.11	13.6
18	14 50.2	14 52.3	54 20.4	0.59	54 28.0	0.68	12 0.5	2.19	14.6
19	14 54.7	14 57.3	54 36.8	0.77	54 46.5	0.86	12 53.5	2.21	15.6
20	15 0.3	15 3.5	54 57.4	0.94	55 9.2	1.03	13 46.3	2.17	16.6
21	15 7.0	15 10.7	55 22.0	1.11	55 35.8	1.19	14 37.5	2.09	17.6
22	15 14.7	15 19.0	55 50.5	1.27	56 6.2	1.35	15 26.6	2.00	18.6
23	15 23.6	15 28.3	56 22.9	1.43	56 40.5	1.50	16 13.5	1.92	19.6
24	15 33.4	15 38.6	56 58.9	1.57	57 18.1	1.63	16 59.0	1.88	20.6
25	15 44.0	15 49.6	57 38.0	1.68	57 58.5	1.72	17 44.2	1.89	21.6
26	15 55.2	16 0.9	58 19.2	1.74	58 40.0	1.73	18 30.3	1.96	22.6
27	16 6.5	16 11.9	59 0.6	1.69	59 20.5	1.62	19 18.9	2.10	23.6
28	16 17.0	16 21.7	59 39.3	1.51	59 56.5	1.35	20 11.5	2.29	24.6
29	16 25.9	16 29.3	60 11.6	1.16	60 24.1	0.92	21 9.1	2.51	25.6
30	16 31.8	16 33.4	60 33.6	0.65	60 39.6	+0.35	22 11.8	2.70	26.6
31	16 34.1	16 33.9	60 41.9	+0.02	60 40.1	-0.31	23 17.8	2.77	27.6

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 1.					THURSDAY 3.				
0	2 12 43.54	2.3520	N.15 12' 50.0"	15.353	0	4 14 46.14	2.7946	N.25 14' 25.4"	8.830
1	2 15 4.89	2.3596	15 28 8.7	15.271	1	4 17 29.81	2.7309	25 23 9.5	8.641
2	2 17 26.70	2.3673	15 43 22.5	15.188	2	4 20 13.85	2.7371	25 31 42.2	8.449
3	2 19 48.96	2.3749	15 58 31.2	15.102	3	4 22 58.26	2.7431	25 40 3.3	8.255
4	2 22 11.69	2.3827	16 13 34.7	15.013	4	4 25 43.02	2.7489	25 48 12.8	8.061
5	2 24 34.89	2.3905	16 28 32.8	14.923	5	4 28 28.13	2.7546	25 56 10.6	7.865
6	2 26 58.55	2.3984	16 43 25.5	14.830	6	4 31 13.58	2.7601	26 3 56.6	7.667
7	2 29 22.69	2.4063	16 58 12.5	14.735	7	4 33 59.35	2.7655	26 11 30.7	7.467
8	2 31 47.31	2.4142	17 12 53.7	14.638	8	4 36 45.44	2.7707	26 18 52.7	7.266
9	2 34 12.40	2.4222	17 27 29.1	14.539	9	4 39 31.84	2.7757	26 26 2.6	7.063
10	2 36 37.97	2.4302	17 41 58.4	14.437	10	4 42 18.54	2.7806	26 33 0.3	6.859
11	2 39 4.02	2.4383	17 56 21.5	14.332	11	4 45 5.52	2.7853	26 39 45.7	6.654
12	2 41 30.56	2.4464	18 10 38.2	14.224	12	4 47 52.77	2.7898	26 46 18.8	6.448
13	2 43 57.59	2.4545	18 24 48.4	14.115	13	4 50 40.29	2.7941	26 52 39.4	6.240
14	2 46 25.10	2.4626	18 38 52.0	14.004	14	4 53 28.06	2.7981	26 58 47.5	6.031
15	2 48 53.10	2.4707	18 52 48.9	13.891	15	4 56 16.06	2.8019	27 4 43.0	5.820
16	2 51 21.59	2.4789	19 6 38.9	13.775	16	4 59 4.29	2.8056	27 10 25.8	5.609
17	2 53 50.57	2.4871	19 20 21.8	13.656	17	5 1 52.74	2.8091	27 15 56.0	5.397
18	2 56 20.04	2.4953	19 33 57.5	13.534	18	5 4 41.39	2.8124	27 21 13.4	5.183
19	2 58 50.00	2.5035	19 47 25.8	13.410	19	5 7 30.23	2.8155	27 26 18.0	4.969
20	3 1 20.46	2.5117	20 0 46.7	13.285	20	5 10 19.25	2.8183	27 31 9.7	4.754
21	3 3 51.41	2.5199	20 14 0.0	13.157	21	5 13 8.43	2.8209	27 35 48.4	4.537
22	3 6 22.85	2.5281	20 27 5.5	13.026	22	5 15 57.76	2.8233	27 40 14.1	4.320
23	3 8 54.78	2.5363	N.20 40 3.1	12.893	23	5 18 47.22	2.8254	N.27 44 26.8	4.103
WEDNESDAY 2.					FRIDAY 4.				
0	3 11 27.20	2.5445	N.20 52 52.6	12.757	0	5 21 36.81	2.8274	N.27 48 26.5	3.885
1	3 14 0.11	2.5526	21 5 33.9	12.618	1	5 24 26.51	2.8291	27 52 13.0	3.666
2	3 16 33.51	2.5607	21 18 6.8	12.487	2	5 27 16.30	2.8305	27 55 46.4	3.446
3	3 19 7.40	2.5689	21 30 31.3	12.336	3	5 30 6.17	2.8318	27 59 6.6	3.227
4	3 21 41.78	2.5770	21 42 47.2	12.191	4	5 32 56.11	2.8328	28 2 13.7	3.007
5	3 24 16.64	2.5850	21 54 54.3	12.044	5	5 35 46.10	2.8335	28 5 7.5	2.786
6	3 26 51.98	2.5930	22 6 52.5	11.894	6	5 38 36.13	2.8340	28 7 48.1	2.566
7	3 29 27.80	2.6010	22 18 41.6	11.742	7	5 41 26.18	2.8343	28 10 15.5	2.346
8	3 32 4.10	2.6089	22 30 21.6	11.588	8	5 44 16.24	2.8344	28 12 29.6	2.126
9	3 34 40.87	2.6167	22 41 52.3	11.432	9	5 47 6.30	2.8342	28 14 30.5	1.905
10	3 37 18.11	2.6245	22 53 13.6	11.273	10	5 49 56.34	2.8337	28 16 18.1	1.684
11	3 39 55.81	2.6323	23 4 25.2	11.112	11	5 52 46.34	2.8329	28 17 52.5	1.464
12	3 42 33.98	2.6399	23 15 27.1	10.949	12	5 55 36.28	2.8319	28 19 13.7	1.243
13	3 45 12.60	2.6475	23 26 19.1	10.784	13	5 58 26.16	2.8306	28 20 21.6	1.022
14	3 47 51.68	2.6551	23 37 1.2	10.617	14	6 1 15.97	2.8294	28 21 16.3	0.802
15	3 50 31.21	2.6626	23 47 33.2	10.448	15	6 4 5.69	2.8277	28 21 57.8	0.582
16	3 53 11.18	2.6698	23 57 54.9	10.276	16	6 6 55.30	2.8258	28 22 26.1	0.363
17	3 55 51.58	2.6770	24 8 6.3	10.103	17	6 9 44.79	2.8237	28 22 41.3	+0.144
18	3 58 32.42	2.6842	24 18 7.2	9.927	18	6 12 34.14	2.8213	28 22 43.3	-0.075
19	4 1 13.69	2.6912	24 27 57.5	9.748	19	6 15 23.34	2.8187	28 22 32.3	0.293
20	4 3 55.37	2.6981	24 37 37.0	9.568	20	6 18 12.38	2.8159	28 22 8.2	0.510
21	4 6 37.46	2.7050	24 47 5.7	9.387	21	6 21 1.24	2.8128	28 21 31.1	0.727
22	4 9 19.96	2.7117	24 56 23.4	9.203	22	6 23 49.91	2.8094	28 20 41.0	0.943
23	4 12 2.86	2.7182	25 5 30.0	9.017	23	6 26 38.37	2.8058	28 19 38.0	1.157
24	4 14 46.14	2.7246	N.25 14 25.4	8.830	24	6 29 26.61	2.8021	N.28 18 22.2	1.371

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 5.					MONDAY 7.				
0	h m s	a	N. 28 18 22.2	1.371	0	h m s	a	N. 23 33 18.0	9.809
1	6 29 26.61	2.8021	28 16 53.5	1.584	1	8 36 16.20	2.4373	23 23 25.6	9.937
2	6 35 2.38	2.7938	28 15 12.1	1.706	2	8 38 42.15	2.4278	23 13 25.6	10.062
3	6 37 49.88	2.7894	28 13 18.0	2.008	3	8 41 7.53	2.4183	23 3 18.2	10.185
4	6 40 37.11	2.7848	28 11 11.2	2.218	4	8 43 32.34	2.4088	22 53 3.4	10.308
5	6 43 24.06	2.7799	28 8 51.9	2.426	5	8 45 56.58	2.3993	22 42 41.3	10.428
6	6 46 10.71	2.7749	28 6 20.1	2.633	6	8 48 20.25	2.3898	22 32 12.1	10.545
7	6 48 57.05	2.7697	28 3 35.9	2.840	7	8 50 43.35	2.3803	22 21 35.9	10.660
8	6 51 43.07	2.7643	28 0 39.3	3.045	8	8 53 5.89	2.3709	22 10 52.9	10.773
9	6 54 28.76	2.7586	27 57 30.5	3.248	9	8 55 27.86	2.3614	22 0 3.1	10.885
10	6 57 14.10	2.7527	27 54 9.5	3.451	10	8 57 49.26	2.3520	21 49 6.7	10.994
11	6 59 59.09	2.7467	27 50 36.4	3.653	11	9 0 10.10	2.3427	21 38 3.8	11.102
12	7 2 43.71	2.7405	27 46 51.2	3.853	12	9 2 30.38	2.3333	21 26 54.4	11.208
13	7 5 27.95	2.7341	27 42 54.1	4.050	13	9 4 50.10	2.3240	21 15 38.8	11.311
14	7 8 11.80	2.7275	27 38 45.2	4.246	14	9 7 9.26	2.3148	21 4 17.1	11.413
15	7 10 55.25	2.7208	27 34 24.6	4.441	15	9 9 27.87	2.3056	20 52 49.3	11.512
16	7 13 38.29	2.7139	27 29 52.3	4.634	16	9 11 45.93	2.2964	20 41 15.6	11.610
17	7 16 20.92	2.7069	27 25 8.5	4.826	17	9 14 3.44	2.2872	20 29 36.1	11.706
18	7 19 3.12	2.6997	27 20 13.2	5.016	18	9 16 20.40	2.2781	20 17 50.9	11.800
19	7 21 44.88	2.6923	27 15 6.6	5.203	19	9 18 36.81	2.2691	20 6 0.1	11.892
20	7 24 26.20	2.6848	27 9 48.8	5.389	20	9 20 52.68	2.2601	19 54 3.9	11.982
21	7 27 7.06	2.6772	27 4 19.9	5.573	21	9 23 8.02	2.2511	19 42 2.3	12.070
22	7 29 47.46	2.6695	26 58 40.0	5.756	22	9 25 22.82	2.2422	19 29 55.5	12.157
23	7 32 27.39	2.6616	N. 26 52 49.2	5.938	23	9 27 37.09	2.2334	N. 19 17 43.5	12.242
SUNDAY 6.					TUESDAY 8.				
0	7 35 6.85	2.6536	N. 26 46 47.5	6.117	0	9 32 4.05	2.2260	N. 19 5 26.5	12.324
1	7 37 45.82	2.6455	26 40 35.2	6.293	1	9 34 16.75	2.22073	18 53 4.6	12.405
2	7 40 24.30	2.6371	26 34 12.3	6.469	2	9 36 28.93	2.1988	18 40 37.9	12.484
3	7 43 2.27	2.6287	26 27 38.9	6.642	3	9 38 40.60	2.1903	18 28 6.5	12.562
4	7 45 39.74	2.6203	26 20 55.2	6.813	4	9 40 51.76	2.1818	18 15 30.5	12.638
5	7 48 16.70	2.6117	26 14 1.3	6.983	5	9 43 2.42	2.1735	18 2 50.0	12.712
6	7 50 53.15	2.6030	26 6 57.2	7.151	6	9 45 12.58	2.1653	17 50 5.1	12.784
7	7 53 29.07	2.5943	25 59 43.2	7.316	7	9 47 22.25	2.1570	17 37 15.9	12.855
8	7 56 4.47	2.5856	25 52 19.3	7.479	8	9 49 31.42	2.1488	17 24 22.5	12.924
9	7 58 39.34	2.5767	25 44 45.7	7.640	9	9 51 40.11	2.1408	17 11 25.0	12.991
10	8 1 13.67	2.5677	25 37 2.5	7.799	10	9 53 48.32	2.1328	16 58 23.6	13.057
11	8 3 47.46	2.5587	25 29 9.8	7.957	11	9 55 56.05	2.1249	16 45 18.2	13.122
12	8 6 20.71	2.5496	25 21 7.7	8.112	12	9 58 3.31	2.1171	16 32 9.0	13.184
13	8 8 53.41	2.5404	25 12 56.4	8.264	13	10 0 10.10	2.1094	16 18 56.1	13.245
14	8 11 25.56	2.5312	25 4 36.0	8.416	14	10 2 16.43	2.1018	16 5 39.6	13.304
15	8 13 57.15	2.5220	24 56 6.5	8.565	15	10 4 22.31	2.0942	15 52 19.6	13.362
16	8 16 28.19	2.5127	24 47 28.2	8.711	16	10 6 27.73	2.0866	15 38 56.2	13.418
17	8 18 58.67	2.5033	24 38 41.2	8.855	17	10 8 32.70	2.0792	15 25 29.4	13.473
18	8 21 28.58	2.4939	24 29 45.6	8.997	18	10 10 37.24	2.0720	15 11 59.4	13.527
19	8 23 57.93	2.4845	24 20 41.5	9.138	19	10 12 41.34	2.0647	14 58 26.2	13.579
20	8 26 26.72	2.4751	24 11 29.0	9.277	20	10 14 45.00	2.0575	14 44 49.9	13.629
21	8 28 54.94	2.4656	24 2 8.3	9.413	21	10 16 48.24	2.0505	14 31 10.7	13.678
22	8 31 22.59	2.4562	23 52 39.5	9.547	22	10 18 51.06	2.0435	14 17 28.5	13.726
23	8 33 49.68	2.4468	23 43 2.7	9.679	23	10 20 53.46	2.0367	14 3 43.5	13.773
24	8 36 16.20	2.4373	N. 23 33 18.0	9.809	24	10 22 55.46	2.0299	N. 13 49 55.8	13.818

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 9.					FRIDAY 11.				
0	10 22 55.46	2.0299	N. 13° 49' 55.8"	13.818	0	11 54 18.60	1.8135	N. 2° 17' 26.8"	14.644
1	10 24 57.05	2.0231	13 26 5.4	13.861	1	11 56 7.34	1.8119	2 2 48.3	14.638
2	10 26 58.24	2.0166	13 22 12.5	13.903	2	11 57 55.95	1.8060	1 48 10.2	14.632
3	10 28 59.04	2.0101	13 8 17.1	13.943	3	11 59 44.42	1.8068	1 33 32.5	14.625
4	10 30 59.45	2.0037	12 54 19.3	13.983	4	12 1 32.77	1.8048	1 18 55.2	14.617
5	10 32 59.48	1.9974	12 40 19.1	14.023	5	12 3 21.00	1.8099	1 4 18.5	14.608
6	10 34 59.13	1.9911	12 26 16.6	14.059	6	12 5 9.12	1.8011	0 49 42.3	14.598
7	10 36 58.41	1.9849	12 12 12.0	14.094	7	12 6 57.13	1.7994	0 35 6.7	14.588
8	10 38 57.32	1.9789	11 58 5.3	14.128	8	12 8 45.04	1.7977	0 20 31.7	14.578
9	10 40 55.88	1.9730	11 43 56.5	14.163	9	12 10 32.85	1.7961	N. 0 5 57.4	14.566
10	10 42 54.09	1.9672	11 29 45.8	14.194	10	12 12 20.57	1.7946	S. 0 8 36.2	14.553
11	10 44 51.94	1.9614	11 15 33.2	14.226	11	12 14 8.20	1.7931	0 23 9.0	14.540
12	10 46 49.45	1.9557	11 1 18.7	14.256	12	12 15 55.74	1.7918	0 37 41.0	14.527
13	10 48 46.62	1.9501	10 47 2.5	14.284	13	12 17 43.21	1.7906	0 52 12.2	14.512
14	10 50 43.46	1.9447	10 32 41.6	14.311	14	12 19 30.61	1.7894	1 6 42.4	14.498
15	10 52 39.98	1.9393	10 18 25.2	14.337	15	12 21 17.94	1.7883	1 21 11.7	14.480
16	10 54 36.17	1.9340	10 4 4.2	14.362	16	12 23 5.21	1.7873	1 35 40.0	14.464
17	10 56 32.05	1.9288	9 49 41.7	14.386	17	12 24 52.42	1.7863	1 50 7.3	14.447
18	10 58 27.62	1.9237	9 35 17.9	14.409	18	12 26 39.57	1.7855	2 4 33.6	14.428
19	11 0 22.89	1.9187	9 20 52.7	14.431	19	12 28 26.68	1.7848	2 18 58.7	14.409
20	11 2 17.86	1.9137	9 6 26.2	14.452	20	12 30 13.75	1.7841	2 33 22.6	14.389
21	11 4 12.53	1.9089	8 51 58.5	14.471	21	12 32 0.77	1.7835	2 47 45.4	14.369
22	11 6 6.92	1.9042	8 37 29.7	14.489	22	12 33 47.76	1.7830	3 2 6.9	14.348
23	11 8 1.03	1.8995	N. 8 22 59.8	14.507	23	12 35 34.73	1.7826	S. 3 16 27.1	14.327
THURSDAY 10.					SATURDAY 12.				
0	11 9 54.86	1.8949	N. 8 8 28.8	14.524	0	12 37 21.67	1.7822	S. 3 30 46.1	14.305
1	11 11 48.42	1.8905	7 53 56.9	14.540	1	12 39 8.59	1.7819	3 45 3.7	14.281
2	11 13 41.72	1.8862	7 39 24.0	14.555	2	12 40 55.50	1.7817	3 59 19.8	14.257
3	11 15 34.76	1.8819	7 24 50.3	14.568	3	12 42 42.40	1.7816	4 13 34.5	14.233
4	11 17 27.55	1.8777	7 10 15.9	14.580	4	12 44 29.29	1.7816	4 27 47.7	14.208
5	11 19 20.09	1.8736	6 55 40.7	14.592	5	12 46 16.19	1.7816	4 41 59.4	14.183
6	11 21 12.38	1.8696	6 41 4.9	14.603	6	12 48 3.09	1.7817	4 56 9.6	14.156
7	11 23 4.44	1.8657	6 26 28.4	14.613	7	12 49 50.00	1.7820	5 10 18.1	14.129
8	11 24 56.27	1.8619	6 11 51.4	14.621	8	12 51 36.93	1.7823	5 24 25.0	14.101
9	11 26 47.87	1.8583	5 57 13.9	14.629	9	12 53 23.87	1.7826	5 38 30.2	14.073
10	11 28 39.26	1.8547	5 42 36.0	14.636	10	12 55 10.84	1.7830	5 52 33.6	14.043
11	11 30 30.43	1.8511	5 27 57.6	14.643	11	12 56 57.83	1.7834	6 6 35.3	14.013
12	11 32 21.39	1.8477	5 13 18.9	14.648	12	12 58 44.85	1.7840	6 20 35.2	13.983
13	11 34 12.15	1.8443	4 58 39.9	14.652	13	13 0 31.91	1.7847	6 34 33.2	13.951
14	11 36 2.71	1.8410	4 44 0.7	14.655	14	13 2 19.01	1.7854	6 48 29.3	13.919
15	11 37 53.07	1.8379	4 29 21.3	14.657	15	13 4 6.16	1.7862	7 2 23.5	13.887
16	11 39 43.25	1.8349	4 14 41.8	14.659	16	13 5 53.36	1.7871	7 16 15.7	13.854
17	11 41 33.25	1.8319	4 0 2.2	14.661	17	13 7 40.62	1.7881	7 30 5.9	13.819
18	11 43 23.07	1.8290	3 45 22.5	14.661	18	13 9 27.93	1.7891	7 43 54.0	13.784
19	11 45 12.72	1.8261	3 30 42.9	14.660	19	13 11 15.30	1.7902	7 57 40.0	13.749
20	11 47 2.20	1.8234	3 16 3.4	14.658	20	13 13 2.75	1.7914	8 11 23.9	13.713
21	11 48 51.53	1.8209	3 1 23.9	14.656	21	13 14 50.27	1.7926	8 25 5.6	13.677
22	11 50 40.70	1.8186	2 46 44.6	14.653	22	13 16 37.86	1.7939	8 38 45.1	13.639
23	11 52 29.72	1.8158	2 32 5.6	14.649	23	13 18 25.53	1.7953	8 52 22.3	13.601
24	11 54 18.60	1.8135	N. 2 17 26.8	14.644	24	13 20 13.29	1.7968	S. 9 5 57.2	13.563

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 13.					TUESDAY 15.				
0	h m s 13 20 13.29	1.7968	S. 9° 5' 57.2"	13.563	0	h m s 14 49 21.29	1.8390	S. 18° 58' 24.2"	10.888
1	13 22 1.14	1.7983	9 19 29.8	13.523	1	14 51 17.76	1.8433	19 9 11.6	10.752
2	13 23 49.08	1.7998	9 32 59.9	13.482	2	14 53 14.48	1.8475	19 19 54.4	10.675
3	13 25 37.12	1.8015	9 46 27.6	13.441	3	14 55 11.45	1.8517	19 30 32.6	10.597
4	13 27 25.26	1.8033	9 59 52.9	13.400	4	14 57 8.08	1.8560	19 41 6.0	10.517
5	13 29 13.51	1.8050	10 13 15.6	13.358	5	14 59 6.17	1.8603	19 51 34.6	10.437
6	13 31 1.86	1.8069	10 26 35.8	13.315	6	15 1 3.92	1.8647	20 1 58.4	10.356
7	13 32 50.33	1.8088	10 39 53.4	13.271	7	15 3 1.93	1.8691	20 12 17.3	10.274
8	13 34 38.92	1.8107	10 53 8.3	13.226	8	15 5 0.21	1.8736	20 22 31.3	10.192
9	13 36 27.62	1.8128	11 6 20.5	13.181	9	15 6 58.76	1.8780	20 32 40.3	10.108
10	13 38 16.45	1.8150	11 19 30.0	13.135	10	15 8 57.57	1.8824	20 42 44.3	10.024
11	13 40 5.42	1.8172	11 32 36.7	13.089	11	15 10 56.65	1.8870	20 52 43.2	9.938
12	13 41 54.52	1.8195	11 45 40.6	13.042	12	15 12 56.01	1.8916	21 2 36.9	9.852
13	13 43 43.76	1.8218	11 58 41.7	12.993	13	15 14 55.64	1.8961	21 12 25.5	9.766
14	13 45 33.14	1.8242	12 11 39.8	12.944	14	15 16 55.54	2.0007	21 22 8.8	9.678
15	13 47 22.66	1.8266	12 24 35.0	12.895	15	15 18 55.72	2.0053	21 31 46.8	9.588
16	13 49 12.33	1.8291	12 37 27.2	12.845	16	15 20 56.18	2.0099	21 41 19.4	9.498
17	13 51 2.15	1.8317	12 50 16.4	12.794	17	15 22 56.91	2.0145	21 50 46.6	9.408
18	13 52 52.13	1.8343	13 3 2.5	12.742	18	15 24 57.92	2.0192	22 0 8.4	9.317
19	13 54 42.27	1.8370	13 15 45.4	12.689	19	15 26 59.21	2.0239	22 9 24.6	9.224
20	13 56 32.58	1.8398	13 28 25.2	12.636	20	15 29 0.78	2.0286	22 18 35.2	9.131
21	13 58 23.05	1.8426	13 41 1.8	12.583	21	15 31 2.64	2.0333	22 27 40.3	9.037
22	14 0 13.69	1.8455	13 53 35.1	12.529	22	15 33 4.78	2.0380	22 36 39.7	8.942
23	14 2 4.51	1.8485	S. 14° 6' 5.1"	12.473	23	15 35 7.20	2.0427	S. 22° 45' 33.3"	8.845
MONDAY 14.					WEDNESDAY 16.				
0	h m s 14 3 55.51	1.8515	S. 14° 18' 31.8"	12.417	0	h m s 15 37 9.90	2.0474	S. 22° 54' 21.1"	8.748
1	14 5 46.69	1.8546	14 30 55.1	12.359	1	15 39 12.88	2.0521	23 3 3.1	8.651
2	14 7 38.06	1.8577	14 43 14.9	12.301	2	15 41 16.15	2.0569	23 11 39.2	8.552
3	14 9 29.61	1.8608	14 55 31.3	12.243	3	15 43 19.70	2.0616	23 20 9.3	8.452
4	14 11 21.35	1.8640	15 7 44.1	12.183	4	15 45 23.54	2.0663	23 28 33.4	8.352
5	14 13 13.29	1.8673	15 19 53.3	12.123	5	15 47 27.66	2.0710	23 36 51.5	8.251
6	14 15 5.43	1.8708	15 31 58.9	12.063	6	15 49 32.06	2.0758	23 45 3.5	8.148
7	14 16 57.77	1.8740	15 44 0.8	12.001	7	15 51 36.75	2.0805	23 53 9.3	8.044
8	14 18 50.31	1.8774	15 55 59.0	11.938	8	15 53 41.72	2.0852	24 1 8.8	7.940
9	14 20 43.06	1.8809	16 7 53.4	11.875	9	15 55 46.97	2.0899	24 9 2.1	7.836
10	14 22 36.02	1.8845	16 19 44.0	11.811	10	15 57 52.50	2.0946	24 16 49.1	7.730
11	14 24 29.20	1.8881	16 31 30.7	11.747	11	15 59 58.32	2.0993	24 24 29.7	7.623
12	14 26 22.60	1.8918	16 43 13.6	11.681	12	16 2 4.42	2.1040	24 32 3.9	7.515
13	14 28 16.22	1.8955	16 54 52.5	11.614	13	16 4 10.80	2.1087	24 39 31.6	7.407
14	14 30 10.06	1.8992	17 6 27.3	11.547	14	16 6 17.46	2.1133	24 46 52.7	7.297
15	14 32 4.12	1.9029	17 17 58.1	11.479	15	16 8 24.39	2.1179	24 54 7.2	7.187
16	14 33 58.41	1.9067	17 29 24.8	11.410	16	16 10 31.60	2.1225	25 1 15.1	7.076
17	14 35 52.93	1.9106	17 40 47.3	11.340	17	16 12 39.09	2.1271	25 8 16.3	6.963
18	14 37 47.69	1.9146	17 52 5.6	11.270	18	16 14 46.85	2.1316	25 15 10.7	6.850
19	14 39 42.68	1.9186	18 3 19.7	11.198	19	16 16 54.88	2.1361	25 21 58.3	6.737
20	14 41 37.91	1.9226	18 14 29.4	11.126	20	16 19 3.19	2.1407	25 28 39.1	6.623
21	14 43 33.39	1.9266	18 25 34.8	11.052	21	16 21 11.77	2.1452	25 35 13.0	6.507
22	14 45 29.11	1.9307	18 36 35.7	10.978	22	16 23 20.61	2.1498	25 41 39.9	6.390
23	14 47 25.08	1.9348	18 47 32.2	10.904	23	16 25 29.72	2.1544	25 47 59.7	6.272
24	14 49 21.29	1.9390	S. 18° 58' 24.2"	10.828	24	16 27 39.09	2.1584	S. 25° 54' 12.5"	6.154

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 17.					SATURDAY 19.				
0	h m s	a	S. 25° 54' 12.5"	6.154	0	h m s	a	S. 28° 20' 3.7"	0.991
1	16 27 39.09	2.1584	26 0 18.2	6.036	1	18 15 14.06	2.2955	28 19 41.9	0.436
2	16 29 48.73	2.1627	26 6 16.8	5.917	2	18 17 31.82	2.2963	28 19 11.4	0.580
3	16 31 58.62	2.1670	26 12 8.2	5.796	3	18 19 49.62	2.2970	28 18 32.3	0.725
4	16 34 8.77	2.1713	26 17 52.3	5.674	4	18 22 7.46	2.2978	28 17 44.4	0.870
5	16 36 19.18	2.1756	26 23 29.1	5.551	5	18 24 25.33	2.2981	28 16 47.9	1.014
6	16 38 29.84	2.1797	26 28 58.5	5.428	6	18 26 43.23	2.2985	28 15 42.7	1.159
7	16 40 40.75	2.1838	26 34 20.5	5.305	7	18 29 1.15	2.2988	28 14 26.8	1.305
8	16 42 51.90	2.1879	26 39 35.1	5.181	8	18 31 19.09	2.2991	28 13 6.1	1.451
9	16 45 3.30	2.1920	26 44 42.2	5.056	9	18 33 37.04	2.2992	28 11 34.7	1.596
10	16 47 14.94	2.1960	26 49 41.8	4.930	10	18 35 54.99	2.2992	28 9 54.6	1.741
11	16 49 26.82	2.1999	26 54 33.8	4.803	11	18 38 12.94	2.2991	28 8 5.8	1.887
12	16 51 38.93	2.2037	26 59 18.1	4.675	12	18 40 30.88	2.2989	28 6 8.2	2.033
13	16 53 51.27	2.2076	27 3 54.8	4.547	13	18 42 48.81	2.2987	28 4 1.9	2.178
14	16 56 3.84	2.2114	27 8 23.7	4.418	14	18 45 6.72	2.2984	28 1 46.9	2.322
15	16 58 16.63	2.2151	27 12 44.9	4.288	15	18 47 24.61	2.2979	27 59 23.3	2.466
16	17 0 29.65	2.2188	27 16 58.3	4.158	16	18 49 42.46	2.2973	27 56 51.0	2.611
17	17 2 42.88	2.2224	27 21 3.9	4.028	17	18 52 0.28	2.2967	27 54 10.0	2.756
18	17 4 56.33	2.2259	27 25 1.6	3.896	18	18 54 18.06	2.2960	27 51 20.3	2.900
19	17 7 9.99	2.2293	27 28 51.4	3.763	19	18 56 35.79	2.2951	27 48 22.0	3.044
20	17 9 23.85	2.2327	27 32 33.2	3.630	20	18 58 53.47	2.2941	27 45 15.0	3.188
21	17 11 37.91	2.2359	27 36 7.0	3.497	21	19 1 11.09	2.2931	27 41 59.4	3.332
22	17 13 52.17	2.2391	27 39 32.8	3.363	22	19 3 28.64	2.2920	27 38 35.1	3.476
23	17 16 6.62	2.2424	S. 27° 42' 50.5"	3.228	23	19 5 46.13	2.2909	S. 27° 35' 2.3"	3.619
24	17 18 21.26	2.2456				19 8 3.55	2.2896		
FRIDAY 18.					SUNDAY 20.				
0	17 20 36.09	2.2488	S. 27° 46' 0.2"	3.093	0	19 10 20.88	2.2882	S. 27° 31' 20.9"	3.762
1	17 22 51.09	2.2515	27 49 1.7	2.957	1	19 12 38.13	2.2868	27 27 30.9	3.904
2	17 25 6.27	2.2544	27 51 55.0	2.820	2	19 14 55.29	2.2852	27 23 32.4	4.047
3	17 27 21.62	2.2573	27 54 40.1	2.683	3	19 17 12.36	2.2836	27 19 25.3	4.189
4	17 29 37.13	2.2600	27 57 17.0	2.546	4	19 19 29.33	2.2819	27 15 9.7	4.331
5	17 31 52.81	2.2626	27 59 45.6	2.408	5	19 21 46.19	2.2802	27 10 45.6	4.472
6	17 34 8.64	2.2651	28 2 5.9	2.269	6	19 24 2.95	2.2783	27 6 13.1	4.613
7	17 36 24.62	2.2675	28 4 17.9	2.130	7	19 26 19.59	2.2764	27 1 32.1	4.753
8	17 38 40.74	2.2699	28 6 21.5	1.991	8	19 28 36.11	2.2745	26 56 42.7	4.893
9	17 40 57.00	2.2722	28 8 16.8	1.851	9	19 30 52.52	2.2725	26 51 44.9	5.033
10	17 43 13.40	2.2745	28 10 3.6	1.710	10	19 33 8.80	2.2703	26 46 38.7	5.173
11	17 45 29.93	2.2766	28 11 41.9	1.569	11	19 35 24.95	2.2680	26 41 24.2	5.311
12	17 47 46.58	2.2786	28 13 11.8	1.428	12	19 37 40.96	2.2657	26 36 1.4	5.449
13	17 50 3.35	2.2806	28 14 33.3	1.287	13	19 39 56.83	2.2634	26 30 30.3	5.587
14	17 52 20.24	2.2824	28 15 46.3	1.145	14	19 42 12.56	2.2609	26 24 51.0	5.724
15	17 54 37.23	2.2841	28 16 50.7	1.002	15	19 44 28.14	2.2584	26 19 3.4	5.861
16	17 56 54.32	2.2857	28 17 46.5	0.859	16	19 46 43.57	2.2559	26 13 7.7	5.997
17	17 59 11.51	2.2873	28 18 33.8	0.716	17	19 48 58.84	2.2533	26 7 3.8	6.133
18	18 1 28.79	2.2888	28 19 12.5	0.573	18	19 51 13.96	2.2506	26 0 51.8	6.268
19	18 3 46.15	2.2901	28 19 42.6	0.430	19	19 53 28.91	2.2479	25 54 31.7	6.402
20	18 6 3.60	2.2914	28 20 4.1	0.287	20	19 55 43.70	2.2451	25 48 3.6	6.535
21	18 8 21.12	2.2926	28 20 17.0	-0.143	21	19 57 58.32	2.2421	25 41 27.5	6.668
22	18 10 38.71	2.2937	28 20 21.2	+0.002	22	20 0 12.76	2.2392	25 34 43.4	6.801
23	18 12 56.36	2.2946	28 20 16.8	0.146	23	20 2 27.03	2.2363	25 27 51.4	6.933
24	18 15 14.06	2.2955	S. 28° 20' 3.7"	0.291	24	20 4 41.12	2.2333	S. 25° 20' 51.5"	7.064

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 21.					WEDNESDAY 23.				
0	20 4 41.12	2.2333	S. 25 20 51.5	7.064	0	21 47 58.61	2.0699	S. 17 25 21.3	12.417
1	20 6 55.03	2.2303	25 13 43.7	7.195	1	21 50 2.71	2.0668	17 12 53.6	12.507
2	20 9 8.76	2.2272	25 6 28.1	7.324	2	21 52 6.62	2.0637	17 0 20.5	12.595
3	20 11 22.30	2.2241	24 59 4.8	7.453	3	21 54 10.35	2.0607	16 47 42.2	12.683
4	20 13 35.65	2.2210	24 51 33.7	7.582	4	21 56 13.90	2.0578	16 34 58.6	12.769
5	20 15 48.81	2.2178	24 43 54.9	7.710	5	21 58 17.28	2.0549	16 22 9.9	12.854
6	20 18 1.78	2.2145	24 36 8.5	7.837	6	22 0 20.48	2.0520	16 9 16.1	12.939
7	20 20 14.55	2.2113	24 28 14.5	7.963	7	22 2 23.51	2.0491	15 56 17.3	13.023
8	20 22 27.13	2.2080	24 20 13.0	8.088	8	22 4 26.37	2.0463	15 43 13.4	13.108
9	20 24 39.51	2.2046	24 12 3.9	8.214	9	22 6 29.07	2.0436	15 30 4.6	13.187
10	20 26 51.68	2.2012	24 3 47.3	8.338	10	22 8 31.60	2.0409	15 16 51.0	13.268
11	20 29 3.65	2.1978	23 55 23.3	8.461	11	22 10 33.97	2.0383	15 3 32.5	13.348
12	20 31 15.42	2.1944	23 46 52.0	8.583	12	22 12 36.19	2.0357	14 50 9.3	13.426
13	20 33 26.98	2.1909	23 38 13.3	8.705	13	22 14 38.25	2.0331	14 36 41.4	13.504
14	20 35 38.33	2.1875	23 29 27.4	8.826	14	22 16 40.16	2.0307	14 23 8.8	13.581
15	20 37 49.48	2.1840	23 20 34.2	8.946	15	22 18 41.93	2.0283	14 9 31.7	13.657
16	20 40 0.42	2.1805	23 11 33.9	9.065	16	22 20 43.55	2.0259	13 55 50.0	13.732
17	20 42 11.14	2.1769	23 2 26.4	9.184	17	22 22 45.03	2.0235	13 42 3.9	13.805
18	20 44 21.65	2.1734	22 53 11.8	9.302	18	22 24 46.37	2.0213	13 28 13.4	13.878
19	20 46 31.95	2.1698	22 43 50.2	9.419	19	22 26 47.58	2.0191	13 14 18.6	13.950
20	20 48 42.03	2.1663	22 34 21.6	9.535	20	22 28 48.66	2.0169	13 0 19.4	14.021
21	20 50 51.90	2.1628	22 24 46.0	9.650	21	22 30 49.61	2.0148	12 46 16.0	14.091
22	20 53 1.56	2.1592	22 15 3.6	9.764	22	22 32 50.44	2.0128	12 32 8.5	14.159
23	20 55 11.00	2.1556	S. 22 5 14.3	9.878	23	22 34 51.15	2.0108	S. 12 17 56.9	14.227
TUESDAY 22.					THURSDAY 24.				
0	20 57 20.23	2.1520	S. 21 53 18.3	9.990	0	22 36 51.75	2.0091	S. 12 3 41.2	14.294
1	20 59 29.24	2.1484	21 45 15.5	10.102	1	22 38 52.24	2.0072	11 49 21.6	14.360
2	21 1 38.04	2.1448	21 35 6.1	10.213	2	22 40 52.62	2.0054	11 34 58.0	14.426
3	21 3 46.62	2.1413	21 24 50.1	10.322	3	22 42 52.89	2.0037	11 20 30.5	14.490
4	21 5 54.99	2.1378	21 14 27.5	10.431	4	22 44 53.07	2.0022	11 5 59.2	14.553
5	21 8 3.15	2.1342	21 3 58.4	10.539	5	22 46 53.15	2.0006	10 51 24.2	14.614
6	21 10 11.09	2.1306	20 53 22.8	10.647	6	22 48 53.14	1.9991	10 36 45.5	14.675
7	21 12 18.82	2.1271	20 42 40.8	10.753	7	22 50 53.05	1.9977	10 22 3.2	14.735
8	21 14 26.34	2.1235	20 31 52.5	10.858	8	22 52 52.87	1.9963	10 7 17.3	14.794
9	21 16 33.64	2.1199	20 20 57.9	10.962	9	22 54 52.61	1.9951	9 52 27.9	14.852
10	21 18 40.73	2.1164	20 9 57.1	11.065	10	22 56 52.28	1.9939	9 37 35.0	14.909
11	21 20 47.61	2.1130	19 58 50.1	11.168	11	22 58 51.88	1.9928	9 22 38.8	14.964
12	21 22 54.29	2.1096	19 47 36.9	11.270	12	23 0 51.41	1.9917	9 7 39.3	15.019
13	21 25 0.76	2.1061	19 36 17.7	11.371	13	23 2 50.88	1.9906	8 52 36.5	15.073
14	21 27 7.02	2.1026	19 24 52.4	11.471	14	23 4 50.30	1.9899	8 37 30.5	15.126
15	21 29 13.07	2.0992	19 13 21.2	11.569	15	23 6 49.67	1.9891	8 22 21.3	15.178
16	21 31 18.92	2.0959	19 1 44.1	11.667	16	23 8 48.94	1.9884	8 7 9.1	15.228
17	21 33 24.57	2.0925	18 50 1.1	11.764	17	23 10 48.27	1.9878	7 51 53.9	15.278
18	21 35 30.02	2.0892	18 38 12.4	11.860	18	23 12 47.52	1.9872	7 36 35.7	15.327
19	21 37 35.27	2.0859	18 26 17.9	11.956	19	23 14 46.73	1.9866	7 21 14.6	15.375
20	21 39 40.32	2.0826	18 14 17.7	12.050	20	23 16 45.91	1.9862	7 5 50.7	15.422
21	21 41 45.18	2.0794	18 2 11.9	12.143	21	23 18 45.07	1.9858	6 50 21.0	15.467
22	21 43 49.85	2.0762	17 50 0.5	12.236	22	23 20 44.21	1.9856	6 34 54.7	15.511
23	21 45 54.33	2.0730	17 37 43.6	12.327	23	23 22 43.34	1.9854	6 19 22.7	15.555
24	21 47 58.61	2.0699	S. 17 25 21.3	12.417	24	23 24 42.46	1.9853	S. 6 3 48.1	15.597

GREENWICH MEAN TIME.

• THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 25.					SUNDAY 27.				
0	23 24 42.46	1.9853	S. 6 3 48.1	15.597	0	1 1 35.15	2.0874	N. 6 52 3.3	16.354
1	23 26 41.58	1.9853	5 48 11.0	15.638	1	1 3 40.53	2.0919	7 8 18.0	16.235
2	23 28 40.70	1.9853	5 32 31.5	15.678	2	1 5 46.18	2.0964	7 24 31.5	16.215
3	23 30 39.82	1.9855	5 16 49.6	15.718	3	1 7 52.10	2.1011	7 40 43.8	16.193
4	23 32 38.96	1.9858	5 1 5.4	15.756	4	1 9 58.31	2.1059	7 56 54.7	16.170
5	23 34 38.12	1.9861	4 45 18.9	15.793	5	1 12 4.81	2.1108	8 13 4.2	16.145
6	23 36 37.29	1.9865	4 29 30.2	15.829	6	1 14 11.60	2.1157	8 29 12.1	16.118
7	23 38 36.40	1.9870	4 13 39.4	15.864	7	1 16 18.69	2.1208	8 45 18.4	16.091
8	23 40 35.73	1.9876	3 57 46.5	15.898	8	1 18 26.09	2.1259	9 1 23.0	16.061
9	23 42 35.00	1.9882	3 41 51.7	15.930	9	1 20 33.80	2.1312	9 17 25.7	16.029
10	23 44 34.31	1.9890	3 25 54.9	15.962	10	1 22 41.83	2.1368	9 33 26.5	15.997
11	23 46 33.68	1.9899	3 9 56.3	15.992	11	1 24 50.19	2.1420	9 49 25.3	15.962
12	23 48 33.10	1.9908	2 53 55.9	16.021	12	1 26 58.87	2.1475	10 5 21.9	15.925
13	23 50 32.58	1.9918	2 37 53.8	16.049	13	1 29 7.89	2.1531	10 21 16.3	15.887
14	23 52 32.12	1.9929	2 21 50.0	16.077	14	1 31 17.25	2.1588	10 37 8.4	15.848
15	23 54 31.73	1.9942	2 5 44.6	16.103	15	1 33 26.95	2.1647	10 52 58.1	15.807
16	23 56 31.42	1.9955	1 49 37.7	16.127	16	1 35 37.01	2.1706	11 8 45.2	15.764
17	23 58 31.19	1.9969	1 33 29.4	16.150	17	1 37 47.42	2.1765	11 24 29.7	15.719
18	0 0 31.05	1.9984	1 17 19.7	16.173	18	1 39 58.19	2.1826	11 40 11.5	15.673
19	0 2 31.00	1.9990	1 1 8.7	16.194	19	1 42 9.33	2.1888	11 55 50.4	15.624
20	0 4 31.04	2.0016	0 44 56.4	16.214	20	1 44 20.85	2.1951	12 11 26.4	15.574
21	0 6 31.19	2.0034	0 28 43.0	16.233	21	1 46 32.75	2.2015	12 26 59.3	15.522
22	0 8 31.45	2.0053	S. 0 12 28.5	16.250	22	1 48 45.03	2.2079	12 42 29.0	15.468
23	0 10 31.82	2.0073	N. 0 3 47.0	16.267	23	1 50 57.70	2.2144	N.12 57 55.4	15.413
SATURDAY 26.					MONDAY 28.				
0	0 12 32.31	2.0093	N. 0 20 3.5	16.282	0	1 53 10.76	2.2210	N.13 13 18.5	15.356
1	0 14 32.93	2.0114	0 36 20.8	16.296	1	1 55 24.22	2.2277	13 28 38.1	15.297
2	0 16 33.68	2.0136	0 52 39.0	16.309	2	1 57 38.09	2.2345	13 43 54.1	15.235
3	0 18 34.56	2.0159	1 8 57.9	16.320	3	1 59 52.36	2.2413	13 59 6.3	15.172
4	0 20 35.59	2.0184	1 25 17.4	16.330	4	2 2 7.05	2.2483	14 14 14.7	15.107
5	0 22 36.77	2.0209	1 41 37.5	16.339	5	2 4 22.16	2.2553	14 29 19.1	15.040
6	0 24 38.10	2.0236	1 57 58.1	16.347	6	2 6 37.69	2.2624	14 44 19.5	14.972
7	0 26 39.60	2.0263	2 14 19.1	16.353	7	2 8 53.65	2.2696	14 59 15.7	14.901
8	0 28 41.26	2.0291	2 30 40.5	16.358	8	2 11 10.04	2.2768	15 14 7.6	14.828
9	0 30 43.09	2.0320	2 47 2.1	16.362	9	2 13 26.87	2.2841	15 28 55.0	14.753
10	0 32 45.10	2.0350	3 3 23.9	16.364	10	2 15 44.14	2.2915	15 43 37.9	14.676
11	0 34 47.29	2.0381	3 19 45.8	16.366	11	2 18 1.85	2.2989	15 58 16.1	14.597
12	0 36 49.67	2.0413	3 36 7.8	16.366	12	2 20 20.01	2.3065	16 12 49.6	14.517
13	0 38 52.25	2.0446	3 52 29.7	16.364	13	2 22 38.63	2.3141	16 27 18.2	14.434
14	0 40 55.03	2.0480	4 8 51.5	16.361	14	2 24 57.70	2.3217	16 41 41.7	14.349
15	0 42 58.01	2.0515	4 25 13.0	16.356	15	2 27 17.23	2.3294	16 56 0.0	14.262
16	0 45 1.21	2.0551	4 41 34.2	16.351	16	2 29 37.23	2.3372	17 10 13.1	14.173
17	0 47 4.62	2.0588	4 57 55.1	16.344	17	2 31 57.70	2.3450	17 24 20.8	14.082
18	0 49 8.26	2.0626	5 14 15.5	16.336	18	2 34 18.63	2.3528	17 38 23.0	13.989
19	0 51 12.13	2.0665	5 30 35.4	16.326	19	2 36 40.04	2.3608	17 52 19.5	13.894
20	0 53 16.24	2.0705	5 46 54.6	16.314	20	2 39 1.93	2.3688	18 6 10.2	13.797
21	0 55 20.59	2.0746	6 3 13.1	16.301	21	2 41 24.29	2.3768	18 19 55.1	13.698
22	0 57 25.19	2.0788	6 19 30.7	16.287	22	2 43 47.14	2.3848	18 33 33.9	13.596
23	0 59 30.04	2.0830	6 35 47.5	16.271	23	2 46 10.47	2.3929	18 47 6.6	13.493
24	1 1 35.15	2.0874	N. 6 52 3.3	16.254	24	2 48 34.29	2.4011	N.19 0 33.0	13.387

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 29.					WEDNESDAY 30.				
0	2 48 34.29	2.4011	N.19 0 33.0	13.387	0	3 48 34.52	2.5983	N.23 45 59.9	10.192
1	2 50 58.60	2.4092	19 13 53.0	13.978	1	3 51 10.66	2.6062	23 56 6.6	10.032
2	2 53 23.40	2.4174	19 27 6.4	13.168	2	3 53 47.26	2.6139	24 6 3.7	9.870
3	2 55 48.60	2.4257	19 40 13.1	13.055	3	3 56 24.33	2.6216	24 15 51.0	9.706
4	2 58 14.48	2.4339	19 53 13.0	12.941	4	3 59 1.86	2.6293	24 25 28.4	9.539
5	3 0 40.76	2.4422	20 6 6.0	12.824	5	4 1 39.85	2.6369	24 34 55.7	9.371
6	3 3 7.54	2.4505	20 18 51.9	12.705	6	4 4 18.29	2.6443	24 44 12.9	9.201
7	3 5 34.82	2.4588	20 31 30.6	12.584	7	4 6 57.17	2.6517	24 53 19.8	9.038
8	3 8 2.60	2.4671	20 44 2.0	12.461	8	4 9 36.50	2.6591	25 2 16.3	8.855
9	3 10 30.87	2.4754	20 56 25.9	12.335	9	4 12 16.26	2.6663	25 11 2.4	8.680
10	3 12 59.65	2.4837	21 8 42.2	12.208	10	4 14 56.45	2.6733	25 19 37.9	8.502
11	3 15 28.92	2.4920	21 20 50.8	12.078	11	4 17 37.06	2.6803	25 28 2.6	8.321
12	3 17 58.60	2.5003	21 32 51.5	11.945	12	4 20 18.09	2.6872	25 36 16.4	8.139
13	3 20 28.96	2.5087	21 44 44.3	11.811	13	4 22 59.53	2.6939	25 44 19.3	7.956
14	3 22 59.73	2.5170	21 56 28.9	11.675	14	4 25 41.36	2.7004	25 52 11.1	7.771
15	3 25 31.00	2.5253	22 8 5.3	11.537	15	4 28 23.58	2.7069	25 59 51.8	7.584
16	3 28 2.77	2.5336	22 19 33.3	11.396	16	4 31 6.19	2.7132	26 7 21.2	7.396
17	3 30 35.03	2.5418	22 30 52.8	11.253	17	4 33 49.17	2.7193	26 14 39.3	7.206
18	3 33 7.78	2.5499	22 42 3.6	11.108	18	4 36 32.51	2.7253	26 21 45.9	7.014
19	3 35 41.02	2.5581	22 53 5.7	10.961	19	4 39 16.21	2.7312	26 28 40.9	6.820
20	3 38 14.75	2.5663	23 3 58.9	10.811	20	4 42 0.26	2.7370	26 35 24.3	6.625
21	3 40 48.97	2.5744	23 14 43.0	10.659	21	4 44 44.65	2.7426	26 41 55.9	6.429
22	3 43 23.68	2.5824	23 25 17.9	10.505	22	4 47 29.37	2.7479	26 48 15.7	6.231
23	3 45 58.86	2.5903	23 35 43.6	10.350	23	4 50 14.40	2.7531	26 54 23.6	6.031
24	3 48 34.52	2.5983	N.23 45 59.9	10.192	24	4 52 59.74	2.7582	N.27 0 19.4	5.830

PHASES OF THE MOON.

● New Moon,	d	h	m
☽ First Quarter,	10	7	55.4
○ Full Moon,	18	11	55.9
☾ Last Quarter,	26	2	39.6

☾ Perigee,	d	h
☾ Apogee,	15	12.1

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
1	Saturn W.	70 4 44	2069	71 56 42	2059	73 48 55	2043	75 41 22	2034
	Fomalhaut W.	66 33 28	2298	68 19 30	2283	70 5 55	2268	71 52 42	2255
	α Pegasi W.	46 49 26	2264	48 26 54	2251	50 5 21	2231	51 44 42	2245
	Sun E.	34 28 45	2322	32 44 44	2375	31 0 33	2370	29 16 15	2367
5	SUN W.	22 39 50	2469	24 21 47	2475	26 3 36	2489	27 45 14	2491
	Regulus E.	51 43 2	2114	49 52 24	2128	48 2 7	2142	46 12 12	2157
	Jupiter E.	105 20 13	2094	103 29 4	2106	101 38 14	2120	99 47 45	2134
6	SUN W.	36 9 48	2553	37 49 48	2569	39 29 26	2585	41 8 42	2601
	Regulus E.	37 8 31	2240	35 21 3	2259	33 34 3	2278	31 47 31	2296
	Jupiter E.	90 40 55	2212	88 52 45	2226	87 4 59	2245	85 17 38	2269
	Spica E.	91 5 51	2291	89 17 55	2238	87 30 24	2255	85 43 18	2273
7	SUN W.	49 19 10	2691	50 56 2	2710	52 32 29	2729	54 8 31	2748
	Jupiter E.	76 27 24	2353	74 42 41	2371	72 58 25	2389	71 14 35	2408
	Spica E.	76 54 14	2362	75 9 44	2380	73 25 41	2398	71 42 4	2417
8	SUN W.	62 2 15	2846	63 35 43	2866	65 8 46	2885	66 41 24	2904
	Pollux W.	27 40 58	2517	29 21 48	2534	31 2 14	2552	32 42 15	2570
	Jupiter E.	62 42 8	2502	61 0 58	2521	59 20 14	2540	57 39 56	2558
	Spica E.	63 10 39	2511	61 29 41	2529	59 49 8	2548	58 9 1	2566
9	SUN W.	74 18 29	2909	75 48 43	2918	77 18 33	2936	78 48 1	2954
	Pollux W.	40 56 15	2657	42 33 52	2674	44 11 7	2691	45 47 59	2707
	Jupiter E.	49 24 43	2649	47 46 54	2666	46 9 29	2684	44 32 27	2700
	Spica E.	49 54 42	2656	48 17 3	2673	46 39 47	2690	45 2 54	2707
	Antares E.	95 48 4	2654	94 10 22	2671	92 33 3	2687	90 56 6	2704
10	SUN W.	86 9 58	3139	87 37 20	3155	89 4 23	3171	90 31 7	3187
	Pollux W.	53 46 57	2786	55 21 43	2801	56 56 10	2815	58 30 19	2829
	Jupiter E.	36 32 50	2782	34 57 58	2798	33 23 27	2813	31 49 16	2826
	Spica E.	37 3 57	2787	35 29 12	2803	33 54 47	2818	32 20 42	2831
	Antares E.	82 56 50	2784	81 22 1	2798	79 47 31	2812	78 13 19	2827
11	SUN W.	97 40 20	3258	99 5 21	3270	100 30 7	3282	101 54 39	3295
	Pollux W.	66 16 38	2894	67 49 5	2905	69 21 17	2917	70 53 14	2928
	Regulus W.	29 42 11	2930	31 14 5	2929	32 45 47	2939	34 17 17	2947
	Antares E.	70 26 47	2922	68 54 18	2904	67 22 4	2915	65 50 4	2926
	Mars E.	93 28 1	2900	91 53 33	2811	90 19 19	2822	88 45 20	2833
12	SUN W.	108 53 54	3351	110 17 7	3359	111 40 10	3368	113 3 3	3377
	Pollux W.	78 29 42	2977	80 0 24	2985	81 30 55	2993	83 1 16	3001
	Regulus W.	41 51 59	2991	43 22 23	2996	44 52 38	3005	46 22 44	3013
	Antares E.	58 13 25	2976	56 42 42	2984	55 12 9	2992	53 41 46	3000
	Mars E.	80 58 38	2879	79 25 52	2887	77 53 16	2894	76 20 50	2902
13	SUN W.	119 55 4	3415	121 17 3	3422	122 38 55	3428	124 0 40	3434
	Pollux W.	90 30 46	3034	92 0 16	3039	93 29 40	3044	94 58 58	3049
	Regulus W.	53 51 10	3043	55 20 30	3048	56 49 43	3053	58 18 51	3056
	Antares E.	46 12 7	3032	44 42 34	3038	43 13 8	3043	41 43 49	3048
	Mars E.	68 40 50	2923	67 9 12	2936	65 37 41	2942	64 6 15	2946
	α Aquilæ E.	97 20 4	3871	96 6 15	3872	94 52 27	3873	93 38 40	3874
14	SUN W.	130 47 55	3456	132 9 8	3461	133 30 16	3465	134 51 19	3469

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Dif.	XVh.	P. L. of Dif.	XVIIIh.	P. L. of Dif.	XXIh.	P. L. of Dif.
1	Saturn W.	77° 34' 3"	2036	79° 26' 56"	2019	81° 20' 0"	2013	83° 13' 14"	2008
	Fomalhaut W.	73 39 48	2243	75 27 12	2232	77 14 52	2223	79 2 46	2214
	α Pegasi W.	53 24 53	2512	55 5 49	2483	56 47 26	2457	58 29 40	2433
	Sun E.	27 31 53	2366	25 47 29	2367	24 3 7	2370	22 18 49	2375
5	Sun W.	29 26 40	2501	31 7 52	2512	32 48 49	2525	34 29 28	2538
	Regulus E.	44 22 39	2172	42 33 30	2188	40 44 45	2205	38 56 25	2222
	Jupiter E.	97 57 37	2148	96 7 51	2163	94 18 28	2179	92 29 29	2196
6	Sun W.	42 47 35	2618	44 26 5	2636	46 4 11	2654	47 41 53	2672
	Regulus E.	30 1 28	2318	28 15 55	2340	26 30 54	2362	24 46 25	2385
	Jupiter E.	83 30 43	2280	81 44 14	2298	79 58 11	2315	78 12 34	2334
	Spica E.	83 56 37	2289	82 10 22	2307	80 24 33	2325	78 39 10	2344
7	Sun W.	55 44 7	2768	57 19 17	2787	58.54 2	2807	60 28 21	2826
	Jupiter E.	69 31 12	2487	67 48 16	2446	66 5 47	2465	64 23 44	2484
	Spica E.	69 58 54	2486	68 16 11	2455	66 33 54	2473	64 52 3	2492
8	Sun W.	68 13 38	2924	69 45 27	2943	71 16 51	2962	72 47 52	2981
	Pollux W.	34 21 51	2588	36 1 3	2605	37 39 51	2623	39 18 15	2640
	Jupiter E.	56 0 3	2576	54 20 35	2595	52 41 33	2613	51 2 56	2631
	Spica E.	56 29 20	2585	54 50 4	2602	53 11 12	2621	51 32 45	2638
9	Sun W.	80 17 7	2972	81 45 51	2989	83 14 14	3106	84 42 16	3122
	Pollux W.	47 24 29	2722	49 0 38	2740	50 36 25	2756	52 11 51	2771
	Jupiter E.	42 55 47	2717	41 19 30	2734	39 43 35	2750	38 8 2	2766
	Spica E.	43 26 23	2724	41 50 15	2740	40 14 28	2756	38 39 2	2772
	Antares E.	89 19 32	2721	87 43 20	2737	86 7 29	2753	84 31 59	2769
10	Sun W.	91 57 32	2929	93 23 39	2916	94 49 29	2920	96 15 3	2944
	Pollux W.	60 4 9	2843	61 37 41	2856	63 10 56	2869	64 43 55	2881
	Jupiter E.	30 15 24	2842	28 41 51	2857	27 8 37	2872	25 35 42	2887
	Spica E.	30 46 55	2846	29 13 27	2860	27 40 17	2873	26 7 24	2887
	Antares E.	76 39 26	2841	75 5 51	2854	73 32 33	2867	71 59 32	2880
11	Sun W.	103 18 56	3206	104 43 0	3218	106 6 51	3229	107 30 29	3240
	Pollux W.	72 24 57	2929	73 56 27	2949	75 27 44	2958	76 58 49	2968
	Regulus W.	35 48 36	2956	37 19 44	2965	38 50 40	2974	40 21 25	2983
	Antares E.	64 18 18	2937	62 46 46	2947	61 15 27	2957	59 44 20	2966
	Mars E.	87 11 35	2943	85 38 3	2952	84 4 43	2962	82 31 35	2970
12	Sun W.	114 25 46	3286	115 48 19	3294	117 10 42	3401	118 32 57	3408
	Pollux W.	84 31 27	3069	86 1 29	3015	87 31 23	3022	89 1 9	3029
	Regulus W.	47 52 41	3019	49 22 30	3026	50 52 11	3032	52 21 44	3038
	Antares E.	52 11 33	3007	50 41 22	3014	49 11 34	3021	47 41 47	3028
	Mars E.	74 48 34	2999	73 16 27	2915	71 44 27	2921	70 12 35	2927
13	Sun W.	125 22 18	3420	126 43 50	3444	128 5 17	3449	129 26 38	3453
	Pollux W.	96 28 10	3053	97 57 17	3057	99 26 19	3060	100 55 17	3064
	Regulus W.	59 47 54	3060	61 16 52	3065	62 45 45	3068	64 14 34	3070
	Antares E.	40 14 36	3052	38 45 28	3056	37 16 24	3059	35 47 24	3062
	Mars E.	62 34 54	2950	61 3 38	2954	59 32 27	2957	58 1 20	2959
	α Aquilæ E.	92 24 54	2876	91 11 10	2880	89 57 30	2884	88 43 54	2888
14	Sun W.	136 12 18	3471	137 33 14	3474	138 54 7	3477	140 14 57	3479

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
14	Regulus W.	65° 43' 20"	3073	67° 12' 3"	3075	68° 40' 43"	3078	70° 9' 20"	3078
	Antares E.	34 18 28	3065	32 49 36	3068	31 20 47	3069	29 52 0	3071
	Mars E.	56 30 16	2962	54 59 15	2964	53 28 17	2965	51 57 21	2967
	α Aquilæ E.	87 30 22	3092	86 16 54	3097	85 3 31	3093	83 50 14	3010
15	Regulus W.	77 32 8	3082	79 0 40	3082	80 29 12	3081	81 57 45	3081
	Jupiter W.	24 7 58	3065	25 36 26	3063	27 4 56	3063	28 33 27	3061
	Spica W.	23 28 37	3082	24 57 8	3082	26 25 40	3081	27 54 13	3079
	Mars E.	44 23 1	2970	42 52 11	2969	41 21 20	2969	39 50 28	2968
	α Aquilæ E.	77 45 40	3051	76 33 12	3061	75 20 54	3073	74 8 48	3086
	Saturn E.	100 21 29	3073	98 52 47	3073	97 24 5	3073	95 55 22	3073
16	Regulus W.	89 20 47	3073	90 49 30	3071	92 18 15	3069	93 47 3	3085
	Jupiter W.	35 56 36	3070	37 25 22	3068	38 54 11	3065	40 23 3	3069
	Spica W.	35 17 29	3070	36 46 15	3068	38 15 4	3065	39 43 57	3061
	α Aquilæ E.	68 11 46	4088	67 1 11	4085	65 50 55	4108	64 41 1	4131
	Saturn E.	88 31 27	3064	87 2 33	3062	85 33 37	3060	84 4 38	3056
	Fomalhaut E.	93 8 41	3275	91 44 0	3273	90 19 17	3270	88 54 31	3269
	17	Jupiter W.	47 48 21	3046	49 17 37	3042	50 46 58	3038	52 16 24	3033
Spica W.		47 9 19	3045	48 38 36	3041	50 7 58	3037	51 37 25	3032
α Aquilæ E.		58 57 43	4280	57 50 32	4318	56 43 56	4359	55 37 58	4404
Saturn E.		76 38 46	3040	75 9 23	3036	73 39 55	3033	72 10 23	3028
Fomalhaut E.		81 50 2	3258	80 25 1	3255	78 59 57	3253	77 34 51	3253
α Pegasi E.		103 6 8	3366	101 43 13	3358	100 20 9	3351	98 56 57	3345
18	Jupiter W.	59 44 58	3010	61 14 58	3005	62 45 5	3000	64 15 18	2995
	Spica W.	59 6 5	3009	60 36 7	3004	62 6 15	2996	63 36 30	2993
	Saturn E.	64 41 18	3005	63 11 12	3000	61 40 59	2995	60 10 40	2989
	Fomalhaut E.	70 29 0	3247	69 3 47	3247	67 38 33	3247	66 13 20	3246
	α Pegasi E.	91 59 8	3314	90 35 13	3309	89 11 12	3304	87 47 5	3300
19	Jupiter W.	71 48 4	2966	73 18 59	2960	74 50 2	2954	76 21 12	2948
	Spica W.	71 9 29	2964	72 40 27	2958	74 11 32	2952	75 42 45	2946
	Antares W.	25 15 3	2964	26 46 1	2958	28 17 7	2951	29 48 21	2945
	Saturn E.	52 37 23	2962	51 6 22	2956	49 35 14	2950	48 3 58	2944
	Fomalhaut E.	59 7 36	3259	57 42 36	3263	56 17 41	3267	54 52 51	3273
	α Pegasi E.	80 45 14	3280	79 20 39	3276	77 56 0	3275	76 31 19	3272
20	Jupiter W.	83 59 4	2915	85 31 4	2909	87 3 12	2901	88 35 29	2894
	Spica W.	83 20 54	2912	84 52 57	2905	86 25 10	2898	87 57 32	2891
	Antares W.	37 26 34	2911	38 58 39	2905	40 30 52	2907	42 3 15	2890
	Saturn E.	40 25 44	2912	38 53 41	2906	37 21 30	2900	35 49 11	2894
	Fomalhaut E.	47 50 52	3221	46 27 5	3235	45 3 34	3259	43 40 23	3272
	α Pegasi E.	69 27 22	3267	68 2 32	3288	66 37 43	3270	65 12 56	3271
21	Jupiter W.	96 19 14	2857	97 52 28	2849	99 25 52	2842	100 59 26	2833
	Antares W.	49 47 31	2852	51 20 51	2844	52 54 22	2835	54 28 4	2828
	Mars W.	29 43 13	2747	31 18 51	2738	32 54 40	2730	34 30 40	2722
	Fomalhaut E.	36 51 12	3222	35 31 12	3268	34 12 3	3221	32 53 51	3229
	α Pegasi E.	58 9 56	2895	56 45 39	2904	55 21 32	2913	53 57 36	2924
	α Arietis E.	98 37 9	2895	97 4 44	2887	95 32 9	2879	93 59 23	2871
22	Antares W.	62 19 14	2785	63 54 2	2775	65 29 2	2767	67 4 13	2757
	Mars W.	42 33 23	2681	44 10 30	2671	45 47 49	2662	47 25 20	2653

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
14	Regulus W.	71° 37' 56"	3079	73° 6' 31"	3081	74° 35' 4"	3082	76° 3' 36"	3082
	Antares E.	28 23 15	3073	26 54 32	3074	25 25 51	3075	23 57 11	3076
	Mars E.	50 26 27	2968	48 55 34	2969	47 24 42	2969	45 53 51	2970
	α Aquilæ E.	82 37 4	3917	81 24 1	3923	80 11 5	3932	78 58 18	3941
15	Regulus W.	83 26 18	3080	84 54 52	3078	86 23 28	3077	87 52 6	3074
	Jupiter W.	30 2 0	3079	31 30 35	3077	32 59 13	3075	34 27 53	3073
	Spica W.	29 22 48	3078	30 51 25	3076	32 20 4	3074	33 48 45	3072
	Mars E.	38 19 35	2967	36 48 41	2965	35 17 45	2965	33 46 48	2962
	α Aquilæ E.	72 56 55	4000	71 45 15	4014	70 33 49	4030	69 22 39	4047
	Saturn E.	94 26 38	3071	92 57 53	3069	91 29 6	3069	90 0 18	3066
16	Regulus W.	95 15 55	3062	96 44 51	3060	98 13 50	3056	99 42 53	3053
	Jupiter W.	41 51 59	3059	43 20 59	3056	44 50 2	3053	46 19 9	3049
	Spica W.	41 12 54	3059	42 41 54	3056	44 10 58	3052	45 40 6	3048
	α Aquilæ E.	63 31 29	4156	62 22 21	4183	61 13 39	4214	60 5 26	4246
	Saturn E.	82 35 35	3054	81 6 29	3051	79 37 19	3047	78 8 5	3043
	Fomalhaut E.	87 29 43	3266	86 4 52	3264	84 39 58	3261	83 15 1	3259
17	Jupiter W.	53 45 56	3029	55 15 33	3024	56 45 16	3020	58 15 4	3015
	Spica W.	53 6 58	3027	54 36 37	3023	56 6 21	3019	57 36 10	3014
	α Aquilæ E.	54 32 40	4452	53 28 5	4505	52 24 17	4562	51 21 19	4624
	Saturn E.	70 40 45	3024	69 11 2	3019	67 41 13	3014	66 11 18	3010
	Fomalhaut E.	76 9 44	3251	74 44 35	3249	73 19 24	3248	71 54 12	3248
	α Pegasi E.	97 33 38	3338	96 10 11	3332	94 46 37	3326	93 22 56	3320
18	Jupiter W.	65 45 37	2989	67 16 3	2984	68 46 36	2978	70 17 16	2972
	Spica W.	65 6 52	2988	66 37 20	2982	68 7 55	2976	69 38 38	2969
	Saturn E.	58 40 14	2985	57 9 42	2979	55 39 3	2973	54 8 17	2967
	Fomalhaut E.	64 48 8	3249	63 22 57	3250	61 57 47	3253	60 32 40	3255
	α Pegasi E.	86 22 53	3294	84 58 35	3290	83 34 12	3287	82 9 45	3283
19	Jupiter W.	77 52 30	2942	79 23 56	2935	80 55 30	2928	82 27 13	2922
	Spica W.	77 14 6	2939	78 45 36	2932	80 17 14	2926	81 49 0	2920
	Antares W.	31 19 43	2939	32 51 13	2932	34 22 51	2925	35 54 38	2918
	Saturn E.	46 32 35	2938	45 1 4	2931	43 29 25	2925	41 57 38	2920
	Fomalhaut E.	53 28 8	3280	52 3 33	3288	50 39 8	3298	49 14 54	3308
	α Pegasi E.	75 6 35	3270	73 41 49	3269	72 17 1	3268	70 52 12	3267
20	Jupiter W.	90 7 55	2887	91 40 30	2880	93 13 15	2872	94 46 10	2865
	Spica W.	89 30 3	2883	91 2 43	2876	92 35 33	2868	94 8 33	2861
	Antares W.	43 35 47	2882	45 8 29	2875	46 41 20	2867	48 14 21	2860
	Saturn E.	34 16 44	2887	32 44 9	2880	31 11 25	2874	29 38 33	2869
	Fomalhaut E.	42 17 34	3393	40 55 10	3430	39 33 16	3449	38 11 55	3483
	α Pegasi E.	63 48 11	3275	62 23 30	3278	60 58 53	3282	59 34 21	3288
21	Jupiter W.	102 33 11	2825	104 7 6	2817	105 41 12	2808	107 15 29	2800
	Antares W.	56 1 56	2819	57 35 59	2811	59 10 13	2802	60 44 38	2794
	Mars W.	36 6 50	2714	37 43 11	2705	39 19 44	2697	40 56 28	2689
	Fomalhaut E.	31 36 45	3754	30 20 55	3838	29 6 32	3937	27 53 50	4054
	α Pegasi E.	52 33 52	3337	51 10 23	3352	49 47 12	3369	48 24 20	3389
	α Arietis E.	92 26 27	2892	90 53 20	2854	89 20 2	2845	87 46 33	2836
22	Antares W.	68 39 37	2747	70 15 14	2738	71 51 3	2729	73 27 4	2719
	Mars W.	49 3 3	2643	50 40 59	2635	52 19 7	2625	53 57 28	2615

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
22	α Pegasi E.	47 1 51	3412	45 39 48	3438	44 18 14	3466	42 57 12	3500
	α Arietis E.	86 12 52	2828	84 39 0	2819	83 4 57	2811	81 30 43	2801
	SUN E.	139 49 47	3163	138 22 53	3151	136 55 45	3139	135 28 23	3129
23	Antares W.	75 3 18	2709	76 39 46	2696	78 16 28	2686	79 53 24	2678
	Mars W.	55 36 3	2605	57 14 51	2596	58 53 52	2586	60 33 7	2575
	α Arietis E.	73 36 34	2756	72 1 8	2747	70 25 30	2737	68 49 39	2726
	Venus E.	103 37 7	3157	102 10 6	3145	100 42 51	3134	99 15 23	3123
	SUN E.	128 8 3	3069	126 39 16	3057	125 10 14	3045	123 40 57	3034
24	Antares W.	88 1 36	2634	89 39 59	2619	91 18 38	2601	92 57 32	2589
	Mars W.	68 52 57	2522	70 33 40	2511	72 14 38	2499	73 55 52	2489
	α Aquilæ W.	47 28 46	4456	48 33 17	4351	49 39 23	4254	50 46 58	4165
	α Arietis E.	60 47 18	2681	59 10 12	2672	57 32 54	2662	55 55 23	2653
	Venus E.	91 54 28	3063	90 25 33	3050	88 56 22	3038	87 26 56	3025
	SUN E.	116 10 49	2973	114 40 1	2959	113 8 57	2946	111 37 37	2934
25	Mars W.	82 26 1	2430	84 8 53	2418	85 52 2	2406	87 35 26	2394
	α Aquilæ W.	53 44 29	3804	57 59 27	3746	59 15 26	3690	60 32 24	3638
	Saturn W.	23 43 1	2542	25 23 16	2527	27 3 51	2512	28 44 46	2498
	α Arietis E.	47 44 47	2610	46 6 5	2602	44 27 13	2595	42 48 11	2586
	Venus E.	79 55 46	2960	78 24 43	2946	76 53 23	2933	75 21 46	2920
	SUN E.	103 56 50	2868	102 23 50	2854	100 50 32	2841	99 16 57	2827
26	Mars W.	96 17 3	2232	98 2 16	2220	99 47 47	2207	101 33 36	2194
	α Aquilæ W.	67 10 12	3422	68 32 4	3385	69 54 38	3351	71 17 51	3319
	Saturn W.	37 14 23	2428	38 57 18	2415	40 40 32	2401	42 24 5	2387
	Fomalhaut W.	36 16 10	3069	37 44 57	3009	39 14 59	2954	40 46 10	2903
	Venus E.	67 39 25	2852	66 6 5	2838	64 32 27	2825	62 58 31	2811
	SUN E.	91 24 34	2758	89 49 11	2744	88 13 30	2731	86 37 31	2716
27	α Aquilæ W.	78 22 37	3183	79 49 6	3161	81 16 2	3141	82 43 22	3121
	Saturn W.	51 6 42	2321	52 52 11	2308	54 37 59	2295	56 24 6	2282
	Fomalhaut W.	48 36 35	2706	50 13 7	2674	51 50 22	2643	53 28 18	2615
	α Pegasi W.	31 8 30	3717	32 24 59	3670	33 44 6	3447	35 5 29	3337
	Venus E.	55 4 32	2746	53 28 53	2733	51 52 57	2721	50 16 45	2708
	SUN E.	78 32 59	2649	76 55 10	2635	75 17 2	2622	73 38 37	2609
28	α Aquilæ W.	90 5 19	3048	91 34 32	3036	93 3 58	3030	94 33 34	3022
	Saturn W.	65 19 19	2221	67 7 15	2209	68 55 29	2196	70 44 0	2187
	Fomalhaut W.	61 46 46	2499	63 28 1	2479	65 9 44	2460	66 51 54	2442
	α Pegasi W.	42 20 13	2942	43 51 38	2885	45 24 16	2834	46 58 0	2787
	Venus E.	42 11 48	2653	40 34 5	2644	38 56 10	2635	37 18 3	2627
	SUN E.	65 22 7	2545	63 41 57	2535	62 1 32	2524	60 20 52	2513
29	Saturn W.	79 50 33	2137	81 40 36	2126	83 30 52	2119	85 21 22	2111
	Fomalhaut W.	75 28 31	2368	77 12 51	2356	78 57 29	2345	80 42 23	2335
	α Pegasi W.	55 0 31	2804	56 39 20	2777	58 18 47	2751	59 58 49	2737
	SUN E.	51 53 53	2465	50 11 50	2457	48 29 36	2449	46 47 11	2443
30	Saturn W.	94 36 41	2078	96 28 14	2073	98 19 54	2069	100 11 41	2065
	Fomalhaut W.	89 30 10	2296	91 16 13	2293	93 2 23	2289	94 48 39	2286
	α Pegasi W.	68 26 21	2437	70 9 3	2424	71 52 3	2412	73 35 20	2402
	α Arietis W.	24 52 22	2321	26 37 51	2309	28 24 7	2291	30 11 4	2277
	SUN E.	38 13 4	2121	36 29 59	2119	34 46 51	2119	33 3 43	2119

GREENWICH MEAN TIME

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
22	α Pegasi E.	41° 36' 48"	3539	40° 17' 7"	3584	38° 58' 15"	3635	37° 40' 18"	3693
	α Arietis E.	79 56 17	2792	78 21 39	2784	76 46 50	2774	75 11 48	2765
	SUN E.	134 0 48	3116	132 32 58	3105	131 4 54	3093	129 36 36	3081
23	Antares W.	81 30 33	2667	83 7 57	2657	84 45 35	2646	86 23 28	2635
	Mars W.	62 12 36	2565	63 52 19	2554	65 32 17	2544	67 12 29	2533
	α Arietis E.	67 13 36	2718	65 37 20	2709	64 0 52	2699	62 24 11	2690
	Venus E.	97 47 41	3111	96 19 45	3099	94 51 34	3087	93 23 8	3075
	SUN E.	122 11 26	3022	120 41 40	3009	119 11 38	2997	117 41 21	2985
24	Antares W.	94 36 42	2577	96 16 8	2565	97 55 51	2553	99 35 50	2541
	Mars W.	75 37 21	2477	77 19 6	2465	79 1 8	2454	80 43 26	2442
	α Aquilæ W.	51 55 57	4082	53 6 16	4066	54 17 50	4053	55 30 36	4047
	α Arietis E.	54 17 40	2644	52 39 45	2635	51 1 37	2626	49 23 18	2618
	Venus E.	85 57 14	3012	84 27 16	2999	82 57 2	2986	81 26 32	2973
	SUN E.	110 6 1	2920	108 34 8	2908	107 1 59	2894	105 29 33	2881
25	Mars W.	89 19 11	2382	91 3 12	2369	92 47 31	2357	94 32 8	2344
	α Aquilæ W.	61 50 17	3589	63 9 3	3544	64 28 39	3500	65 49 3	3460
	Saturn W.	30 26 2	2484	32 7 38	2470	33 49 33	2456	35 31 48	2442
	α Arietis E.	41 9 0	2583	39 29 41	2577	37 50 15	2574	36 10 44	2572
	Venus E.	73 49 52	2906	72 17 41	2893	70 45 13	2880	69 12 28	2866
	SUN E.	97 43 4	2813	96 8 53	2800	94 34 25	2786	92 59 39	2772
26	Mars W.	103 19 44	2282	105 6 10	2269	106 52 55	2257	108 39 58	2245
	α Aquilæ W.	72 41 41	3288	74 6 6	3259	75 31 5	3232	76 56 36	3207
	Saturn W.	44 7 58	2374	45 52 10	2361	47 36 41	2347	49 21 32	2334
	Fomalhaut W.	42 18 25	2857	43 51 39	2815	45 25 48	2775	47 0 48	2740
	Venus E.	61 24 18	2798	59 49 47	2785	58 14 59	2772	56 39 54	2759
	SUN E.	85 1 13	2703	83 24 37	2689	81 47 43	2675	80 10 30	2662
27	α Aquilæ W.	84 11 6	3103	85 39 12	3087	87 7 37	3073	88 36 20	3060
	Saturn W.	58 10 32	2270	59 57 16	2257	61 44 19	2245	63 31 40	2233
	Fomalhaut W.	55 6 52	2590	56 46 1	2565	58 25 44	2541	60 6 0	2520
	α Pegasi W.	36 28 58	3240	37 54 20	3153	39 21 26	3075	40 50 6	3005
	Venus E.	48 40 16	2697	47 3 32	2685	45 26 32	2674	43 49 17	2663
	SUN E.	71 59 54	2596	70 20 54	2583	68 41 36	2570	67 2 0	2558
28	α Aquilæ W.	96 3 19	3017	97 33 11	3014	99 3 6	3014	100 33 2	3014
	Saturn W.	72 32 47	2176	74 21 50	2166	76 11 9	2155	78 0 44	2146
	Fomalhaut W.	68 34 29	2426	70 17 27	2410	72 0 48	2395	73 44 30	2382
	α Pegasi W.	48 32 45	2744	50 8 27	2704	51 45 1	2669	53 22 23	2635
	Venus E.	35 39 45	2621	34 1 18	2614	32 22 42	2609	30 43 59	2606
	SUN E.	58 39 57	2502	56 58 47	2492	55 17 22	2482	53 35 44	2473
29	Saturn W.	87 12 4	2104	89 2 57	2096	90 54 2	2090	92 45 17	2084
	Fomalhaut W.	82 27 32	2226	84 12 54	2217	85 58 29	2209	87 44 15	2203
	α Pegasi W.	61 39 24	2506	63 20 29	2486	65 2 2	2468	66 44 0	2452
	SUN E.	45 4 37	2436	43 21 54	2431	41 39 3	2426	39 56 6	2423
30	Saturn W.	102 3 34	2062	103 55 32	2059	105 47 35	2057	107 39 41	2056
	Fomalhaut W.	96 34 59	2285	98 21 21	2285	100 7 43	2285	101 54 5	2286
	α Pegasi W.	75 18 52	2394	77 2 36	2385	78 46 32	2379	80 30 37	2374
	α Arietis W.	31 58 36	2218	33 46 37	2201	35 35 3	2187	37 23 50	2176
	SUN E.	31 20 36	2422	29 37 33	2427	27 54 37	2433	26 11 50	2443

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S					Sideral Time of the Semi-diameter passing the Meridian.	Equation of Time, to be added to Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Semi-diameter.			
		^h ^m ^s	^s	N. [°] ['] ["]	["]	['] ["]	^s	^m ^s	^s
Thur.	1	6 40 0.09	10.346	N. 23 8 21.3	- 9.88	15 46.11	68.79	3 27.83	0.488
Frid.	2	6 44 8.29	10.335	23 4 11.8	10.89	15 46.10	68.75	3 39.45	0.477
Sat.	3	6 48 16.22	10.324	22 59 38.1	11.90	15 46.10	68.71	3 50.80	0.466
Sun.	4	6 52 23.87	10.312	22 54 40.3	12.90	15 46.11	68.67	4 1.85	0.454
Mon.	5	6 56 31.19	10.298	22 49 18.5	13.90	15 46.12	68.63	4 12.58	0.440
Tues.	6	7 0 38.18	10.284	22 43 32.9	14.89	15 46.13	68.58	4 22.98	0.426
Wed.	7	7 4 44.81	10.268	22 37 23.7	15.87	15 46.15	68.53	4 33.02	0.410
Thur.	8	7 8 51.05	10.251	22 30 50.9	16.85	15 46.18	68.48	4 42.67	0.393
Frid.	9	7 12 56.87	10.234	22 23 54.7	17.82	15 46.21	68.42	4 51.91	0.376
Sat.	10	7 17 2.27	10.216	22 16 35.3	18.78	15 46.24	68.36	5 0.73	0.358
Sun.	11	7 21 7.24	10.197	22 8 52.9	19.74	15 46.28	68.30	5 9.11	0.339
Mon.	12	7 25 11.74	10.178	22 0 47.6	20.68	15 46.32	68.24	5 17.03	0.320
Tues.	13	7 29 15.76	10.158	21 52 19.9	21.62	15 46.37	68.17	5 24.48	0.300
Wed.	14	7 33 19.31	10.138	21 43 29.8	22.55	15 46.42	68.11	5 31.45	0.280
Thur.	15	7 37 22.36	10.117	21 34 17.4	23.47	15 46.48	68.04	5 37.93	0.259
Frid.	16	7 41 24.90	10.096	21 24 43.0	24.38	15 46.54	67.97	5 43.90	0.238
Sat.	17	7 45 26.92	10.074	21 14 46.9	25.28	15 46.60	67.90	5 49.35	0.216
Sun.	18	7 49 28.42	10.051	21 4 29.2	26.17	15 46.67	67.83	5 54.27	0.194
Mon.	19	7 53 29.38	10.029	20 53 50.1	27.06	15 46.74	67.75	5 58.66	0.172
Tues.	20	7 57 29.80	10.006	20 42 49.9	27.93	15 46.81	67.67	6 2.51	0.149
Wed.	21	8 1 29.67	9.983	20 31 28.9	28.80	15 46.89	67.59	6 5.82	0.126
Thur.	22	8 5 29.00	9.960	20 19 47.1	29.66	15 46.97	67.51	6 8.58	0.103
Frid.	23	8 9 27.77	9.937	20 7 44.8	30.51	15 47.05	67.43	6 10.79	0.080
Sat.	24	8 13 25.98	9.914	19 55 22.1	31.35	15 47.14	67.35	6 12.44	0.057
Sun.	25	8 17 23.63	9.890	19 42 39.6	32.18	15 47.23	67.26	6 13.52	0.033
Mon.	26	8 21 20.71	9.866	19 29 37.4	33.00	15 47.32	67.18	6 14.04	+0.009
Tues.	27	8 25 17.21	9.842	19 16 15.7	33.80	15 47.42	67.09	6 13.98	-0.015
Wed.	28	8 29 13.12	9.818	19 2 34.9	34.60	15 47.52	67.01	6 13.34	0.039
Thur.	29	8 33 8.44	9.794	18 48 35.0	35.38	15 47.63	66.92	6 12.11	0.063
Frid.	30	8 37 3.18	9.769	18 34 16.4	36.16	15 47.74	66.84	6 10.30	0.088
Sat.	31	8 40 57.32	9.744	18 19 39.3	36.92	15 47.86	66.75	6 7.89	0.113
Sun.	32	8 44 50.86	9.719	N. 18 4 44.3	-37.67	15 47.98	66.66	6 4.88	0.138

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0°.19 from the Sideral Time.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be subtracted from Mean Time.	Diff. for 1 hour.	Sidereal Time or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		h m s	s	° ' "	"			
Thur.	1	6 39 59.49	10.345	N.23 8 21.9	- 9.88	3 27.80	0.488	6 36 31.69
Frid.	2	6 44 7.66	10.334	23 4 12.5	10.89	3 39.42	0.477	6 40 28.24
Sat.	3	6 48 15.56	10.323	22 59 38.9	11.90	3 50.76	0.466	6 44 24.80
Sun.	4	6 52 23.18	10.311	22 54 41.2	12.90	4 1.82	0.454	6 48 21.36
Mon.	5	6 56 30.47	10.297	22 49 19.5	13.90	4 12.55	0.440	6 52 17.92
Tues.	6	7 0 37.43	10.283	22 43 34.0	14.89	4 22.95	0.426	6 56 14.48
Wed.	7	7 4 44.03	10.267	22 37 24.9	15.87	4 32.99	0.410	7 0 11.04
Thur.	8	7 8 50.24	10.250	22 30 52.2	16.85	4 42.64	0.393	7 4 7.60
Frid.	9	7 12 56.04	10.233	22 23 56.1	17.82	4 51.88	0.376	7 8 4.16
Sat.	10	7 17 1.42	10.215	22 16 36.9	18.78	5 0.70	0.358	7 12 0.72
Sun.	11	7 21 6.36	10.196	22 8 54.6	19.74	5 9.08	0.339	7 15 57.28
Mon.	12	7 25 10.84	10.177	22 0 49.5	20.68	5 17.00	0.320	7 19 53.84
Tues.	13	7 29 14.85	10.157	21 52 21.9	21.62	5 24.45	0.300	7 23 50.40
Wed.	14	7 33 18.38	10.137	21 43 31.9	22.55	5 31.43	0.280	7 27 46.95
Thur.	15	7 37 21.41	10.116	21 34 19.6	23.47	5 37.90	0.259	7 31 43.51
Frid.	16	7 41 23.94	10.095	21 24 45.4	24.38	5 43.88	0.238	7 35 40.06
Sat.	17	7 45 25.95	10.073	21 14 49.4	25.28	5 49.33	0.216	7 39 36.62
Sun.	18	7 49 27.43	10.051	21 4 31.8	26.17	5 54.25	0.194	7 43 33.18
Mon.	19	7 53 28.38	10.029	20 53 52.8	27.06	5 58.64	0.172	7 47 29.74
Tues.	20	7 57 28.79	10.006	20 42 52.7	27.93	6 2.50	0.149	7 51 26.29
Wed.	21	8 1 28.65	9.983	20 31 31.8	28.80	6 5.80	0.126	7 55 22.85
Thur.	22	8 5 27.97	9.960	20 19 50.1	29.66	6 8.56	0.103	7 59 19.41
Frid.	23	8 9 26.74	9.937	20 7 47.9	30.51	6 10.77	0.080	8 3 15.97
Sat.	24	8 13 24.95	9.914	19 55 25.4	31.35	6 12.43	0.057	8 7 12.52
Sun.	25	8 17 22.60	9.890	19 42 43.0	32.18	6 13.52	0.033	8 11 9.08
Mon.	26	8 21 19.68	9.866	19 29 40.9	33.00	6 14.04	+0.009	8 15 5.64
Tues.	27	8 25 16.18	9.842	19 16 19.3	33.80	6 13.98	-0.015	8 19 2.20
Wed.	28	8 29 12.10	9.818	19 2 38.5	34.60	6 13.35	0.039	8 22 58.75
Thur.	29	8 33 7.43	9.794	18 48 38.7	35.38	6 12.12	0.063	8 26 55.31
Frid.	30	8 37 2.18	9.769	18 34 20.1	36.16	6 10.31	0.088	8 30 51.87
Sat.	31	8 40 56.33	9.744	18 19 43.1	36.92	6 7.90	0.113	8 34 48.43
Sun.	32	8 44 49.88	9.719	N.18 4 48.1	-37.67	6 4.90	0.138	8 38 44.98

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

Diff. for 1 hour.
+ 9^h.8565

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S					Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE.				
		λ	λ'						
1	182	99° 11' 30.8	11' 9.3	143.04	+0.42	0.0072354	+ 1.9	17 20 37.37	
2	183	100 8 43.8	8 22.1	143.04	0.46	.0072367	+ 0.8	17 16 41.45	
3	184	101 5 56.9	5 34.9	143.04	0.49	.0072394	- 0.3	17 12 45.54	
4	185	102 3 9.9	2 47.8	143.04	0.45	.0072375	1.3	17 8 49.63	
5	186	103 0 23.0	0 0.7	143.04	0.41	.0072331	2.4	17 4 53.71	
6	187	103 57 36.1	57 13.6	143.04	0.33	.0072260	3.5	17 0 57.80	
7	188	104 54 49.1	54 26.4	143.04	0.25	.0072163	4.5	16 57 1.89	
8	189	105 52 2.0	51 39.1	143.04	+0.13	.0072042	5.5	16 53 5.98	
9	190	106 49 14.7	48 51.6	143.03	0.00	.0071898	6.5	16 49 10.07	
10	191	107 46 27.3	46 4.0	143.03	-0.13	.0071732	7.3	16 45 14.15	
11	192	108 43 39.9	43 16.4	143.03	0.26	.0071544	8.2	16 41 18.23	
12	193	109 40 52.5	40 28.8	143.03	0.39	.0071337	9.0	16 37 22.32	
13	194	110 38 5.2	37 41.3	143.03	0.50	.0071111	9.7	16 33 26.41	
14	195	111 35 18.1	34 54.0	143.04	0.60	.0070868	10.4	16 29 30.49	
15	196	112 32 31.2	32 7.0	143.05	0.66	.0070610	11.0	16 25 34.58	
16	197	113 29 44.5	29 20.1	143.06	0.70	.0070337	11.7	16 21 38.67	
17	198	114 26 58.0	26 33.4	143.07	0.70	.0070050	12.3	16 17 42.76	
18	199	115 24 11.9	23 47.1	143.09	0.65	.0069748	13.0	16 13 46.85	
19	200	116 21 26.3	21 1.3	143.11	0.61	.0069432	13.6	16 9 50.94	
20	201	117 18 41.3	18 16.2	143.14	0.52	.0069102	14.2	16 5 55.03	
21	202	118 15 57.0	15 31.7	143.17	0.43	.0068758	14.8	16 1 59.12	
22	203	119 13 13.5	12 48.0	143.20	0.31	.0068399	15.4	15 58 3.20	
23	204	120 10 30.8	10 5.1	143.24	0.18	.0068025	16.1	15 54 7.29	
24	205	121 7 49.0	7 23.1	143.27	-0.05	.0067634	16.8	15 50 11.38	
25	206	122 5 8.1	4 42.1	143.31	+0.09	.0067225	17.5	15 46 15.48	
26	207	123 2 28.1	2 2.0	143.35	0.20	.0066797	18.3	15 42 19.55	
27	208	123 59 49.2	59 22.9	143.40	0.31	.0066348	19.1	15 38 23.64	
28	209	124 57 11.4	56 44.9	143.44	0.38	.0065877	20.0	15 34 27.73	
29	210	125 54 34.6	54 7.9	143.49	0.44	.0065385	20.9	15 30 31.82	
30	211	126 51 58.8	51 32.0	143.53	0.45	.0064870	21.9	15 26 35.91	
31	212	127 49 24.0	48 57.1	143.57	0.44	.0064331	22.9	15 22 40.00	
32	213	128 46 50.2	46 23.1	143.61	+0.39	0.0063767	-23.9	15 18 44.09	

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 0d.

Diff. for 1 hour.

- 9^h.8296

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.

	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.
1	16' 34.1"	16' 33.6"	60' 41.9"	+0.02"	60' 40.1"	-0.31"	^h 23 ^m 17.8	^m 2.77	^d 27.6
2	16' 32.0	16' 29.4	60' 34.3	-0.65	60' 24.5	0.98	♃		28.6
3	16' 25.7	16' 21.0	60' 10.9	1.28	59' 53.8	1.56	0 23.7	2.69	0.3
4	16' 15.5	16' 9.3	59' 33.7	1.79	59' 11.1	1.97	1 26.1	2.49	1.3
5	16' 2.6	15' 55.6	58' 46.5	2.11	58' 20.7	2.19	2 22.9	2.24	2.3
6	15' 48.4	15' 41.0	57' 54.1	2.23	57' 27.3	2.22	3 13.9	2.02	3.3
7	15' 33.9	15' 27.0	57' 1.0	2.16	56' 35.5	2.07	4 0.3	1.85	4.3
8	15' 20.4	15' 14.3	56' 11.4	1.94	55' 49.0	1.79	4 43.3	1.74	5.3
9	15' 8.7	15' 3.7	55' 28.4	1.62	55' 10.0	1.44	5 24.4	1.69	6.3
10	14' 59.3	14' 55.6	54' 53.9	1.24	54' 40.2	1.04	6 5.0	1.70	7.3
11	14' 52.5	14' 50.2	54' 29.0	0.83	54' 20.2	0.62	6 46.3	1.75	8.3
12	14' 48.5	14' 47.4	54' 13.9	0.42	54' 10.1	-0.22	7 29.3	1.84	9.3
13	14' 47.0	14' 47.2	54' 8.6	-0.03	54' 9.3	+0.15	8 14.7	1.95	10.3
14	14' 48.0	14' 49.3	54' 12.2	+0.32	54' 17.0	0.46	9 3.1	2.08	11.3
15	14' 51.1	14' 53.3	54' 23.6	0.62	54' 31.7	0.74	9 54.3	2.18	12.3
16	14' 55.9	14' 58.9	54' 41.3	0.85	54' 52.1	0.95	10 47.2	2.23	13.3
17	15' 2.1	15' 5.6	55' 4.0	1.03	55' 16.7	1.09	11 40.7	2.21	14.3
18	15' 9.2	15' 13.0	55' 30.2	1.14	55' 44.2	1.18	12 33.1	2.15	15.3
19	15' 16.9	15' 20.9	55' 58.5	1.21	56' 13.2	1.23	13 23.4	2.05	16.3
20	15' 25.0	15' 29.1	56' 28.1	1.25	56' 43.1	1.25	14 11.5	1.96	17.3
21	15' 33.2	15' 37.3	56' 58.2	1.26	57' 13.2	1.25	14 57.7	1.90	18.3
22	15' 41.4	15' 45.4	57' 28.3	1.25	57' 43.2	1.24	15 42.9	1.88	19.3
23	15' 49.5	15' 53.4	57' 57.9	1.22	58' 12.4	1.20	16 28.3	1.91	20.3
24	15' 57.3	16' 1.0	58' 26.6	1.17	58' 40.4	1.13	17 15.2	2.01	21.3
25	16' 4.6	16' 8.0	58' 53.7	1.08	59' 6.3	1.01	18 5.1	2.16	22.3
26	16' 11.2	16' 14.1	59' 17.9	0.92	59' 28.4	0.81	18 59.2	2.36	23.3
27	16' 16.5	16' 18.5	59' 37.4	0.69	59' 44.7	0.53	19 58.1	2.55	24.3
28	16' 20.0	16' 20.8	59' 50.1	+0.35	59' 53.1	+0.15	21 1.1	2.68	25.3
29	16' 21.0	16' 20.4	59' 53.7	-0.06	59' 51.5	-0.20	22 5.9	2.69	26.3
30	16' 19.0	16' 16.9	59' 46.6	0.53	59' 38.7	0.77	23 9.1	2.56	27.3
31	16' 14.0	16' 10.3	59' 28.0	1.01	59' 14.6	1.23	♃		28.3
32	16' 6.0	16' 1.0	58' 58.6	-1.42	58' 40.5	-1.59	0 8.1	2.35	29.3

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 1.					SATURDAY 3.				
0	4 52 59.74	2.7522	N.27 0 19.4	5.830	0	7 7 7.90	2.7435	N.27 35 48.9	4.335
1	4 55 45.38	2.7630	27 6 3.2	5.628	1	7 9 52.34	2.7378	27 31 22.8	4.534
2	4 58 31.30	2.7677	27 11 34.8	5.494	2	7 12 36.43	2.7319	27 26 44.8	4.732
3	5 1 17.50	2.7722	27 16 54.1	5.219	3	7 15 20.16	2.7258	27 21 55.0	4.928
4	5 4 3.96	2.7765	27 22 1.1	5.014	4	7 18 3.52	2.7196	27 16 53.5	5.122
5	5 6 50.67	2.7806	27 26 55.8	4.807	5	7 20 46.51	2.7133	27 11 40.4	5.314
6	5 9 37.63	2.7845	27 31 38.0	4.599	6	7 23 29.11	2.7067	27 6 15.8	5.506
7	5 12 24.81	2.7882	27 36 7.7	4.390	7	7 26 11.31	2.6999	27 0 39.7	5.696
8	5 15 12.21	2.7917	27 40 24.8	4.180	8	7 28 53.10	2.6931	26 54 52.3	5.883
9	5 17 59.81	2.7949	27 44 29.3	3.969	9	7 31 34.48	2.6861	26 48 53.7	6.068
10	5 20 47.60	2.7980	27 48 21.1	3.758	10	7 34 15.43	2.6789	26 42 44.0	6.253
11	5 23 35.57	2.8006	27 52 0.2	3.546	11	7 36 55.95	2.6716	26 36 23.3	6.437
12	5 26 23.70	2.8034	27 55 26.6	3.333	12	7 39 36.02	2.6641	26 29 51.6	6.618
13	5 29 11.98	2.8058	27 58 40.1	3.118	13	7 42 15.64	2.6566	26 23 9.1	6.797
14	5 32 0.40	2.8080	28 1 40.7	2.903	14	7 44 54.81	2.6489	26 16 16.0	6.973
15	5 34 48.94	2.8099	28 4 28.5	2.688	15	7 47 33.51	2.6411	26 9 12.3	7.148
16	5 37 37.59	2.8116	28 7 3.3	2.473	16	7 50 11.74	2.6332	26 1 58.2	7.322
17	5 40 26.33	2.8131	28 9 25.1	2.256	17	7 52 49.49	2.6252	25 54 33.7	7.494
18	5 43 15.16	2.8143	28 11 34.0	2.040	18	7 55 26.76	2.6170	25 46 58.9	7.664
19	5 46 4.05	2.8153	28 13 29.9	1.823	19	7 58 3.53	2.6088	25 39 14.0	7.832
20	5 48 53.00	2.8161	28 15 12.7	1.605	20	8 0 39.81	2.6005	25 31 19.1	7.997
21	5 51 41.99	2.8166	28 16 42.5	1.388	21	8 3 15.59	2.5921	25 23 14.4	8.160
22	5 54 31.00	2.8169	28 17 59.2	1.170	22	8 5 50.86	2.5835	25 14 59.9	8.322
23	5 57 20.02	2.8170	N.28 19 2.9	0.953	23	8 8 25.61	2.5749	N.25 6 35.8	8.481
FRIDAY 2.					SUNDAY 4.				
0	6 0 9.04	2.8168	N.28 19 53.6	0.736	0	8 10 59.85	2.5663	N.24 58 2.2	8.638
1	6 2 58.04	2.8164	28 20 31.2	0.518	1	8 13 33.57	2.5576	24 49 19.2	8.793
2	6 5 47.01	2.8158	28 20 55.7	0.300	2	8 16 6.76	2.5488	24 40 27.0	8.947
3	6 8 35.93	2.8149	28 21 7.2	+0.083	3	8 18 39.42	2.5399	24 31 25.6	9.098
4	6 11 24.79	2.8138	28 21 5.7	-0.134	4	8 21 11.55	2.5310	24 22 15.2	9.247
5	6 14 13.58	2.8124	28 20 51.2	0.351	5	8 23 43.14	2.5221	24 12 55.9	9.394
6	6 17 2.28	2.8108	28 20 23.6	0.568	6	8 26 14.20	2.5132	24 3 27.9	9.538
7	6 19 50.87	2.8089	28 19 43.1	0.784	7	8 28 44.72	2.5041	23 53 51.3	9.681
8	6 22 39.35	2.8069	28 18 49.6	0.999	8	8 31 14.69	2.4950	23 44 6.2	9.822
9	6 25 27.70	2.8046	28 17 43.2	1.214	9	8 33 44.11	2.4859	23 34 12.7	9.961
10	6 28 15.90	2.8020	28 16 23.9	1.428	10	8 36 12.99	2.4768	23 24 10.9	10.097
11	6 31 3.94	2.7992	28 14 51.8	1.642	11	8 38 41.32	2.4676	23 14 1.1	10.230
12	6 33 51.80	2.7961	28 13 6.9	1.855	12	8 41 9.10	2.4584	23 3 43.3	10.362
13	6 36 39.47	2.7929	28 11 9.2	2.067	13	8 43 36.33	2.4492	22 53 17.7	10.492
14	6 39 26.95	2.7895	28 8 58.8	2.278	14	8 46 3.01	2.4400	22 42 44.3	10.620
15	6 42 14.22	2.7859	28 6 35.8	2.488	15	8 48 29.13	2.4308	22 32 3.3	10.745
16	6 45 1.26	2.7820	28 4 0.2	2.698	16	8 50 54.70	2.4216	22 21 14.9	10.868
17	6 47 48.06	2.7779	28 1 12.0	2.907	17	8 53 19.72	2.4123	22 10 19.1	10.990
18	6 50 34.61	2.7736	27 58 11.3	3.115	18	8 55 44.18	2.4031	21 59 16.1	11.109
19	6 53 20.89	2.7690	27 54 58.2	3.322	19	8 58 8.09	2.3939	21 48 6.0	11.226
20	6 56 6.89	2.7643	27 51 32.7	3.527	20	9 0 31.45	2.3848	21 36 49.0	11.341
21	6 58 52.61	2.7594	27 47 55.0	3.730	21	9 2 54.26	2.3756	21 25 25.1	11.454
22	7 1 38.02	2.7543	27 44 5.1	3.933	22	9 5 16.52	2.3664	21 13 54.5	11.564
23	7 4 23.12	2.7490	27 40 3.0	4.135	23	9 7 38.23	2.3573	21 2 17.4	11.673
24	7 7 7.90	2.7435	N.27 35 48.9	4.335	24	9 9 59.40	2.3482	N.20 50 33.8	11.779

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 5.					WEDNESDAY 7.				
0	9 9 59.40	2.3482	N. 20° 50' 33.8"	11.779	0	10 53 14.26	1.9894	N. 9° 58' 29.6"	14.741
1	9 12 20.02	2.3391	20 38 43.9	11.884	1	10 55 13.04	1.9768	9 43 44.4	14.764
2	9 14 40.09	2.3300	20 26 47.8	11.987	2	10 57 11.48	1.9713	9 28 57.9	14.786
3	9 16 59.62	2.3210	20 14 45.5	12.087	3	10 59 9.59	1.9659	9 14 10.1	14.808
4	9 19 18.61	2.3120	20 2 37.3	12.185	4	11 1 7.38	1.9606	8 59 21.0	14.828
5	9 21 37.06	2.3031	19 50 23.3	12.281	5	11 3 4.86	1.9554	8 44 30.7	14.847
6	9 23 54.98	2.2942	19 38 3.6	12.375	6	11 5 2.03	1.9503	8 29 39.4	14.865
7	9 26 12.36	2.2853	19 25 38.3	12.468	7	11 6 58.89	1.9452	8 14 47.0	14.882
8	9 28 29.21	2.2765	19 13 7.5	12.558	8	11 8 55.45	1.9403	7 59 53.6	14.897
9	9 30 45.54	2.2677	19 0 31.3	12.647	9	11 10 51.72	1.9354	7 44 59.4	14.910
10	9 33 1.34	2.2590	18 47 49.9	12.733	10	11 12 47.70	1.9307	7 30 4.4	14.923
11	9 35 16.62	2.2504	18 35 3.4	12.818	11	11 14 43.40	1.9260	7 15 8.6	14.936
12	9 37 31.39	2.2418	18 22 11.8	12.901	12	11 16 38.82	1.9214	7 0 12.1	14.947
13	9 39 45.64	2.2333	18 9 15.3	12.981	13	11 18 33.97	1.9170	6 45 15.0	14.956
14	9 41 59.38	2.2248	17 56 14.1	13.059	14	11 20 28.86	1.9126	6 30 17.4	14.964
15	9 44 12.61	2.2163	17 43 8.2	13.136	15	11 22 23.48	1.9083	6 15 19.3	14.972
16	9 46 25.34	2.2080	17 29 57.8	13.211	16	11 24 17.85	1.9041	6 0 20.7	14.979
17	9 48 37.57	2.1997	17 16 42.9	13.285	17	11 26 11.97	1.8999	5 45 21.8	14.984
18	9 50 49.30	2.1914	17 3 23.6	13.357	18	11 28 5.84	1.8959	5 30 22.6	14.989
19	9 53 0.54	2.1833	16 50 0.1	13.426	19	11 29 59.48	1.8920	5 15 23.1	14.992
20	9 55 11.30	2.1753	16 36 32.5	13.493	20	11 31 52.88	1.8882	5 0 23.5	14.994
21	9 57 21.58	2.1673	16 23 0.9	13.559	21	11 33 46.06	1.8845	4 45 23.8	14.996
22	9 59 31.38	2.1593	16 9 25.4	13.623	22	11 35 39.02	1.8808	4 30 24.0	14.997
23	10 1 40.70	2.1514	N. 15° 55' 46.1"	13.686	23	11 37 31.76	1.8773	N. 4° 15' 24.2"	14.996
TUESDAY 6.					THURSDAY 8.				
0	10 3 49.55	2.1437	N. 15° 42' 3.1"	13.747	0	11 39 24.29	1.8738	N. 4° 0' 24.5"	14.994
1	10 5 57.94	2.1360	15 28 16.5	13.806	1	11 41 16.62	1.8704	3 45 24.9	14.992
2	10 8 5.87	2.1283	15 14 26.4	13.863	2	11 43 8.74	1.8671	3 30 25.5	14.988
3	10 10 13.34	2.1208	15 0 32.9	13.919	3	11 45 0.67	1.8640	3 15 26.3	14.984
4	10 12 20.37	2.1134	14 46 36.1	13.974	4	11 46 52.42	1.8609	3 0 27.4	14.979
5	10 14 26.95	2.1060	14 32 36.1	14.027	5	11 48 43.98	1.8578	2 45 28.8	14.974
6	10 16 33.09	2.0987	14 18 32.9	14.078	6	11 50 35.36	1.8549	2 30 30.6	14.967
7	10 18 38.79	2.0915	14 4 26.8	14.127	7	11 52 26.57	1.8521	2 15 32.8	14.958
8	10 20 44.07	2.0843	13 50 17.7	14.175	8	11 54 17.61	1.8493	2 0 35.6	14.949
9	10 22 48.92	2.0773	13 36 5.8	14.221	9	11 56 8.49	1.8467	1 45 38.9	14.940
10	10 24 53.35	2.0704	13 21 51.2	14.265	10	11 57 59.21	1.8442	1 30 42.8	14.932
11	10 26 57.37	2.0635	13 7 34.0	14.308	11	11 59 49.79	1.8417	1 15 47.4	14.918
12	10 29 0.97	2.0567	12 53 14.2	14.351	12	12 1 40.22	1.8393	1 0 52.7	14.906
13	10 31 4.17	2.0500	12 38 51.9	14.391	13	12 3 30.51	1.8370	0 45 58.7	14.893
14	10 33 6.97	2.0434	12 24 27.3	14.429	14	12 5 20.67	1.8348	0 31 5.6	14.879
15	10 35 9.38	2.0369	12 10 0.4	14.467	15	12 7 10.69	1.8327	0 16 13.3	14.864
16	10 37 11.40	2.0305	11 55 31.3	14.503	16	12 9 0.59	1.8307	N. 0° 1' 21.9"	14.848
17	10 39 13.04	2.0242	11 41 0.1	14.537	17	12 10 50.37	1.8287	S. 0° 13' 28.5"	14.832
18	10 41 14.30	2.0179	11 26 26.9	14.570	18	12 12 40.03	1.8268	0 28 18.0	14.816
19	10 43 15.19	2.0118	11 11 51.7	14.602	19	12 14 29.59	1.8251	0 43 6.4	14.798
20	10 45 15.72	2.0058	10 57 14.7	14.632	20	12 16 19.04	1.8234	0 57 53.7	14.779
21	10 47 15.88	1.9998	10 42 35.9	14.661	21	12 18 8.39	1.8218	1 12 39.9	14.760
22	10 49 15.69	1.9939	10 27 55.4	14.688	22	12 19 57.65	1.8203	1 27 24.9	14.739
23	10 51 15.15	1.9881	10 13 13.3	14.715	23	12 21 46.82	1.8188	1 42 8.6	14.718
24	10 53 14.26	1.9824	N. 9° 58' 29.6"	14.741	24	12 23 35.91	1.8175	S. 1° 56' 51.1"	14.696

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 9.					SUNDAY 11.				
0	12 23 35.91	1.8175	S. 1° 56' 51.1"	14.696	0	13 50 48.93	1.8457	S. 13° 3' 51.7"	12.832
1	12 25 24.92	1.8163	2 11 32.2	14.674	1	13 52 39.74	1.8481	13 16 39.9	12.776
2	12 27 13.86	1.8151	2 26 12.0	14.652	2	13 54 30.70	1.8505	13 29 24.8	12.720
3	12 29 2.73	1.8140	2 40 50.4	14.628	3	13 56 21.80	1.8529	13 42 6.3	12.663
4	12 30 51.54	1.8130	2 55 27.3	14.603	4	13 58 13.05	1.8555	13 54 44.4	12.606
5	12 32 40.29	1.8120	3 10 2.7	14.578	5	14 0 4.46	1.8581	14 7 19.0	12.547
6	12 34 28.98	1.8112	3 24 36.6	14.552	6	14 1 56.02	1.8608	14 19 50.0	12.488
7	12 36 17.63	1.8105	3 39 8.9	14.524	7	14 3 47.75	1.8635	14 32 17.5	12.428
8	12 38 6.24	1.8098	3 53 39.5	14.496	8	14 5 39.64	1.8663	14 44 41.3	12.367
9	12 39 54.80	1.8091	4 8 8.5	14.468	9	14 7 31.70	1.8692	14 57 1.5	12.306
10	12 41 43.33	1.8086	4 22 35.7	14.439	10	14 9 23.94	1.8721	15 9 18.0	12.244
11	12 43 31.83	1.8082	4 37 1.2	14.410	11	14 11 16.35	1.8750	15 21 30.7	12.181
12	12 45 20.31	1.8078	4 51 24.9	14.380	12	14 13 8.94	1.8781	15 33 39.7	12.118
13	12 47 8.77	1.8076	5 5 46.8	14.349	13	14 15 1.72	1.8812	15 45 44.8	12.053
14	12 48 57.22	1.8074	5 20 6.8	14.317	14	14 16 54.68	1.8843	15 57 46.0	11.988
15	12 50 45.66	1.8073	5 34 24.8	14.284	15	14 18 47.83	1.8875	16 9 43.4	11.922
16	12 52 34.09	1.8072	5 48 40.9	14.251	16	14 20 41.18	1.8908	16 21 36.8	11.857
17	12 54 22.52	1.8073	6 2 54.9	14.217	17	14 22 34.73	1.8941	16 33 26.2	11.789
18	12 56 10.96	1.8074	6 17 6.9	14.183	18	14 24 28.47	1.8975	16 45 11.5	11.721
19	12 57 59.41	1.8076	6 31 16.8	14.148	19	14 26 22.42	1.9009	16 56 52.7	11.653
20	12 59 47.87	1.8078	6 45 24.6	14.112	20	14 28 16.58	1.9043	17 8 29.8	11.583
21	13 1 36.35	1.8082	6 59 30.2	14.075	21	14 30 10.94	1.9079	17 20 2.7	11.513
22	13 3 24.85	1.8086	7 13 33.6	14.038	22	14 32 5.52	1.9115	17 31 31.4	11.442
23	13 5 13.38	1.8092	S. 7° 27' 34.7"	14.000	23	14 34 0.32	1.9151	S. 17° 42' 55.8"	11.370
SATURDAY 10.					MONDAY 12.				
0	13 7 1.95	1.8098	S. 7° 41' 33.6"	13.962	0	14 35 55.33	1.9188	S. 17° 54' 15.8"	11.298
1	13 8 50.55	1.8104	7 55 30.1	13.922	1	14 37 50.57	1.9225	18 5 31.5	11.224
2	13 10 39.20	1.8111	8 9 24.2	13.882	2	14 39 46.03	1.9263	18 16 42.7	11.150
3	13 12 27.89	1.8119	8 23 16.0	13.842	3	14 41 41.72	1.9301	18 27 49.5	11.076
4	13 14 16.63	1.8128	8 37 5.3	13.800	4	14 43 37.64	1.9339	18 38 51.8	11.000
5	13 16 5.43	1.8138	8 50 52.0	13.758	5	14 45 33.79	1.9378	18 49 49.5	10.924
6	13 17 54.29	1.8148	9 4 36.2	13.715	6	14 47 30.18	1.9418	19 0 42.6	10.847
7	13 19 43.21	1.8159	9 18 17.8	13.672	7	14 49 26.81	1.9458	19 11 31.1	10.768
8	13 21 32.20	1.8171	9 31 56.8	13.628	8	14 51 23.68	1.9498	19 22 14.8	10.689
9	13 23 21.27	1.8184	9 45 33.2	13.584	9	14 53 20.79	1.9539	19 32 53.8	10.610
10	13 25 10.41	1.8198	9 59 6.9	13.538	10	14 55 18.15	1.9580	19 43 28.0	10.529
11	13 26 59.64	1.8212	10 12 37.8	13.492	11	14 57 15.76	1.9621	19 53 57.3	10.448
12	13 28 48.95	1.8226	10 26 5.9	13.445	12	14 59 13.61	1.9663	20 4 21.7	10.366
13	13 30 38.35	1.8242	10 39 31.2	13.398	13	15 1 11.72	1.9706	20 14 41.2	10.283
14	13 32 27.85	1.8258	10 52 53.6	13.350	14	15 3 10.09	1.9749	20 24 55.7	10.199
15	13 34 17.44	1.8274	11 6 13.2	13.302	15	15 5 8.71	1.9792	20 35 5.1	10.115
16	13 36 7.14	1.8292	11 19 29.8	13.252	16	15 7 7.59	1.9835	20 45 9.5	10.030
17	13 37 56.95	1.8310	11 32 43.4	13.202	17	15 9 6.73	1.9878	20 55 8.7	9.944
18	13 39 46.86	1.8328	11 45 54.0	13.151	18	15 11 6.13	1.9922	21 5 2.7	9.857
19	13 41 36.89	1.8348	11 59 1.5	13.099	19	15 13 5.80	1.9967	21 14 51.5	9.769
20	13 43 27.04	1.8369	12 12 5.9	13.047	20	15 15 5.73	2.0011	21 24 35.0	9.680
21	13 45 17.32	1.8390	12 25 7.2	12.995	21	15 17 5.93	2.0056	21 34 13.1	9.590
22	13 47 7.72	1.8412	12 38 5.3	12.941	22	15 19 6.40	2.0101	21 43 45.8	9.500
23	13 48 58.26	1.8434	12 51 0.1	12.887	23	15 21 7.14	2.0146	21 53 13.1	9.409
24	13 50 48.93	1.8457	S. 13° 3' 51.7"	12.832	24	15 23 8.15	2.0193	S. 22° 2' 34.9"	9.317

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 13.					THURSDAY 15.				
0	h m s	a	S. 22° 2' 34.9"	9.317	0	h m s	s	S. 27° 27' 25.0"	3.898
1	15 23 8.15	2.0192	22 11 51.1	9.294	1	17 5 20.64	2.2324	27 31 14.9	3.765
2	15 25 9.44	2.0238	22 21 1.7	9.130	2	17 7 34.69	2.2360	27 34 56.8	3.632
3	15 27 11.00	2.0283	22 30 6.7	9.036	3	17 9 48.96	2.2396	27 38 30.7	3.498
4	15 29 12.84	2.0329	22 39 6.0	8.940	4	17 12 3.44	2.2430	27 41 56.6	3.364
5	15 31 14.95	2.0375	22 47 59.5	8.844	5	17 14 18.12	2.2464	27 45 14.4	3.229
6	15 33 17.34	2.0422	22 56 47.2	8.747	6	17 16 33.01	2.2498	27 48 24.1	3.094
7	15 35 20.01	2.0468	23 5 29.1	8.648	7	17 18 48.10	2.2531	27 51 25.7	2.957
8	15 37 22.96	2.0515	23 14 5.0	8.549	8	17 21 3.38	2.2563	27 54 19.0	2.820
9	15 39 26.19	2.0562	23 22 35.0	8.449	9	17 23 18.85	2.2594	27 57 4.1	2.683
10	15 41 29.70	2.0608	23 30 58.9	8.348	10	17 25 34.51	2.2625	27 59 41.0	2.545
11	15 43 33.49	2.0655	23 39 16.8	8.245	11	17 27 50.35	2.2654	28 2 9.5	2.407
12	15 45 37.56	2.0703	23 47 28.6	8.145	12	17 30 6.36	2.2683	28 4 29.7	2.267
13	15 47 41.92	2.0750	23 55 34.2	8.042	13	17 32 22.55	2.2712	28 6 41.6	2.127
14	15 49 46.56	2.0797	24 3 33.6	7.938	14	17 34 38.90	2.2740	28 8 45.0	1.987
15	15 51 51.48	2.0843	24 11 26.7	7.833	15	17 36 55.42	2.2767	28 10 40.0	1.847
16	15 53 56.68	2.0890	24 19 13.5	7.727	16	17 39 12.10	2.2793	28 12 26.6	1.706
17	15 56 2.16	2.0938	24 26 53.9	7.619	17	17 41 28.93	2.2817	28 14 4.7	1.564
18	15 58 7.93	2.0985	24 34 27.8	7.511	18	17 43 45.90	2.2841	28 15 34.3	1.422
19	16 0 13.98	2.1032	24 41 55.3	7.403	19	17 46 3.02	2.2865	28 16 55.3	1.279
20	16 2 20.31	2.1078	24 49 16.2	7.293	20	17 48 20.28	2.2887	28 18 7.8	1.136
21	16 4 26.92	2.1125	24 56 30.5	7.183	21	17 50 37.67	2.2908	28 19 11.7	0.993
22	16 6 33.81	2.1172	25 3 38.2	7.073	22	17 52 55.18	2.2928	28 20 7.0	0.849
23	16 8 40.98	2.1218	25 10 39.2	6.961	23	17 55 12.81	2.2948	28 20 53.6	0.705
24	16 10 48.43	2.1265				17 57 30.56	2.2967		
WEDNESDAY 14.					FRIDAY 16.				
0	h m s	a	S. 25° 17' 33.5"	6.848	0	h m s	s	S. 28° 21' 31.6"	0.561
1	16 12 56.16	2.1312	25 24 21.0	6.734	1	17 59 48.42	2.2985	28 22 0.9	0.416
2	16 15 4.17	2.1358	25 31 1.6	6.620	2	18 2 6.38	2.3002	28 22 21.5	0.271
3	16 17 12.45	2.1403	25 37 35.4	6.505	3	18 4 24.44	2.3018	28 22 33.4	-0.126
4	16 19 21.00	2.1448	25 44 2.2	6.389	4	18 6 42.60	2.3033	28 22 36.6	+0.020
5	16 21 29.82	2.1493	25 50 22.0	6.272	5	18 9 0.84	2.3047	28 22 31.0	0.166
6	16 23 38.92	2.1539	25 56 34.8	6.154	6	18 11 19.16	2.3060	28 22 16.7	0.312
7	16 25 48.29	2.1584	26 2 40.5	6.035	7	18 13 37.56	2.3072	28 21 53.6	0.459
8	16 27 57.93	2.1629	26 8 39.0	5.915	8	18 15 56.03	2.3083	28 21 21.7	0.605
9	16 30 7.83	2.1673	26 14 30.3	5.795	9	18 18 14.56	2.3093	28 20 41.0	0.752
10	16 32 18.00	2.1717	26 20 14.4	5.674	10	18 20 33.15	2.3103	28 19 51.5	0.899
11	16 34 28.43	2.1760	26 25 51.2	5.553	11	18 22 51.80	2.3111	28 18 53.2	1.046
12	16 36 39.12	2.1803	26 31 20.7	5.430	12	18 25 10.49	2.3118	28 17 46.0	1.193
13	16 38 50.07	2.1846	26 36 42.8	5.306	13	18 27 29.22	2.3124	28 16 30.0	1.340
14	16 41 1.27	2.1889	26 41 57.4	5.182	14	18 29 47.98	2.3130	28 15 5.2	1.488
15	16 43 12.73	2.1931	26 47 4.6	5.057	15	18 32 6.78	2.3135	28 13 31.5	1.636
16	16 45 24.44	2.1973	26 52 4.2	4.931	16	18 34 25.60	2.3138	28 11 48.9	1.783
17	16 47 36.40	2.2014	26 56 56.3	4.805	17	18 36 44.43	2.3140	28 9 57.5	1.930
18	16 49 48.60	2.2054	27 1 40.8	4.678	18	18 39 3.28	2.3142	28 7 57.3	2.078
19	16 52 1.05	2.2095	27 6 17.6	4.549	19	18 41 22.13	2.3142	28 5 48.2	2.225
20	16 54 13.74	2.2134	27 10 46.7	4.420	20	18 43 40.98	2.3141	28 3 30.3	2.372
21	16 56 26.66	2.2173	27 15 8.0	4.290	21	18 45 59.82	2.3139	28 1 3.6	2.519
22	16 58 39.81	2.2212	27 19 21.5	4.160	22	18 48 18.65	2.3137	27 58 28.0	2.667
23	17 0 53.20	2.2250	27 23 27.2	4.029	23	18 50 37.46	2.3133	27 55 43.6	2.814
24	17 3 6.81	2.2287	27 27 25.0	3.898	24	18 52 56.25	2.3128		
	17 5 20.64	2.2324				18 55 15.00	2.3123	S. 27° 52' 50.3"	2.961

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 17.					MONDAY 19.				
0	h m s	"	S. 27° 52' 50.3"	"	0	h m s	"	S. 22° 48' 9.1"	"
1	18 55 15.00	2.3123	27 49 48.2	2.961	1	20 44 3.32	2.1968	22 38 34.7	9.513
2	18 57 33.72	2.3117	27 46 37.3	3.108	2	20 46 15.02	2.1932	22 28 53.2	9.633
3	18 59 52.40	2.3109	27 43 17.6	3.255	3	20 48 26.50	2.1896	22 19 4.6	9.751
4	19 2 11.03	2.3101	27 39 49.1	3.402	4	20 50 37.77	2.1860	22 9 9.0	9.868
5	19 4 29.61	2.3092	27 36 11.9	3.548	5	20 52 48.82	2.1823	21 59 6.4	9.985
6	19 6 48.13	2.3082	27 32 25.9	3.694	6	20 54 59.65	2.1786	21 48 56.9	10.101
7	19 9 6.59	2.3071	27 28 31.1	3.840	7	20 57 10.25	2.1749	21 38 40.5	10.216
8	19 11 24.98	2.3059	27 24 27.6	3.986	8	20 59 20.64	2.1712	21 28 17.4	10.329
9	19 13 43.30	2.3046	27 20 15.4	4.131	9	21 1 30.80	2.1675	21 17 47.5	10.443
10	19 16 1.53	2.3032	27 15 54.5	4.276	10	21 3 40.74	2.1638	21 7 10.9	10.554
11	19 18 19.68	2.3018	27 11 24.9	4.421	11	21 5 50.46	2.1602	20 56 27.7	10.665
12	19 20 37.74	2.3003	27 6 46.7	4.565	12	21 7 59.96	2.1565	20 45 37.9	10.775
13	19 22 55.71	2.2987	27 1 59.9	4.709	13	21 10 9.24	2.1528	20 34 41.6	10.884
14	19 25 13.58	2.2969	26 57 4.4	4.853	14	21 12 18.30	2.1491	20 23 38.9	10.992
15	19 27 31.34	2.2951	26 52 0.3	4.996	15	21 14 27.13	2.1454	20 12 29.8	11.098
16	19 29 48.99	2.2933	26 46 47.7	5.139	16	21 16 35.74	2.1417	19 38 24.8	11.204
17	19 32 6.53	2.2913	26 41 26.5	5.282	17	21 18 44.13	2.1380	19 26 50.8	11.309
18	19 34 23.94	2.2892	26 35 56.8	5.424	18	21 20 52.30	2.1344	19 15 10.7	11.413
19	19 36 41.23	2.2871	26 30 18.6	5.566	19	21 23 0.26	2.1308	18 51 32.5	11.516
20	19 38 58.39	2.2849	26 24 32.0	5.707	20	21 25 7.99	2.1271	18 39 34.6	11.618
21	19 41 15.42	2.2827	26 18 37.0	5.847	21	21 27 15.51	2.1235	18 27 32.5	11.718
22	19 43 32.31	2.2803	26 12 33.6	5.987	22	21 29 22.81	2.1199	18 15 32.5	11.818
23	19 45 49.06	2.2779	26 6 21.9	6.126	23	21 31 29.89	2.1163	18 3 34.6	11.917
24	19 48 5.66	2.2755		6.265	24	21 33 36.76	2.1127		12.014
SUNDAY 18.					TUESDAY 20.				
0	19 50 22.12	2.2730	S. 26° 0' 1.8"	6.403	0	21 35 43.41	2.1091	S. 18° 27' 30.8"	12.111
1	19 52 38.42	2.2703	25 53 33.5	6.541	1	21 37 49.85	2.1056	18 15 21.2	12.207
2	19 54 54.56	2.2676	25 46 56.9	6.678	2	21 39 56.08	2.1021	18 3 6.0	12.301
3	19 57 10.54	2.2649	25 40 12.1	6.815	3	21 42 2.10	2.0986	17 50 45.1	12.395
4	19 59 26.35	2.2622	25 33 19.1	6.951	4	21 44 7.91	2.0952	17 38 18.6	12.487
5	20 1 42.00	2.2594	25 26 18.0	7.086	5	21 46 13.52	2.0918	17 25 46.7	12.578
6	20 3 57.48	2.2565	25 19 8.8	7.221	6	21 48 18.93	2.0884	17 13 9.3	12.668
7	20 6 12.78	2.2535	25 11 51.5	7.354	7	21 50 24.13	2.0850	17 0 26.5	12.757
8	20 8 27.90	2.2505	25 4 26.3	7.487	8	21 52 29.13	2.0817	16 47 38.4	12.845
9	20 10 42.84	2.2474	24 56 53.1	7.620	9	21 54 33.94	2.0785	16 34 45.1	12.932
10	20 12 57.59	2.2443	24 49 11.9	7.752	10	21 56 38.55	2.0752	16 21 46.6	13.018
11	20 15 12.15	2.2412	24 41 22.9	7.883	11	21 58 42.97	2.0720	16 8 43.0	13.103
12	20 17 26.53	2.2380	24 33 26.0	8.013	12	22 0 47.19	2.0688	15 55 34.3	13.187
13	20 19 40.71	2.2348	24 25 21.3	8.143	13	22 2 51.23	2.0657	15 42 20.6	13.269
14	20 21 54.70	2.2315	24 17 8.9	8.272	14	22 4 55.08	2.0626	15 29 2.0	13.350
15	20 24 8.49	2.2282	24 8 48.7	8.400	15	22 6 58.74	2.0595	15 15 38.6	13.430
16	20 26 22.08	2.2248	24 0 20.9	8.527	16	22 9 2.22	2.0565	15 2 10.4	13.510
17	20 28 35.46	2.2213	23 51 45.5	8.653	17	22 11 5.52	2.0536	14 48 37.4	13.588
18	20 30 48.64	2.2179	23 43 2.6	8.778	18	22 13 8.65	2.0507	14 34 59.8	13.665
19	20 33 1.61	2.2145	23 34 12.1	8.903	19	22 15 11.60	2.0478	14 21 17.6	13.741
20	20 35 14.37	2.2110	23 25 14.2	9.027	20	22 17 14.39	2.0450	14 7 30.9	13.816
21	20 37 26.93	2.2075	23 16 8.9	9.150	21	22 19 17.01	2.0422	13 53 39.7	13.890
22	20 39 39.27	2.2040	23 6 56.2	9.272	22	22 21 19.46	2.0395	13 39 44.1	13.963
23	20 41 51.40	2.2004	22 57 36.3	9.393	23	22 23 21.75	2.0368	13 25 44.2	14.033
24	20 44 3.32	2.1968	S. 22° 48' 9.1"	9.513	24	22 25 23.89	2.0343	S. 13° 11' 40.1"	14.103

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 21.					FRIDAY 23.				
0	22 25 23.89	2.0343	S. 13 11 40.1	14.103	0	0 1 16.81	1.9894	S. 0 54 59.8	16.149
1	22 27 25.87	2.0318	12 57 31.8	14.173	1	0 3 16.20	1.9904	0 38 50.4	16.163
2	22 29 27.70	2.0293	12 43 19.3	14.242	2	0 5 15.65	1.9915	0 22 40.2	16.176
3	22 31 29.38	2.0268	12 29 2.8	14.309	3	0 7 15.18	1.9927	S. 0 6 29.2	16.188
4	22 33 30.91	2.0244	12 14 42.3	14.375	4	0 9 14.78	1.9939	N. 0 9 42.4	16.198
5	22 35 32.31	2.0221	12 0 17.8	14.440	5	0 11 14.45	1.9953	0 25 54.6	16.207
6	22 37 33.57	2.0198	11 45 49.5	14.503	6	0 13 14.21	1.9968	0 42 7.3	16.215
7	22 39 34.69	2.0176	11 31 17.4	14.566	7	0 15 14.06	1.9983	0 58 20.4	16.222
8	22 41 35.68	2.0155	11 16 41.6	14.628	8	0 17 14.00	1.9999	1 14 33.9	16.228
9	22 43 36.55	2.0134	11 2 2.1	14.688	9	0 19 14.04	2.0016	1 30 47.7	16.232
10	22 45 37.29	2.0114	10 47 19.0	14.746	10	0 21 14.19	2.0034	1 47 1.7	16.235
11	22 47 37.92	2.0095	10 32 32.5	14.804	11	0 23 14.45	2.0053	2 3 15.9	16.237
12	22 49 38.43	2.0076	10 17 42.5	14.862	12	0 25 14.83	2.0073	2 19 30.1	16.237
13	22 51 38.83	2.0058	10 2 49.1	14.918	13	0 27 15.33	2.0094	2 35 44.3	16.236
14	22 53 39.12	2.0040	9 47 52.4	14.973	14	0 29 15.96	2.0116	2 51 58.4	16.233
15	22 55 39.31	2.0023	9 32 52.4	15.026	15	0 31 16.72	2.0138	3 8 12.3	16.230
16	22 57 39.40	2.0008	9 17 49.2	15.078	16	0 33 17.62	2.0162	3 24 26.0	16.225
17	22 59 39.40	1.9993	9 2 43.0	15.129	17	0 35 18.66	2.0186	3 40 30.3	16.219
18	23 1 39.31	1.9978	8 47 33.7	15.180	18	0 37 19.85	2.0212	3 56 52.3	16.212
19	23 3 39.13	1.9963	8 32 21.4	15.229	19	0 39 21.20	2.0238	4 13 4.8	16.203
20	23 5 38.86	1.9949	8 17 6.2	15.277	20	0 41 22.71	2.0265	4 29 16.7	16.193
21	23 7 38.52	1.9937	8 1 48.2	15.323	21	0 43 24.38	2.0293	4 45 28.0	16.182
22	23 9 38.11	1.9925	7 46 27.4	15.369	22	0 45 26.23	2.0322	5 1 38.6	16.169
23	23 11 37.63	1.9914	S. 7 31 3.9	15.413	23	0 47 28.25	2.0352	N. 5 17 48.3	16.155
THURSDAY 22.					SATURDAY 24.				
0	23 13 37.08	1.9903	S. 7 15 37.8	15.457	0	0 49 30.45	2.0383	N. 5 33 57.2	16.140
1	23 15 36.47	1.9894	7 0 9.1	15.499	1	0 51 32.84	2.0415	5 50 5.1	16.123
2	23 17 35.81	1.9886	6 44 37.9	15.540	2	0 53 35.43	2.0448	6 6 12.0	16.105
3	23 19 35.10	1.9878	6 29 4.3	15.580	3	0 55 38.21	2.0481	6 22 17.7	16.085
4	23 21 34.34	1.9870	6 13 28.3	15.619	4	0 57 41.20	2.0516	6 38 22.2	16.065
5	23 23 33.54	1.9863	5 57 50.0	15.657	5	0 59 44.40	2.0552	6 54 25.5	16.043
6	23 25 32.70	1.9856	5 42 9.5	15.693	6	1 1 47.82	2.0588	7 10 27.4	16.019
7	23 27 31.83	1.9853	5 26 26.9	15.728	7	1 3 51.46	2.0625	7 26 27.8	15.994
8	23 29 30.93	1.9848	5 10 42.1	15.763	8	1 5 55.32	2.0663	7 42 26.7	15.967
9	23 31 30.01	1.9845	4 54 55.3	15.796	9	1 7 59.42	2.0703	7 58 23.9	15.939
10	23 33 29.07	1.9843	4 39 6.6	15.828	10	1 10 3.76	2.0743	8 14 19.4	15.910
11	23 35 28.12	1.9841	4 23 16.0	15.858	11	1 12 8.34	2.0784	8 30 13.1	15.880
12	23 37 27.16	1.9840	4 7 23.6	15.888	12	1 14 13.17	2.0826	8 46 5.0	15.848
13	23 39 26.20	1.9840	3 51 29.5	15.916	13	1 16 18.26	2.0869	9 1 54.9	15.814
14	23 41 25.24	1.9840	3 35 33.7	15.943	14	1 18 23.60	2.0913	9 17 42.7	15.778
15	23 43 24.28	1.9842	3 19 36.3	15.969	15	1 20 29.21	2.0958	9 33 28.3	15.742
16	23 45 23.34	1.9844	3 3 37.4	15.994	16	1 22 35.09	2.1003	9 49 11.7	15.704
17	23 47 22.41	1.9847	2 47 37.0	16.017	17	1 24 41.24	2.1049	10 4 52.8	15.664
18	23 49 21.50	1.9851	2 31 35.3	16.039	18	1 26 47.68	2.1097	10 20 31.4	15.623
19	23 51 20.62	1.9856	2 15 32.3	16.061	19	1 28 54.40	2.1145	10 36 7.6	15.581
20	23 53 19.77	1.9862	1 59 28.0	16.082	20	1 31 1.42	2.1194	10 51 41.1	15.536
21	23 55 18.96	1.9868	1 43 22.5	16.101	21	1 33 8.73	2.1244	11 7 11.9	15.490
22	23 57 18.19	1.9876	1 27 15.9	16.118	22	1 35 16.34	2.1295	11 22 39.9	15.443
23	23 59 17.47	1.9885	1 11 8.3	16.134	23	1 37 24.27	2.1347	11 38 5.0	15.394
24	0 1 16.81	1.9894	S. 0 54 59.8	16.149	24	1 39 32.51	2.1399	N. 11 53 27.2	15.344

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 25.					TUESDAY 27.				
0	1 39 32.51	2.1399	N.11° 53' 27.2"	15.344	0	3 29 40.84	2.4685	N.22° 39' 35.4"	10.885
1	1 41 41.06	2.1453	12 8 46.3	15.292	1	3 32 9.18	2.4761	22 50 24.4	10.747
2	1 43 49.94	2.1506	12 24 2.2	15.238	2	3 34 37.97	2.4837	23 1 5.0	10.607
3	1 45 59.15	2.1563	12 39 14.9	15.183	3	3 37 7.22	2.4913	23 11 37.2	10.465
4	1 48 8.69	2.1618	12 54 24.2	15.126	4	3 39 36.92	2.4988	23 22 0.8	10.321
5	1 50 18.57	2.1675	13 9 30.0	15.068	5	3 42 7.07	2.5069	23 32 15.7	10.176
6	1 52 28.79	2.1733	13 24 32.3	15.008	6	3 44 37.66	2.5138	23 42 21.9	10.028
7	1 54 39.36	2.1791	13 39 30.9	14.946	7	3 47 8.70	2.5211	23 52 19.1	9.878
8	1 56 50.28	2.1850	13 54 25.8	14.883	8	3 49 40.19	2.5285	24 2 7.3	9.727
9	1 59 1.56	2.1911	14 9 16.8	14.818	9	3 52 12.12	2.5358	24 11 46.4	9.574
10	2 1 13.21	2.1972	14 24 3.9	14.751	10	3 54 44.49	2.5431	24 21 16.2	9.419
11	2 3 25.22	2.2033	14 38 46.9	14.683	11	3 57 17.29	2.5503	24 30 36.7	9.263
12	2 5 37.60	2.2095	14 53 25.8	14.613	12	3 59 50.52	2.5574	24 39 47.8	9.105
13	2 7 50.36	2.2158	15 8 0.4	14.541	13	4 2 24.18	2.5645	24 48 49.3	8.945
14	2 10 3.50	2.2222	15 22 30.7	14.468	14	4 4 58.26	2.5716	24 57 41.1	8.783
15	2 12 17.02	2.2286	15 36 56.5	14.392	15	4 7 32.77	2.5786	25 6 23.2	8.619
16	2 14 30.93	2.2351	15 51 17.7	14.314	16	4 10 7.69	2.5855	25 14 55.4	8.453
17	2 16 45.23	2.2417	16 5 34.2	14.236	17	4 12 43.02	2.5923	25 23 17.6	8.286
18	2 18 59.93	2.2483	16 19 46.0	14.156	18	4 15 18.76	2.5990	25 31 29.7	8.117
19	2 21 15.03	2.2550	16 33 52.9	14.073	19	4 17 54.90	2.6056	25 39 31.7	7.947
20	2 23 30.54	2.2618	16 47 54.8	13.989	20	4 20 31.43	2.6121	25 47 23.4	7.775
21	2 25 46.45	2.2687	17 1 51.6	13.903	21	4 23 8.35	2.6186	25 55 4.7	7.602
22	2 28 2.78	2.2756	17 15 43.2	13.816	22	4 25 45.66	2.6249	26 2 35.6	7.426
23	2 30 19.52	2.2825	N.17° 29' 29.5"	13.726	23	4 28 23.34	2.6311	N.26° 9' 55.9"	7.249
MONDAY 26.					WEDNESDAY 28.				
0	2 32 36.68	2.2895	N.17° 43' 10.3"	13.634	0	4 31 1.39	2.6373	N.26° 17' 5.5"	7.071
1	2 34 54.26	2.2966	17 56 45.6	13.542	1	4 33 30.81	2.6433	26 24 4.4	6.892
2	2 37 12.27	2.3038	18 10 15.3	13.448	2	4 36 18.58	2.6491	26 30 52.5	6.710
3	2 39 30.71	2.3110	18 23 39.3	13.351	3	4 38 57.70	2.6549	26 37 29.6	6.527
4	2 41 49.58	2.3182	18 36 57.4	13.252	4	4 41 37.16	2.6605	26 43 55.7	6.343
5	2 44 8.89	2.3254	18 50 9.5	13.151	5	4 44 16.96	2.6660	26 50 10.7	6.158
6	2 46 28.63	2.3327	19 3 15.5	13.049	6	4 46 57.08	2.6714	26 56 14.6	5.971
7	2 48 48.81	2.3401	19 16 15.4	12.945	7	4 49 37.52	2.6766	27 2 7.2	5.783
8	2 51 9.44	2.3475	19 29 8.9	12.839	8	4 52 18.27	2.6816	27 7 48.5	5.593
9	2 53 30.51	2.3549	19 41 56.0	12.731	9	4 54 59.31	2.6864	27 13 18.3	5.401
10	2 55 52.03	2.3623	19 54 36.6	12.621	10	4 57 40.64	2.6912	27 18 36.6	5.209
11	2 58 13.99	2.3698	20 7 10.5	12.509	11	5 0 22.26	2.6958	27 23 43.4	5.016
12	3 0 36.40	2.3773	20 19 37.7	12.396	12	5 3 4.15	2.7003	27 28 38.6	4.822
13	3 2 59.26	2.3848	20 31 58.0	12.280	13	5 5 46.30	2.7046	27 33 22.0	4.626
14	3 5 22.58	2.3924	20 44 11.3	12.163	14	5 8 28.70	2.7088	27 37 53.7	4.430
15	3 7 46.35	2.4000	20 56 17.6	12.044	15	5 11 11.35	2.7129	27 42 13.6	4.233
16	3 10 10.58	2.4076	21 8 16.6	11.923	16	5 13 54.23	2.7164	27 46 21.6	4.034
17	3 12 35.26	2.4152	21 20 8.3	11.799	17	5 16 37.32	2.7200	27 50 17.7	3.835
18	3 15 0.40	2.4228	21 31 52.5	11.674	18	5 19 20.63	2.7235	27 54 1.8	3.634
19	3 17 26.00	2.4304	21 43 29.2	11.547	19	5 22 4.14	2.7267	27 57 33.8	3.433
20	3 19 52.05	2.4380	21 54 58.2	11.419	20	5 24 47.83	2.7297	28 0 53.9	3.231
21	3 22 18.56	2.4457	22 6 19.5	11.289	21	5 27 31.70	2.7325	28 4 1.7	3.028
22	3 24 45.53	2.4533	22 17 32.9	11.156	22	5 30 15.73	2.7352	28 6 57.3	2.824
23	3 27 12.96	2.4609	22 28 38.2	11.021	23	5 32 59.92	2.7377	28 9 40.7	2.620
24	3 29 40.84	2.4685	N.22° 39' 35.4"	10.885	24	5 35 44.25	2.7399	N.28° 12' 11.9"	2.416

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 29.					SATURDAY 31.				
0	5 35 44.25	2.7399	N.28 12 11.9	2.416	0	7 45 58.94	2.6137	N.26 13 20.9	7.107
1	5 38 28.71	2.7420	28 14 30.8	2.212	1	7 48 35.56	2.6069	26 6 18.3	7.980
2	5 41 13.29	2.7438	28 16 37.3	2.006	2	7 51 11.77	2.6000	25 58 56.3	7.451
3	5 43 57.97	2.7455	28 18 31.5	1.800	3	7 53 47.56	2.5930	25 51 24.1	7.621
4	5 46 42.75	2.7470	28 20 13.3	1.594	4	7 56 22.93	2.5859	25 43 41.8	7.789
5	5 49 27.61	2.7483	28 21 42.7	1.388	5	7 58 57.87	2.5788	25 35 49.4	7.955
6	5 52 12.54	2.7493	28 22 59.8	1.181	6	8 1 32.38	2.5715	25 27 47.1	8.120
7	5 54 57.52	2.7501	28 24 4.4	0.973	7	8 4 6.45	2.5641	25 19 35.0	8.283
8	5 57 42.55	2.7507	28 24 56.5	0.765	8	8 6 40.07	2.5566	25 11 13.2	8.443
9	6 0 27.61	2.7511	28 25 36.2	0.558	9	8 9 13.24	2.5491	25 2 41.9	8.601
10	6 3 12.69	2.7513	28 26 3.4	0.350	10	8 11 45.96	2.5414	24 54 1.1	8.759
11	6 5 57.77	2.7513	28 26 18.2	+0.143	11	8 14 18.21	2.5337	24 45 10.8	8.915
12	6 8 42.84	2.7511	28 26 20.5	-0.065	12	8 16 50.00	2.5259	24 36 11.3	9.068
13	6 11 27.90	2.7507	28 26 10.4	0.973	13	8 19 21.32	2.5181	24 27 2.7	9.218
14	6 14 12.92	2.7500	28 25 47.8	0.481	14	8 21 52.17	2.5102	24 17 45.1	9.368
15	6 16 57.90	2.7492	28 25 12.7	0.688	15	8 24 22.54	2.5022	24 8 18.5	9.516
16	6 19 42.82	2.7481	28 24 25.2	0.895	16	8 26 52.43	2.4943	23 58 43.2	9.661
17	6 22 27.67	2.7468	28 23 25.3	1.102	17	8 29 21.84	2.4862	23 48 59.2	9.805
18	6 25 12.44	2.7453	28 22 12.9	1.309	18	8 31 50.77	2.4781	23 39 6.6	9.947
19	6 27 57.11	2.7437	28 20 48.2	1.515	19	8 34 19.21	2.4700	23 29 5.6	10.086
20	6 30 41.68	2.7418	28 19 11.1	1.721	20	8 36 47.16	2.4618	23 18 56.3	10.224
21	6 33 26.13	2.7397	28 17 21.7	1.926	21	8 39 14.62	2.4536	23 8 38.7	10.360
22	6 36 10.44	2.7373	28 15 20.0	2.131	22	8 41 41.59	2.4453	22 58 13.1	10.493
23	6 38 54.61	2.7348	N.28 13 6.0	2.335	23	8 44 8.06	2.4370	N.22 47 39.5	10.624
FRIDAY 30.					SUNDAY, AUGUST 1.				
0	6 41 38.62	2.7321	N.28 10 39.8	2.538	0	8 46 34.03	2.4287	N.22 36 58.1	10.755
1	6 44 22.46	2.7292	28 8 1.4	2.741					
2	6 47 6.12	2.7261	28 5 10.9	2.944					
3	6 49 49.59	2.7228	28 2 8.2	3.145					
4	6 52 32.86	2.7193	27 58 53.5	3.345					
5	6 55 15.91	2.7156	27 55 26.9	3.544					
6	6 57 58.73	2.7117	27 51 48.3	3.743					
7	7 0 41.31	2.7076	27 47 57.8	3.940					
8	7 3 23.64	2.7034	27 43 55.5	4.136					
9	7 6 5.72	2.6990	27 39 41.5	4.332					
10	7 8 47.53	2.6944	27 35 15.7	4.528					
11	7 11 29.05	2.6896	27 30 38.3	4.719					
12	7 14 10.28	2.6847	27 25 49.4	4.911					
13	7 16 51.21	2.6796	27 20 49.0	5.102					
14	7 19 31.83	2.6743	27 15 37.2	5.292					
15	7 22 12.13	2.6689	27 10 14.0	5.480					
16	7 24 52.10	2.6633	27 4 39.6	5.667					
17	7 27 31.73	2.6576	26 58 54.0	5.852					
18	7 30 11.01	2.6518	26 52 57.4	6.035					
19	7 32 49.04	2.6458	26 46 49.8	6.218					
20	7 35 28.50	2.6396	26 40 31.3	6.399					
21	7 38 6.69	2.6333	26 34 1.9	6.579					
22	7 40 44.50	2.6269	26 27 21.8	6.757					
23	7 43 21.92	2.6203	26 20 31.1	6.933					
24	7 45 58.94	2.6137	N.26 13 20.9	7.107					

PHASES OF THE MOON.

- New Moon, 2 17 25.2
- ☽ First Quarter, 9 22 40.1
- Full Moon, 18 1 26.9
- ☾ Last Quarter, 25 8 39.6

- ☾ Perigee, 1 0.8
- ☾ Apogee, 13 1.9
- ☾ Perigee, 28 20.5

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
5	SUN W.	30 58 33	2724	32 34 41	2736	34 10 33	2750	35 46 7	2764
	Jupiter E.	68 25 23	2373	66 41 9	2389	64 57 19	2407	63 13 54	2424
	Spica E.	68 38 32	2355	66 53 53	2372	65 9 38	2389	63 25 47	2405
	Antares E.	114 32 35	2354	112 47 54	2371	111 3 37	2388	109 19 45	2405
6	SUN W.	43 38 55	2845	45 12 24	2862	46 45 31	2880	48 18 15	2898
	Jupiter E.	54 43 1	2513	53 2 6	2531	51 21 36	2549	49 41 31	2568
	Spica E.	54 52 41	2494	53 11 19	2512	51 30 22	2530	49 49 50	2547
	Antares E.	100 46 32	2492	99 5 8	2510	97 24 9	2527	95 43 34	2545
	Mars E.	116 29 42	2415	114 46 29	2433	113 3 41	2450	111 21 18	2469
7	SUN W.	55 56 18	2987	57 26 47	3005	58 56 53	3022	60 26 38	3040
	Jupiter E.	41 27 22	2858	39 49 46	2876	38 12 34	2894	36 35 46	2912
	Spica E.	41 33 14	2835	39 55 7	2853	38 17 24	2870	36 40 4	2887
	Antares E.	87 26 46	2833	85 48 36	2851	84 10 50	2868	82 33 27	2884
	Mars E.	102 55 39	2557	101 15 45	2574	99 36 15	2591	97 57 8	2608
8	SUN W.	67 50 0	3125	69 17 39	3142	70 44 58	3158	72 11 58	3174
	Regulus W.	25 36 49	2797	27 11 21	2809	28 45 37	2822	30 19 36	2835
	Jupiter E.	28 37 35	2798	27 3 5	2816	25 28 58	2833	23 55 13	2851
	Spica E.	28 39 3	2770	27 3 56	2785	25 29 9	2801	23 54 43	2817
	Antares E.	74 32 3	2766	72 56 50	2782	71 21 58	2796	69 47 25	2811
	Mars E.	89 47 16	2890	88 10 23	2906	86 33 51	2922	84 57 40	2937
9	SUN W.	79 22 20	3247	80 47 33	3261	82 12 30	3275	83 37 11	3288
	Regulus W.	38 5 29	2896	39 37 53	2906	41 10 2	2920	42 41 56	2931
	Antares E.	61 59 23	2880	60 26 39	2894	58 54 12	2905	57 22 0	2917
	Mars E.	77 1 34	2807	75 27 15	2820	73 53 13	2833	72 19 28	2845
	α Aquilæ E.	110 20 38	3231	109 6 8	3237	107 51 34	3253	106 36 56	3260
10	SUN W.	90 37 3	3345	92 0 22	3355	93 23 30	3365	94 46 27	3374
	Regulus W.	50 18 5	2981	51 48 42	2990	53 19 7	2999	54 49 21	3006
	Antares E.	49 44 37	2971	48 13 48	2980	46 43 10	2989	45 12 44	2997
	Mars E.	64 34 27	2900	63 2 8	2909	61 30 1	2919	59 58 6	2928
	α Aquilæ E.	100 23 23	3290	99 8 42	3292	97 54 3	3294	96 39 26	3298
11	SUN W.	101 38 43	3414	103 0 44	3420	104 22 38	3425	105 44 26	3431
	Regulus W.	62 18 14	3040	63 47 37	3046	65 16 53	3052	66 46 2	3056
	Antares E.	37 42 58	3033	36 13 26	3039	34 44 2	3044	33 14 44	3049
	Mars E.	52 21 9	2965	50 50 12	2972	49 19 24	2977	47 48 43	2982
	α Aquilæ E.	90 27 27	3253	89 13 19	3258	87 59 17	3265	86 45 22	3273
	Saturn E.	114 41 50	3018	113 12 0	3024	111 42 17	3029	110 12 40	3034
12	SUN W.	112 32 3	3451	113 53 22	3454	115 14 38	3456	116 35 51	3458
	Regulus W.	74 10 33	3073	75 39 16	3075	77 7 56	3076	78 36 35	3078
	Spica W.	20 7 4	3073	21 35 47	3074	23 4 28	3076	24 33 7	3077
	Jupiter W.	20 0 42	3114	21 28 35	3114	22 56 28	3114	24 24 21	3113
	Mars E.	40 16 44	3001	38 46 34	3005	37 16 27	3007	35 46 23	3009
	α Aquilæ E.	80 37 49	3016	79 24 45	3022	78 11 52	3026	76 59 11	3030
	Saturn E.	102 45 51	3052	101 16 40	3052	99 47 32	3054	98 18 26	3056
	Fomalhaut E.	107 31 31	3300	106 7 19	3299	104 43 6	3297	103 18 51	3296
13	SUN W.	123 21 34	3461	124 42 42	3461	126 3 50	3460	127 24 59	3458
	Regulus W.	85 59 36	3078	87 28 13	3076	88 56 52	3074	90 25 33	3073
	Spica W.	31 56 20	3074	33 25 1	3073	34 53 43	3071	36 22 28	3069

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Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XV ^h .	P. L. of Diff.	XVIII ^h .	P. L. of Diff.	XXI ^h .	P. L. of Diff.
5	SUN	W. 37 21 22	2779	38 56 17	2795	40 30 51	2811	42 5 4	2828
	Jupiter	E. 61 30 53	2441	59 48 17	2459	58 6 6	2477	56 24 21	2495
	Spica	E. 61 42 20	2423	59 59 18	2440	58 16 40	2458	56 34 28	2476
	Antares	E. 107 36 17	2422	105 53 14	2439	104 10 35	2457	102 28 21	2475
6	SUN	W. 49 50 37	2916	51 22 36	2933	52 54 13	2951	54 25 27	2969
	Jupiter	E. 48 1 52	2586	46 22 38	2604	44 43 48	2622	43 5 23	2640
	Spica	E. 48 9 42	2565	46 29 59	2583	44 50 40	2600	43 11 45	2618
	Antares	E. 94 3 24	2563	92 23 38	2581	90 44 17	2599	89 5 20	2615
	Mars	E. 109 39 21	2487	107 57 49	2504	106 16 41	2522	104 35 58	2539
7	SUN	W. 61 56 1	3058	63 25 2	3075	64 53 42	3092	66 22 1	3109
	Jupiter	E. 34 59 22	2729	33 23 21	2747	31 47 43	2764	30 12 28	2781
	Spica	E. 35 3 7	2704	33 26 33	2721	31 50 21	2738	30 14 31	2754
	Antares	E. 80 56 26	2701	79 19 48	2718	77 43 32	2734	76 7 37	2750
	Mars	E. 96 18 24	2625	94 40 3	2642	93 2 5	2659	91 24 30	2675
8	SUN	W. 73 38 38	3190	75 4 59	3204	76 31 3	3219	77 56 50	3233
	Regulus	W. 31 53 18	2848	33 26 44	2859	34 59 55	2872	36 32 50	2884
	Jupiter	E. 22 21 51	2869	20 48 52	2886	19 16 15	2904	17 44 1	2921
	Spica	E. 22 20 37	2832	20 46 51	2848	19 13 25	2864	17 40 20	2879
	Antares	E. 68 13 12	2826	66 39 18	2840	65 5 42	2854	63 32 24	2867
Mars	E. 83 21 49	2751	81 46 17	2766	80 11 4	2780	78 36 10	2794	
9	SUN	W. 85 1 37	3300	86 25 48	3312	87 49 46	3323	89 13 31	3334
	Regulus	W. 44 13 36	2942	45 45 2	2952	47 16 15	2962	48 47 16	2971
	Antares	E. 55 50 3	2928	54 18 20	2940	52 46 52	2951	51 15 38	2962
	Mars	E. 70 45 58	2856	69 12 43	2868	67 39 43	2880	66 6 58	2891
	α Aquilæ	E. 105 22 15	2819	104 7 32	2819	102 52 49	2819	101 38 6	2819
10	SUN	W. 96 9 13	3353	97 31 49	3391	98 54 16	3399	100 16 34	3407
	Regulus	W. 56 19 26	3014	57 49 21	3022	59 19 7	3029	60 48 44	3034
	Antares	E. 43 42 28	3005	42 12 22	3014	40 42 26	3020	39 12 38	3026
	Mars	E. 58 26 23	2937	56 54 51	2944	55 23 28	2951	53 52 14	2958
	α Aquilæ	E. 95 24 53	2832	94 10 24	2837	92 56 0	2842	91 41 41	2847
11	SUN	W. 107 6 8	3436	108 27 44	3440	109 49 15	3445	111 10 41	3448
	Regulus	W. 68 15 5	3060	69 44 3	3064	71 12 57	3067	72 41 47	3070
	Antares	E. 31 45 32	3053	30 16 25	3057	28 47 23	3061	27 18 26	3064
	Mars	E. 46 18 8	2987	44 47 39	2992	43 17 16	2996	41 46 58	2999
	α Aquilæ	E. 85 31 35	2889	84 17 55	2889	83 4 24	2898	81 51 2	2907
	Saturn	E. 108 43 9	3038	107 13 43	3042	105 44 22	3045	104 15 5	3047
12	SUN	W. 117 57 2	3460	119 18 11	3461	120 39 19	3461	122 0 27	3462
	Regulus	W. 80 5 12	3078	81 33 48	3078	83 2 24	3078	84 31 0	3078
	Spica	W. 26 1 45	3077	27 30 23	3077	28 59 1	3076	30 27 40	3075
	Jupiter	W. 25 52 15	3112	27 20 10	3111	28 48 6	3110	30 16 3	3110
	Mars	E. 34 16 22	3011	32 46 23	3011	31 16 24	3012	29 46 26	3012
	α Aquilæ	E. 75 46 42	2962	74 34 25	2974	73 22 20	2988	72 10 29	4005
	Saturn	E. 96 49 22	3056	95 20 18	3056	93 51 15	3056	92 22 12	3056
	Fomalhaut	E. 101 54 35	2894	100 30 17	2893	99 5 57	2890	97 41 34	2888
13	SUN	W. 128 46 9	3457	130 7 21	3455	131 28 35	3454	132 49 51	3450
	Regulus	W. 91 51 16	3071	93 23 1	3068	94 51 50	3065	96 20 43	3061
	Spica	W. 37 51 15	3067	39 20 5	3064	40 48 59	3060	42 17 57	3057

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Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.
13	Jupiter W.	31° 44' 1"	3108	33° 12' 1"	3105	34° 40' 4"	3104	36° 8' 9"	3101
	α Aquilæ E.	70 58 54	4081	69 47 35	4037	68 36 32	4055	67 25 47	4076
	Saturn E.	90 53 8	3055	89 24 3	3053	87 54 56	3059	86 25 48	3051
	Fomalhaut E.	96 17 9	3267	94 52 42	3285	93 28 13	3282	92 3 41	3261
14	Regulus W.	97 49 40	3058	99 18 41	3054	100 47 47	3050	102 16 58	3046
	Spica W.	43 46 59	3054	45 16 5	3050	46 45 16	3045	48 14 33	3040
	Jupiter W.	43 29 27	3085	44 57 55	3081	46 26 28	3076	47 55 7	3071
	α Aquilæ E.	61 37 18	4198	60 26 50	4223	59 20 50	4261	58 13 21	4297
	Saturn E.	78 59 22	3034	77 29 52	3031	76 0 18	3027	74 30 39	3023
	Fomalhaut E.	85 0 21	3268	83 35 32	3265	82 10 40	3263	80 45 45	3250
	α Pegasi E.	106 16 50	3379	104 54 9	3370	103 31 18	3363	102 8 18	3353
15	Spica W.	55 42 31	3013	57 12 28	3007	58 42 32	3001	60 12 44	2994
	Jupiter W.	55 19 55	3043	56 49 14	3038	58 18 40	3031	59 48 14	3025
	α Aquilæ E.	52 45 8	4527	51 41 40	4586	50 39 3	4651	49 37 22	4722
	Saturn E.	67 0 51	2995	65 30 32	2989	64 0 6	2984	62 29 33	2977
	Fomalhaut E.	73 40 22	3247	72 15 9	3245	70 49 53	3243	69 24 35	3242
	α Pegasi E.	95 10 59	3315	93 47 5	3307	92 23 2	3300	90 58 51	3294
16	Spica W.	67 45 54	2958	69 17 0	2950	70 48 15	2942	72 19 40	2934
	Jupiter W.	67 18 13	2989	68 48 40	2981	70 19 17	2973	71 50 4	2965
	Antares W.	21 51 23	2958	23 22 29	2950	24 53 45	2942	26 25 11	2934
	Saturn E.	54 54 38	2942	53 23 12	2934	51 51 36	2926	50 19 50	2919
	Fomalhaut E.	62 17 44	3228	60 52 20	3229	59 26 57	3241	58 1 36	3243
	α Pegasi E.	83 55 58	3262	82 31 2	3256	81 5 59	3251	79 40 50	3246
17	Spica W.	79 59 22	2993	81 31 50	2983	83 4 30	2975	84 37 21	2966
	Jupiter W.	79 26 31	2993	80 58 21	2915	82 30 21	2906	84 2 32	2906
	Antares W.	34 4 57	2981	35 37 27	2983	37 10 7	2975	38 42 58	2966
	Mars W.	20 20 35	2953	21 53 54	2945	23 27 24	2937	25 1 4	2928
	Saturn E.	42 38 34	2979	41 5 48	2970	39 32 51	2962	37 59 44	2955
	Fomalhaut E.	50 55 53	3270	49 31 6	3278	48 6 29	3269	46 42 5	3262
	α Pegasi E.	72 33 44	3226	71 8 6	3224	69 42 25	3222	68 16 42	3220
18	Spica W.	92 24 27	2991	93 58 27	2912	95 32 39	2904	97 7 2	2785
	Jupiter W.	91 46 16	2953	93 19 35	2944	94 53 6	2935	96 26 48	2926
	Antares W.	46 30 8	2991	48 4 9	2912	49 38 21	2903	51 12 45	2794
	Mars W.	32 52 4	2788	34 26 48	2779	36 1 44	2770	37 36 51	2763
	Saturn E.	30 11 34	2915	28 37 25	2908	27 3 7	2900	25 28 39	2794
	Fomalhaut E.	39 44 51	3409	38 22 45	3444	37 1 18	3423	35 40 35	3426
	α Pegasi E.	61 8 1	2926	59 42 23	2931	58 16 50	2926	56 51 23	2919
	α Arietis E.	101 52 20	2963	100 19 14	2954	98 45 56	2945	97 12 26	2935
19	Jupiter W.	104 18 14	2782	105 53 6	2772	107 28 10	2763	109 3 26	2755
	Antares W.	59 7 44	2749	60 43 19	2739	62 19 7	2730	63 55 7	2722
	Mars W.	45 35 9	2730	47 11 22	2719	48 47 46	2704	50 24 21	2695
	α Pegasi E.	49 46 46	3303	48 22 38	3322	46 58 52	3345	45 35 32	3370
	α Arietis E.	89 21 55	2789	87 47 13	2781	86 12 20	2772	84 37 15	2763
20	Antares W.	71 58 2	2677	73 35 13	2668	75 12 36	2660	76 50 10	2651
	Mars W.	58 30 6	2654	60 7 48	2646	61 45 41	2637	63 23 40	2629
	α Pegasi E.	38 47 45	3569	37 26 37	3630	36 10 35	3690	34 53 47	3720
	α Arietis E.	76 38 57	2730	75 2 44	2712	73 26 20	2704	71 49 45	2696
	Aldebaran E.	107 18 29	2745	105 42 49	2735	104 6 55	2725	102 30 48	2716

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Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
13	Jupiter W.	37 36 18	3098	39 4 30	3096	40 32 45	3092	42 1 4	3089
	α Aquilæ E.	66 15 22	4097	65 5 17	4118	63 55 33	4143	62 46 13	4169
	Saturn E.	84 56 38	3048	83 27 25	3045	81 58 8	3042	80 28 47	3039
	Fomalhaut E.	90 39 7	3278	89 14 30	3276	87 49 50	3273	86 25 7	3270
14	Regulus W.	103 46 14	3041	105 15 36	3035	106 45 5	3030	108-14 40	3024
	Spica W.	49 43 56	3035	51 13 25	3030	52 43 0	3025	54 12 42	3019
	Jupiter W.	49 23 52	3066	50 52 43	3061	52 21 40	3056	53 50 44	3050
	α Aquilæ E.	57 6 26	4335	56 0 6	4377	54 54 24	4424	53 49 24	4473
	Saturn E.	73 0 54	3018	71 31 3	3013	70 1 6	3007	68 31 2	3001
	Fomalhaut E.	79 20 46	3257	77 55 44	3254	76 30 39	3253	75 5 32	3250
	α Pegasi E.	100 45 8	3345	99 21 49	3338	97 58 21	3330	96 34 44	3323
15	Spica W.	61 43 4	2987	63 13 33	2980	64 44 11	2973	66 14 58	2965
	Jupiter W.	61 17 56	3018	62 47 47	3010	64 17 47	3004	65 47 55	2996
	α Aquilæ E.	48 36 41	4799	47 37 4	4884	46 38 36	4976	45 41 22	5080
	Saturn E.	60 58 52	2970	59 28 2	2963	57 57 3	2956	56 25 55	2949
	Fomalhaut E.	67 59 16	3241	66 33 55	3239	65 8 32	3238	63 43 8	3238
	α Pegasi E.	89 34 32	3287	88 10 5	3280	86 45 30	3274	85 20 48	3267
16	Spica W.	73 51 16	2926	75 23 2	2918	76 54 58	2909	78 27 5	2901
	Jupiter W.	73 21 1	2957	74 52 8	2949	76 23 25	2941	77 54 52	2931
	Antares W.	27 56 47	2926	29 28 33	2917	31 0 30	2909	32 32 38	2900
	Saturn E.	48 47 55	2911	47 15 50	2903	45 43 35	2895	44 11 10	2887
	Fomalhaut E.	56 36 18	3246	55 11 3	3250	53 45 53	3255	52 20 49	3262
	α Pegasi E.	78 15 35	3241	76 50 14	3236	75 24 48	3233	73 59 18	3230
17	Spica W.	86 10 24	2857	87 43 38	2848	89 17 3	2840	90 50 39	2831
	Jupiter W.	85 34 54	2889	87 7 27	2880	88 40 12	2871	90 13 8	2862
	Antares W.	40 16 1	2857	41 49 15	2848	43 22 41	2838	44 56 19	2830
	Mars W.	26 34 55	2821	28 8 56	2812	29 43 8	2804	31 17 31	2796
	Saturn E.	36 26 27	2846	34 52 59	2838	33 19 21	2831	31 45 33	2822
	Fomalhaut E.	45 17 56	3318	43 54 5	3306	42 30 35	3297	41 7 29	3281
	α Pegasi E.	66 50 57	3220	65 25 11	3220	63 59 26	3221	62 33 42	3224
18	Spica W.	98 41 37	2765	100 16 24	2776	101 51 23	2767	103 26 34	2759
	Jupiter W.	98 0 42	2817	99 34 48	2808	101 9 5	2799	102 43 34	2791
	Antares W.	52 47 21	2785	54 22 9	2775	55 57 9	2766	57 32 21	2758
	Mars W.	39 12 8	2754	40 47 36	2745	42 23 16	2737	43 59 7	2729
	Saturn E.	23 54 3	2787	22 19 18	2781	20 44 25	2776	19 9 26	2772
	Fomalhaut E.	34 20 42	3581	33 1 47	3644	31 44 0	3717	30 27 31	3801
	α Pegasi E.	55 26 4	3251	54 0 55	3260	52 35 57	3272	51 11 13	3287
	α Arctis E.	95 38 44	2825	94 4 49	2817	92 30 43	2808	90 56 25	2798
19	Jupiter W.	110 38 53	2746	112 14 32	2737	113 50 23	2729	115 26 25	2719
	Antares W.	65 31 18	2713	67 7 41	2704	68 44 16	2695	70 21 3	2686
	Mars W.	52 1 8	2687	53 38 6	2678	55 15 15	2670	56 52 35	2662
	α Pegasi E.	44 12 41	3400	42 50 24	3433	41 28 45	3472	40 7 50	3517
	α Arctis E.	83 1 58	2754	81 26 30	2745	79 50 50	2737	78 14 59	2729
20	Antares W.	78 27 56	2642	80 5 54	2633	81 44 4	2624	83 22 26	2615
	Mars W.	65 2 2	2621	66 40 29	2612	68 19 7	2604	69 57 56	2597
	α Pegasi E.	33 38 24	3373	32 24 37	3382	31 12 40	4109	30 2 47	4255
	α Arctis E.	70 13 0	2688	68 36 4	2681	66 58 58	2672	65 21 41	2666
	Aldebaran E.	100 54 29	2706	99 17 57	2697	97 41 13	2688	96 4 17	2678

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21	Antares W.	85° 1' 0"	2607	86° 30' 46"	2599	88° 18' 43"	2590	89° 57' 52"	2582
	Mars W.	71 36 55	2589	73 16 5	2581	74 55 26	2572	76 34 59	2564
	α Aquilæ W.	45 25 28	4638	46 27 20	4517	47 30 57	4407	48 36 12	4308
	α Arietis E.	63 44 15	2658	62 6 39	2651	60 28 53	2644	58 50 58	2638
	Aldebaran E.	94 27 8	2669	92 49 47	2661	91 12 15	2652	89 34 31	2644
22	Mars W.	84 55 26	2525	86 36 4	2517	88 16 53	2510	89 57 53	2502
	α Aquilæ W.	54 23 44	3908	55 36 56	3845	56 51 12	3787	58 6 28	3732
	Saturn W.	22 1 25	2542	23 41 40	2530	25 22 11	2520	27 2 57	2510
	α Arietis E.	50 39 17	2609	49 0 34	2604	47 21 44	2599	45 42 48	2596
	Aldebaran E.	81 23 3	2603	79 44 12	2596	78 5 11	2588	76 26 0	2580
	Sun E.	132 40 31	2890	131 7 59	2880	129 35 14	2869	128 2 16	2859
23	Mars W.	98 25 37	2462	100 7 43	2455	101 49 59	2448	103 32 26	2440
	α Aquilæ W.	64 35 57	3511	65 56 9	3476	67 17 0	3443	68 38 28	3419
	Saturn W.	35 30 16	2461	37 12 24	2453	38 54 44	2443	40 37 17	2435
	Fomalhaut W.	33 47 48	3231	35 13 21	3159	36 40 19	3096	38 8 33	3042
	α Arietis E.	37 27 8	2587	35 47 55	2589	34 8 45	2592	32 29 39	2597
	Aldebaran E.	68 7 33	2545	66 27 23	2540	64 47 5	2533	63 6 38	2528
	Sun E.	120 14 10	2810	118 39 55	2801	117 5 28	2791	115 30 48	2783
24	α Aquilæ W.	75 33 55	3284	76 58 25	3265	78 23 18	3246	79 48 33	3228
	Saturn W.	49 13 7	2391	50 56 54	2383	52 40 53	2375	54 25 4	2366
	Fomalhaut W.	45 44 43	2835	47 18 25	2804	48 52 48	2775	50 27 49	2748
	α Pegasi W.	28 42 22	4076	29 52 47	3900	31 6 7	3746	32 22 5	3613
	Aldebaran E.	54 42 32	2503	53 1 23	2499	51 20 9	2497	49 38 51	2494
	Sun E.	107 34 25	2735	105 58 32	2726	104 22 27	2717	102 46 10	2708
25	α Aquilæ W.	86 59 25	3163	88 26 19	3153	89 53 24	3145	91 20 39	3139
	Saturn W.	63 8 57	2386	64 54 18	2318	66 39 51	2311	68 25 35	2308
	Fomalhaut W.	58 31 0	2639	60 9 2	2621	61 47 29	2604	63 26 19	2588
	α Pegasi W.	39 13 3	3153	40 40 8	3090	42 8 30	3032	43 38 3	2981
	Aldebaran E.	41 11 52	2495	39 30 32	2499	37 49 18	2505	36 8 12	2513
	Sun E.	94 41 49	2665	93 4 22	2657	91 26 44	2649	89 48 55	2640
26	α Aquilæ W.	98 38 13	3199	100 5 48	3131	101 33 20	3135	103 0 47	3149
	Saturn W.	77 17 2	2266	79 3 51	2259	80 50 51	2252	82 38 1	2246
	Fomalhaut W.	71 45 34	2520	73 26 19	2510	75 7 19	2499	76 48 34	2489
	α Pegasi W.	51 20 13	2784	52 55 2	2754	54 30 30	2727	56 6 34	2701
	Sun E.	81 37 7	2601	79 58 14	2594	78 19 11	2587	76 39 58	2580
27	Saturn W.	91 36 10	2215	93 24 15	2210	95 12 27	2205	97 0 47	2200
	Fomalhaut W.	85 17 59	2449	87 0 24	2443	88 42 58	2438	90 25 39	2433
	α Pegasi W.	64 14 36	2601	65 53 30	2585	67 32 45	2571	(8) 12 20	2559
	α Arietis W.	20 37 7	2534	22 17 5	2502	23 58 15	2461	25 40 23	2427
	Sun E.	68 21 38	2549	66 41 33	2544	65 1 21	2538	63 21 1	2534
28	Fomalhaut W.	99 0 28	2419	100 43 35	2419	102 26 43	2419	104 9 50	2420
	α Pegasi W.	77 34 14	2508	79 15 16	2502	80 56 27	2495	82 37 47	2491
	α Arietis W.	34 20 58	2320	36 6 28	2307	37 52 18	2295	39 38 25	2285
	Sun E.	54 57 53	2515	53 17 1	2513	51 36 6	2511	49 55 8	2510
29	α Pegasi W.	91 5 40	2480	92 47 21	2482	94 29 0	2483	96 10 37	2486
	α Arietis W.	48 32 4	2252	50 19 14	2249	52 6 29	2246	53 53 48	2244
	Sun E.	41 30 2	2510	39 49 3	2513	38 8 8	2516	36 27 17	2520

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XV ^h .	P. L. of Diff.	XVIII ^h .	P. L. of Diff.	XXI ^h .	P. L. of Diff.
21	Antares W.	91 37 12	2573	93 16 44	2564	94 56 28	2556	96 36 24	2548
	Mars W.	78 14 43	2556	79 54 38	2549	81 34 43	2541	83 14 59	2533
	α Aquilæ W.	49 42 59	4213	50 51 13	4128	52 0 48	4048	53 11 40	3975
	α Arietis E.	57 12 55	2632	55 34 43	2625	53 56 22	2619	52 17 53	2614
	Aldebaran E.	87 56 36	2636	86 18 30	2627	84 40 12	2619	83 1 43	2611
22	Mars W.	91 39 4	2494	93 20 26	2486	95 1 59	2479	96 43 42	2470
	α Aquilæ W.	59 22 41	3682	60 39 47	3635	61 57 44	3591	63 16 28	3550
	Saturn W.	28 43 57	2499	30 25 11	2489	32 6 39	2480	33 48 21	2470
	α Arietis E.	44 3 47	2593	42 24 42	2590	40 45 33	2588	39 6 21	2587
	Aldebaran E.	74 46 38	2573	73 7 6	2566	71 27 25	2559	69 47 34	2552
	SUN E.	126 29 4	2848	124 55 39	2839	123 22 2	2839	121 48 12	2820
23	Mars W.	105 15 4	2432	106 57 53	2424	108 40 53	2417	110 24 4	2409
	α Aquilæ W.	70 0 31	3383	71 23 7	3356	72 46 14	3330	74 9 51	3306
	Saturn W.	42 20 2	2426	44 3 0	2417	45 46 10	2400	47 29 32	2400
	Fomalhaut W.	39 37 54	2992	41 8 17	2948	42 39 35	2907	44 11 45	2869
	α Arietis E.	30 50 40	2604	29 11 51	2615	27 33 17	2630	25 55 3	2648
	Aldebaran E.	61 26 4	2522	59 45 22	2517	58 4 32	2512	56 23 35	2507
	SUN E.	113 55 56	2772	112 20 52	2763	110 45 35	2753	109 10 6	2744
24	α Aquilæ W.	81 14 9	3212	82 40 4	3198	84 6 16	3184	85 32 44	3173
	Saturn W.	56 9 27	2358	57 54 2	2350	59 38 49	2342	61 23 47	2334
	Fomalhaut W.	52 3 25	2723	53 39 34	2700	55 16 14	2678	56 53 23	2657
	α Pegasi W.	33 40 25	3497	35 0 53	3394	36 23 16	3304	37 47 23	3225
	Aldebaran E.	47 57 29	2492	46 16 5	2492	44 34 40	2492	42 53 15	2493
	SUN E.	101 9 41	2699	99 33 0	2691	97 56 8	2682	96 19 4	2674
25	α Aquilæ W.	92 48 1	3134	94 15 29	3130	95 43 2	3129	97 10 37	3128
	Saturn W.	70 11 31	2295	71 57 38	2288	73 43 55	2281	75 30 23	2273
	Fomalhaut W.	65 5 31	2573	66 45 3	2559	68 24 55	2545	70 5 6	2533
	α Pegasi W.	45 8 40	2934	46 40 16	2891	48 12 46	2852	49 46 6	2816
	Aldebaran E.	34 27 17	2524	32 46 37	2538	31 6 17	2556	29 26 22	2578
	SUN E.	88 10 55	2632	86 32 44	2624	84 54 22	2617	83 15 50	2609
26	α Aquilæ W.	104 28 6	3149	105 55 16	3159	107 22 14	3171	108 48 58	3185
	Saturn W.	84 25 20	2239	86 12 49	2233	88 0 27	2227	89 48 14	2221
	Fomalhaut W.	78 30 3	2480	80 11 45	2471	81 53 39	2463	83 35 44	2456
	α Pegasi W.	57 43 12	2678	59 20 21	2657	60 57 59	2636	62 36 5	2618
	SUN E.	75 0 36	2574	73 21 5	2566	71 41 24	2561	70 1 35	2555
27	Saturn W.	98 49 14	2196	100 37 48	2191	102 26 29	2187	104 15 16	2183
	Fomalhaut W.	92 8 27	2429	93 51 21	2425	95 34 20	2422	97 17 23	2421
	α Pegasi W.	70 52 12	2546	72 32 21	2535	74 12 45	2525	75 53 23	2516
	α Arietis W.	27 23 19	2398	29 6 56	2374	30 51 8	2353	32 35 50	2335
	SUN E.	61 40 35	2530	60 0 3	2525	58 19 25	2521	56 38 41	2518
28	Fomalhaut W.	105 52 56	2422	107 35 59	2426	109 18 57	2431	111 1 48	2436
	α Pegasi W.	84 19 13	2487	86 0 44	2484	87 42 20	2482	89 23 59	2480
	α Arietis W.	41 24 46	2277	43 11 20	2268	44 58 6	2262	46 45 1	2257
	SUN E.	48 14 8	2509	46 33 7	2508	44 52 5	2508	43 11 3	2509
29	α Pegasi W.	97 52 10	2490	99 33 37	2495	101 14 57	2501	102 56 9	2508
	α Arietis W.	55 41 10	2243	57 28 34	2242	59 15 59	2242	61 3 24	2243
	SUN E.	34 46 32	2525	33 5 53	2530	31 25 22	2538	29 45 1	2545

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sideral Time of the Semi-diameter passing the Meridian.	Equation of Time, to be added to subtracted from Apparent Time.	Diff. for 1 hour.						
		Apparent Right Ascension.		Diff. for 1 hour.	Apparent Declination.		Diff. for 1 hour.				Semi-diameter.					
		h	m		s	°						'	"			
Sun.	1	8	44	50.86	9.719	N. 18	4	44.3	37.67	15	47.98	66.66	m	s	a	
Mon.	2	8	48	43.80	9.694	17	49	31.5	38.40	15	48.11	66.57	6	4.88		0.138
Tues.	3	8	52	36.14	9.669	17	34	1.2	39.12	15	48.24	66.49	5	1.28		0.163
Wed.	4	8	56	27.86	9.643	17	18	13.8	39.83	15	48.38	66.40	5	57.07		0.188
Thur.	5	9	0	18.96	9.618	17	2	9.6	40.53	15	48.52	66.32	5	52.25		0.214
Frid.	6	9	4	9.45	9.592	16	45	48.8	41.21	15	48.67	66.23	5	46.81		0.239
Sat.	7	9	7	59.33	9.566	16	29	11.8	41.88	15	48.82	66.15	5	40.75		0.265
Sun.	8	9	11	48.60	9.541	16	12	19.1	42.53	15	48.98	66.06	5	34.09		0.290
Mon.	9	9	15	37.28	9.516	15	55	10.7	43.17	15	49.14	65.98	5	26.83		0.315
Tues.	10	9	19	25.37	9.491	15	37	47.0	43.80	15	49.31	65.89	5	18.98		0.340
Wed.	11	9	23	12.86	9.466	15	20	8.5	44.42	15	49.48	65.81	5	10.53		0.365
Thur.	12	9	26	59.76	9.442	15	2	15.3	45.02	15	49.65	65.73	5	1.50		0.390
Frid.	13	9	30	46.08	9.418	14	44	7.8	45.61	15	49.82	65.65	4	51.87		0.414
Sat.	14	9	34	31.83	9.395	14	25	46.3	46.19	15	50.00	65.57	4	41.66		0.438
Sun.	15	9	38	17.04	9.373	14	7	11.0	46.76	15	50.18	65.49	4	30.88		0.461
Mon.	16	9	42	1.73	9.351	13	48	22.3	47.31	15	50.36	65.41	4	19.57		0.483
Tues.	17	9	45	45.90	9.330	13	29	20.5	47.84	15	50.54	65.33	4	7.73		0.505
Wed.	18	9	49	29.54	9.309	13	10	5.9	48.37	15	50.73	65.26	3	55.37		0.526
Thur.	19	9	53	12.69	9.289	12	50	38.9	48.89	15	50.92	65.19	3	42.50		0.547
Frid.	20	9	56	55.37	9.269	12	30	59.5	49.39	15	51.11	65.12	3	29.14		0.567
Sat.	21	10	0	37.58	9.250	12	11	8.0	49.88	15	51.30	65.05	3	15.30		0.587
Sun.	22	10	4	19.34	9.230	11	51	4.8	50.36	15	51.50	64.98	3	9.99		0.606
Mon.	23	10	8	0.66	9.212	11	30	50.2	50.83	15	51.70	64.91	2	46.23		0.625
Tues.	24	10	11	41.56	9.195	11	10	24.7	51.28	15	51.90	64.85	2	31.04		0.643
Wed.	25	10	15	22.06	9.178	10	49	48.5	51.72	15	52.10	64.78	2	15.43		0.660
Thur.	26	10	19	2.17	9.162	10	29	1.7	52.15	15	52.31	64.72	1	59.42		0.677
Frid.	27	10	22	41.89	9.147	10	8	4.8	52.57	15	52.52	64.66	1	43.01		0.693
Sat.	28	10	26	21.23	9.132	9	46	58.2	52.97	15	52.74	64.61	1	26.22		0.708
Sun.	29	10	30	0.22	9.118	9	25	42.2	53.36	15	52.96	64.56	1	9.05		0.723
Mon.	30	10	33	38.88	9.104	9	4	17.0	53.73	15	53.18	64.51	0	51.54		0.737
Tues.	31	10	37	17.21	9.090	8	42	43.0	54.09	15	53.40	64.46	0	33.70		0.751
Wed.	32	10	40	55.22	9.077	N. 8	21	0.6	54.43	15	53.63	64.42	0	15.53		0.765
													0	2.96		0.778

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0^h.18 from the Sideral Time.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be subtracted from		Diff. for 1 hour.	Sidereal Time or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination	Diff. for 1 hour.	added to Mean Time.			
						m	s		
Sun.	1	8 ^h 44 ^m 49.88 ^s	9.719	N. 18° 4' 48.1"	37.67	6 ^m 4.90 ^s	0.138	8 ^h 38 ^m 44.98 ^s	
Mon.	2	8 48 42.83	9.694	17 49 35.4	38.40	6 1.29	0.163	8 42 41.54	
Tues.	3	8 52 35.18	9.669	17 34 5.1	39.12	5 57.09	0.188	8 46 38.09	
Wed.	4	8 56 26.92	9.643	17 18 17.7	39.83	5 52.27	0.214	8 50 34.65	
Thur.	5	9 0 18.04	9.618	17 2 13.6	40.53	5 46.83	0.239	8 54 31.21	
Frid.	6	9 4 8.55	9.592	16 45 52.7	41.21	5 40.78	0.265	8 58 27.77	
Sat.	7	9 7 58.45	9.567	16 29 15.7	41.88	5 34.12	0.290	9 2 24.33	
Sun.	8	9 11 47.74	9.542	16 12 22.9	42.53	5 26.86	0.315	9 6 20.88	
Mon.	9	9 15 36.44	9.517	15 55 14.5	43.17	5 19.01	0.340	9 10 17.43	
Tues.	10	9 19 24.55	9.492	15 37 50.8	43.80	5 10.56	0.365	9 14 13.99	
Wed.	11	9 23 12.07	9.467	15 20 12.2	44.42	5 1.53	0.390	9 18 10.54	
Thur.	12	9 26 59.00	9.443	15 2 18.9	45.02	4 51.90	0.414	9 22 7.10	
Frid.	13	9 30 45.35	9.419	14 44 11.3	45.61	4 41.69	0.438	9 26 3.66	
Sat.	14	9 34 31.13	9.396	14 25 49.7	46.19	4 30.91	0.461	9 30 0.22	
Sun.	15	9 38 16.37	9.374	14 7 14.4	46.76	4 19.60	0.483	9 33 56.77	
Mon.	16	9 42 1.09	9.352	13 48 25.6	47.31	4 7.76	0.505	9 37 53.33	
Tues.	17	9 45 45.29	9.331	13 29 23.7	47.85	3 55.40	0.526	9 41 49.89	
Wed.	18	9 49 28.97	9.310	13 10 8.9	48.38	3 42.53	0.547	9 45 46.44	
Thur.	19	9 53 12.16	9.290	12 50 41.7	48.90	3 29.17	0.567	9 49 42.99	
Frid.	20	9 56 54.87	9.270	12 31 2.1	49.40	3 15.32	0.587	9 53 39.55	
Sat.	21	10 0 37.12	9.251	12 11 10.5	49.89	3 1.02	0.606	9 57 36.10	
Sun.	22	10 4 18.92	9.232	11 51 7.1	50.37	2 46.26	0.625	10 1 32.66	
Mon.	23	10 8 0.28	9.214	11 30 52.3	50.84	2 31.07	0.643	10 5 29.21	
Tues.	24	10 11 41.22	9.197	11 10 26.6	51.29	2 15.45	0.660	10 9 25.77	
Wed.	25	10 15 21.76	9.180	10 49 50.2	51.73	1 59.44	0.677	10 13 22.32	
Thur.	26	10 19 1.91	9.164	10 29 3.2	52.16	1 43.03	0.693	10 17 18.88	
Frid.	27	10 22 41.67	9.149	10 8 6.1	52.58	1 26.24	0.708	10 21 15.43	
Sat.	28	10 26 21.06	9.134	9 46 59.2	52.98	1 9.07	0.723	10 25 11.99	
Sun.	29	10 30 0.10	9.120	9 25 42.9	53.37	0 51.55	0.737	10 29 8.55	
Mon.	30	10 33 38.80	9.106	9 4 17.4	53.74	0 33.70	0.751	10 33 5.10	
Tues.	31	10 37 17.18	9.092	8 42 43.2	54.10	0 15.53	0.765	10 37 1.65	
Wed.	32	10 40 55.24	9.079	N. 8 21 0.6	54.44	0 2.96	0.778	10 40 58.20	

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

Diff. for 1 hour.
+ 9".8565

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S					Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE.				
		λ	λ'						
1	213	128° 46' 50.2	46' 23.1	143.61	+0.39	0.0063767	-23.9	15 ^h 18 ^m 44.09 ^s	
2	214	129 44 17.4	43 50.1	143.65	0.34	.0063178	25.0	15 14 48.18	
3	215	130 41 45.5	41 18.0	143.69	0.24	.0062565	26.0	15 10 52.27	
4	216	131 39 14.5	38 46.9	143.72	0.14	.0061928	27.0	15 6 56.36	
5	217	132 36 44.3	36 16.6	143.76	+0.01	.0061270	27.9	15 3 0.45	
6	218	133 34 15.0	33 47.1	143.79	-0.12	.0060589	28.8	14 59 4.54	
7	219	134 31 46.5	31 18.4	143.82	0.25	.0059886	29.6	14 55 8.63	
8	220	135 29 18.8	28 50.5	143.86	0.37	.0059163	30.4	14 51 12.72	
9	221	136 26 52.0	26 23.6	143.90	0.50	.0058422	31.1	14 47 16.81	
10	222	137 24 26.0	23 57.5	143.94	0.60	.0057664	31.8	14 43 20.90	
11	223	138 22 0.9	21 32.3	143.98	0.67	.0056891	32.4	14 39 24.99	
12	224	139 19 36.8	19 8.0	144.02	0.71	.0056104	33.0	14 35 29.08	
13	225	140 17 13.7	16 44.7	144.06	0.71	.0055305	33.5	14 31 33.17	
14	226	141 14 51.7	14 22.6	144.10	0.70	.0054494	34.0	14 27 37.26	
15	227	142 12 30.8	12 1.6	144.15	0.65	.0053673	34.4	14 23 41.35	
16	228	143 10 11.1	9 41.8	144.21	0.57	.0052841	34.8	14 19 45.44	
17	229	144 7 52.9	7 23.4	144.27	0.46	.0051999	35.2	14 15 49.53	
18	230	145 5 36.0	5 6.3	144.33	0.36	.0051149	35.6	14 11 53.62	
19	231	146 3 20.5	2 50.6	144.39	0.23	.0050290	36.0	14 7 57.71	
20	232	147 1 6.5	0 36.4	144.45	-0.10	.0049422	36.4	14 4 1.80	
21	233	147 58 54.1	58 23.9	144.52	+0.03	.0048543	36.9	14 0 5.89	
22	234	148 56 43.5	56 13.2	144.59	0.16	.0047652	37.4	13 56 9.98	
23	235	149 54 34.7	54 4.2	144.66	0.27	.0046749	37.9	13 52 14.07	
24	236	150 52 27.6	51 57.0	144.74	0.34	.0045832	38.5	13 48 18.16	
25	237	151 50 22.3	49 51.6	144.81	0.40	.0044901	39.1	13 44 22.25	
26	238	152 48 18.8	47 48.0	144.89	0.42	.0043956	39.7	13 40 26.34	
27	239	153 46 17.1	45 46.2	144.96	0.42	.0042995	40.3	13 36 30.43	
28	240	154 44 17.2	43 46.2	145.04	0.39	.0042016	41.0	13 32 34.52	
29	241	155 42 19.1	41 47.9	145.11	0.33	.0041020	41.7	13 28 38.61	
30	242	156 40 22.8	39 51.5	145.19	0.26	.0040006	42.5	13 24 42.71	
31	243	157 38 28.2	37 56.8	145.26	0.14	.0038975	43.2	13 20 46.80	
32	244	158 36 35.3	36 3.8	145.33	+0.02	0.0037926	-44.0	13 16 50.89	

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 0d.

Diff. for 1 hour.

- 0°.8206

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.			AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.	
							h m	m	d	
1	16 6.0	16 1.0	58 58.6	-1.42	58 40.5	-1.59	0 8.1	2.35	29.3	
2	15 55.6	15 49.7	58 20.5	1.73	57 59.0	1.83	1 1.9	2.13	0.9	
3	15 43.6	15 37.4	57 36.6	1.90	57 13.7	1.92	1 50.8	1.95	1.9	
4	15 31.1	15 25.0	56 50.7	1.90	56 28.1	1.85	2 35.9	1.82	2.9	
5	15 19.1	15 13.5	56 6.3	1.77	55 45.8	1.65	3 18.4	1.74	3.9	
6	15 8.3	15 3.6	55 26.7	1.51	55 9.5	1.35	3 59.9	1.72	4.9	
7	14 59.5	14 56.0	54 54.4	1.17	54 41.5	0.97	4 41.3	1.74	5.9	
8	14 53.1	14 50.9	54 31.1	0.77	54 23.1	0.56	5 24.0	1.81	6.9	
9	14 49.5	14 48.7	54 17.7	-0.34	54 14.8	-0.13	6 8.7	1.91	7.9	
10	14 48.6	14 49.2	54 14.5	+0.08	54 16.8	+0.29	6 56.0	2.03	8.9	
11	14 50.5	14 52.4	54 21.4	0.49	54 28.4	0.67	7 46.1	2.14	9.9	
12	14 54.9	14 57.9	54 37.5	0.85	54 48.7	1.00	8 38.4	2.21	10.9	
13	15 1.4	15 5.3	55 1.5	1.14	55 15.9	1.25	9 31.8	2.23	11.9	
14	15 9.6	15 14.1	55 31.5	1.34	55 48.0	1.41	10 24.9	2.19	12.9	
15	15 18.8	15 23.6	56 5.3	1.46	56 22.9	1.48	11 16.6	2.11	13.9	
16	15 28.4	15 33.2	56 40.7	1.48	56 58.3	1.45	12 6.2	2.02	14.9	
17	15 37.9	15 42.3	57 15.4	1.40	57 31.8	1.33	12 53.8	1.95	15.9	
18	15 46.6	15 50.5	57 47.4	1.26	58 1.9	1.16	13 40.2	1.91	16.9	
19	15 54.2	15 57.5	58 15.2	1.06	58 27.3	0.95	14 26.1	1.92	17.9	
20	16 0.4	16 2.9	58 38.1	0.84	58 47.5	0.73	15 13.0	1.99	18.9	
21	16 5.2	16 7.0	58 55.6	0.62	59 2.4	0.51	16 2.2	2.11	19.9	
22	16 8.5	16 9.7	59 8.0	0.41	59 12.3	0.31	16 54.8	2.28	20.9	
23	16 10.5	16 11.0	59 15.4	+0.21	59 17.3	+0.11	17 51.5	2.45	21.9	
24	16 11.2	16 11.1	59 18.0	0.00	59 17.4	-0.10	18 52.2	2.59	22.9	
25	16 10.6	16 9.7	59 15.5	-0.21	59 12.3	0.33	19 55.0	2.63	23.9	
26	16 8.4	16 6.8	59 7.6	0.44	59 1.6	0.57	20 57.5	2.55	24.9	
27	16 4.7	16 2.2	58 53.9	0.70	58 44.7	0.83	21 56.8	2.38	25.9	
28	15 59.2	15 55.9	58 33.9	0.96	58 21.6	1.09	22 51.5	2.18	26.9	
29	15 52.2	15 48.0	58 7.9	1.21	57 52.7	1.31	23 41.7	2.00	27.9	
30	15 43.6	15 38.9	57 36.4	1.40	57 19.1	1.47	δ		28.9	
31	15 33.9	15 28.9	57 1.1	1.52	56 42.6	1.55	0 28.0	1.86	0.6	
32	15 23.9	15 18.9	56 24.0	-1.55	56 5.5	-1.52	1 11.6	1.78	1.6	

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 1.					TUESDAY 3.				
0	8 46 34.03	2.4287	N.22° 36' 58.1"	10.755	0	10 33 56.04	2.0626	N.12° 8' 27.6"	14.721
1	8 48 59.50	2.4204	22 26 8.9	10.883	1	10 35 59.61	2.0565	11 53 43.1	14.761
2	8 51 24.48	2.4121	22 15 12.2	11.008	2	10 38 2.82	2.0504	11 38 56.3	14.800
3	8 53 48.96	2.4038	22 4 7.9	11.132	3	10 40 5.66	2.0444	11 24 7.2	14.837
4	8 56 12.94	2.3955	21 52 56.3	11.253	4	10 42 8.15	2.0385	11 9 15.9	14.873
5	8 58 36.42	2.3873	21 41 37.5	11.373	5	10 44 10.28	2.0326	10 54 22.6	14.906
6	9 0 59.40	2.3788	21 30 11.5	11.491	6	10 46 12.06	2.0269	10 39 27.3	14.937
7	9 3 21.88	2.3705	21 18 38.5	11.607	7	10 48 13.50	2.0213	10 24 30.1	14.968
8	9 5 43.86	2.3622	21 6 58.7	11.721	8	10 50 14.61	2.0157	10 9 31.1	14.998
9	9 8 5.34	2.3538	20 55 12.0	11.833	9	10 52 15.38	2.0101	9 54 30.3	15.026
10	9 10 26.32	2.3455	20 43 18.7	11.942	10	10 54 15.82	2.0047	9 39 27.9	15.053
11	9 12 46.80	2.3372	20 31 19.0	12.049	11	10 56 15.95	1.9995	9 24 24.0	15.078
12	9 15 6.79	2.3290	20 19 12.8	12.155	12	10 58 15.76	1.9942	9 9 18.5	15.102
13	9 17 26.28	2.3207	20 7 0.3	12.259	13	11 0 15.25	1.9890	8 54 11.7	15.124
14	9 19 45.28	2.3125	19 54 41.7	12.361	14	11 2 14.44	1.9840	8 39 3.6	15.146
15	9 22 3.78	2.3043	19 42 17.0	12.461	15	11 4 13.33	1.9790	8 23 54.2	15.166
16	9 24 21.79	2.2962	19 29 46.4	12.559	16	11 6 11.92	1.9741	8 8 43.6	15.185
17	9 26 39.32	2.2881	19 17 10.0	12.655	17	11 8 10.22	1.9693	7 53 32.0	15.202
18	9 28 56.36	2.2800	19 4 27.8	12.749	18	11 10 8.23	1.9645	7 38 19.4	15.218
19	9 31 12.92	2.2719	18 51 40.1	12.840	19	11 12 5.96	1.9598	7 23 5.9	15.233
20	9 33 28.91	2.2638	18 38 47.0	12.931	20	11 14 3.41	1.9553	7 7 51.5	15.247
21	9 35 44.58	2.2558	18 25 48.4	13.020	21	11 16 0.60	1.9509	6 52 36.3	15.259
22	9 37 59.69	2.2479	18 12 44.6	13.106	22	11 17 57.52	1.9465	6 37 20.4	15.270
23	9 40 14.33	2.2401	N.17° 59' 35.7"	13.190	23	11 19 54.18	1.9422	N. 6° 22' 3.9"	15.279
MONDAY 2.					WEDNESDAY 4.				
0	9 42 28.50	2.2322	N.17° 46' 21.8"	13.273	0	11 21 50.58	1.9379	N. 6° 6' 46.9"	15.288
1	9 44 42.20	2.2244	17 33 3.0	13.353	1	11 23 46.73	1.9338	5 51 29.3	15.296
2	9 46 55.43	2.2167	17 19 39.5	13.432	2	11 25 42.64	1.9298	5 36 11.4	15.302
3	9 49 8.20	2.2090	17 6 11.2	13.509	3	11 27 38.31	1.9258	5 20 53.1	15.308
4	9 51 20.51	2.2013	16 52 38.4	13.584	4	11 29 33.75	1.9220	5 5 34.5	15.312
5	9 53 32.36	2.1938	16 39 1.1	13.658	5	11 31 28.95	1.9182	4 50 15.7	15.314
6	9 55 43.76	2.1863	16 25 19.5	13.729	6	11 33 23.93	1.9145	4 34 56.8	15.316
7	9 57 54.71	2.1788	16 11 33.7	13.798	7	11 35 18.69	1.9109	4 19 37.8	15.317
8	10 0 5.22	2.1714	15 57 43.8	13.866	8	11 37 13.24	1.9074	4 4 18.8	15.316
9	10 2 15.28	2.1641	15 43 49.8	13.933	9	11 39 7.58	1.9040	3 48 59.9	15.315
10	10 4 24.91	2.1568	15 29 51.9	13.997	10	11 41 1.72	1.9006	3 33 41.0	15.312
11	10 6 34.10	2.1496	15 15 50.2	14.059	11	11 42 55.66	1.8973	3 18 22.4	15.308
12	10 8 42.86	2.1424	15 1 44.8	14.120	12	11 44 49.40	1.8942	3 3 4.0	15.304
13	10 10 51.19	2.1354	14 47 35.8	14.179	13	11 46 42.96	1.8911	2 47 45.9	15.298
14	10 12 59.11	2.1285	14 33 23.3	14.237	14	11 48 36.33	1.8881	2 32 28.2	15.289
15	10 15 6.61	2.1215	14 19 7.4	14.293	15	11 50 29.53	1.8851	2 17 10.9	15.284
16	10 17 13.69	2.1146	14 4 48.2	14.347	16	11 52 22.55	1.8822	2 1 54.1	15.275
17	10 19 20.37	2.1079	13 50 25.8	14.399	17	11 54 15.41	1.8796	1 46 37.9	15.265
18	10 21 26.64	2.1012	13 36 0.3	14.450	18	11 56 8.11	1.8770	1 31 22.3	15.255
19	10 23 32.51	2.0946	13 21 31.8	14.499	19	11 58 0.65	1.8744	1 16 7.3	15.243
20	10 25 37.99	2.0881	13 7 0.4	14.547	20	11 59 53.04	1.8719	1 0 53.1	15.230
21	10 27 43.08	2.0816	12 52 26.2	14.593	21	12 1 45.28	1.8695	0 45 39.7	15.216
22	10 29 47.78	2.0752	12 37 49.2	14.637	22	12 3 37.38	1.8672	0 30 27.2	15.202
23	10 31 52.10	2.0688	12 23 9.7	14.680	23	12 5 29.34	1.8649	0 15 15.5	15.187
24	10 33 56.04	2.0626	N.12° 8' 27.6"	14.721	24	12 7 21.17	1.8628	N. 0° 0' 4.8"	15.170

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 5.					SATURDAY 7.				
0	12 7 21.17	1.8698	N. 0 0 4.8	15.170	0	13 35 48.67	1.8594	S. 11 33 17.5	13.425
1	12 9 12.88	1.8607	S. 0 15 4.9	15.153	1	13 37 39.86	1.8540	11 46 41.4	13.370
2	12 11 4.46	1.8587	0 30 13.5	15.134	2	13 39 31.15	1.8556	12 0 1.9	13.315
3	12 12 55.92	1.8568	0 45 21.0	15.115	3	13 41 22.53	1.8573	12 13 19.1	13.259
4	12 14 47.28	1.8550	1 0 27.3	15.095	4	13 43 14.02	1.8591	12 26 33.0	13.202
5	12 16 38.52	1.8539	1 15 32.4	15.075	5	13 45 5.62	1.8609	12 39 43.4	13.145
6	12 18 29.66	1.8516	1 30 36.3	15.053	6	13 46 57.33	1.8628	12 52 50.4	13.087
7	12 20 20.71	1.8500	1 45 38.8	15.030	7	13 48 49.16	1.8648	13 5 53.9	13.028
8	12 22 11.66	1.8485	2 0 39.9	15.007	8	13 50 41.11	1.8668	13 18 53.8	12.968
9	12 24 2.53	1.8471	2 15 39.6	14.983	9	13 52 33.18	1.8689	13 31 50.1	12.908
10	12 25 53.32	1.8458	2 30 37.8	14.957	10	13 54 25.38	1.8711	13 44 42.8	12.848
11	12 27 44.03	1.8446	2 45 34.4	14.930	11	13 56 17.71	1.8733	13 57 31.8	12.787
12	12 29 34.67	1.8434	3 0 29.4	14.903	12	13 58 10.18	1.8756	14 10 17.2	12.725
13	12 31 25.24	1.8423	3 15 22.8	14.876	13	14 0 2.79	1.8780	14 22 58.8	12.662
14	12 33 15.75	1.8413	3 30 14.5	14.848	14	14 1 55.54	1.8804	14 35 36.6	12.598
15	12 35 6.20	1.8404	3 45 4.5	14.818	15	14 3 48.44	1.8829	14 48 10.5	12.533
16	12 36 56.60	1.8395	3 59 52.7	14.788	16	14 5 41.49	1.8854	15 0 40.5	12.468
17	12 38 46.94	1.8387	4 14 39.0	14.757	17	14 7 34.69	1.8880	15 13 6.6	12.403
18	12 40 37.24	1.8380	4 29 23.5	14.725	18	14 9 28.05	1.8907	15 25 28.8	12.336
19	12 42 27.50	1.8374	4 44 6.0	14.693	19	14 11 21.57	1.8934	15 37 46.9	12.269
20	12 44 17.73	1.8369	4 58 46.6	14.660	20	14 13 15.26	1.8961	15 50 1.0	12.201
21	12 46 7.93	1.8364	5 13 25.2	14.626	21	14 15 9.11	1.8989	16 2 11.0	12.132
22	12 47 58.10	1.8361	5 28 1.7	14.591	22	14 17 3.13	1.9018	16 14 16.8	12.063
23	12 49 48.26	1.8358	S. 5 42 36.1	14.555	23	14 18 57.33	1.9047	S. 16 26 18.5	11.993
FRIDAY 6.					SUNDAY 8.				
0	12 51 38.40	1.8356	S. 5 57 8.3	14.518	0	14 20 51.70	1.9077	S. 16 38 16.0	11.923
1	12 53 28.53	1.8354	6 11 38.3	14.481	1	14 22 46.25	1.9108	16 50 9.2	11.851
2	12 55 18.65	1.8353	6 26 6.0	14.443	2	14 24 40.99	1.9139	17 1 58.1	11.778
3	12 57 8.77	1.8353	6 40 31.5	14.405	3	14 26 35.92	1.9171	17 13 42.6	11.705
4	12 58 58.89	1.8354	6 54 54.6	14.365	4	14 28 31.04	1.9203	17 25 22.7	11.631
5	13 0 49.02	1.8356	7 9 15.3	14.325	5	14 30 26.35	1.9235	17 36 58.3	11.557
6	13 2 39.16	1.8358	7 23 33.6	14.284	6	14 32 21.86	1.9268	17 48 29.5	11.481
7	13 4 29.31	1.8361	7 37 49.4	14.243	7	14 34 17.57	1.9301	17 59 56.1	11.405
8	13 6 19.49	1.8365	7 52 2.7	14.201	8	14 36 13.48	1.9335	18 11 18.1	11.329
9	13 8 9.69	1.8369	8 6 13.5	14.158	9	14 38 9.59	1.9369	18 22 35.6	11.252
10	13 9 59.92	1.8375	8 20 21.6	14.113	10	14 40 5.91	1.9404	18 33 48.4	11.173
11	13 11 50.19	1.8381	8 34 27.1	14.069	11	14 42 2.44	1.9440	18 44 56.4	11.094
12	13 13 40.49	1.8388	8 48 29.9	14.024	12	14 43 59.19	1.9476	18 55 59.7	11.015
13	13 15 30.84	1.8395	9 2 30.0	13.978	13	14 45 56.16	1.9512	19 6 58.2	10.934
14	13 17 21.23	1.8403	9 16 27.3	13.931	14	14 47 53.34	1.9549	19 17 51.8	10.853
15	13 19 11.67	1.8412	9 30 21.7	13.883	15	14 49 50.74	1.9586	19 28 40.6	10.772
16	13 21 2.17	1.8422	9 44 13.3	13.835	16	14 51 48.37	1.9623	19 39 24.5	10.689
17	13 22 52.73	1.8432	9 58 1.9	13.786	17	14 53 46.22	1.9661	19 50 3.3	10.605
18	13 24 43.35	1.8443	10 11 47.6	13.737	18	14 55 44.30	1.9700	20 0 37.1	10.521
19	13 26 34.04	1.8455	10 25 30.3	13.687	19	14 57 42.62	1.9739	20 11 5.8	10.436
20	13 28 24.81	1.8467	10 39 10.0	13.636	20	14 59 41.17	1.9778	20 21 29.4	10.351
21	13 30 15.65	1.8480	10 52 46.6	13.584	21	15 1 39.95	1.9817	20 31 47.9	10.264
22	13 32 6.57	1.8494	11 6 20.1	13.532	22	15 3 38.97	1.9857	20 42 1.1	10.177
23	13 33 57.58	1.8508	11 19 50.4	13.479	23	15 5 38.23	1.9898	20 52 9.1	10.089
24	13 35 48.67	1.8524	S. 11 33 17.5	13.425	24	15 7 37.74	1.9938	S. 21 2 11.8	10.001

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 9.					WEDNESDAY 11.				
0	15 7 37.74	1.9938	S. 21° 2' 11.8"	10.001	0	16 48 18.41	2.9005	S. 27° 4' 49.8"	4.805
1	15 9 37.49	1.9978	21 12 9.2	9.911	1	16 50 30.56	2.9044	27 9 34.3	4.678
2	15 11 37.48	2.0019	21 22 1.1	9.820	2	16 52 42.94	2.9083	27 14 11.1	4.550
3	15 13 37.72	2.0061	21 31 47.6	9.729	3	16 54 55.55	2.9121	27 18 40.3	4.422
4	15 15 38.21	2.0103	21 41 28.6	9.637	4	16 57 8.39	2.9159	27 23 1.7	4.292
5	15 17 38.95	2.0145	21 51 4.0	9.544	5	16 59 21.46	2.9196	27 27 15.3	4.169
6	15 19 39.95	2.0187	22 0 33.9	9.451	6	17 1 34.75	2.9233	27 31 21.2	4.032
7	15 21 41.20	2.0229	22 9 58.2	9.357	7	17 3 48.26	2.9270	27 35 19.2	3.901
8	15 23 42.70	2.0272	22 19 16.7	9.261	8	17 6 1.99	2.9306	27 39 9.3	3.768
9	15 25 44.46	2.0315	22 28 29.5	9.165	9	17 8 15.93	2.9341	27 42 51.4	3.635
10	15 27 46.48	2.0358	22 37 36.5	9.069	10	17 10 30.08	2.9376	27 46 25.5	3.502
11	15 29 48.76	2.0402	22 46 37.7	8.972	11	17 12 44.44	2.9410	27 49 51.6	3.368
12	15 31 51.30	2.0445	22 55 33.1	8.873	12	17 14 59.00	2.9444	27 53 9.7	3.234
13	15 33 54.10	2.0489	23 4 22.5	8.774	13	17 17 13.76	2.9477	27 56 19.7	3.099
14	15 35 57.16	2.0533	23 13 5.9	8.674	14	17 19 28.72	2.9509	27 59 21.5	2.963
15	15 38 0.49	2.0577	23 21 43.4	8.574	15	17 21 43.87	2.9541	28 2 15.2	2.826
16	15 40 4.08	2.0620	23 30 14.8	8.473	16	17 23 59.21	2.9572	28 5 0.7	2.689
17	15 42 7.93	2.0664	23 38 40.1	8.370	17	17 26 14.73	2.9602	28 7 37.9	2.552
18	15 44 12.05	2.0709	23 46 59.2	8.267	18	17 28 30.43	2.9632	28 10 6.9	2.414
19	15 46 16.44	2.0753	23 55 12.1	8.163	19	17 30 46.31	2.9661	28 12 27.6	2.275
20	15 48 21.09	2.0798	24 3 18.7	8.058	20	17 33 2.36	2.9689	28 14 39.9	2.135
21	15 50 26.01	2.0843	24 11 19.0	7.953	21	17 35 18.58	2.9717	28 16 43.8	1.995
22	15 52 31.20	2.0887	24 19 13.0	7.847	22	17 37 34.96	2.9743	28 18 39.3	1.855
23	15 54 36.65	2.0931	S. 24° 27' 0.6"	7.739	23	17 39 51.50	2.9769	S. 28° 20' 26.4"	1.715
TUESDAY 10.					THURSDAY 12.				
0	15 56 42.37	2.0976	S. 24 34 41.7	7.631	0	17 42 8.19	2.9794	S. 28 22 5.1	1.574
1	15 58 48.36	2.1020	24 42 16.3	7.523	1	17 44 25.03	2.9819	28 23 35.3	1.432
2	16 0 54.61	2.1064	24 49 44.4	7.413	2	17 46 42.01	2.9843	28 24 56.9	1.289
3	16 3 1.13	2.1109	24 57 5.9	7.303	3	17 48 59.14	2.9866	28 26 10.0	1.147
4	16 5 7.92	2.1154	25 4 20.8	7.192	4	17 51 16.40	2.9888	28 27 14.5	1.005
5	16 7 14.98	2.1199	25 11 28.9	7.079	5	17 53 33.79	2.9909	28 28 10.5	0.862
6	16 9 22.30	2.1243	25 18 30.3	6.966	6	17 55 51.31	2.9929	28 28 57.9	0.718
7	16 11 29.89	2.1287	25 25 24.9	6.853	7	17 58 8.94	2.9948	28 29 36.6	0.573
8	16 13 37.74	2.1331	25 32 12.7	6.739	8	18 0 26.69	2.9967	28 30 6.6	0.428
9	16 15 45.86	2.1375	25 38 53.6	6.624	9	18 2 44.55	2.9985	28 30 28.0	0.283
10	16 17 54.24	2.1419	25 45 27.6	6.508	10	18 5 2.51	2.3002	28 30 40.6	-0.138
11	16 20 2.88	2.1462	25 51 54.6	6.392	11	18 7 20.57	2.3018	28 30 44.5	+0.007
12	16 22 11.78	2.1505	25 58 14.6	6.274	12	18 9 38.73	2.3033	28 30 39.8	0.153
13	16 24 20.94	2.1548	26 4 27.5	6.156	13	18 11 56.97	2.3048	28 30 26.2	0.300
14	16 26 30.36	2.1591	26 10 33.3	6.037	14	18 14 15.30	2.3062	28 30 3.8	0.446
15	16 28 40.04	2.1634	26 16 31.9	5.917	15	18 16 33.71	2.3074	28 29 32.7	0.589
16	16 30 49.97	2.1677	26 22 23.3	5.797	16	18 18 52.18	2.3085	28 28 52.8	0.739
17	16 33 0.16	2.1719	26 28 7.5	5.676	17	18 21 10.73	2.3096	28 28 4.0	0.887
18	16 35 10.60	2.1761	26 33 44.4	5.554	18	18 23 29.34	2.3106	28 27 6.4	1.034
19	16 37 21.29	2.1802	26 39 14.0	5.431	19	18 25 48.00	2.3115	28 26 0.0	1.181
20	16 39 32.23	2.1843	26 44 36.1	5.307	20	18 28 6.72	2.3123	28 24 44.7	1.328
21	16 41 43.41	2.1884	26 49 50.8	5.183	21	18 30 25.48	2.3130	28 23 20.6	1.476
22	16 43 54.83	2.1925	26 54 58.0	5.058	22	18 32 44.28	2.3137	28 21 47.6	1.624
23	16 46 6.50	2.1965	26 59 57.7	4.933	23	18 35 3.12	2.3142	28 20 5.7	1.772
24	16 48 18.41	2.2005	S. 27° 4' 49.8"	4.805	24	18 37 21.98	2.3145	S. 28° 18' 14.9"	1.921

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 13.					SUNDAY 15.				
0	18 37 21.98	2.3145	S. 28 18 14.9	1.921	0	20 27 20.96	2.2402	S. 23 58 20.4	8.765
1	18 39 40.86	2.3148	28 16 15.2	2.069	1	20 29 35.28	2.2371	23 49 30.6	8.894
2	18 41 59.76	2.3151	28 14 6.6	2.217	2	20 31 49.41	2.2340	23 40 33.1	9.023
3	18 44 18.68	2.3153	28 11 49.2	2.365	3	20 34 3.35	2.2309	23 31 27.8	9.152
4	18 46 37.60	2.3154	28 9 22.8	2.513	4	20 36 17.11	2.2277	23 22 14.8	9.280
5	18 48 56.53	2.3154	28 6 47.6	2.661	5	20 38 30.68	2.2245	23 12 54.2	9.406
6	18 51 15.45	2.3153	28 4 3.5	2.809	6	20 40 44.05	2.2213	23 3 26.1	9.532
7	18 53 34.36	2.3150	28 1 10.5	2.958	7	20 42 57.23	2.2181	22 53 50.4	9.657
8	18 55 53.25	2.3147	27 58 8.6	3.106	8	20 45 10.22	2.2148	22 44 7.3	9.780
9	18 58 12.13	2.3144	27 54 57.8	3.254	9	20 47 23.01	2.2115	22 34 16.8	9.903
10	19 0 30.98	2.3139	27 51 38.1	3.402	10	20 49 35.60	2.2083	22 24 18.9	10.026
11	19 2 49.80	2.3134	27 48 9.6	3.549	11	20 51 48.00	2.2050	22 14 13.6	10.148
12	19 5 8.59	2.3128	27 44 32.2	3.697	12	20 54 0.20	2.2017	22 4 1.1	10.268
13	19 7 27.34	2.3120	27 40 45.9	3.845	13	20 56 12.20	2.1983	21 53 41.4	10.388
14	19 9 46.03	2.3111	27 36 50.8	3.992	14	20 58 24.00	2.1949	21 43 14.5	10.507
15	19 12 4.67	2.3102	27 32 46.9	4.139	15	21 0 35.59	2.1915	21 32 40.6	10.624
16	19 14 23.26	2.3093	27 28 34.1	4.286	16	21 2 46.98	2.1882	21 21 59.6	10.741
17	19 16 41.79	2.3082	27 24 12.6	4.432	17	21 4 58.17	2.1848	21 11 11.6	10.857
18	19 19 0.24	2.3070	27 19 42.3	4.578	18	21 7 9.16	2.1814	21 0 16.7	10.972
19	19 21 18.62	2.3058	27 15 3.2	4.725	19	21 9 19.94	2.1780	20 49 15.0	11.086
20	19 23 36.93	2.3045	27 10 15.3	4.871	20	21 11 30.52	2.1746	20 38 6.4	11.199
21	19 25 55.16	2.3031	27 5 18.7	5.017	21	21 13 40.90	2.1712	20 26 51.1	11.311
22	19 28 13.30	2.3016	27 0 13.3	5.163	22	21 15 51.07	2.1678	20 15 29.1	11.422
23	19 30 31.35	2.3000	S. 26 54 59.2	5.307	23	21 18 1.04	2.1644	S. 20 4 0.5	11.532
SATURDAY 14.					MONDAY 16.				
0	19 32 49.30	2.2984	S. 26 49 36.5	5.451	0	21 20 10.80	2.1610	S. 19 52 25.3	11.641
1	19 35 7.15	2.2967	26 44 5.1	5.595	1	21 22 20.36	2.1576	19 40 43.6	11.748
2	19 37 24.90	2.2949	26 38 25.1	5.739	2	21 24 29.72	2.1543	19 28 55.5	11.855
3	19 39 42.54	2.2930	26 32 36.4	5.883	3	21 26 38.88	2.1510	19 17 1.0	11.961
4	19 42 0.06	2.2911	26 26 39.2	6.025	4	21 28 47.84	2.1477	19 5 0.2	12.066
5	19 44 17.47	2.2892	26 20 33.4	6.167	5	21 30 56.60	2.1443	18 52 53.1	12.169
6	19 46 34.76	2.2871	26 14 19.1	6.309	6	21 33 5.15	2.1409	18 40 39.9	12.271
7	19 48 51.92	2.2850	26 7 56.3	6.451	7	21 35 13.51	2.1376	18 28 20.6	12.373
8	19 51 8.95	2.2828	26 1 25.0	6.592	8	21 37 21.67	2.1343	18 15 55.2	12.473
9	19 53 25.85	2.2805	25 54 45.3	6.733	9	21 39 29.63	2.1311	18 3 23.8	12.573
10	19 55 42.61	2.2782	25 47 57.1	6.873	10	21 41 37.40	2.1279	17 50 46.5	12.671
11	19 57 59.23	2.2758	25 41 0.6	7.012	11	21 43 44.98	2.1247	17 38 3.3	12.768
12	20 0 15.71	2.2734	25 33 55.7	7.151	12	21 45 52.36	2.1214	17 25 14.3	12.864
13	20 2 32.04	2.2709	25 26 42.5	7.289	13	21 47 59.55	2.1183	17 12 19.6	12.959
14	20 4 48.21	2.2683	25 19 21.1	7.426	14	21 50 6.55	2.1152	16 59 19.2	13.052
15	20 7 4.23	2.2657	25 11 51.4	7.563	15	21 52 13.37	2.1121	16 46 13.3	13.144
16	20 9 20.09	2.2630	25 4 13.5	7.699	16	21 54 20.00	2.1089	16 33 1.9	13.236
17	20 11 35.79	2.2603	24 56 27.5	7.834	17	21 56 26.44	2.1058	16 19 45.0	13.327
18	20 13 51.33	2.2576	24 48 33.4	7.969	18	21 58 32.70	2.1026	16 6 22.7	13.416
19	20 16 6.70	2.2548	24 40 31.2	8.103	19	22 0 38.78	2.0998	15 52 55.1	13.503
20	20 18 21.90	2.2519	24 32 21.0	8.237	20	22 2 44.68	2.0969	15 39 22.3	13.590
21	20 20 36.93	2.2490	24 24 2.7	8.371	21	22 4 50.41	2.0940	15 25 44.3	13.676
22	20 22 51.78	2.2461	24 15 36.5	8.503	22	22 6 55.96	2.0911	15 12 1.2	13.760
23	20 25 6.46	2.2432	24 7 2.4	8.634	23	22 9 1.34	2.0883	14 58 13.1	13.843
24	20 27 20.96	2.2402	S. 23 58 20.4	8.765	24	22 11 6.55	2.0855	S. 14 44 20.0	13.926

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 17.					THURSDAY 19.				
0	22 11 6.55	2.0855	S. 14 44' 20.0"	13.996	0	23 48 59.98	2.0180	S. 2 24' 46.3"	16.396
1	22 13 11.59	2.0897	14 30 22.0	14.007	1	23 51 1.07	2.0183	2 8 21.8	16.418
2	22 15 16.47	2.0900	14 16 19.2	14.086	2	23 53 2.18	2.0187	1 51 56.1	16.437
3	22 17 21.19	2.0773	14 2 11.7	14.164	3	23 55 3.31	2.0192	1 35 29.3	16.454
4	22 19 25.75	2.0747	13 47 59.5	14.242	4	23 57 4.48	2.0197	1 19 1.6	16.469
5	22 21 30.15	2.0721	13 33 42.7	14.318	5	23 59 5.68	2.0203	1 2 33.0	16.484
6	22 23 34.40	2.0696	13 19 21.3	14.393	6	0 1 6.92	2.0211	0 46 3.5	16.497
7	22 25 38.50	2.0671	13 4 55.5	14.467	7	0 3 8.21	2.0219	0 29 33.3	16.508
8	22 27 42.45	2.0646	12 50 25.3	14.539	8	0 5 9.55	2.0228	S. 0 13 2.5	16.518
9	22 29 46.25	2.0622	12 35 50.8	14.611	9	0 7 10.94	2.0237	N. 0 3 28.9	16.527
10	22 31 49.91	2.0599	12 21 12.0	14.681	10	0 9 12.39	2.0248	0 20 0.7	16.534
11	22 33 53.44	2.0577	12 6 29.1	14.749	11	0 11 13.91	2.0259	0 36 33.0	16.540
12	22 35 56.83	2.0555	11 51 42.1	14.817	12	0 13 15.50	2.0271	0 53 5.6	16.545
13	22 38 0.09	2.0533	11 36 51.1	14.883	13	0 15 17.16	2.0284	1 9 38.4	16.548
14	22 40 3.22	2.0511	11 21 56.1	14.948	14	0 17 18.91	2.0298	1 26 11.4	16.550
15	22 42 6.22	2.0490	11 6 57.3	15.012	15	0 19 20.74	2.0313	1 42 44.4	16.550
16	22 44 9.10	2.0470	10 51 54.7	15.074	16	-0 21 22.66	2.0328	1 59 17.4	16.549
17	22 46 11.86	2.0451	10 36 48.4	15.136	17	0 23 24.67	2.0344	2 15 50.3	16.547
18	22 48 14.51	2.0432	10 21 38.4	15.196	18	0 25 26.78	2.0361	2 32 23.0	16.543
19	22 50 17.05	2.0414	10 6 24.9	15.254	19	0 27 29.00	2.0379	2 48 55.4	16.538
20	22 52 19.48	2.0396	9 51 7.9	15.312	20	0 29 31.33	2.0398	3 5 27.5	16.531
21	22 54 21.80	2.0379	9 35 47.4	15.369	21	0 31 33.77	2.0417	3 21 59.2	16.523
22	22 56 24.02	2.0363	9 20 23.6	15.424	22	0 33 36.33	2.0438	3 38 30.3	16.513
23	22 58 26.15	2.0348	S. 9 4 56.5	15.478	23	0 35 39.02	2.0459	N. 3 55 0.8	16.508
WEDNESDAY 18.					FRIDAY 20.				
0	23 0 28.19	2.0333	S. 8 49 26.3	15.530	0	0 37 41.84	2.0481	N. 4 11 30.6	16.490
1	23 2 30.14	2.0318	8 33 52.9	15.581	1	0 39 44.80	2.0504	4 27 59.6	16.476
2	23 4 32.00	2.0303	8 18 16.5	15.631	2	0 41 47.89	2.0528	4 44 27.7	16.461
3	23 6 33.78	2.0290	8 2 37.2	15.679	3	0 43 51.13	2.0553	5 0 54.9	16.444
4	23 8 35.49	2.0278	7 46 55.0	15.727	4	0 45 54.53	2.0579	5 17 21.0	16.426
5	23 10 37.12	2.0266	7 31 10.0	15.773	5	0 47 58.08	2.0605	5 33 46.0	16.406
6	23 12 38.68	2.0255	7 15 22.2	15.818	6	0 50 1.79	2.0633	5 50 9.8	16.385
7	23 14 40.18	2.0245	6 59 31.8	15.862	7	0 52 5.67	2.0661	6 6 32.2	16.363
8	23 16 41.62	2.0235	6 43 38.8	15.904	8	0 54 9.72	2.0690	6 22 53.3	16.339
9	23 18 43.00	2.0226	6 27 43.4	15.944	9	0 56 13.95	2.0720	6 39 12.9	16.313
10	23 20 44.33	2.0218	6 11 45.5	15.984	10	0 58 18.36	2.0750	6 55 30.9	16.286
11	23 22 45.61	2.0210	5 55 45.3	16.022	11	1 0 22.95	2.0782	7 11 47.2	16.258
12	23 24 46.85	2.0203	5 39 42.9	16.058	12	1 2 27.74	2.0815	7 28 1.8	16.228
13	23 26 48.05	2.0196	5 23 38.3	16.094	13	1 4 32.73	2.0848	7 44 14.5	16.196
14	23 28 49.22	2.0193	5 7 31.6	16.129	14	1 6 37.91	2.0881	8 0 25.3	16.163
15	23 30 50.36	2.0188	4 51 22.8	16.162	15	1 8 43.30	2.0916	8 16 34.0	16.128
16	23 32 51.47	2.0183	4 35 12.1	16.194	16	1 10 48.91	2.0952	8 32 40.7	16.093
17	23 34 52.56	2.0180	4 18 59.5	16.224	17	1 12 54.73	2.0988	8 48 45.1	16.054
18	23 36 53.63	2.0178	4 2 45.2	16.253	18	1 15 0.77	2.1026	9 4 47.2	16.015
19	23 38 54.69	2.0177	3 46 29.2	16.281	19	1 17 7.04	2.1065	9 20 46.9	15.974
20	23 40 55.75	2.0176	3 30 11.5	16.308	20	1 19 13.55	2.1104	9 36 44.1	15.933
21	23 42 56.80	2.0175	3 13 52.3	16.333	21	1 21 20.29	2.1143	9 52 38.8	15.889
22	23 44 57.85	2.0176	2 57 31.6	16.356	22	1 23 27.27	2.1184	10 8 30.8	15.843
23	23 46 58.91	2.0178	2 41 9.6	16.378	23	1 25 34.50	2.1226	10 24 20.0	15.797
24	23 48 59.98	2.0180	S. 2 24 46.3	16.398	24	1 27 41.98	2.1268	N. 10 40 6.4	15.748

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 21.					MONDAY 23.				
0	1 27 41.98	2.1968	N.10 40 6.4	15.748	0	3 15 58.41	2.4045	N.21 49 18.2	11.489
1	1 29 49.72	2.1311	10 55 49.8	15.698	1	3 18 22.88	2.4113	22 0 43.7	11.359
2	1 31 57.72	2.1355	11 11 30.2	15.646	2	3 20 47.76	2.4180	22 12 1.3	11.227
3	1 34 5.98	2.1399	11 27 7.4	15.593	3	3 23 13.04	2.4247	22 23 10.9	11.093
4	1 36 14.51	2.1445	11 42 41.4	15.539	4	3 25 38.72	2.4313	22 34 12.5	10.959
5	1 38 23.32	2.1491	11 58 12.1	15.483	5	3 28 4.79	2.4379	22 45 5.9	10.821
6	1 40 32.41	2.1538	12 13 39.3	15.425	6	3 30 31.26	2.4445	22 55 51.0	10.682
7	1 42 41.78	2.1586	12 29 3.0	15.365	7	3 32 58.13	2.4511	23 6 27.8	10.542
8	1 44 51.44	2.1635	12 44 23.1	15.304	8	3 35 25.39	2.4577	23 16 56.1	10.400
9	1 47 1.40	2.1685	12 59 39.5	15.241	9	3 37 53.05	2.4643	23 27 15.8	10.257
10	1 49 11.66	2.1735	13 14 52.1	15.177	10	3 40 21.10	2.4708	23 37 26.9	10.119
11	1 51 22.22	2.1785	13 30 0.8	15.111	11	3 42 49.54	2.4773	23 47 29.2	9.985
12	1 53 33.08	2.1837	13 45 5.4	15.044	12	3 45 18.38	2.4838	23 57 22.6	9.816
13	1 55 44.26	2.1889	14 0 6.0	14.975	13	3 47 47.60	2.4902	24 7 7.1	9.666
14	1 57 55.75	2.1943	14 15 2.4	14.904	14	3 50 17.20	2.4966	24 16 42.5	9.515
15	2 0 7.56	2.1995	14 29 54.4	14.831	15	3 52 47.19	2.5030	24 26 8.8	9.363
16	2 2 19.69	2.2049	14 44 42.0	14.756	16	3 55 17.56	2.5093	24 35 25.9	9.207
17	2 4 32.15	2.2104	14 59 25.1	14.680	17	3 57 48.30	2.5155	24 44 33.6	9.050
18	2 6 44.94	2.2159	15 14 3.7	14.602	18	4 0 19.41	2.5216	24 53 31.0	8.892
19	2 8 58.06	2.2216	15 28 37.5	14.523	19	4 2 50.89	2.5277	25 2 20.6	8.733
20	2 11 11.53	2.2273	15 43 6.5	14.443	20	4 5 22.73	2.5338	25 10 59.8	8.573
21	2 13 25.34	2.2330	15 57 30.7	14.360	21	4 7 54.94	2.5398	25 19 29.3	8.410
22	2 15 39.49	2.2388	16 11 49.8	14.276	22	4 10 27.50	2.5457	25 27 49.0	8.246
23	2 17 53.99	2.2447	N.16 26 3.8	14.191	23	4 13 0.42	2.5515	N.25 35 58.8	8.081
SUNDAY 22.					TUESDAY 24.				
0	2 20 8.85	2.2506	N.16 40 12.7	14.104	0	4 15 33.68	2.5572	N.25 43 58.7	7.915
1	2 22 24.06	2.2565	16 54 16.3	14.014	1	4 18 7.28	2.5629	25 51 48.6	7.747
2	2 24 39.63	2.2626	17 8 14.4	13.923	2	4 20 41.23	2.5685	25 59 28.3	7.577
3	2 26 55.57	2.2687	17 22 7.0	13.830	3	4 23 15.51	2.5740	26 6 57.8	7.406
4	2 29 11.88	2.2748	17 35 54.0	13.736	4	4 25 50.11	2.5794	26 14 17.0	7.234
5	2 31 28.55	2.2809	17 49 35.3	13.640	5	4 28 25.04	2.5847	26 21 25.9	7.061
6	2 33 45.59	2.2871	18 3 10.8	13.543	6	4 31 0.28	2.5899	26 28 24.3	6.886
7	2 36 3.01	2.2934	18 16 40.4	13.443	7	4 33 35.83	2.5950	26 35 12.2	6.710
8	2 38 20.80	2.2997	18 30 4.0	13.342	8	4 36 11.68	2.6000	26 41 49.5	6.533
9	2 40 38.97	2.3061	18 43 21.4	13.239	9	4 38 47.83	2.6049	26 48 16.2	6.355
10	2 42 57.53	2.3125	18 56 32.6	13.134	10	4 41 24.27	2.6097	26 54 32.1	6.175
11	2 45 16.47	2.3189	19 9 37.5	13.028	11	4 44 0.99	2.6143	27 0 37.2	5.994
12	2 47 35.79	2.3253	19 22 35.9	12.920	12	4 46 37.99	2.6188	27 6 31.4	5.813
13	2 49 55.50	2.3318	19 35 27.8	12.810	13	4 49 15.25	2.6233	27 12 14.7	5.630
14	2 52 15.60	2.3383	19 48 13.1	12.698	14	4 51 52.78	2.6276	27 17 47.0	5.446
15	2 54 36.10	2.3449	20 0 51.6	12.585	15	4 54 30.56	2.6317	27 23 8.2	5.261
16	2 56 56.99	2.3515	20 13 23.3	12.471	16	4 57 8.58	2.6357	27 28 18.3	5.076
17	2 59 18.28	2.3581	20 25 48.1	12.354	17	4 59 46.84	2.6396	27 33 17.3	4.889
18	3 1 39.96	2.3647	20 38 5.8	12.236	18	5 2 25.33	2.6433	27 38 5.0	4.701
19	3 4 2.04	2.3713	20 50 16.4	12.116	19	5 5 4.03	2.6468	27 42 41.4	4.512
20	3 6 24.52	2.3779	21 2 19.7	11.994	20	5 7 42.94	2.6503	27 47 6.4	4.323
21	3 8 47.39	2.3846	21 14 15.6	11.870	21	5 10 22.06	2.6536	27 51 20.1	4.133
22	3 11 10.67	2.3912	21 26 4.1	11.745	22	5 13 1.37	2.6567	27 55 22.3	3.941
23	3 13 34.34	2.3978	21 37 45.0	11.618	23	5 15 40.86	2.6597	27 59 13.0	3.749
24	3 15 58.41	2.4045	N.21 49 18.2	11.489	24	5 18 20.53	2.6625	N.28 2 52.2	3.557

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 25.					FRIDAY 27.				
0	5 18 20.53	2.6625	N.28° 2' 52.2"	3.557	0	7 26 5.83	2.5948	N.27° 8' 15.1"	5.703
1	5 21 0.36	2.6652	28 6 19.8	3.363	1	7 28 41.36	2.5885	27 2 27.6	5.880
2	5 23 40.35	2.6677	28 9 35.8	3.169	2	7 31 16.57	2.5840	26 56 29.5	6.056
3	5 26 20.48	2.6700	28 12 40.1	2.975	3	7 33 51.44	2.5784	26 50 20.9	6.230
4	5 29 0.74	2.6721	28 15 32.8	2.780	4	7 36 25.98	2.5726	26 44 1.9	6.403
5	5 31 41.13	2.6742	28 18 13.7	2.584	5	7 39 0.18	2.5671	26 37 32.6	6.574
6	5 34 21.64	2.6760	28 20 42.9	2.388	6	7 41 34.03	2.5613	26 30 53.1	6.743
7	5 37 2.25	2.6776	28 23 0.3	2.192	7	7 44 7.52	2.5552	26 24 3.4	6.912
8	5 39 42.95	2.6791	28 25 5.9	1.996	8	7 46 40.65	2.5491	26 17 3.6	7.079
9	5 42 23.74	2.6804	28 26 59.8	1.799	9	7 49 13.41	2.5429	26 9 53.9	7.244
10	5 45 4.60	2.6815	28 28 41.8	1.601	10	7 51 45.80	2.5366	26 2 34.3	7.406
11	5 47 45.52	2.6824	28 30 11.9	1.403	11	7 54 17.80	2.5302	25 55 4.9	7.571
12	5 50 26.49	2.6832	28 31 30.2	1.206	12	7 56 49.42	2.5238	25 47 25.7	7.733
13	5 53 7.50	2.6838	28 32 36.6	1.008	13	7 59 20.65	2.5173	25 39 36.9	7.892
14	5 55 48.54	2.6843	28 33 31.1	0.809	14	8 1 51.49	2.5107	25 31 38.6	8.050
15	5 58 29.61	2.6845	28 34 13.7	0.610	15	8 4 21.93	2.5039	25 23 30.9	8.207
16	6 1 10.68	2.6845	28 34 44.3	0.412	16	8 6 51.96	2.4971	25 15 13.8	8.363
17	6 3 51.75	2.6843	28 35 3.1	0.214	17	8 9 21.58	2.4903	25 6 47.4	8.516
18	6 6 32.80	2.6840	28 35 10.0	+0.016	18	8 11 50.80	2.4835	24 58 11.9	8.667
19	6 9 13.83	2.6836	28 35 5.0	-0.183	19	8 14 19.60	2.4765	24 49 27.3	8.817
20	6 11 54.83	2.6830	28 34 48.1	0.381	20	8 16 47.98	2.4695	24 40 33.8	8.965
21	6 14 35.78	2.6820	28 34 19.3	0.578	21	8 19 15.94	2.4624	24 31 31.5	9.112
22	6 17 16.67	2.6809	28 33 38.7	0.776	22	8 21 43.47	2.4553	24 22 20.4	9.257
23	6 19 57.49	2.6797	N.28 32 46.2	0.973	23	8 24 10.57	2.4482	N.24 13 0.7	9.400
THURSDAY 26.					SATURDAY 28.				
0	6 22 38.24	2.6783	N.28 31 41.9	1.171	0	8 26 37.25	2.4410	N.24 3 32.4	9.543
1	6 25 18.89	2.6768	28 30 25.7	1.368	1	8 29 3.49	2.4337	23 53 55.7	9.689
2	6 27 59.45	2.6751	28 28 57.8	1.564	2	8 31 29.29	2.4264	23 44 10.6	9.830
3	6 30 39.90	2.6731	28 27 18.1	1.760	3	8 33 54.66	2.4191	23 34 17.3	9.967
4	6 33 20.22	2.6709	28 25 26.6	1.955	4	8 36 19.59	2.4118	23 24 15.8	10.099
5	6 36 0.41	2.6687	28 23 23.5	2.149	5	8 38 44.07	2.4044	23 14 6.3	10.224
6	6 38 40.46	2.6663	28 21 8.7	2.344	6	8 41 8.11	2.3970	23 3 48.9	10.355
7	6 41 20.36	2.6638	28 18 42.2	2.538	7	8 43 31.71	2.3896	22 53 23.7	10.485
8	6 44 0.09	2.6608	28 16 4.1	2.731	8	8 45 54.86	2.3822	22 42 50.7	10.613
9	6 46 39.65	2.6578	28 13 14.5	2.924	9	8 48 17.57	2.3748	22 32 10.1	10.739
10	6 49 19.03	2.6547	28 10 13.3	3.116	10	8 50 39.83	2.3673	22 21 22.0	10.863
11	6 51 58.22	2.6514	28 7 0.6	3.307	11	8 53 1.64	2.3598	22 10 26.5	10.986
12	6 54 37.20	2.6479	28 3 36.5	3.497	12	8 55 23.00	2.3523	21 59 23.8	11.105
13	6 57 15.97	2.6443	28 0 1.0	3.686	13	8 57 43.92	2.3449	21 48 13.9	11.224
14	6 59 54.52	2.6406	27 56 14.2	3.875	14	9 0 4.39	2.3374	21 36 56.9	11.341
15	7 2 32.84	2.6366	27 52 16.0	4.063	15	9 2 24.41	2.3299	21 25 32.9	11.456
16	7 5 10.91	2.6325	27 48 6.6	4.249	16	9 4 43.98	2.3224	21 14 2.1	11.570
17	7 7 48.74	2.6283	27 43 46.1	4.434	17	9 7 3.10	2.3150	21 2 24.5	11.682
18	7 10 26.31	2.6239	27 39 14.5	4.619	18	9 9 21.78	2.3076	20 50 40.2	11.792
19	7 13 3.61	2.6194	27 34 31.8	4.803	19	9 11 40.01	2.3002	20 38 49.4	11.900
20	7 15 40.64	2.6148	27 29 38.1	4.985	20	9 13 57.80	2.2928	20 26 52.2	12.007
21	7 18 17.38	2.6100	27 24 33.6	5.166	21	9 16 15.14	2.2854	20 14 48.6	12.111
22	7 20 53.83	2.6050	27 19 18.2	5.347	22	9 18 32.04	2.2780	20 2 38.9	12.214
23	7 23 29.98	2.6000	27 13 52.0	5.528	23	9 20 48.50	2.2707	19 50 23.0	12.315
24	7 26 5.83	2.5948	N.27 8 15.1	5.703	24	9 23 4.52	2.2634	N.19 38 1.1	12.414

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 29.					TUESDAY 31.				
0	9 23 4.52	2.2634	N.19° 38' 1.1	12.414	0	11 4 12.17	1.9743	N. 8° 19' 55.7	15.324
1	9 25 20.10	2.2661	19 25 33.3	12.512	1	11 6 10.50	1.9700	8 4 41.0	15.257
2	9 27 35.25	2.2488	19 12 59.7	12.607	2	11 8 8.57	1.9658	7 49 24.9	15.278
3	9 29 49.96	2.2416	19 0 20.5	12.700	3	11 10 6.39	1.9616	7 34 7.6	15.297
4	9 32 4.24	2.2344	18 47 35.7	12.792	4	11 12 3.96	1.9575	7 18 49.2	15.316
5	9 34 18.09	2.2272	18 34 45.4	12.883	5	11 14 1.29	1.9535	7 3 29.7	15.333
6	9 36 31.52	2.2203	18 21 49.7	12.972	6	11 15 58.38	1.9496	6 48 9.2	15.349
7	9 38 44.52	2.2132	18 8 48.8	13.058	7	11 17 55.24	1.9457	6 32 47.8	15.364
8	9 40 57.10	2.2061	17 55 42.7	13.144	8	11 19 51.87	1.9419	6 17 25.6	15.377
9	9 43 9.25	2.1991	17 42 31.5	13.228	9	11 21 48.27	1.9382	6 2 2.6	15.389
10	9 45 20.99	2.1922	17 29 15.4	13.309	10	11 23 44.45	1.9346	5 46 38.9	15.400
11	9 47 32.32	2.1853	17 15 54.4	13.389	11	11 25 40.42	1.9311	5 31 14.6	15.409
12	9 49 43.23	2.1784	17 2 28.7	13.468	12	11 27 36.18	1.9276	5 15 49.8	15.417
13	9 51 53.73	2.1716	16 48 58.3	13.544	13	11 29 31.73	1.9243	5 0 24.5	15.425
14	9 54 3.83	2.1649	16 35 23.4	13.619	14	11 31 27.09	1.9210	4 44 58.8	15.431
15	9 56 13.52	2.1582	16 21 44.0	13.693	15	11 33 22.25	1.9178	4 29 32.8	15.436
16	9 58 22.81	2.1516	16 8 0.3	13.764	16	11 35 17.22	1.9146	4 14 6.5	15.440
17	10 0 31.71	2.1451	15 54 12.3	13.834	17	11 37 12.00	1.9114	3 58 40.0	15.442
18	10 2 40.22	2.1386	15 40 20.2	13.903	18	11 39 6.59	1.9084	3 43 13.4	15.443
19	10 4 48.34	2.1321	15 26 24.0	13.969	19	11 41 1.01	1.9056	3 27 46.8	15.444
20	10 6 56.07	2.1257	15 12 23.9	14.034	20	11 42 55.26	1.9028	3 12 20.1	15.444
21	10 9 3.42	2.1193	14 58 19.9	14.097	21	11 44 49.34	1.9000	2 56 53.5	15.442
22	10 11 10.39	2.1130	14 44 12.2	14.159	22	11 46 43.26	1.8973	2 41 27.1	15.438
23	10 13 16.99	2.1068	N.14 30 0.8	14.220	23	11 48 37.02	1.8947	N. 2 26 0.9	15.434
MONDAY 30.					WEDNESDAY, SEPTEMBER 1.				
0	10 15 23.21	2.1007	N.14 15 45.8	14.279	0	11 50 30.62	1.8922	N. 2 10 35.0	15.428
1	10 17 29.07	2.0946	14 1 27.4	14.335					
2	10 19 34.57	2.0886	13 47 5.6	14.391					
3	10 21 39.70	2.0826	13 32 40.5	14.445					
4	10 23 44.48	2.0768	13 18 12.3	14.497					
5	10 25 48.91	2.0710	13 3 40.9	14.548					
6	10 27 53.00	2.0652	12 49 6.5	14.598					
7	10 29 56.74	2.0595	12 34 29.2	14.645					
8	10 32 0.14	2.0539	12 19 49.1	14.691					
9	10 34 3.21	2.0484	12 5 6.3	14.736					
10	10 36 5.95	2.0430	11 50 20.8	14.779					
11	10 38 8.37	2.0376	11 35 32.8	14.821					
12	10 40 10.46	2.0323	11 20 42.3	14.862					
13	10 42 12.24	2.0270	11 5 49.4	14.900					
14	10 44 13.71	2.0218	10 50 54.3	14.937					
15	10 46 14.86	2.0167	10 35 57.0	14.973					
16	10 48 15.71	2.0117	10 20 57.5	15.008					
17	10 50 16.27	2.0068	10 5 56.0	15.041					
18	10 52 16.53	2.0019	9 50 52.6	15.073					
19	10 54 16.50	1.9971	9 35 47.3	15.104					
20	10 56 16.19	1.9924	9 20 40.2	15.133					
21	10 58 15.59	1.9878	9 5 31.4	15.160					
22	11 0 14.72	1.9833	8 50 21.0	15.186					
23	11 2 13.58	1.9788	8 35 9.1	15.211					
24	11 4 12.17	1.9743	N. 8 19 55.7	15.234					

PHASES OF THE MOON.

- New Moon, . . . 1 1 27.8
- ☽ First Quarter, . . . 8 15 30.0
- Full Moon, . . . 16 13 33.9
- ☾ Last Quarter, . . . 23 13 39.4
- New Moon, . . . 30 11 41.3

- ☾ Apogee, 9 19.4
- ☾ Perigee, 24 0.4

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Dif.	IIIh.	P. L. of Dif.	VIh.	P. L. of Dif.	IXh.	P. L. of Dif.
3	Sun W.	25° 3' 37"	2912	26° 35' 41"	2922	28° 7' 32"	2932	29° 39' 10"	2943
	Spica E.	46 45 6	2922	45 4 24	2937	43 24 2	2952	41 44 1	2968
	Jupiter E.	49 3 53	2937	47 24 13	2953	45 44 55	2969	44 5 58	2985
	Antares E.	92 38 59	2950	90 58 14	2936	89 17 51	2951	87 37 49	2966
	Mars E.	106 28 40	2960	104 48 50	2976	103 9 22	2992	101 30 16	2999
4	Sun W.	37 13 28	3010	38 43 28	3025	40 13 10	3039	41 42 34	3054
	Spica E.	33 29 19	2946	31 51 27	2962	30 13 56	2978	28 36 46	2993
	Jupiter E.	35 56 46	2977	34 20 2	2714	32 43 41	2731	31 7 42	2748
	Antares E.	79 22 56	2844	77 45 1	2860	76 7 27	2875	74 30 14	2890
	Mars E.	93 20 18	2889	91 43 23	2705	90 6 50	2732	88 30 39	2738
5	Sun W.	49 5 0	3129	50 32 34	3143	51 59 51	3158	53 26 50	3173
	Antares E.	66 29 11	2768	64 53 58	2780	63 19 4	2794	61 44 28	2806
	Mars E.	80 35 1	2817	79 0 55	2831	77 27 8	2847	75 53 41	2862
6	Sun W.	60 37 31	2949	62 2 50	2955	63 27 54	2967	64 52 44	2979
	Antares E.	53 55 59	2875	52 23 8	2887	50 50 33	2899	49 18 13	2911
	Mars E.	68 11 4	2931	66 39 25	2945	65 8 3	2958	63 36 58	2971
	α Aquilæ E.	103 57 31	2750	102 41 37	2759	101 25 45	2755	100 9 56	2759
7	Sun W.	71 53 25	3337	73 16 54	3346	74 40 12	3355	76 3 20	3365
	Antares E.	41 40 10	2965	40 9 13	2973	38 38 27	2983	37 7 53	2992
	Mars E.	56 5 17	2927	54 35 38	2938	53 6 12	2947	51 36 58	2956
	α Aquilæ E.	93 52 3	2788	92 36 48	2794	91 21 40	2802	90 6 40	2812
	Saturn E.	116 54 16	2942	115 22 51	2952	113 51 38	2961	112 20 36	2969
8	Sun W.	82 56 29	3403	84 18 42	3410	85 40 47	3418	87 2 45	3422
	Antares E.	29 37 34	2998	28 7 56	2934	26 38 26	2940	25 9 3	2945
	Mars E.	44 13 29	2966	42 45 15	2904	41 17 10	2910	39 49 12	2915
	α Aquilæ E.	83 54 7	2861	82 40 8	2873	81 26 21	2886	80 12 47	2896
	Saturn E.	104 47 55	3004	103 17 49	3011	101 47 50	3016	100 17 57	3022
9	Sun W.	93 51 17	3440	95 12 48	3443	96 34 16	3445	97 55 42	3446
	Spica W.	28 11 50	2966	29 40 41	2967	31 9 31	2968	32 38 20	2969
	Jupiter W.	25 15 28	3133	26 42 58	3133	28 10 28	3133	29 37 57	3133
	Mars E.	32 30 53	3136	31 3 27	3139	29 36 5	3142	28 8 46	3143
	α Aquilæ E.	74 8 19	2870	72 56 10	2867	71 44 18	2866	70 32 44	2864
	Saturn E.	92 49 56	2939	91 20 32	2941	89 51 10	2943	88 21 50	2943
	Fomalhaut E.	99 46 17	2884	98 21 47	2885	96 57 18	2885	95 32 49	2885
10	Sun W.	104 42 43	3445	106 4 9	3443	107 25 37	3440	108 47 8	3438
	Spica W.	40 2 16	2967	41 31 6	2965	42 59 58	2964	44 28 52	2961
	Jupiter W.	36 55 37	3137	38 23 14	3194	39 50 54	3193	41 18 37	3119
	α Aquilæ E.	64 39 47	4134	63 30 18	4161	62 21 15	4189	61 12 39	4219
	Saturn E.	80 55 19	2943	79 25 59	2941	77 56 37	2939	76 27 12	2936
	Fomalhaut E.	88 30 20	2922	87 5 48	2922	85 41 15	2920	84 16 40	2919
11	Sun W.	115 35 38	3417	116 57 35	3419	118 19 38	3407	119 41 47	3400
	Spica W.	51 54 23	2941	53 23 45	2935	54 53 14	2930	56 22 49	2924
	Jupiter W.	48 38 18	2997	50 6 31	2992	51 34 50	2987	53 3 16	2980
	α Aquilæ E.	55 37 25	4408	54 32 11	4456	53 27 40	4507	52 23 54	4563
	Saturn E.	68 59 10	2917	67 29 18	2912	65 59 20	2907	64 29 16	2901
	Fomalhaut E.	77 13 19	2970	75 48 32	2967	74 23 42	2965	72 58 50	2963
	α Pegasi E.	98 47 40	3343	97 24 18	3335	96 0 47	3328	94 37 8	3321

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
3	SUN	W. 31 10 34	2955	32 41 43	2969	34 12 35	2982	35 43 10	2996
	Spica	E. 40 4 22	2583	38 25 4	2599	36 46 8	2615	35 7 33	2630
	Jupiter	E. 42 27 23	2631	40 49 10	2648	39 11 20	2664	37 33 52	2681
	Antares	E. 85 58 8	2582	84 18 48	2597	82 39 49	2613	81 1 12	2629
	Mars	E. 99 51 33	2625	98 13 12	2640	96 35 12	2657	94 57 34	2673
4	SUN	W. 43 11 40	3069	44 40 28	3084	46 8 57	3099	47 37 8	3114
	Spica	E. 26 59 57	2709	25 23 29	2724	23 47 21	2740	22 11 34	2755
	Jupiter	E. 29 32 6	2765	27 56 52	2782	26 22 1	2800	24 47 33	2818
	Antares	E. 72 53 21	2705	71 16 48	2721	69 40 36	2736	68 4 44	2750
	Mars	E. 86 54 50	2754	85 19 22	2769	83 44 14	2785	82 9 27	2801
5	SUN	W. 54 53 32	3187	56 19 57	3201	57 46 5	3215	59 11 56	3229
	Antares	E. 60 10 11	2822	58 36 12	2836	57 2 31	2849	55 29 7	2862
	Mars	E. 74 20 33	2876	72 47 44	2891	71 15 13	2905	69 43 0	2918
6	SUN	W. 66 17 20	3291	67 41 42	3303	69 5 50	3315	70 29 44	3326
	Antares	E. 47 46 8	2922	46 14 17	2934	44 42 41	2945	43 11 19	2955
	Mars	E. 62 6 9	2983	60 35 35	2994	59 5 15	3005	57 35 9	3017
	α Aquilæ	E. 98 54 11	3763	97 38 30	3768	96 22 54	3774	95 7 25	3781
7	SUN	W. 77 26 17	3373	78 49 4	3382	80 11 41	3390	81 34 9	3397
	Antares	E. 35 37 30	3000	34 7 17	3008	32 37 14	3015	31 7 20	3022
	Mars	E. 50 7 55	3065	48 39 3	3074	47 10 22	3082	45 41 51	3090
	α Aquilæ	E. 88 51 50	3290	87 37 9	3293	86 22 38	3240	85 8 17	3251
	Saturn	E. 110 49 45	2977	109 19 4	2985	107 48 32	2992	106 18 9	2999
8	SUN	W. 88 24 37	3426	89 46 24	3431	91 8 6	3435	92 29 43	3438
	Antares	E. 23 39 46	3049	22 10 34	3053	20 41 27	3056	19 12 24	3060
	Mars	E. 38 21 21	3120	36 53 36	3125	35 25 57	3129	33 58 23	3133
	α Aquilæ	E. 78 59 25	3911	77 46 16	3925	76 33 22	3940	75 20 43	3955
	Saturn	E. 98 48 11	3026	97 18 30	3030	95 48 54	3034	94 19 23	3037
9	SUN	W. 99 17 7	3446	100 38 31	3446	101 59 55	3446	103 21 19	3446
	Spica	W. 34 7 8	3069	35 35 55	3070	37 4 41	3069	38 33 28	3069
	Jupiter	W. 31 5 27	3133	32 32 57	3131	34 0 29	3130	35 28 2	3129
	Mars	E. 26 41 29	3144	25 14 13	3145	23 46 58	3146	22 19 44	3146
	α Aquilæ	E. 69 21 28	4043	68 10 31	4065	66 59 55	4086	65 49 40	4109
	Saturn	E. 86 52 31	3044	85 23 13	3045	83 53 56	3044	82 24 38	3043
	Fomalhaut	E. 94 8 20	3285	92 43 51	3284	91 19 21	3284	89 54 51	3283
10	SUN	W. 110 8 42	3435	111 30 19	3431	112 52 1	3427	114 13 47	3423
	Spica	W. 45 57 49	3058	47 26 50	3054	48 55 56	3050	50 25 7	3046
	Jupiter	W. 42 46 24	3115	44 14 15	3111	45 42 11	3107	47 10 12	3103
	α Aquilæ	E. 60 4 31	4252	58 56 54	4287	57 49 49	4323	56 43 18	4365
	Saturn	E. 74 57 44	3033	73 28 12	3030	71 58 36	3026	70 28 56	3022
	Fomalhaut	E. 82 52 4	3277	81 27 26	3276	80 2 46	3274	78 38 4	3271
11	SUN	W. 121 4 3	3393	122 26 27	3386	123 48 59	3379	125 11 39	3373
	Spica	W. 57 52 32	3018	59 22 23	3011	60 52 22	3004	62 22 30	2997
	Jupiter	W. 54 31 50	3073	56 0 32	3066	57 29 23	3060	58 58 22	3052
	α Aquilæ	E. 51 20 57	4624	50 18 53	4690	49 17 45	4763	48 17 38	4841
	Saturn	E. 62 59 5	2995	61 28 46	2988	59 58 18	2981	58 27 42	2973
	Fomalhaut	E. 71 33 55	3261	70 8 58	3259	68 43 58	3257	67 18 56	3256
	α Pegasi	E. 93 13 21	3314	91 49 26	3306	90 25 22	3300	89 1 10	3292

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
12	Sun W.	126° 34' 28"	3363	127° 57' 27"	3355	129° 20' 35"	3347	130° 43' 52"	3338
	Spica W.	63 52 47	2989	65 23 14	2981	66 53 51	2973	68 24 39	2964
	Jupiter W.	60 27 30	3044	61 56 48	3035	63 26 17	3027	64 55 56	3018
	Antares W.	17 58 17	2989	19 28 44	2980	20 59 22	2973	22 30 10	2963
	Saturn E.	56 56 56	2966	55 26 1	2958	53 54 56	2950	52 23 41	2940
	Fomalhaut E.	65 53 53	3254	64 28 48	3253	63 3 41	3252	61 38 33	3251
α Pegasi E.	87 36 49	3285	86 12 20	3278	84 47 43	3270	83 22 57	3264	
13	Spica W.	76 1 28	2916	77 33 26	2905	79 5 38	2895	80 38 3	2884
	Jupiter W.	72 27 3	2970	73 57 53	2960	75 28 56	2950	77 0 12	2939
	Antares W.	30 7 3	2915	31 39 3	2905	33 11 15	2894	34 43 41	2884
	Saturn E.	44 44 40	2896	43 12 16	2887	41 39 40	2876	40 6 51	2867
	Fomalhaut E.	54 32 55	3258	53 7 54	3261	51 42 57	3266	50 18 6	3272
	α Pegasi E.	76 17 11	3232	74 51 40	3226	73 26 2	3221	72 0 18	3216
14	Spica W.	88 23 39	2828	89 57 30	2817	91 31 36	2805	93 5 57	2793
	Jupiter W.	84 40 3	2862	86 12 45	2871	87 45 41	2859	89 18 52	2847
	Antares W.	42 29 20	2828	44 3 12	2817	45 37 18	2805	47 11 39	2793
	Mars W.	26 34 1	2990	28 5 55	2908	29 38 4	2897	31 10 27	2884
	Saturn E.	32 19 31	2915	30 45 23	2905	29 11 2	2795	27 36 27	2785
	Fomalhaut E.	43 16 24	3334	41 52 52	3354	40 29 43	3379	39 7 2	3407
	α Pegasi E.	64 50 20	3199	63 24 10	3198	61 57 58	3199	60 31 46	3198
	α Arietis E.	105 51 36	2870	104 18 39	2858	102 45 26	2845	101 11 57	2833
	15	Jupiter W.	97 8 40	2788	98 43 24	2775	100 18 24	2764	101 53 39	2752
Antares W.	55 7 20	2734	56 43 15	2722	58 19 26	2710	59 55 53	2698	
Mars W.	38 56 12	2826	40 30 6	2814	42 4 16	2802	43 38 41	2791	
α Pegasi E.	53 21 26	3221	51 55 42	3221	50 30 10	3243	49 4 52	3258	
α Arietis E.	93 20 35	2772	91 45 31	2760	90 10 11	2748	88 34 35	2737	
16	Antares W.	68 2 5	2639	69 40 7	2628	71 18 24	2616	72 56 57	2605
	Mars W.	51 34 34	2733	53 10 30	2722	54 46 41	2710	56 23 7	2699
	α Pegasi E.	42 3 56	3385	40 41 22	3424	39 19 33	3471	37 58 37	3526
	α Arietis E.	80 32 45	2679	78 55 37	2669	77 18 15	2657	75 40 38	2646
	Aldebaran E.	111 11 8	2713	109 34 45	2700	107 58 5	2687	106 21 8	2675
17	Antares W.	81 13 26	2551	82 53 28	2541	84 33 44	2531	86 14 14	2522
	Mars W.	64 28 54	2647	66 6 45	2637	67 44 50	2626	69 23 9	2617
	α Aquilæ W.	43 6 31	4900	44 4 46	4746	45 5 7	4607	46 7 26	4479
	α Arietis E.	67 29 1	2597	65 50 2	2588	64 10 50	2580	62 31 27	2571
	Aldebaran E.	98 12 22	2617	96 33 50	2607	94 55 4	2596	93 16 4	2586
18	Antares W.	94 40 5	2475	96 21 53	2466	98 3 54	2458	99 46 7	2450
	Mars W.	77 37 55	2572	79 17 29	2564	80 57 14	2555	82 37 11	2548
	α Aquilæ W.	51 44 42	3986	52 56 35	3911	54 9 44	3841	55 24 4	3775
	Saturn W.	20 21 24	2478	22 3 8	2467	23 45 8	2455	25 27 24	2444
	α Arietis E.	54 11 47	2535	52 31 22	2529	50 50 49	2524	49 10 9	2519
Aldebaran E.	84 57 43	2540	83 17 26	2533	81 36 58	2525	79 56 19	2517	
19	Mars W.	90 59 32	2511	92 40 30	2504	94 21 37	2498	96 2 53	2492
	α Aquilæ W.	61 51 9	3519	63 11 12	3480	64 31 59	3442	65 53 28	3408
	Saturn W.	34 2 17	2399	35 45 53	2391	37 29 40	2384	39 13 37	2378
	Fomalhaut W.	31 5 18	3325	32 29 0	3325	33 54 28	3157	35 21 26	3088
	α Arietis E.	40 45 27	2506	39 4 22	2507	37 23 18	2508	35 42 16	2519
	Aldebaran E.	71 30 37	2465	69 49 3	2460	68 7 22	2475	66 25 34	2471

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
12	Sun W.	132° 7' 19"	3399	133° 30' 57"	3319	134° 54' 46"	3310	136° 18' 46"	3301
	Spica W.	69 55 37	2954	71 26 47	2945	72 58 9	2935	74 29 43	2927
	Jupiter W.	66 25 46	3009	67 55 48	3000	69 26 1	2990	70 56 26	2981
	Antares W.	24 1 9	2954	25 32 20	2945	27 3 42	2935	28 35 16	2925
	Saturn E.	50 52 15	2933	49 20 38	2924	47 48 50	2916	46 16 51	2906
	Fomalhaut E.	60 13 24	3251	58 48 15	3252	57 23 7	3253	55 58 0	3254
α Pegasi E.	81 58 3	3237	80 33 1	3251	79 7 52	3244	77 42 35	3238	
13	Spica W.	82 10 42	2873	83 43 35	2862	85 16 42	2852	86 50 3	2840
	Jupiter W.	78 31 42	2927	80 3 26	2916	81 35 24	2905	83 7 36	2894
	Antares W.	36 16 20	2873	37 49 13	2862	39 22 21	2851	40 55 43	2839
	Saturn E.	38 33 50	2857	37 0 36	2846	35 27 8	2835	33 53 26	2825
	Fomalhaut E.	48 53 22	3281	47 28 48	3290	46 4 25	3302	44 40 16	3317
	α Pegasi E.	70 34 28	3211	69 8 32	3208	67 42 32	3204	66 16 28	3201
14	Spica W.	94 40 34	2782	96 15 26	2770	97 50 33	2758	99 25 56	2747
	Jupiter W.	90 52 19	2835	92 26 1	2823	93 59 59	2811	95 34 12	2800
	Antares W.	48 46 16	2781	50 21 9	2769	51 56 17	2757	53 31 41	2746
	Mars W.	32 43 6	2873	34 16 0	2861	35 49 9	2849	37 22 33	2838
	Saturn E.	26 1 40	2775	24 26 40	2766	22 51 28	2758	21 16 5	2749
	Fomalhaut E.	37 44 53	3440	36 23 22	3480	35 2 36	3527	33 42 42	3584
	α Pegasi E.	59 5 35	3200	57 39 26	3203	56 13 20	3207	54 47 19	3214
	α Arietis E.	99 38 12	2821	98 4 11	2809	96 29 55	2797	94 55 23	2785
15	Jupiter W.	103 29 10	2740	105 4 57	2729	106 40 59	2716	108 17 17	2705
	Antares W.	61 32 36	2686	63 9 35	2675	64 46 49	2663	66 24 19	2651
	Mars W.	45 13 21	2779	46 48 16	2767	48 23 27	2756	49 58 53	2744
	α Pegasi E.	47 39 51	3276	46 15 11	3297	44 50 56	3321	43 27 9	3351
	α Arietis E.	86 58 44	2725	85 22 37	2713	83 46 15	2702	82 9 38	2690
	16	Antares W.	74 35 45	2594	76 14 48	2583	77 54 6	2572	79 33 39	2562
Mars W.		57 59 48	2689	59 36 43	2678	61 13 53	2667	62 51 17	2657
α Pegasi E.		36 38 42	3590	35 19 57	3663	34 2 31	3750	32 46 37	3853
α Arietis E.		74 2 46	2636	72 24 40	2626	70 46 20	2616	69 7 47	2607
Aldebaran E.		104 43 55	2663	103 6 26	2651	101 28 40	2640	99 50 39	2628
17		Antares W.	87 54 57	2512	89 35 54	2502	91 17 5	2492	92 58 29	2484
	Mars W.	71 1 41	2607	72 40 26	2599	74 19 23	2589	75 58 33	2580
	α Aquilæ W.	47 11 37	4363	48 17 32	4256	49 25 5	4159	50 34 10	4069
	α Arietis E.	60 51 52	2563	59 12 6	2555	57 32 9	2548	55 52 3	2541
	Aldebaran E.	91 36 50	2576	89 57 22	2566	88 17 41	2558	86 37 48	2549
	18	Antares W.	101 28 31	2441	103 11 7	2433	104 53 54	2426	106 36 51	2419
Mars W.		84 17 18	2540	85 57 36	2532	87 38 5	2525	89 18 44	2518
α Aquilæ W.		56 39 32	3716	57 56 2	3661	59 13 31	3610	60 31 54	3563
Saturn W.		27 9 56	2434	28 52 42	2425	30 35 41	2416	32 18 53	2408
α Arietis E.		47 29 22	2515	45 48 29	2512	44 7 32	2509	42 26 31	2507
Aldebaran E.		78 15 29	2510	76 34 29	2503	74 53 20	2497	73 12 3	2491
19	Mars W.	97 44 18	2486	99 25 51	2480	101 7 32	2475	102 49 20	2470
	α Aquilæ W.	67 15 36	3376	68 38 20	3347	70 1 37	3320	71 25 25	3295
	Saturn W.	40 57 43	2371	42 41 59	2364	44 26 25	2358	46 11 0	2353
	Fomalhaut W.	36 49 53	3028	38 19 31	2974	39 50 16	2924	41 22 1	2885
	α Arietis E.	34 1 20	2517	32 20 31	2524	30 39 51	2533	28 59 24	2546
	Aldebaran E.	64 43 40	2467	63 1 40	2464	61 19 36	2461	59 37 28	2459

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.	
20	α Aquilæ W.	72° 49' 42"	3373	74° 14' 25"	3252	75° 39' 33"	3233	77° 5' 3"	3217	
	Saturn W.	47 55 43	3347	49 40 34	3342	51 25 33	3337	53 10 39	3331	
	Fomalhaut W.	42 54 39	2847	44 28 6	2812	46 2 18	2782	47 37 10	2754	
	Aldebaran E.	57 55 17	2457	56 13 3	2455	54 30 47	2455	52 48 31	2455	
	Pollux E.	101 5 51	2368	99 21 27	2360	97 36 55	2355	95 52 16	2351	
	SUN E.	136 42 24	2622	135 5 34	2626	133 28 35	2620	131 51 28	2674	
21	α Aquilæ W.	84 16 52	3157	85 43 53	3149	87 11 3	3144	88 38 19	3139	
	Saturn W.	61 57 52	2311	63 43 36	2307	65 29 26	2303	67 15 21	2300	
	Fomalhaut W.	55 39 40	2648	57 17 30	2632	58 55 41	2618	60 34 12	2604	
	α Pegasi W.	36 32 47	3252	37 57 55	3178	39 24 31	3113	40 52 25	3056	
	Aldebaran E.	44 17 35	2470	42 35 39	2473	40 53 51	2462	39 12 13	2492	
	Pollux E.	87 7 27	2331	85 22 12	2326	83 36 51	2294	81 51 26	2290	
SUN E.	123 44 3	2649	122 6 14	2645	120 28 20	2640	118 50 20	2637		
22	α Aquilæ W.	95 55 26	3139	97 22 48	3143	98 50 5	3150	100 17 14	3158	
	Saturn W.	76 6 3	2286	77 52 23	2284	79 38 46	2281	81 25 13	2280	
	Fomalhaut W.	68 50 51	2553	70 30 50	2545	72 11 0	2538	73 51 20	2533	
	α Pegasi W.	48 27 20	2648	50 0 45	2618	51 34 49	2792	53 9 28	2767	
	Aldebaran E.	30 48 29	2680	29 9 6	2609	27 30 23	2646	25 52 30	2691	
	Pollux E.	73 3 15	2307	71 17 26	2304	69 31 33	2302	67 45 37	2300	
SUN E.	110 39 8	2621	109 0 41	2618	107 22 11	2615	105 43 37	2613		
23	Saturn W.	90 18 4	2272	92 4 45	2270	93 51 28	2270	95 38 12	2269	
	Fomalhaut W.	82 14 48	2510	83 55 47	2508	85 36 49	2507	87 17 53	2505	
	α Pegasi W.	61 9 45	2677	62 46 56	2664	64 24 24	2652	66 2 8	2641	
	Pollux E.	58 55 20	2294	57 9 11	2292	55 23 0	2291	53 36 48	2290	
	SUN E.	97 30 5	2204	95 51 15	2203	94 12 24	2201	92 33 31	2201	
	24	Saturn W.	104 32 6	2267	106 18 54	2267	108 5 42	2267	109 52 30	2268
Fomalhaut W.		95 43 33	2504	97 24 40	2507	99 5 44	2510	100 46 44	2512	
α Pegasi W.		74 14 1	2608	75 52 53	2598	77 31 51	2593	79 10 55	2591	
α Arietis W.		30 53 49	2426	32 36 47	2413	34 20 3	2403	36 3 34	2393	
Pollux E.		44 45 33	2280	42 59 17	2282	41 13 2	2282	39 26 47	2290	
SUN E.		84 18 50	2508	82 39 52	2508	81 0 54	2508	79 21 56	2508	
25	α Pegasi W.	87 27 4	2584	89 6 21	2584	90 45 38	2586	92 24 52	2588	
	α Arietis W.	44 43 52	2365	46 28 17	2361	48 12 48	2358	49 57 23	2357	
	Aldebaran W.	16 25 39	3197	17 51 52	3038	19 21 18	2918	20 53 14	2896	
	Pollux E.	30 35 50	2226	28 49 44	2228	27 3 41	2200	25 17 42	2202	
	SUN E.	71 7 15	2602	69 28 23	2603	67 49 32	2604	66 10 43	2606	
	26	α Pegasi W.	100 39 57	2611	102 18 37	2618	103 57 8	2625	105 35 29	2634
α Arietis W.		58 40 42	2264	60 25 23	2255	62 10 2	2257	63 54 39	2258	
Aldebaran W.		28 55 50	2581	30 35 11	2556	32 15 6	2536	33 55 29	2520	
SUN E.		57 57 20	2618	56 18 50	2621	54 40 24	2624	53 2 2	2628	
27		α Arietis W.	72 36 59	2371	74 21 15	2375	76 5 25	2380	77 49 29	2384
		Aldebaran W.	42 22 1	2472	44 3 53	2467	45 45 52	2465	47 27 55	2463
	SUN E.	44 51 34	2650	43 13 47	2656	41 36 8	2622	39 58 37	2628	
	28	α Arietis W.	86 28 6	2411	88 11 25	2417	89 54 35	2424	91 37 35	2431
		Aldebaran W.	55 58 21	2467	57 40 21	2470	59 22 16	2474	61 4 6	2477
		SUN E.	31 53 13	2704	30 16 39	2713	28 40 17	2722	27 4 7	2733

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
20	α Aquilæ W.	78 30 52	3202	79 56 59	3188	81 23 23	3176	82 50 1	3165
	Saturn W.	54 55 53	2327	56 41 13	2322	58 26 40	2318	60 12 13	2314
	Fomalhaut W.	49 12 38	2729	50 48 40	2705	52 25 13	2684	54 2 14	2666
	Aldebaran E.	51 6 15	2456	49 24 0	2458	47 41 47	2460	45 59 38	2465
	Pollux E.	94 7 31	2346	92 22 39	2342	90 37 41	2338	88 52 37	2334
	SUN E.	130 14 13	2669	128 36 51	2663	126 59 22	2658	125 21 46	2653
21	α Aquilæ W.	90 5 41	3137	91 33 6	3135	93 0 33	3135	94 28 0	3136
	Saturn W.	69 1 21	2297	70 47 25	2294	72 33 34	2291	74 19 47	2289
	Fomalhaut W.	62 13 1	2592	63 52 7	2581	65 31 28	2571	67 11 3	2561
	α Pegasi W.	42 21 29	3005	43 51 36	2958	45 22 41	2918	46 54 37	2881
	Aldebaran E.	37 30 49	2504	35 49 41	2517	34 8 52	2534	32 28 26	2555
	Pollux E.	80 5 56	2317	78 20 22	2314	76 34 43	2312	74 49 1	2309
SUN E.	117 12 15	2633	115 34 5	2629	113 55 50	2626	112 17 31	2624	
22	α Aquilæ W.	101 44 14	3167	103 11 3	3178	104 37 38	3191	106 3 58	3206
	Saturn W.	83 11 42	2278	84 58 14	2277	86 44 48	2274	88 31 25	2273
	Fomalhaut W.	75 31 48	2527	77 12 24	2522	78 53 6	2518	80 33 54	2514
	α Pegasi W.	54 44 39	2746	56 20 18	2723	57 56 24	2707	59 32 54	2692
	Aldebaran E.	24 15 38	2747	22 40 1	2817	21 5 55	2906	19 33 44	3021
	Pollux E.	65 59 38	2299	64 13 37	2297	62 27 33	2296	60 41 27	2295
SUN E.	104 5 0	2611	102 26 20	2610	100 47 38	2607	99 8 53	2605	
23	Saturn W.	97 24 57	2268	99 11 43	2268	100 58 30	2267	102 45 18	2267
	Fomalhaut W.	88 58 59	2504	90 40 7	2503	92 21 16	2503	94 2 25	2504
	α Pegasi W.	67 40 7	2632	69 18 19	2623	70 56 43	2615	72 35 17	2608
	Pollux E.	51 50 34	2289	50 4 19	2289	48 18 4	2289	46 31 49	2289
	SUN E.	90 54 37	2599	89 15 41	2599	87 36 44	2599	85 57 47	2599
24	Saturn W.	111 39 17	2268	113 26 4	2268	115 12 50	2269	116 59 35	2270
	Fomalhaut W.	102 27 40	2515	104 8 32	2520	105 49 18	2525	107 29 57	2530
	α Pegasi W.	80 50 3	2588	82 29 15	2585	84 8 30	2584	85 47 47	2584
	α Arietis W.	37 47 19	2385	39 31 15	2379	41 15 20	2373	42 59 33	2369
	Pollux E.	37 40 33	2291	35 54 20	2291	34 8 8	2293	32 21 58	2294
	SUN E.	77 42 58	2599	76 4 1	2599	74 25 4	2600	72 46 9	2601
25	α Pegasi W.	94 4 3	2591	95 43 10	2595	97 22 12	2599	99 1 8	2604
	α Arietis W.	51 42 0	2355	53 26 39	2354	55 11 20	2354	56 56 1	2354
	Aldebaran W.	22 27 8	2753	24 2 38	2695	25 39 24	2649	27 17 12	2612
	Pollux E.	23 31 46	2306	21 45 55	2310	20 0 10	2315	18 14 32	2320
	SUN E.	64 31 56	2608	62 53 12	2610	61 14 31	2613	59 35 54	2615
26	α Pegasi W.	107 13 38	2643	108 51 35	2654	110 29 17	2665	112 6 44	2677
	α Arietis W.	65 39 14	2360	67 23 46	2363	69 8 14	2366	70 52 38	2368
	Aldebaran W.	35 36 15	2506	37 17 20	2494	38 58 42	2485	40 40 17	2478
	SUN E.	51 23 45	2632	49 45 34	2636	48 7 28	2640	46 29 28	2645
27	α Arietis W.	79 33 27	2289	81 17 18	2294	83 1 2	2299	84 44 38	2405
	Aldebaran W.	49 10 0	2462	50 52 6	2462	52 34 13	2463	54 16 18	2465
	SUN E.	38 21 14	2675	36 44 0	2681	35 6 54	2688	33 29 58	2696
28	α Arietis W.	93 20 25	2439	95 3 4	2447	96 45 32	2455	98 27 49	2462
	Aldebaran W.	62 45 51	2482	64 27 29	2488	66 8 59	2494	67 50 21	2499
	SUN E.	25 28 11	2744	23 52 30	2756	22 17 4	2769	20 41 55	2794

AT GREENWICH APPARENT NOON.

		THE SUN'S						Sideral Time of the Semi-diameter passing the Meridian.	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
Day of the Week.	Day of the Month.	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Semi-diameter.				
Wed.	1	^h 10 ^m 40 ^s 55.22	9.077	N. 8° 21' 0".6	-54.43	15' 53.63	64.42	^m 0 ^s 2.96	^a 0.778	
Thur.	2	10 44 32.92	9.064	7 59 10.2	54.76	15 53.86	64.37	0 21.75	0.791	
Frid.	3	10 48 10.32	9.052	7 37 12.2	55.08	15 54.10	64.33	0 40.84	0.803	
Sat.	4	10 51 47.46	9.041	7 15 6.7	55.38	15 54.34	64.29	1 0.21	0.814	
Sun.	5	10 55 24.35	9.030	6 52 54.2	55.66	15 54.59	64.26	1 19.84	0.825	
Mon.	6	10 59 0.98	9.020	6 30 35.0	55.93	15 54.84	64.23	1 39.71	0.835	
Tues.	7	11 2 37.38	9.011	6 8 9.5	56.19	15 55.09	64.20	1 59.81	0.844	
Wed.	8	11 6 13.57	9.003	5 45 38.1	56.44	15 55.34	64.17	2 20.12	0.852	
Thur.	9	11 9 49.57	8.996	5 23 1.1	56.67	15 55.60	64.15	2 40.62	0.859	
Frid.	10	11 13 25.40	8.990	5 0 18.7	56.88	15 55.85	64.13	3 1.29	0.865	
Sat.	11	11 17 1.08	8.984	4 37 31.4	57.07	15 56.11	64.11	3 22.11	0.871	
Sun.	12	11 20 36.63	8.979	4 14 39.2	57.26	15 56.37	64.09	3 43.05	0.876	
Mon.	13	11 24 12.08	8.975	3 51 42.7	57.43	15 56.63	64.08	4 4.09	0.880	
Tues.	14	11 27 47.43	8.972	3 28 42.3	57.60	15 56.89	64.07	4 25.23	0.883	
Wed.	15	11 31 22.72	8.970	3 5 38.0	57.75	15 57.15	64.06	4 46.44	0.885	
Thur.	16	11 34 57.97	8.969	2 42 30.2	57.89	15 57.41	64.06	5 7.69	0.886	
Frid.	17	11 38 33.21	8.969	2 19 19.3	58.01	15 57.67	64.06	5 28.95	0.886	
Sat.	18	11 42 8.46	8.970	1 56 5.5	58.13	15 57.93	64.06	5 50.20	0.885	
Sun.	19	11 45 43.74	8.972	1 32 49.0	58.23	15 58.19	64.06	6 11.41	0.883	
Mon.	20	11 49 19.07	8.975	1 9 30.2	58.32	15 58.45	64.07	6 32.56	0.880	
Tues.	21	11 52 54.48	8.978	0 46 9.6	58.39	15 58.72	64.08	6 53.64	0.877	
Wed.	22	11 56 30.00	8.983	N. 0 22 47.4	58.45	15 58.98	64.09	7 14.63	0.872	
Thur.	23	12 0 5.63	8.988	S. 0 0 36.1	58.49	15 59.25	64.11	7 35.51	0.867	
Frid.	24	12 3 41.39	8.994	0 24 0.5	58.52	15 59.51	64.13	7 56.24	0.861	
Sat.	25	12 7 17.32	9.001	0 47 25.4	58.54	15 59.78	64.15	8 16.81	0.854	
Sun.	26	12 10 53.43	9.009	1 10 50.6	58.54	16 0.05	64.17	8 37.20	0.846	
Mon.	27	12 14 29.72	9.017	1 34 15.7	58.52	16 0.32	64.20	8 57.40	0.838	
Tues.	28	12 18 6.23	9.026	1 57 40.3	58.49	16 0.59	64.23	9 17.39	0.829	
Wed.	29	12 21 42.97	9.036	2 21 3.9	58.45	16 0.87	64.27	9 37.15	0.819	
Thur.	30	12 25 19.96	9.047	2 44 26.2	58.39	16 1.14	64.31	9 56.66	0.808	
Frid.	31	12 28 57.22	9.058	S. 3 7 46.8	-58.32	16 1.42	64.35	10 15.91	0.797	

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0^s.18 from the Sideral Time.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be added to Mean Time.	Diff. for 1 hour.	Sidereal Time or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
Wed.	1	h m s 10 40 55.24	s 9.079	N. ° ' " ° 8 21 0.6	" -54.44	m s 0 2.96	s 0.778	h m s 10 40 58.20
Thur.	2	10 44 32.99	9.066	7 59 9.9	54.77	0 21.76	0.791	10 44 54.75
Frid.	3	10 48 10.44	9.054	7 37 11.5	55.09	0 40.86	0.803	10 48 51.30
Sat.	4	10 51 47.63	9.043	7 15 5.7	55.39	1 0.23	0.814	10 52 47.86
Sun.	5	10 55 24.56	9.032	6 52 52.9	55.67	1 19.86	0.825	10 56 44.42
Mon.	6	10 59 1.24	9.022	6 30 33.4	55.94	1 39.73	0.835	11 0 40.97
Tues.	7	11 2 37.69	9.013	6 8 7.6	56.20	1 59.84	0.844	11 4 37.53
Wed.	8	11 6 13.93	9.005	5 45 35.9	56.45	2 20.15	0.852	11 8 34.08
Thur.	9	11 9 49.98	8.998	5 22 58.5	56.68	2 40.66	0.859	11 12 30.64
Frid.	10	11 13 25.86	8.992	5 0 15.8	56.89	3 1.33	0.865	11 16 27.19
Sat.	11	11 17 1.59	8.986	4 37 28.1	57.09	3 22.16	0.871	11 20 23.75
Sun.	12	11 20 37.19	8.981	4 14 35.6	57.28	3 43.11	0.876	11 24 20.30
Mon.	13	11 24 12.69	8.977	3 51 38.8	57.45	4 4.16	0.880	11 28 16.85
Tues.	14	11 27 48.10	8.974	3 28 38.0	57.62	4 25.30	0.883	11 32 13.40
Wed.	15	11 31 23.44	8.972	3 5 33.3	57.77	4 46.52	0.885	11 36 9.96
Thur.	16	11 34 58.74	8.971	2 42 25.2	57.91	5 7.77	0.886	11 40 6.51
Frid.	17	11 38 34.04	8.971	2 19 13.9	58.03	5 29.03	0.886	11 44 3.07
Sat.	18	11 42 9.34	8.972	1 55 59.7	58.15	5 50.28	0.885	11 47 59.62
Sun.	19	11 45 44.67	8.974	1 32 42.9	58.25	6 11.51	0.883	11 51 56.18
Mon.	20	11 49 20.06	8.977	1 9 23.8	58.34	6 32.67	0.880	11 55 52.73
Tues.	21	11 52 55.52	8.980	0 46 2.8	58.41	6 53.76	0.877	11 59 49.28
Wed.	22	12 56 31.09	8.985	N. 0 22 40.3	58.47	7 14.74	0.872	12 3 45.83
Thur.	23	12 0 6.77	8.990	S. 0 0 43.6	58.51	7 35.62	0.867	12 7 42.39
Frid.	24	12 3 42.59	8.996	0 24 8.3	58.54	7 56.35	0.861	12 11 38.94
Sat.	25	12 7 18.57	9.003	0 47 33.6	58.56	8 16.93	0.854	12 15 35.50
Sun.	26	12 10 54.73	9.011	1 10 59.1	58.56	8 37.32	0.846	12 19 32.05
Mon.	27	12 14 31.08	9.019	1 34 24.5	58.54	8 57.53	0.838	12 23 28.61
Tues.	28	12 18 7.64	9.028	1 57 49.3	58.51	9 17.52	0.829	12 27 25.16
Wed.	29	12 21 44.43	9.038	2 21 13.3	58.47	9 37.28	0.819	12 31 21.71
Thur.	30	12 25 21.47	9.049	2 44 35.9	58.41	9 56.79	0.808	12 35 18.26
Frid.	31	12 28 58.78	9.060	S. 3 7 56.8	-58.33	10 16.04	0.797	12 39 14.82

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

Diff. for 1 hour.
+ 9".8565

AT GREENWICH MEAN NOON.										
Day of the Month.	Day of the Year.	THE SUN'S					Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.	
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE.					
		λ	λ'							
1	244	158° 36' 35.3"	36' 3.8"	145.33	+0.02	.0037926	-44.0	13 16 50.89		
2	245	159 34 44.1	34 12.4	145.40	-0.11	.0036859	44.7	13 12 54.98		
3	246	160 32 54.4	32 22.5	145.46	0.24	.0035776	45.4	13 8 59.07		
4	247	161 31 6.2	30 34.2	145.53	0.38	.0034677	46.0	13 5 3.17		
5	248	162 29 19.5	28 47.4	145.59	0.49	.0033563	46.6	13 1 7.26		
6	249	163 27 34.4	27 2.2	145.65	0.59	.0032437	47.1	12 57 11.35		
7	250	164 25 50.8	25 18.5	145.71	0.66	.0031299	47.6	12 53 15.44		
8	251	165 24 8.8	23 36.3	145.77	0.72	.0030150	48.0	12 49 19.53		
9	252	166 22 28.3	21 55.7	145.84	0.74	.0028993	48.3	12 45 23.63		
10	253	167 20 49.4	20 16.7	145.91	0.71	.0027829	48.6	12 41 27.71		
11	254	168 19 12.0	18 39.2	145.98	0.67	.0026659	48.8	12 37 31.80		
12	255	169 17 36.2	17 3.3	146.05	0.61	.0025485	49.0	12 33 35.90		
13	256	170 16 2.1	15 29.1	146.12	0.53	.0024307	49.1	12 29 40.00		
14	257	171 14 29.9	13 56.8	146.19	0.41	.0023128	49.2	12 25 44.09		
15	258	172 12 59.5	12 26.3	146.27	0.28	.0021949	49.2	12 21 48.18		
16	259	173 11 31.0	10 57.7	146.35	0.15	.0020768	49.3	12 17 52.28		
17	260	174 10 4.5	9 31.1	146.44	-0.01	.0019584	49.3	12 13 56.37		
18	261	175 8 40.1	8 6.5	146.53	+0.12	.0018399	49.4	12 10 0.46		
19	262	176 7 17.8	6 44.1	146.62	0.23	.0017214	49.4	12 6 4.56		
20	263	177 5 57.7	5 23.9	146.71	0.33	.0016028	49.5	12 2 8.65		
21	264	178 4 39.8	4 5.9	146.80	0.39	.0014839	49.7	11 58 12.74		
22	265	179 3 24.2	2 50.2	146.89	0.41	.0013645	49.9	11 54 16.83		
23	266	180 2 10.9	1 36.8	146.99	0.42	.0012446	50.1	11 50 20.92		
24	267	181 0 59.8	0 25.6	147.09	0.38	.0011241	50.3	11 46 25.01		
25	268	181 59 51.0	59 16.7	147.18	0.33	.0010031	50.6	11 42 29.10		
26	269	182 58 44.4	58 10.0	147.27	0.25	.0008814	50.9	11 38 33.19		
27	270	183 57 40.1	57 5.5	147.36	0.16	.0007590	51.2	11 34 37.29		
28	271	184 56 37.9	56 3.2	147.45	+0.04	.0006358	51.5	11 30 41.38		
29	272	185 55 37.8	55 3.0	147.54	-0.09	.0005118	51.8	11 26 45.47		
30	273	186 54 39.8	54 4.9	147.63	0.23	.0003870	52.1	11 22 49.56		
31	274	187 53 43.9	53 8.9	147.71	-0.36	0.0002613	-52.4	11 18 53.66		

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 0d.

Diff. for 1 hour.
-9°.8296

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.
							h m	m	d
1	15' 23.9"	15' 18.9"	56' 24.0"	-1.55	56' 5.5"	-1.52	1 11.6	1.78	1.6
2	15 14.0	15 9.3	55 47.6	1.47	55 30.4	1.39	1 53.7	1.74	2.6
3	15 4.9	15 0.9	55 14.4	1.28	54 59.7	1.16	2 35.4	1.75	3.6
4	14 57.4	14 54.3	54 46.7	1.01	54 35.6	0.84	3 17.9	1.80	4.6
5	14 51.9	14 50.1	54 26.6	0.65	54 19.9	0.46	4 2.0	1.88	5.6
6	14 48.9	14 48.5	54 15.7	-0.25	54 13.9	-0.04	4 48.4	1.99	6.6
7	14 48.7	14 49.6	54 14.7	+0.18	54 18.2	+0.39	5 37.3	2.09	7.6
8	14 51.2	14 53.6	54 24.2	0.61	54 32.8	0.82	6 28.5	2.17	8.6
9	14 56.6	15 0.2	54 43.8	1.02	54 57.2	1.21	7 21.2	2.21	9.6
10	15 4.5	15 9.2	55 12.8	1.38	55 30.2	1.53	8 14.1	2.19	10.6
11	15 14.4	15 20.0	55 49.4	1.66	56 9.9	1.76	9 6.2	2.14	11.6
12	15 25.9	15 32.0	56 31.5	1.83	56 53.7	1.86	9 56.6	2.06	12.6
13	15 38.0	15 44.1	57 16.1	1.86	57 38.2	1.82	10 45.3	2.00	13.6
14	15 49.9	15 55.4	57 59.6	1.74	58 19.9	1.63	11 32.6	1.96	14.6
15	16 0.6	16 5.2	58 38.7	1.49	58 55.6	1.32	12 19.6	1.96	15.6
16	16 9.2	16 12.5	59 10.3	1.13	59 22.6	0.91	13 7.2	2.02	16.6
17	16 15.1	16 17.0	59 32.2	0.69	59 39.2	0.47	13 56.8	2.12	17.6
18	16 18.2	16 18.6	59 43.4	+0.25	59 45.1	+0.04	14 49.4	2.27	18.6
19	16 18.4	16 17.6	59 44.4	-0.16	59 41.4	-0.33	15 46.0	2.44	19.6
20	16 16.3	16 14.4	59 36.5	0.49	59 29.8	0.63	16 46.3	2.57	20.6
21	16 12.2	16 9.6	59 21.5	0.74	59 12.1	0.83	17 48.8	2.62	21.6
22	16 6.8	16 3.7	59 1.6	0.91	58 50.2	0.97	18 51.1	2.55	22.6
23	16 0.4	15 57.0	58 38.2	1.03	58 25.6	1.07	19 50.6	2.39	23.6
24	15 53.4	15 49.8	58 12.6	1.10	57 59.1	1.11	20 45.7	2.20	24.6
25	15 46.0	15 42.1	57 45.3	1.17	57 31.1	1.19	21 36.3	2.02	25.6
26	15 38.2	15 34.2	57 16.6	1.22	57 1.9	1.24	22 22.9	1.88	26.6
27	15 30.1	15 26.0	56 47.0	1.25	56 31.9	1.26	23 6.7	1.78	27.6
28	15 21.9	15 17.8	56 16.8	1.26	56 1.8	1.25	23 48.9	1.74	28.6
29	15 13.8	15 9.8	55 46.9	1.23	55 32.4	1.19	♄		0.0
30	15 6.0	15 2.4	55 18.4	1.14	55 5.1	1.07	0 30.5	1.74	1.0
31	14 59.0	14 55.9	54 52.6	-0.99	54 41.3	-0.90	1 12.6	1.78	2.0

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 1.					FRIDAY 3.				
0	11 50 30.62	1.8922	N. 2 10' 35.0"	15.428	0	13 19 52.83	1.8595	S. 9 45' 9.6"	14.043
1	11 52 24.08	1.8926	1 55 9.5	15.423	1	13 21 44.43	1.8606	9 59 10.7	13.993
2	11 54 17.40	1.8974	1 39 44.3	15.416	2	13 23 36.10	1.8617	10 13 8.8	13.943
3	11 56 10.57	1.8951	1 24 19.6	15.407	3	13 25 27.84	1.8629	10 27 3.9	13.891
4	11 58 3.61	1.8929	1 8 55.5	15.398	4	13 27 19.65	1.8641	10 40 55.8	13.839
5	11 59 56.52	1.8908	0 53 31.9	15.387	5	13 29 11.54	1.8654	10 54 44.6	13.787
6	12 1 49.30	1.8787	0 38 9.0	15.375	6	13 31 3.50	1.8668	11 8 30.2	13.733
7	12 3 41.96	1.8768	0 22 46.9	15.363	7	13 32 55.55	1.8683	11 22 12.5	13.678
8	12 5 34.51	1.8749	N. 0 7 25.5	15.349	8	13 34 47.69	1.8698	11 35 51.5	13.622
9	12 7 26.95	1.8731	S. 0 7 55.0	15.334	9	13 36 39.92	1.8713	11 49 27.1	13.565
10	12 9 19.28	1.8713	0 23 14.6	15.319	10	13 38 32.25	1.8729	12 2 59.3	13.508
11	12 11 11.51	1.8697	0 38 33.3	15.302	11	13 40 24.67	1.8745	12 16 28.0	13.450
12	12 13 3.64	1.8681	0 53 50.9	15.284	12	13 42 17.19	1.8763	12 29 53.3	13.392
13	12 14 55.68	1.8666	1 9 7.4	15.266	13	13 44 9.82	1.8781	12 43 15.1	13.333
14	12 16 47.63	1.8651	1 24 22.8	15.247	14	13 46 2.56	1.8799	12 56 33.2	13.272
15	12 18 39.49	1.8638	1 39 37.0	15.226	15	13 47 55.41	1.8818	13 9 47.7	13.211
16	12 20 31.28	1.8625	1 54 49.9	15.204	16	13 49 48.38	1.8838	13 22 58.5	13.149
17	12 22 22.99	1.8613	2 10 1.5	15.182	17	13 51 41.47	1.8859	13 36 5.6	13.087
18	12 24 14.63	1.8601	2 25 11.7	15.158	18	13 53 34.69	1.8880	13 49 8.9	13.023
19	12 26 6.20	1.8590	2 40 20.5	15.134	19	13 55 28.03	1.8901	14 2 8.4	12.959
20	12 27 57.71	1.8581	2 55 27.8	15.108	20	13 57 21.50	1.8923	14 15 4.0	12.895
21	12 29 49.17	1.8572	3 10 33.5	15.089	21	13 59 15.11	1.8946	14 27 55.8	12.830
22	12 31 40.57	1.8563	3 25 37.6	15.065	22	14 1 8.85	1.8969	14 40 43.6	12.763
23	12 33 31.93	1.8556	S. 3 40 40.1	15.027	23	14 3 2.73	1.8993	S. 14 53 27.4	12.696
THURSDAY 2.					SATURDAY 4.				
0	12 35 23.24	1.8549	S. 3 55 40.9	14.998	0	14 4 56.76	1.9017	S. 15 6 7.1	12.628
1	12 37 14.51	1.8543	4 10 39.9	14.968	1	14 6 50.93	1.9042	15 18 42.8	12.560
2	12 39 5.75	1.8538	4 25 37.1	14.938	2	14 8 45.26	1.9067	15 31 14.3	12.490
3	12 40 56.96	1.8533	4 40 32.4	14.906	3	14 10 39.74	1.9093	15 43 41.6	12.420
4	12 42 48.14	1.8528	4 55 25.8	14.873	4	14 12 34.37	1.9119	15 56 4.7	12.349
5	12 44 39.30	1.8525	5 10 17.2	14.840	5	14 14 29.16	1.9146	16 8 23.5	12.278
6	12 46 30.44	1.8523	5 25 6.6	14.806	6	14 16 24.12	1.9173	16 20 38.0	12.206
7	12 48 21.57	1.8521	5 39 53.9	14.770	7	14 18 19.24	1.9201	16 32 48.2	12.132
8	12 50 12.69	1.8520	5 54 39.0	14.734	8	14 20 14.53	1.9229	16 44 53.9	12.058
9	12 52 3.81	1.8519	6 9 22.0	14.697	9	14 22 9.99	1.9258	16 56 55.2	11.984
10	12 53 54.92	1.8519	6 24 2.7	14.659	10	14 24 5.63	1.9287	17 8 52.0	11.909
11	12 55 46.04	1.8521	6 38 41.1	14.621	11	14 26 1.44	1.9317	17 20 44.3	11.833
12	12 57 37.17	1.8523	6 53 17.2	14.582	12	14 27 57.43	1.9347	17 32 32.0	11.757
13	12 59 28.31	1.8525	7 7 50.9	14.541	13	14 29 53.60	1.9378	17 44 15.1	11.679
14	13 1 19.47	1.8528	7 22 22.1	14.500	14	14 31 49.96	1.9409	17 55 53.5	11.600
15	13 3 10.64	1.8531	7 36 50.9	14.459	15	14 33 46.51	1.9441	18 7 27.1	11.521
16	13 5 1.84	1.8536	7 51 17.2	14.416	16	14 35 43.25	1.9473	18 18 56.0	11.441
17	13 6 53.07	1.8542	8 5 40.8	14.372	17	14 37 40.18	1.9505	18 30 20.0	11.360
18	13 8 44.34	1.8548	8 20 1.8	14.328	18	14 39 37.31	1.9537	18 41 39.2	11.279
19	13 10 35.64	1.8554	8 34 20.1	14.283	19	14 41 34.63	1.9570	18 52 53.5	11.197
20	13 12 26.98	1.8561	8 48 35.7	14.237	20	14 43 32.15	1.9604	19 4 2.8	11.114
21	13 14 18.37	1.8568	9 2 48.5	14.190	21	14 45 29.88	1.9638	19 15 7.2	11.031
22	13 16 9.80	1.8577	9 16 58.5	14.142	22	14 47 27.81	1.9673	19 26 6.6	10.946
23	13 18 1.29	1.8586	9 31 5.5	14.093	23	14 49 25.95	1.9708	19 37 0.8	10.861
24	13 19 52.83	1.8595	S. 9 45 9.6	14.043	24	14 51 24.30	1.9743	S. 19 47 49.9	10.776

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 5.					TUESDAY 7.				
0	14 51 24.30	1.9743	S. 19° 47' 49.9"	10.776	0	16 30 38.04	2.1629	S. 26° 31' 46.1"	5.769
1	14 53 22.86	1.9778	19 58 33.9	10.689	1	16 32 47.93	2.1668	26 37 28.6	5.647
2	14 55 21.63	1.9813	20 9 12.6	10.601	2	16 34 58.05	2.1706	26 43 3.7	5.524
3	14 57 20.62	1.9849	20 19 46.0	10.513	3	16 37 8.40	2.1743	26 48 31.5	5.401
4	14 59 19.82	1.9886	20 30 14.1	10.424	4	16 39 18.97	2.1780	26 53 51.8	5.277
5	15 1 19.25	1.9923	20 40 36.8	10.334	5	16 41 29.76	2.1817	26 59 4.7	5.153
6	15 3 18.90	1.9960	20 50 54.2	10.244	6	16 43 40.77	2.1853	27 4 10.1	5.027
7	15 5 18.77	1.9997	21 1 6.1	10.153	7	16 45 52.00	2.1889	27 9 7.9	4.900
8	15 7 18.87	2.0035	21 11 12.5	10.061	8	16 48 3.44	2.1926	27 13 58.1	4.773
9	15 9 19.19	2.0073	21 21 13.4	9.968	9	16 50 15.10	2.1961	27 18 40.7	4.646
10	15 11 19.74	2.0111	21 31 8.7	9.875	10	16 52 26.97	2.1996	27 23 15.6	4.518
11	15 13 20.52	2.0150	21 40 58.4	9.781	11	16 54 39.05	2.2031	27 27 42.8	4.389
12	15 15 21.54	2.0189	21 50 42.4	9.686	12	16 56 51.34	2.2065	27 32 2.3	4.260
13	15 17 22.79	2.0227	22 0 20.7	9.590	13	16 59 3.83	2.2099	27 36 14.0	4.130
14	15 19 24.27	2.0266	22 9 53.2	9.493	14	17 1 16.52	2.2132	27 40 17.9	4.000
15	15 21 25.98	2.0305	22 19 19.9	9.396	15	17 3 29.41	2.2164	27 44 14.0	3.869
16	15 23 27.93	2.0345	22 28 40.7	9.298	16	17 5 42.49	2.2196	27 48 2.2	3.737
17	15 25 30.12	2.0384	22 37 55.6	9.199	17	17 7 55.76	2.2228	27 51 42.4	3.604
18	15 27 32.54	2.0423	22 47 4.6	9.100	18	17 10 9.23	2.2260	27 55 14.7	3.471
19	15 29 35.20	2.0463	22 56 7.6	8.999	19	17 12 22.88	2.2290	27 58 39.0	3.338
20	15 31 38.10	2.0504	23 5 4.5	8.898	20	17 14 36.71	2.2320	28 1 55.3	3.205
21	15 33 41.25	2.0545	23 13 55.4	8.797	21	17 16 50.72	2.2350	28 5 3.6	3.071
22	15 35 44.64	2.0585	23 22 40.1	8.694	22	17 19 4.91	2.2379	28 8 3.8	2.935
23	15 37 48.27	2.0626	S. 23° 31' 18.7"	8.591	23	17 21 19.27	2.2408	S. 28° 10' 55.8"	2.799
MONDAY 6.					WEDNESDAY 8.				
0	15 39 52.15	2.0667	S. 23° 39' 51.1"	8.488	0	17 23 33.80	2.2436	S. 28° 13' 39.7"	2.663
1	15 41 56.27	2.0707	23 48 17.2	8.383	1	17 25 48.50	2.2463	28 16 15.4	2.527
2	15 44 0.63	2.0748	23 56 37.0	8.277	2	17 28 3.35	2.2489	28 18 42.9	2.390
3	15 46 5.24	2.0788	24 4 50.4	8.170	3	17 30 18.36	2.2515	28 21 2.2	2.252
4	15 48 10.09	2.0828	24 12 57.4	8.063	4	17 32 33.53	2.2540	28 23 13.2	2.114
5	15 50 15.18	2.0869	24 20 58.0	7.956	5	17 34 48.84	2.2564	28 25 15.9	1.976
6	15 52 20.52	2.0910	24 28 52.1	7.847	6	17 37 4.30	2.2588	28 27 10.4	1.838
7	15 54 26.10	2.0951	24 36 39.6	7.738	7	17 39 19.90	2.2612	28 28 56.5	1.698
8	15 56 31.93	2.0992	24 44 20.6	7.629	8	17 41 35.64	2.2634	28 30 34.2	1.558
9	15 58 38.00	2.1033	24 51 55.0	7.518	9	17 43 51.51	2.2656	28 32 3.5	1.418
10	16 0 44.32	2.1073	24 59 22.7	7.406	10	17 46 7.51	2.2678	28 33 24.4	1.278
11	16 2 50.88	2.1113	25 6 43.7	7.294	11	17 48 23.64	2.2699	28 34 36.9	1.138
12	16 4 57.68	2.1154	25 13 58.0	7.181	12	17 50 39.89	2.2718	28 35 40.9	0.996
13	16 7 4.73	2.1195	25 21 5.4	7.067	13	17 52 56.26	2.2736	28 36 36.4	0.854
14	16 9 12.02	2.1235	25 28 6.0	6.953	14	17 55 12.73	2.2754	28 37 23.4	0.712
15	16 11 19.55	2.1275	25 34 59.7	6.838	15	17 57 29.31	2.2772	28 38 1.9	0.570
16	16 13 27.32	2.1315	25 41 46.5	6.723	16	17 59 46.00	2.2789	28 38 31.8	0.427
17	16 15 35.33	2.1355	25 48 26.3	6.605	17	18 2 2.78	2.2805	28 38 53.1	0.284
18	16 17 43.58	2.1395	25 54 59.1	6.487	18	18 4 19.66	2.2820	28 39 5.9	0.141
19	16 19 52.07	2.1434	26 1 24.8	6.369	19	18 6 36.62	2.2834	28 39 10.1	-0.003
20	16 22 0.79	2.1474	26 7 43.4	6.251	20	18 8 53.67	2.2848	28 39 5.6	+0.147
21	16 24 9.75	2.1513	26 13 54.9	6.133	21	18 11 10.80	2.2861	28 38 52.5	0.291
22	16 26 18.95	2.1552	26 19 59.2	6.013	22	18 13 28.01	2.2873	28 38 30.7	0.135
23	16 28 28.38	2.1591	26 25 56.3	5.891	23	18 15 45.28	2.2884	28 38 0.3	0.579
24	16 30 38.04	2.1629	S. 26° 31' 46.1"	5.769	24	18 18 2.62	2.2895	S. 28° 37' 21.2"	0.724

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 9.					SATURDAY 11.				
0	18 18 2.62	2.2885	S. 28 37 21.2	0.734	0	20 7 40.25	2.2513	S. 25 15 37.3	7.613
1	18 20 20.02	2.2904	28 36 33.4	0.869	1	20 9 55.26	2.2490	25 7 56.4	7.749
2	18 22 37.47	2.2913	28 35 36.9	1.014	2	20 12 10.13	2.2466	25 0 7.4	7.884
3	18 24 54.98	2.2922	28 34 31.7	1.159	3	20 14 24.85	2.2442	24 52 10.3	8.019
4	18 27 12.54	2.2929	28 33 17.8	1.304	4	20 16 39.43	2.2418	24 44 5.1	8.153
5	18 29 30.13	2.2935	28 31 55.2	1.450	5	20 18 53.86	2.2393	24 35 51.9	8.287
6	18 31 47.76	2.2941	28 30 23.8	1.596	6	20 21 8.15	2.2368	24 27 30.6	8.421
7	18 34 5.42	2.2946	28 28 43.7	1.742	7	20 23 22.28	2.2343	24 19 1.4	8.553
8	18 36 23.11	2.2950	28 26 54.8	1.888	8	20 25 36.26	2.2317	24 10 24.3	8.685
9	18 38 40.82	2.2953	28 24 57.2	2.033	9	20 27 50.08	2.2290	24 1 39.2	8.817
10	18 40 58.55	2.2956	28 22 50.9	2.179	10	20 30 3.74	2.2264	23 52 46.3	8.947
11	18 43 16.29	2.2958	28 20 35.8	2.325	11	20 32 17.25	2.2236	23 43 45.6	9.076
12	18 45 34.04	2.2958	28 18 11.9	2.471	12	20 34 30.60	2.2211	23 34 37.2	9.205
13	18 47 51.79	2.2958	28 15 49.3	2.617	13	20 36 43.78	2.2184	23 25 21.0	9.334
14	18 50 9.54	2.2958	28 12 57.9	2.763	14	20 38 56.80	2.2157	23 15 57.1	9.462
15	18 52 27.28	2.2958	28 10 7.7	2.909	15	20 41 9.66	2.2129	23 6 25.6	9.590
16	18 54 45.01	2.2953	28 7 8.8	3.055	16	20 43 22.35	2.2102	22 56 46.5	9.715
17	18 57 2.72	2.2950	28 4 1.1	3.202	17	20 45 34.88	2.2074	22 46 59.8	9.841
18	18 59 20.41	2.2947	28 0 44.6	3.348	18	20 47 47.24	2.2046	22 37 5.6	9.966
19	19 1 38.08	2.2942	27 57 19.4	3.493	19	20 49 59.43	2.2018	22 27 3.9	10.089
20	19 3 55.71	2.2936	27 53 45.5	3.638	20	20 52 11.45	2.1989	22 16 54.9	10.212
21	19 6 13.31	2.2930	27 50 2.8	3.784	21	20 54 23.30	2.1961	22 6 38.5	10.335
22	19 8 30.87	2.2923	27 46 11.4	3.929	22	20 56 34.98	2.1933	21 56 14.7	10.457
23	19 10 48.39	2.2916	S. 27 42 11.3	4.075	23	20 58 46.49	2.1904	S. 21 45 43.7	10.578
FRIDAY 10.					SUNDAY 12.				
0	19 13 5.86	2.2908	S. 27 38 2.4	4.221	0	21 0 57.83	2.1876	S. 21 35 5.4	10.698
1	19 15 23.28	2.2898	27 33 44.8	4.365	1	21 3 9.00	2.1847	21 24 20.0	10.817
2	19 17 40.64	2.2888	27 29 18.6	4.509	2	21 5 19.99	2.1818	21 13 27.4	10.935
3	19 19 57.94	2.2878	27 24 43.7	4.654	3	21 7 30.81	2.1789	21 2 27.8	11.053
4	19 22 15.18	2.2867	27 20 0.1	4.798	4	21 9 41.46	2.1761	20 51 21.1	11.170
5	19 24 32.34	2.2854	27 15 7.9	4.943	5	21 11 51.94	2.1732	20 40 7.4	11.285
6	19 26 49.43	2.2842	27 10 7.0	5.087	6	21 14 2.24	2.1703	20 28 46.9	11.399
7	19 29 6.45	2.2829	27 4 57.5	5.230	7	21 16 12.38	2.1675	20 17 19.5	11.513
8	19 31 23.38	2.2815	26 59 39.4	5.373	8	21 18 22.34	2.1646	20 5 45.3	11.627
9	19 33 40.23	2.2801	26 54 12.7	5.516	9	21 20 32.13	2.1617	19 54 4.3	11.739
10	19 35 56.99	2.2785	26 48 37.5	5.658	10	21 22 41.75	2.1589	19 42 16.6	11.851
11	19 38 13.65	2.2769	26 42 53.7	5.801	11	21 24 51.20	2.1560	19 30 22.2	11.961
12	19 40 30.22	2.2753	26 37 1.4	5.943	12	21 27 0.49	2.1534	19 18 21.3	12.070
13	19 42 46.69	2.2738	26 31 0.6	6.084	13	21 29 9.61	2.1506	19 6 13.8	12.178
14	19 45 3.05	2.2718	26 24 51.3	6.226	14	21 31 18.56	2.1478	18 53 59.9	12.285
15	19 47 19.31	2.2701	26 18 33.5	6.367	15	21 33 27.34	2.1450	18 41 39.6	12.392
16	19 49 35.46	2.2682	26 12 7.3	6.507	16	21 35 35.96	2.1423	18 29 12.9	12.498
17	19 51 51.49	2.2662	26 5 32.7	6.647	17	21 37 44.41	2.1395	18 16 39.9	12.602
18	19 54 7.40	2.2642	25 58 49.7	6.788	18	21 39 52.70	2.1368	18 4 0.7	12.705
19	19 56 23.19	2.2622	25 51 58.4	6.925	19	21 42 0.83	2.1341	17 51 15.3	12.807
20	19 58 38.86	2.2602	25 44 58.7	7.064	20	21 44 8.80	2.1315	17 38 23.8	12.908
21	20 0 54.41	2.2580	25 37 50.7	7.202	21	21 46 16.61	2.1289	17 25 26.3	13.008
22	20 3 9.82	2.2558	25 30 34.5	7.339	22	21 48 24.27	2.1263	17 12 22.8	13.108
23	20 5 25.10	2.2536	25 23 10.0	7.476	23	21 50 31.77	2.1238	16 59 13.3	13.207
24	20 7 40.25	2.2513	S. 25 15 37.3	7.613	24	21 52 39.12	2.1212	S. 16 45 57.9	13.304

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 13.					WEDNESDAY 15.				
0	21 52 39.12	2.1212	S. 16° 45' 57.9"	13.304	0	23 32 23.22	2.0559	S. 4° 37' 25.2"	16.569
1	21 54 46.31	2.1187	16 32 36.8	13.400	1	23 34 26.58	2.0561	4 20 50.0	16.605
2	21 56 53.36	2.1162	16 19 9.9	13.496	2	23 36 29.96	2.0564	4 4 12.6	16.640
3	21 59 0.26	2.1138	16 5 37.3	13.590	3	23 38 33.35	2.0567	3 47 33.2	16.672
4	22 1 7.02	2.1114	15 51 59.2	13.682	4	23 40 36.76	2.0571	3 30 51.9	16.703
5	22 3 13.63	2.1090	15 38 15.5	13.774	5	23 42 40.20	2.0576	3 14 8.8	16.733
6	22 5 20.10	2.1067	15 24 26.3	13.865	6	23 44 43.67	2.0581	2 57 24.0	16.761
7	22 7 26.43	2.1044	15 10 31.7	13.954	7	23 46 47.17	2.0586	2 40 37.5	16.788
8	22 9 32.63	2.1021	14 56 31.8	14.042	8	23 48 50.72	2.0595	2 23 49.4	16.814
9	22 11 38.60	2.0999	14 42 26.6	14.130	9	23 50 54.31	2.0603	2 6 59.8	16.838
10	22 13 44.62	2.0977	14 28 16.2	14.216	10	23 52 57.95	2.0611	1 50 8.9	16.860
11	22 15 50.42	2.0956	14 14 0.7	14.301	11	23 55 1.64	2.0620	1 33 16.6	16.881
12	22 17 56.00	2.0935	13 59 40.1	14.386	12	23 57 5.39	2.0631	1 16 23.1	16.901
13	22 20 1.64	2.0915	13 45 14.5	14.468	13	23 59 9.21	2.0642	0 59 28.5	16.919
14	22 22 7.07	2.0895	13 30 44.0	14.549	14	0 13 13.09	2.0653	0 42 32.9	16.935
15	22 24 12.38	2.0876	13 16 8.6	14.630	15	0 3 17.04	2.0665	0 25 36.3	16.950
16	22 26 17.58	2.0857	13 1 28.4	14.709	16	0 5 21.07	2.0678	S. 0 8 38.9	16.963
17	22 28 22.67	2.0838	12 46 43.5	14.787	17	0 7 25.18	2.0693	N. 0 8 19.2	16.975
18	22 30 27.64	2.0820	12 31 54.0	14.863	18	0 9 29.38	2.0708	0 25 18.0	16.985
19	22 32 32.51	2.0803	12 16 59.9	14.939	19	0 11 33.67	2.0723	0 42 17.4	16.993
20	22 34 37.28	2.0786	12 2 1.3	15.014	20	0 13 38.06	2.0739	0 59 17.2	17.000
21	22 36 41.94	2.0769	11 46 58.3	15.087	21	0 15 42.54	2.0756	1 16 17.4	17.006
22	22 38 46.51	2.0754	11 31 50.9	15.158	22	0 17 47.13	2.0775	1 33 17.9	17.010
23	22 40 50.99	2.0739	S. 11° 16' 39.3"	15.228	23	0 19 51.84	2.0794	N. 1 50 18.6	17.012
TUESDAY 14.					THURSDAY 16.				
0	22 42 55.38	2.0724	S. 11° 1 23.5"	15.298	0	0 21 56.66	2.0813	N. 2 7 19.3	17.013
1	22 44 59.68	2.0710	10 46 3.5	15.367	1	0 24 1.60	2.0833	2 24 20.1	17.019
2	22 47 3.90	2.0697	10 30 39.5	15.434	2	0 26 6.66	2.0855	2 41 20.7	17.009
3	22 49 8.04	2.0684	10 15 11.5	15.499	3	0 28 11.86	2.0878	2 58 21.1	17.004
4	22 51 12.10	2.0671	9 59 39.6	15.562	4	0 30 17.19	2.0900	3 15 21.2	16.999
5	22 53 16.09	2.0659	9 44 3.9	15.626	5	0 32 22.66	2.0924	3 32 20.9	16.992
6	22 55 20.01	2.0648	9 28 24.5	15.688	6	0 34 28.28	2.0949	3 49 20.2	16.983
7	22 57 23.86	2.0637	9 12 41.4	15.748	7	0 36 34.05	2.0974	4 6 18.9	16.972
8	22 59 27.65	2.0627	8 56 54.7	15.808	8	0 38 39.97	2.1000	4 23 16.8	16.959
9	23 1 31.39	2.0618	8 41 4.4	15.866	9	0 40 46.05	2.1027	4 40 13.9	16.944
10	23 3 35.07	2.0609	8 25 10.8	15.922	10	0 42 52.29	2.1055	4 57 10.1	16.929
11	23 5 38.70	2.0601	8 9 13.8	15.977	11	0 44 58.71	2.1084	5 14 5.3	16.912
12	23 7 42.29	2.0594	7 53 13.5	16.031	12	0 47 5.30	2.1113	5 30 50.5	16.893
13	23 9 45.83	2.0588	7 37 10.1	16.084	13	0 49 12.07	2.1143	5 47 52.4	16.871
14	23 11 49.34	2.0582	7 21 3.5	16.135	14	0 51 19.02	2.1174	6 4 44.0	16.849
15	23 13 52.81	2.0576	7 4 53.9	16.184	15	0 53 26.16	2.1206	6 21 34.3	16.825
16	23 15 56.25	2.0572	6 48 41.4	16.233	16	0 55 33.49	2.1238	6 38 23.1	16.799
17	23 17 59.67	2.0568	6 32 26.0	16.280	17	0 57 41.02	2.1272	6 55 10.2	16.771
18	23 20 3.07	2.0565	6 16 7.8	16.325	18	0 59 48.76	2.1307	7 11 55.6	16.742
19	23 22 6.45	2.0563	5 59 47.0	16.369	19	1 1 56.70	2.1349	7 28 39.2	16.711
20	23 24 9.82	2.0560	5 43 23.5	16.412	20	1 4 4.86	2.1377	7 45 20.9	16.678
21	23 26 13.17	2.0558	5 26 57.5	16.453	21	1 6 13.23	2.1413	8 2 0.6	16.644
22	23 28 16.52	2.0558	5 10 29.1	16.493	22	1 8 21.82	2.1451	8 18 38.2	16.607
23	23 30 19.87	2.0558	4 53 58.3	16.532	23	1 10 30.64	2.1489	8 35 13.5	16.569
24	23 32 23.22	2.0559	S. 4° 37' 25.2"	16.569	24	1 12 39.69	2.1528	N. 8 51 46.5	16.530

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 17.					SUNDAY 19.				
0	1 12 39.69	2.1598	N. 8 51' 46.5"	16.530	0	3 1 44.66	2.4117	N. 20 45' 4.8"	12.487
1	1 14 48.98	2.1568	9 8 17.1	16.488	1	3 4 9.55	2.4179	20 57 30.2	12.358
2	1 16 58.51	2.1608	9 24 45.1	16.445	2	3 6 34.81	2.4241	21 9 47.8	12.228
3	1 19 8.28	2.1649	9 41 10.5	16.400	3	3 9 0.44	2.4304	21 21 57.5	12.098
4	1 21 18.30	2.1691	9 57 33.1	16.353	4	3 11 26.45	2.4367	21 33 59.2	11.961
5	1 23 28.58	2.1734	10 13 52.8	16.304	5	3 13 52.84	2.4429	21 45 52.8	11.826
6	1 25 39.11	2.1778	10 30 9.6	16.254	6	3 16 19.60	2.4491	21 57 38.3	11.698
7	1 27 49.91	2.1822	10 46 23.3	16.202	7	3 18 46.73	2.4553	22 9 15.4	11.548
8	1 30 0.98	2.1867	11 2 33.8	16.148	8	3 21 14.23	2.4615	22 20 44.1	11.407
9	1 32 12.31	2.1912	11 18 41.0	16.092	9	3 23 42.11	2.4677	22 32 4.3	11.264
10	1 34 23.92	2.1959	11 34 44.8	16.034	10	3 26 10.35	2.4738	22 43 15.8	11.120
11	1 36 35.81	2.2006	11 50 45.1	15.975	11	3 28 38.96	2.4798	22 54 18.7	10.975
12	1 38 47.99	2.2053	12 6 41.8	15.914	12	3 31 7.93	2.4859	23 5 12.8	10.828
13	1 41 0.45	2.2102	12 22 34.8	15.851	13	3 33 37.26	2.4920	23 15 58.0	10.678
14	1 43 13.21	2.2151	12 38 23.9	15.786	14	3 36 6.96	2.4980	23 26 34.1	10.526
15	1 45 26.26	2.2200	12 54 9.1	15.719	15	3 38 37.02	2.5039	23 37 1.1	10.373
16	1 47 39.61	2.2251	13 9 50.2	15.651	16	3 41 7.43	2.5098	23 47 18.9	10.219
17	1 49 53.27	2.2302	13 25 27.2	15.581	17	3 43 38.20	2.5157	23 57 27.4	10.063
18	1 52 7.24	2.2354	13 40 59.9	15.508	18	3 46 9.32	2.5215	24 7 26.5	9.906
19	1 54 21.52	2.2406	13 56 28.2	15.434	19	3 48 40.78	2.5273	24 17 16.1	9.748
20	1 56 36.11	2.2458	14 11 52.0	15.358	20	3 51 12.58	2.5332	24 26 56.2	9.587
21	1 58 51.02	2.2512	14 27 11.2	15.281	21	3 53 44.73	2.5388	24 36 26.6	9.425
22	2 1 6.26	2.2567	14 42 25.7	15.202	22	3 56 17.21	2.5441	24 45 47.2	9.262
23	2 3 21.82	2.2621	N. 14 57 35.4	15.120	23	3 58 50.02	2.5495	N. 24 54 58.0	9.097
SATURDAY 18.					MONDAY 20.				
0	2 5 37.71	2.2676	N. 15 12 40.1	15.037	0	4 1 23.15	2.5549	N. 25 3 58.9	8.931
1	2 7 53.93	2.2732	15 27 39.8	14.952	1	4 3 56.61	2.5602	25 12 49.7	8.764
2	2 10 10.49	2.2788	15 42 34.3	14.865	2	4 6 30.38	2.5655	25 21 30.5	8.595
3	2 12 27.39	2.2845	15 57 23.6	14.776	3	4 9 4.47	2.5707	25 30 1.1	8.424
4	2 14 44.63	2.2902	16 12 7.4	14.685	4	4 11 38.87	2.5758	25 38 21.4	8.253
5	2 17 2.21	2.2959	16 26 45.8	14.593	5	4 14 13.57	2.5808	25 46 31.4	8.080
6	2 19 20.14	2.3017	16 41 18.6	14.499	6	4 16 48.56	2.5856	25 54 31.0	7.906
7	2 21 38.42	2.3076	16 55 45.7	14.403	7	4 19 23.84	2.5904	26 2 20.1	7.731
8	2 23 57.05	2.3134	17 10 7.0	14.305	8	4 21 59.41	2.5952	26 9 58.7	7.554
9	2 26 16.03	2.3193	17 24 22.3	14.205	9	4 24 35.26	2.5998	26 17 26.6	7.376
10	2 28 35.37	2.3253	17 38 31.6	14.103	10	4 27 11.38	2.6043	26 24 43.8	7.197
11	2 30 55.07	2.3314	17 52 34.7	13.999	11	4 29 47.77	2.6087	26 31 50.2	7.017
12	2 33 15.14	2.3375	18 6 31.5	13.894	12	4 32 24.42	2.6139	26 38 45.8	6.836
13	2 35 35.57	2.3435	18 20 21.9	13.787	13	4 35 1.32	2.6170	26 45 30.5	6.653
14	2 37 56.36	2.3496	18 34 5.9	13.678	14	4 37 38.46	2.6210	26 52 4.2	6.470
15	2 40 17.52	2.3557	18 47 43.3	13.568	15	4 40 15.84	2.6249	26 58 26.9	6.286
16	2 42 39.05	2.3619	19 1 14.0	13.455	16	4 42 53.45	2.6287	27 4 38.5	6.101
17	2 45 0.95	2.3680	19 14 37.9	13.340	17	4 45 31.28	2.6323	27 10 39.0	5.914
18	2 47 23.21	2.3742	19 27 54.8	13.223	18	4 48 9.57	2.6358	27 16 28.2	5.727
19	2 49 45.85	2.3804	19 41 4.7	13.105	19	4 50 47.57	2.6391	27 22 6.2	5.539
20	2 52 8.86	2.3867	19 54 7.4	12.985	20	4 53 26.01	2.6423	27 27 32.9	5.350
21	2 54 32.25	2.3929	20 7 2.9	12.863	21	4 56 4.64	2.6453	27 32 48.2	5.160
22	2 56 56.01	2.3991	20 19 51.0	12.740	22	4 58 43.45	2.6483	27 37 52.1	4.970
23	2 59 20.15	2.4054	20 32 31.7	12.615	23	5 1 22.44	2.6512	27 42 44.6	4.779
24	3 1 44.66	2.4117	N. 20 45 4.8	12.487	24	5 4 1.59	2.6538	N. 27 47 25.6	4.587

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 21.					THURSDAY 23.				
0	h m s	s	N. 27° 47' 25.6"	4.587	0	h m s	s	N. 27° 43' 8.9"	4.648
1	5 4 1.59	2.6538	27 51 55.0	4.394	1	7 11 19.50	2.5873	27 38 24.7	4.825
2	5 6 40.89	2.6563	27 56 12.9	4.201	2	7 16 29.36	2.5768	27 33 29.9	5.002
3	5 9 20.34	2.6587	28 0 19.2	4.008	3	7 19 3.81	2.5715	27 28 24.5	5.177
4	5 11 59.92	2.6608	28 4 13.9	3.814	4	7 21 37.94	2.5661	27 23 8.7	5.350
5	5 14 39.63	2.6628	28 7 56.9	3.619	5	7 24 11.74	2.5604	27 17 42.5	5.522
6	5 17 19.46	2.6647	28 11 28.2	3.424	6	7 26 45.19	2.5547	27 12 6.0	5.693
7	5 19 59.39	2.6664	28 14 47.8	3.228	7	7 29 18.30	2.5489	27 6 19.3	5.863
8	5 22 39.42	2.6679	28 17 55.6	3.033	8	7 31 51.06	2.5430	27 0 22.4	6.032
9	5 25 19.54	2.6693	28 20 51.7	2.837	9	7 34 23.46	2.5370	26 54 15.4	6.199
10	5 27 59.73	2.6705	28 23 36.0	2.640	10	7 36 55.50	2.5309	26 47 58.5	6.365
11	5 30 39.99	2.6715	28 26 8.5	2.443	11	7 39 27.17	2.5248	26 41 31.6	6.530
12	5 33 20.31	2.6724	28 28 29.2	2.246	12	7 41 58.47	2.5185	26 34 54.9	6.693
13	5 36 0.68	2.6731	28 30 38.0	2.049	13	7 44 29.39	2.5121	26 28 8.4	6.855
14	5 38 41.08	2.6736	28 32 35.0	1.852	14	7 46 59.92	2.5057	26 21 12.3	7.015
15	5 41 21.51	2.6740	28 34 20.2	1.655	15	7 49 30.07	2.4991	26 14 6.6	7.173
16	5 44 1.96	2.6742	28 35 53.6	1.457	16	7 51 59.82	2.4925	26 6 51.5	7.331
17	5 46 42.41	2.6742	28 37 15.1	1.259	17	7 54 29.17	2.4859	25 59 26.9	7.487
18	5 49 22.86	2.6741	28 38 24.7	1.062	18	7 56 58.13	2.4793	25 51 53.0	7.641
19	5 52 3.30	2.6738	28 39 22.5	0.865	19	7 59 26.69	2.4725	25 44 9.9	7.794
20	5 54 43.71	2.6732	28 40 8.5	0.668	20	8 1 54.83	2.4656	25 36 17.7	7.946
21	5 57 24.08	2.6725	28 40 42.6	0.470	21	8 4 22.56	2.4587	25 28 16.4	8.096
22	6 0 4.41	2.6717	28 41 4.9	0.273	22	8 6 49.87	2.4518	25 20 6.2	8.244
23	6 2 44.69	2.6707	N. 28° 41' 15.4"	+0.077	23	8 9 16.77	2.4448	N. 25° 11' 47.1"	8.391
24	6 5 24.90	2.6695							
WEDNESDAY 22.					FRIDAY 24.				
0	6 8 5.02	2.6680	N. 28° 41' 14.2"	-0.119	0	8 11 43.25	2.4378	N. 25° 3' 19.3"	8.536
1	6 10 45.06	2.6665	28 41 1.1	0.315	1	8 14 9.31	2.4308	24 54 42.8	8.680
2	6 13 25.00	2.6648	28 40 36.3	0.511	2	8 16 34.94	2.4236	24 45 57.7	8.822
3	6 16 4.84	2.6630	28 39 59.8	0.706	3	8 19 0.14	2.4164	24 37 4.2	8.962
4	6 18 44.56	2.6610	28 39 11.6	0.901	4	8 21 24.91	2.4093	24 28 2.3	9.101
5	6 21 24.15	2.6588	28 38 11.7	1.095	5	8 23 49.25	2.4021	24 18 52.1	9.238
6	6 24 3.61	2.6564	28 37 0.2	1.288	6	8 26 13.16	2.3949	24 9 33.8	9.373
7	6 26 42.92	2.6538	28 35 37.1	1.482	7	8 28 36.63	2.3876	24 0 7.3	9.507
8	6 29 22.07	2.6511	28 34 2.4	1.675	8	8 30 59.67	2.3803	23 50 32.9	9.639
9	6 32 1.05	2.6483	28 32 16.1	1.867	9	8 33 22.27	2.3730	23 40 50.6	9.770
10	6 34 39.86	2.6453	28 30 18.3	2.058	10	8 35 44.43	2.3656	23 31 0.5	9.899
11	6 37 18.48	2.6421	28 28 9.1	2.248	11	8 38 6.16	2.3585	23 21 2.7	10.027
12	6 39 56.91	2.6388	28 25 48.5	2.438	12	8 40 27.45	2.3511	23 10 57.2	10.153
13	6 42 35.13	2.6353	28 23 16.5	2.628	13	8 42 48.30	2.3438	23 0 44.3	10.277
14	6 45 13.14	2.6316	28 20 33.1	2.817	14	8 45 8.71	2.3365	22 50 24.0	10.400
15	6 47 50.92	2.6278	28 17 38.5	3.004	15	8 47 28.68	2.3292	22 39 56.3	10.520
16	6 50 28.47	2.6238	28 14 32.7	3.190	16	8 49 48.21	2.3218	22 29 21.5	10.639
17	6 53 5.78	2.6197	28 11 15.7	3.376	17	8 52 7.30	2.3145	22 18 39.6	10.757
18	6 55 42.84	2.6155	28 7 47.6	3.560	18	8 54 25.95	2.3073	22 7 50.6	10.874
19	6 58 19.64	2.6112	28 4 8.5	3.744	19	8 56 44.17	2.3000	21 56 54.7	10.988
20	7 0 56.18	2.6067	28 0 18.3	3.927	20	8 59 1.95	2.2927	21 45 52.0	11.101
21	7 3 32.44	2.6020	27 56 17.2	4.109	21	9 1 19.29	2.2854	21 34 42.6	11.213
22	7 6 8.42	2.5972	27 52 5.2	4.290	22	9 3 36.20	2.2782	21 23 26.6	11.321
23	7 8 44.11	2.5923	27 47 42.4	4.469	23	9 5 52.67	2.2709	21 12 4.1	11.429
24	7 11 19.50	2.5873	N. 27° 43' 8.9"	4.648	24	9 8 8.71	2.2637	N. 21° 0' 35.1"	11.536

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 25.					MONDAY 27.				
0	9 8 8.71	2.9637	N.21° 0' 35.1"	11.536	0	10 49 21.31	1.9769	N.10° 14' 12.4"	14.830
1	9 10 24.32	2.9666	20 48 59.8	11.640	1	10 51 19.75	1.9716	9 59 21.6	14.664
2	9 12 39.50	2.9494	20 37 18.3	11.743	2	10 53 17.93	1.9676	9 44 28.7	14.697
3	9 14 54.25	2.9493	20 25 30.6	11.845	3	10 55 15.85	1.9633	9 29 33.9	14.929
4	9 17 8.58	2.9259	20 13 36.9	11.944	4	10 57 13.52	1.9599	9 14 37.2	14.959
5	9 19 22.48	2.9099	20 1 37.3	12.042	5	10 59 10.95	1.9562	8 59 38.8	14.988
6	9 21 35.96	2.9219	19 49 31.9	12.138	6	11 1 8.14	1.9519	8 44 38.7	15.016
7	9 23 49.02	2.9149	19 37 20.7	12.233	7	11 3 5.09	1.9479	8 29 36.9	15.042
8	9 26 1.66	2.9079	19 25 3.9	12.327	8	11 5 1.80	1.9433	8 14 33.6	15.068
9	9 28 13.89	2.9003	19 12 41.5	12.418	9	11 6 58.29	1.9396	7 59 28.8	15.092
10	9 30 25.70	2.1934	19 0 13.7	12.508	10	11 8 54.55	1.9359	7 44 22.6	15.115
11	9 32 37.10	2.1866	18 47 40.5	12.597	11	11 10 50.60	1.9323	7 29 15.0	15.137
12	9 34 48.10	2.1799	18 35 2.0	12.684	12	11 12 46.43	1.9288	7 14 6.1	15.158
13	9 36 58.69	2.1732	18 22 18.4	12.769	13	11 14 42.05	1.9253	6 58 56.1	15.177
14	9 39 8.88	2.1665	18 9 29.7	12.853	14	11 16 37.47	1.9219	6 43 44.9	15.196
15	9 41 18.67	2.1599	17 56 36.0	12.936	15	11 18 32.68	1.9186	6 28 32.7	15.212
16	9 43 28.07	2.1533	17 43 37.4	13.017	16	11 20 27.70	1.9154	6 13 19.5	15.228
17	9 45 37.07	2.1468	17 30 34.0	13.096	17	11 22 22.53	1.9123	5 58 5.4	15.243
18	9 47 45.68	2.1404	17 17 25.9	13.173	18	11 24 17.17	1.9092	5 42 50.4	15.256
19	9 49 53.91	2.1340	17 4 13.2	13.250	19	11 26 11.63	1.9062	5 27 34.7	15.269
20	9 52 1.76	2.1276	16 50 55.9	13.325	20	11 28 5.91	1.9033	5 12 18.2	15.280
21	9 54 9.22	2.1213	16 37 34.2	13.398	21	11 30 0.02	1.9004	4 57 1.1	15.289
22	9 56 16.31	2.1151	16 24 8.2	13.469	22	11 31 53.96	1.8977	4 41 43.5	15.298
23	9 58 23.03	2.1089	N.16 10 37.9	13.539	23	11 33 47.74	1.8960	N. 4 26 25.3	15.307
SUNDAY 26.					TUESDAY 28.				
0	10 0 29.37	2.1027	N.15 57 3.5	13.608	0	11 35 41.36	1.8933	N. 4 11 6.7	15.314
1	10 2 35.35	2.0967	15 43 25.0	13.675	1	11 37 34.82	1.8906	3 55 47.7	15.319
2	10 4 40.97	2.0907	15 29 42.5	13.741	2	11 39 28.13	1.8873	3 40 28.4	15.323
3	10 6 46.23	2.0848	15 15 56.1	13.805	3	11 41 21.30	1.8850	3 25 8.9	15.327
4	10 8 51.14	2.0789	15 2 5.9	13.868	4	11 43 14.33	1.8827	3 9 49.2	15.329
5	10 10 55.70	2.0731	14 48 12.0	13.929	5	11 45 7.22	1.8804	2 54 29.4	15.331
6	10 12 59.91	2.0673	14 34 14.4	13.989	6	11 46 59.98	1.8783	2 39 9.5	15.331
7	10 15 3.78	2.0617	14 20 13.3	14.047	7	11 48 52.61	1.8762	2 23 49.7	15.330
8	10 17 7.31	2.0561	14 6 8.7	14.104	8	11 50 45.12	1.8742	2 8 29.9	15.328
9	10 19 10.51	2.0506	13 52 0.8	14.159	9	11 52 37.51	1.8722	1 53 10.3	15.325
10	10 21 13.38	2.0452	13 37 49.6	14.214	10	11 54 29.78	1.8704	1 37 50.9	15.322
11	10 23 15.93	2.0398	13 23 35.1	14.267	11	11 56 21.95	1.8686	1 22 31.7	15.317
12	10 25 18.15	2.0344	13 9 17.5	14.318	12	11 58 14.01	1.8668	1 7 12.9	15.310
13	10 27 20.06	2.0291	12 54 56.9	14.368	13	12 0 5.97	1.8652	0 51 54.5	15.303
14	10 29 21.65	2.0239	12 40 33.3	14.417	14	12 1 57.84	1.8637	0 36 36.5	15.295
15	10 31 22.93	2.0188	12 26 6.8	14.464	15	12 3 49.61	1.8622	0 21 19.1	15.285
16	10 33 23.91	2.0138	12 11 37.6	14.510	16	12 5 41.30	1.8607	N. 0 6 2.3	15.275
17	10 35 24.59	2.0088	11 57 5.6	14.555	17	12 7 32.90	1.8593	S. 0 9 13.9	15.264
18	10 37 24.97	2.0039	11 42 31.0	14.598	18	12 9 24.42	1.8581	0 24 29.4	15.252
19	10 39 25.06	1.9991	11 27 53.8	14.640	19	12 11 15.87	1.8569	0 39 44.1	15.239
20	10 41 24.87	1.9944	11 13 14.1	14.680	20	12 13 7.25	1.8558	0 54 58.0	15.225
21	10 43 24.39	1.9898	10 58 32.1	14.719	21	12 14 58.57	1.8548	. 1 10 11.1	15.210
22	10 45 23.61	1.9852	10 43 47.8	14.758	22	12 16 49.82	1.8538	1 25 23.2	15.194
23	10 47 22.61	1.9806	10 29 1.2	14.795	23	12 18 41.02	1.8528	1 40 34.3	15.177
24	10 49 21.31	1.9762	N.10 14 12.4	14.830	24	12 20 32.16	1.8520	S. 1 55 44.4	15.158

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 29.					THURSDAY 30.				
0	12 20 32.16	1.8590	S. 1° 55' 44.4"	15.158	0	13 4 54.69	1.8594	S. 7° 51' 59.6"	14.440
1	12 22 23.26	1.8519	2 10 53.3	15.139	1	13 6 45.86	1.8533	8 6 24.8	14.399
2	12 24 14.31	1.8505	2 26 1.1	15.119	2	13 8 37.09	1.8549	8 20 47.5	14.357
3	12 26 5.32	1.8496	2 41 7.6	15.098	3	13 10 28.37	1.8559	8 35 7.7	14.314
4	12 27 56.29	1.8493	2 56 12.8	15.076	4	13 12 19.71	1.8563	8 49 25.2	14.270
5	12 29 47.24	1.8489	3 11 16.7	15.053	5	13 14 11.12	1.8574	9 3 40.1	14.225
6	12 31 38.16	1.8485	3 26 19.2	15.029	6	13 16 2.60	1.8585	9 17 52.2	14.179
7	12 33 29.05	1.8481	3 41 20.2	15.004	7	13 17 54.14	1.8597	9 32 1.5	14.133
8	12 35 19.93	1.8478	3 56 19.7	14.979	8	13 19 45.76	1.8610	9 46 8.1	14.086
9	12 37 10.79	1.8476	4 11 17.7	14.959	9	13 21 37.46	1.8623	10 0 11.8	14.037
10	12 39 1.64	1.8474	4 26 14.0	14.934	10	13 23 29.24	1.8637	10 14 12.5	13.988
11	12 40 52.48	1.8473	4 41 8.6	14.905	11	13 25 21.11	1.8650	10 28 10.3	13.938
12	12 42 43.32	1.8473	4 56 1.4	14.865	12	13 27 13.06	1.8667	10 42 5.1	13.888
13	12 44 34.16	1.8474	5 10 52.4	14.835	13	13 29 5.11	1.8683	10 55 56.8	13.836
14	12 46 25.01	1.8476	5 25 41.6	14.804	14	13 30 57.25	1.8699	11 9 45.4	13.783
15	12 48 15.87	1.8479	5 40 26.9	14.773	15	13 32 49.49	1.8716	11 23 30.7	13.729
16	12 50 6.74	1.8480	5 55 14.2	14.739	16	13 34 41.84	1.8733	11 37 12.8	13.675
17	12 51 57.63	1.8483	6 9 57.5	14.705	17	13 36 34.29	1.8751	11 50 51.7	13.620
18	12 53 48.54	1.8488	6 24 36.8	14.670	18	13 38 26.85	1.8770	12 4 27.2	13.564
19	12 55 39.48	1.8493	6 39 17.9	14.634	19	13 40 19.53	1.8789	12 17 59.3	13.507
20	12 57 30.45	1.8498	6 53 54.8	14.597	20	13 42 12.32	1.8808	12 31 26.0	13.449
21	12 59 21.45	1.8503	7 8 29.5	14.559	21	13 44 5.23	1.8828	12 44 53.2	13.391
22	13 1 12.49	1.8510	7 23 1.9	14.521	22	13 45 58.26	1.8849	12 58 14.9	13.332
23	13 3 3.57	1.8517	7 37 32.0	14.481	23	13 47 51.42	1.8871	13 11 33.0	13.271
24	13 4 54.69	1.8524	S. 7° 51' 59.6"	14.440	24	13 49 44.71	1.8893	S. 13° 24' 47.4"	13.210

PHASES OF THE MOON.

☽ First Quarter,	d	h	m
○ Full Moon,	15	0	41.9
☾ Last Quarter,	21	19	0.9
● New Moon,	29	0	55.1

☾ Apogee,	d	h
☾ Perigee,	6	14.1
	18	14.3

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
2	Sun W.	30° 5' 59"	3163	31° 32' 53"	3174	32° 59' 33"	3187	34° 25' 58"	3198
	Antares E.	58 27 19	3798	56 52 48	3810	55 18 33	3822	53 44 34	3834
	Mars E.	81 0 57	3950	79 29 42	3983	77 58 43	3977	76 28 1	3989
	α Aquilæ E.	107 42 24	3716	106 25 54	3713	105 9 21	3712	103 52 47	3719
3	Sun W.	41 34 35	3257	42 59 37	3268	44 24 26	3279	45 49 2	3290
	Antares E.	45 58 26	3892	44 25 57	3903	42 53 41	3913	41 21 39	3924
	Mars E.	68 58 26	3051	67 29 16	3063	66 0 21	3074	64 31 40	3085
	α Aquilæ E.	97 30 20	3728	96 14 3	3735	94 57 53	3742	93 41 50	3749
4	Sun W.	52 48 57	3341	54 12 21	3350	55 35 35	3358	56 58 39	3367
	Antares E.	33 44 41	2972	32 13 53	2981	30 43 16	2989	29 12 49	2997
	Mars E.	57 11 33	3138	55 44 9	3147	54 16 56	3156	52 49 54	3165
	α Aquilæ E.	87 23 50	3798	86 8 46	3809	84 53 53	3821	83 39 13	3832
	Saturn E.	106 56 36	2852	105 25 23	2861	103 54 21	2869	102 23 29	2877
5	Sun W.	63 51 42	3403	65 13 55	3409	66 36 1	3415	67 58 0	3421
	Spica W.	24 12 2	3034	25 41 32	3039	27 10 56	3044	28 40 14	3049
	Jupiter W.	17 8 40	3156	18 35 42	3154	20 2 46	3153	21 29 51	3153
	Mars E.	45 37 15	3203	44 11 9	3209	42 45 11	3215	41 19 20	3221
	α Aquilæ E.	77 29 29	3910	76 16 19	3926	75 3 26	3944	73 50 51	3963
	Saturn E.	94 51 31	3011	93 21 32	3017	91 51 40	3022	90 21 55	3028
	Fomalhaut E.	103 30 43	3260	102 5 45	3263	100 40 50	3266	99 15 59	3270
6	Sun W.	74 46 38	3439	76 8 10	3441	77 29 40	3443	78 51 8	3444
	Spica W.	36 5 26	3066	37 34 17	3068	39 3 6	3070	40 31 52	3071
	Jupiter W.	28 45 19	3154	30 12 23	3155	31 39 26	3155	33 6 29	3154
	Mars E.	34 11 35	3242	32 46 16	3246	31 21 1	3248	29 55 49	3250
	α Aquilæ E.	67 52 53	4071	66 42 23	4096	65 32 17	4122	64 22 37	4150
	Saturn E.	82 54 27	3045	81 25 10	3047	79 55 55	3049	78 26 43	3050
	Fomalhaut E.	92 12 32	3282	90 47 59	3283	89 23 28	3286	87 59 0	3287
7	Sun W.	85 38 20	3443	86 59 49	3440	88 21 20	3438	89 42 53	3435
	Spica W.	47 55 36	3069	49 24 23	3068	50 53 12	3065	52 22 4	3069
	Jupiter W.	40 21 58	3148	41 49 9	3146	43 16 23	3143	44 43 40	3140
	α Aquilæ E.	58 41 27	4318	57 34 51	4358	56 28 52	4401	55 23 32	4448
	Saturn E.	71 0 52	3049	69 31 40	3047	68 2 26	3046	66 33 10	3043
	Fomalhaut E.	80 57 0	3292	79 32 39	3292	78 8 18	3293	76 43 58	3293
	α Pegasi E.	102 33 41	3377	101 10 58	3372	99 48 10	3367	98 25 16	3362
8	Sun W.	96 31 43	3413	97 53 45	3407	99 15 54	3400	100 38 11	3399
	Spica W.	59 47 27	3041	61 16 49	3035	62 46 18	3030	64 15 53	3024
	Jupiter W.	52 1 15	3117	53 29 4	3111	54 57 0	3105	56 25 4	3098
	Saturn E.	59 5 49	3023	57 36 5	3018	56 6 14	3012	54 36 16	3006
	Fomalhaut E.	69 42 15	3291	68 17 53	3291	66 53 31	3291	65 29 9	3290
	α Pegasi E.	91 29 16	3336	90 5 46	3330	88 42 9	3324	87 18 25	3319
9	Sun W.	107 31 51	3350	108 55 5	3339	110 18 31	3329	111 42 9	3319
	Spica W.	71 46 3	2964	73 16 36	2975	74 47 20	2985	76 18 16	2985
	Jupiter W.	63 47 40	3057	65 16 42	3047	66 45 56	3038	68 15 22	3028
	Antares W.	25 51 44	2964	27 22 17	2974	28 53 2	2985	30 23 59	2985
	Saturn E.	47 4 20	2969	45 33 28	2960	44 2 25	2950	42 31 10	2942
	Fomalhaut E.	58 27 17	3293	57 2 57	3294	55 38 39	3297	54 14 24	3300
	α Pegasi E.	80 18 4	3268	78 53 39	3262	77 29 7	3276	76 4 28	3270

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
2	SUN W.	35° 52' 9"	3210	37° 18' 6"	3222	38° 43' 49"	3233	40° 9' 19"	3245
	Antares E.	52 10 50	2845	50 37 21	2858	49 4 8	2869	47 31 10	2880
	Mars E.	74 57 35	3001	73 27 24	3014	71 57 29	3027	70 27 50	3039
	α Aquilæ E.	102 36 13	3713	101 19 40	3716	100 3 10	3719	98 46 43	3723
3	SUN W.	47 13 25	3300	48 37 36	3311	50 1 35	3321	51 25 22	3332
	Antares E.	39 49 50	2934	38 18 14	2944	36 46 51	2954	35 15 40	2963
	Mars E.	63 3 12	3096	61 34 58	3107	60 6 57	3118	58 39 9	3128
	α Aquilæ E.	92 25 55	3757	91 10 8	3767	89 54 31	3777	88 39 5	3788
4	SUN W.	58 21 33	3375	59 44 18	3383	61 6 54	3390	62 29 22	3397
	Antares E.	27 42 33	3005	26 12 26	3012	24 42 28	3019	23 12 39	3025
	Mars E.	51 23 3	3173	49 56 22	3182	48 29 51	3189	47 3 29	3196
	α Aquilæ E.	82 24 47	3849	81 10 35	3862	79 56 37	3878	78 42 55	3894
	Saturn E.	100 52 47	2985	99 22 15	2992	97 51 52	2999	96 21 38	3005
5	SUN W.	69 19 53	3425	70 41 41	3430	72 3 24	3433	73 25 3	3437
	Spica W.	30 9 26	3053	31 38 33	3057	33 7 35	3061	34 36 32	3064
	Jupiter W.	22 56 57	3153	24 24 3	3153	25 51 9	3153	27 18 14	3153
	Mars E.	39 53 36	3226	38 27 58	3231	37 2 25	3236	35 36 58	3239
	α Aquilæ E.	72 38 35	3982	71 26 38	4003	70 15 1	4025	69 3 46	4047
	Saturn E.	88 52 15	3030	87 22 40	3035	85 53 11	3039	84 23 47	3043
	Fomalhaut E.	97 51 12	3272	96 26 28	3275	95 1 47	3276	93 37 8	3279
6	SUN W.	80 12 35	3445	81 34 1	3445	82 55 27	3445	84 16 53	3444
	Spica W.	42 0 37	3072	43 29 21	3072	44 58 5	3071	46 26 50	3070
	Jupiter W.	34 33 33	3154	36 0 37	3153	37 27 42	3152	38 54 49	3150
	Mars E.	28 30 39	3252	27 5 31	3253	25 40 25	3254	24 15 20	3255
	α Aquilæ E.	63 13 23	4180	62 4 38	4211	60 56 22	4245	59 48 38	4280
	Saturn E.	76 57 32	3051	75 28 22	3051	73 59 12	3051	72 30 2	3051
	Fomalhaut E.	86 34 33	3288	85 10 8	3289	83 45 44	3291	82 21 22	3291
7	SUN W.	91 4 30	3431	92 26 11	3428	93 47 56	3423	95 9 47	3418
	Spica W.	53 51 0	3060	55 19 59	3056	56 49 3	3052	58 18 12	3047
	Jupiter W.	46 11 1	3136	47 38 27	3133	49 5 57	3128	50 33 33	3123
	α Aquilæ E.	54 18 54	4499	53 15 1	4552	52 11 55	4611	51 9 40	4677
	Saturn E.	65 3 50	3039	63 34 26	3036	62 4 58	3033	60 35 26	3029
	Fomalhaut E.	75 19 38	3293	73 55 18	3292	72 30 57	3292	71 6 36	3292
	α Pegasi E.	97 2 16	3357	95 39 10	3351	94 15 58	3346	92 52 40	3341
8	SUN W.	102 0 37	3385	103 23 11	3377	104 45 54	3368	106 8 47	3358
	Spica W.	65 45 36	3017	67 15 28	3009	68 45 30	3001	70 15 41	2993
	Jupiter W.	57 53 16	3091	59 21 37	3082	60 50 8	3074	62 18 49	3066
	Saturn E.	53 6 11	2999	51 35 57	2992	50 5 34	2985	48 35 2	2977
	Fomalhaut E.	64 4 46	3290	62 40 23	3290	61 16 0	3291	59 51 38	3292
	α Pegasi E.	85 54 35	3312	84 30 37	3306	83 6 33	3300	81 42 22	3294
9	SUN W.	113 5 59	3307	114 30 2	3295	115 54 19	3284	117 18 49	3271
	Spica W.	77 49 25	2945	79 20 47	2935	80 52 22	2924	82 24 11	2912
	Jupiter W.	69 45 0	3018	71 14 51	3007	72 44 55	2995	74 15 14	2983
	Antares W.	31 55 8	2945	33 26 30	2934	34 58 6	2923	36 29 56	2911
	Saturn E.	40 59 44	2932	39 28 6	2922	37 56 15	2912	36 24 11	2901
	Fomalhaut E.	52 50 12	3303	51 26 4	3308	50 2 2	3314	48 38 7	3292
	α Pegasi E.	74 39 42	3265	73 14 50	3259	71 49 51	3254	70 24 46	3249

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.
10	Sun W.	118° 43' 34"	2958	120° 8' 35"	2945	121° 33' 51"	2929	122° 59' 22"	2919
	Spica W.	83 56 15	2900	85 28 34	2887	87 1 9	2878	88 33 59	2863
	Jupiter W.	75 45 48	2971	77 16 37	2959	78 47 41	2946	80 19 1	2934
	Antares W.	38 2 1	2909	39 34 21	2887	41 6 56	2875	42 39 47	2868
	Saturn E.	34 51 53	2891	33 19 22	2880	31 46 37	2869	30 13 38	2857
	Fomalhaut E.	47 14 21	3331	45 50 45	3343	44 27 23	3356	43 4 16	3372
α Pegasi E.	68 59 35	2945	67 34 19	2940	66 8 57	2936	64 43 30	2923	
11	Sun W.	130 11 10	3146	131 38 24	3130	133 5 57	3114	134 33 49	3100
	Spica W.	96 22 23	2795	97 56 57	2783	99 31 49	2767	101 7 0	2752
	Jupiter W.	87 59 52	2866	89 32 55	2851	91 6 17	2838	92 39 58	2822
	Antares W.	50 28 14	2795	52 2 49	2781	53 37 42	2768	55 12 54	2752
	Mars W.	23 47 8	2977	25 17 49	2962	26 48 49	2947	28 20 8	2931
	α Pegasi E.	57 35 33	2927	56 9 56	2929	54 44 21	2923	53 18 51	2923
α Arietis E.	97 58 11	2834	96 24 27	2818	94 50 23	2804	93 16 0	2789	
12	Jupiter W.	100 33 8	2747	102 8 45	2739	103 44 43	2716	105 21 1	2701
	Antares W.	63 13 45	2678	64 50 55	2662	66 28 26	2647	68 6 17	2632
	Mars W.	36 1 41	2853	37 35 0	2838	39 8 39	2822	40 42 38	2806
	α Pegasi E.	46 13 42	2929	44 49 29	2919	43 25 40	2905	42 2 21	2891
	α Arietis E.	85 19 17	2716	83 42 58	2701	82 6 19	2688	80 29 20	2671
13	Antares W.	76 20 38	2557	78 0 32	2543	79 40 47	2527	81 21 22	2513
	Mars W.	48 37 43	2729	50 13 45	2713	51 50 7	2698	53 26 50	2683
	α Aquilæ W.	40 30 31	2443	41 21 55	2429	42 15 55	2417	43 12 21	2404
	α Arietis E.	72 19 28	2599	70 40 31	2585	69 1 15	2571	67 21 40	2556
	Aldebaran E.	103 0 34	2696	101 22 15	2611	99 43 35	2596	98 4 34	2580
14	Antares W.	89 49 17	2443	91 31 51	2430	93 14 43	2417	94 57 54	2404
	Mars W.	61 35 20	2611	63 14 0	2598	64 52 58	2584	66 32 15	2572
	α Aquilæ W.	48 26 41	4186	49 35 11	4093	50 45 19	4000	51 56 59	3912
	Saturn W.	17 24 52	2465	19 6 54	2447	20 49 22	2429	22 32 15	2412
	α Arietis E.	58 50 15	2495	57 17 55	2484	55 36 19	2473	53 54 28	2462
Aldebaran E.	89 44 26	2510	88 3 26	2497	86 22 8	2484	84 40 32	2473	
15	Mars W.	74 52 58	2511	76 33 56	2500	78 15 9	2490	79 56 36	2480
	α Aquilæ W.	58 15 28	3567	59 34 38	3513	60 54 48	3463	62 15 54	3416
	Saturn W.	31 12 16	2242	32 57 15	2230	34 42 31	2219	36 28 3	2208
	Fomalhaut W.	27 27 59	3556	28 47 21	3417	30 9 18	3299	31 33 32	3185
	α Arietis E.	45 21 53	2422	43 38 50	2417	41 55 39	2412	40 12 21	2408
Aldebaran E.	76 8 23	2417	74 25 12	2407	72 41 47	2398	70 58 10	2390	
16	Mars W.	88 27 13	2426	90 9 57	2429	91 52 52	2422	93 35 55	2415
	α Aquilæ W.	69 13 20	2829	70 38 51	2804	72 4 55	2778	73 31 30	2756
	Saturn W.	45 19 26	2269	47 6 22	2254	48 53 29	2247	50 40 47	2240
	Fomalhaut W.	39 0 58	2244	40 34 29	2236	42 9 2	2224	43 44 30	2216
	Aldebaran E.	62 17 22	2259	60 32 48	2254	58 48 7	2250	57 3 20	2247
Pollux E.	105 32 24	2279	103 45 44	2265	101 58 53	2258	100 11 52	2250	
17	Mars W.	102 13 21	2269	103 57 11	2266	105 41 6	2268	107 25 6	2260
	α Aquilæ W.	80 50 33	3070	82 19 19	3060	83 48 18	3050	85 17 29	3043
	Saturn W.	59 39 35	2213	61 27 43	2209	63 15 57	2206	65 4 16	2202
	Fomalhaut W.	51 52 56	2577	53 32 22	2557	55 12 16	2540	56 52 34	2524
	α Pegasi W.	33 16 29	3354	34 39 38	3351	36 4 47	3348	37 31 42	3344
Aldebaran E.	48 18 56	2249	46 34 8	2253	44 49 25	2258	43 4 50	2265	

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Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
10	Sun W.	124° 25' 9"	3904	125° 51' 13"	3189	127° 17' 35"	3175	128° 44' 14"	3161
	Spica W.	90 7 5	2850	91 40 28	2836	93 14 9	2823	94 48 7	2809
	Jupiter W.	81 50 37	2930	83 22 30	2907	84 54 40	2894	86 27 7	2880
	Antares W.	44 12 54	2850	45 46 17	2836	47 19 58	2822	48 53 57	2808
	Saturn E.	28 40 24	2846	27 6 56	2835	25 33 14	2825	23 59 18	2817
	Fomalhaut E.	41 41 27	3201	40 19 0	3414	38 56 59	3440	37 35 28	3471
α Pegasi E.	63 17 59	3200	61 52 25	3298	60 26 49	3290	59 1 11	3226	
11	Sun W.	136 1 59	3064	137 30 28	3068	138 59 17	3059	140 28 26	3035
	Spica W.	102 42 31	2738	104 18 21	2732	105 54 31	2707	107 31 1	2693
	Jupiter W.	94 13 57	2808	95 48 15	2792	97 22 53	2777	98 57 51	2763
	Antares W.	56 48 25	2738	58 24 15	2722	60 0 25	2707	61 36 55	2692
	Mars W.	29 51 47	2916	31 23 46	2901	32 56 4	2885	34 28 42	2869
	α Pegasi E.	51 53 27	3945	50 28 11	3255	49 3 7	3266	47 38 16	3281
α Arietis E.	91 41 18	2775	90 6 17	2760	88 30 56	2745	86 55 16	2731	
12	Jupiter W.	106 57 39	2687	108 34 37	2671	110 11 56	2656	111 49 35	2642
	Antares W.	69 44 28	2617	71 23 0	2602	73 1 52	2587	74 41 5	2572
	Mars W.	42 16 58	2790	43 51 39	2775	45 26 40	2760	47 2 1	2744
	α Pegasi E.	40 39 37	3413	39 17 35	3455	37 56 21	3506	36 36 4	3566
	α Arietis E.	78 52 1	2656	77 14 22	2642	75 36 24	2627	73 58 6	2613
13	Antares W.	83 2 17	2409	84 43 32	2485	86 25 7	2470	88 7 2	2456
	Mars W.	55 3 53	2668	56 41 16	2654	58 18 58	2640	59 56 59	2625
	α Aquilæ W.	44 11 5	2705	45 12 0	2690	46 14 59	2678	47 19 55	2667
	α Arietis E.	65 41 47	2644	64 1 35	2632	62 21 6	2619	60 40 19	2607
	Aldebaran E.	96 25 12	2606	94 45 30	2551	93 5 28	2538	91 25 7	2523
14	Antares W.	96 41 23	2301	98 25 10	2389	100 9 14	2368	101 53 35	2356
	Mars W.	68 11 49	2559	69 51 41	2546	71 31 50	2534	73 12 16	2522
	α Aquilæ W.	53 10 7	2631	54 24 37	2758	55 40 23	2690	56 57 21	2625
	Saturn W.	24 15 32	2396	25 59 12	2369	27 43 13	2367	29 27 35	2354
	α Arietis E.	52 12 22	2453	50 30 3	2444	48 47 31	2426	47 4 47	2422
	Aldebaran E.	82 58 39	2460	81 16 29	2448	79 34 2	2437	77 51 20	2426
15	Mars W.	81 38 17	2471	83 20 11	2461	85 2 19	2452	86 44 40	2443
	α Aquilæ W.	63 37 52	2373	65 0 39	2334	66 24 11	2307	67 48 26	2284
	Saturn W.	38 13 51	2298	39 59 54	2288	41 46 11	2279	43 32 42	2270
	Fomalhaut W.	32 59 47	3105	34 27 50	3096	35 57 30	3086	37 28 36	3078
	α Arietis E.	38 28 58	2407	36 45 33	2407	35 2 8	2408	33 18 44	2411
	Aldebaran E.	69 14 21	2389	67 30 21	2375	65 46 10	2358	64 1 50	2343
16	Mars W.	95 19 8	2409	97 2 30	2403	98 46 0	2398	100 29 37	2394
	α Aquilæ W.	74 58 32	3124	76 26 0	3115	77 53 51	3098	79 22 3	2083
	Saturn W.	52 28 15	2833	54 15 53	2826	56 3 29	2823	57 51 33	2817
	Fomalhaut W.	45 20 49	2692	46 57 53	2682	48 35 38	2674	50 14 0	2669
	Aldebaran E.	55 18 29	2346	53 33 36	2345	51 48 42	2345	50 3 48	2346
	Pollux E.	98 24 42	2946	96 37 23	2940	94 49 55	2935	93 2 20	2931
17	Mars W.	109 9 10	2378	110 53 17	2375	112 37 27	2374	114 21 39	2373
	α Aquilæ W.	86 46 49	3038	88 16 15	3034	89 45 46	3032	91 15 19	3032
	Saturn W.	66 52 40	2900	68 41 8	2198	70 29 39	2198	72 18 13	2198
	Fomalhaut W.	58 33 14	2510	60 14 14	2497	61 55 32	2485	63 37 6	2478
	α Pegasi W.	39 0 11	3016	40 30 4	2957	42 1 11	2905	43 33 24	2858
	Aldebaran E.	41 20 25	2373	39 36 12	2384	37 52 15	2398	36 8 37	2413

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LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
17	Pollux E.	91° 14' 38"	2227	89° 26' 50"	2222	87° 38' 55"	2218	85° 50' 55"	2216
18	α Aquilæ W.	92 44 52	3034	94 14 23	3037	95 43 50	3043	97 13 10	3050
	Saturn W.	74 6 48	2194	75 55 24	2194	77 44 1	2193	79 32 39	2193
	Fomalhaut W.	65 18 53	2467	67 0 52	2460	68 43 2	2453	70 25 21	2448
	α Pegasi W.	45 6 37	2618	46 40 42	2789	48 15 34	2750	49 51 8	2722
	Aldebaran E.	34 25 21	2432	32 42 32	2455	31 0 16	2482	29 18 38	2516
	Pollux E.	76 50 4	2207	75 1 47	2207	73 13 30	2207	71 25 13	2207
	SUN E.	140 35 43	2519	138 54 46	2511	137 13 48	2510	135 32 49	2511
19	Saturn W.	88 35 30	2201	90 23 56	2203	92 12 19	2205	94 0 39	2206
	Fomalhaut W.	78 58 18	2436	80 41 1	2436	82 23 44	2437	84 6 26	2438
	α Pegasi W.	57 56 52	2626	59 35 12	2619	61 13 50	2601	62 52 43	2593
	Pollux E.	62 24 6	2214	60 36 0	2217	58 47 58	2220	57 0 0	2222
	Regulus E.	99 9 0	2218	97 21 0	2220	95 33 3	2223	93 45 10	2227
	SUN E.	127 8 13	2517	125 27 24	2520	123 46 39	2523	122 5 58	2526
20	Fomalhaut W.	92 39 3	2457	94 21 17	2462	96 3 24	2468	97 45 22	2475
	α Pegasi W.	71 9 36	2567	72 49 16	2565	74 28 59	2564	76 8 43	2564
	α Arietis W.	27 43 1	2407	29 26 26	2394	31 10 9	2384	32 54 6	2377
	Pollux E.	48 1 25	2242	46 14 0	2247	44 26 42	2252	42 39 32	2258
	Regulus E.	84 47 1	2245	82 59 41	2249	81 12 27	2254	79 25 20	2260
	SUN E.	113 43 46	2546	112 3 37	2551	110 23 34	2556	108 43 38	2561
21	α Pegasi W.	84 26 59	2577	86 6 26	2581	87 45 47	2587	89 25 0	2593
	α Arietis W.	41 35 45	2364	43 20 12	2364	45 4 39	2365	46 49 4	2367
	E.	33 45 40	2286	31 59 20	2292	30 13 9	2299	28 27 8	2306
	Regulus E.	70 31 44	2287	68 45 26	2294	66 59 17	2299	65 13 16	2305
	SUN E.	100 25 54	2590	98 46 45	2596	97 7 45	2603	95 28 54	2610
	22	α Pegasi W.	97 38 48	2632	99 17 0	2641	100 54 59	2652	102 32 44	2662
α Arietis W.		55 30 9	2385	57 14 5	2389	58 57 55	2394	60 41 39	2398
Aldebaran W.		26 0 11	2681	27 37 16	2649	29 15 5	2623	30 53 29	2603
Regulus E.		56 25 32	2339	54 40 29	2346	52 55 37	2353	51 10 55	2361
SUN E.		87 16 56	2644	85 39 1	2651	84 1 15	2658	82 23 39	2666
23		α Arietis W.	69 18 21	2426	71 1 16	2434	72 44 2	2441	74 26 39	2447
	Aldebaran W.	39 10 43	2551	40 50 46	2547	42 30 54	2544	44 11 6	2543
	Regulus E.	42 30 9	2399	40 46 33	2407	39 3 8	2415	37 19 55	2423
	SUN E.	74 18 9	2703	72 41 33	2711	71 5 8	2719	69 28 53	2726
24	α Arietis W.	82 57 22	2482	84 39 1	2489	86 20 30	2497	88 1 48	2504
	Aldebaran W.	52 32 8	2549	54 12 13	2552	55 52 14	2555	57 32 11	2559
	Regulus E.	28 46 56	2470	27 5 1	2481	25 23 21	2482	23 41 57	2506
	SUN E.	61 30 13	2766	59 55 1	2774	58 19 50	2782	56 45 8	2790
25	α Arietis W.	96 25 40	2543	98 5 54	2551	99 45 56	2559	101 25 47	2567
	Aldebaran W.	65 50 22	2584	67 29 39	2591	69 8 47	2596	70 47 47	2603
	Pollux W.	21 46 5	2515	23 26 57	2522	25 7 39	2529	26 48 12	2536
	SUN E.	48 53 32	2831	47 19 45	2840	45 46 9	2849	44 12 45	2856
26	Aldebaran W.	79 0 29	2638	80 38 32	2646	82 16 25	2654	83 54 7	2661
	Pollux W.	35 8 26	2574	36 47 57	2581	38 27 18	2590	40 6 27	2598
	SUN E.	36 28 30	2901	34 56 13	2910	33 24 7	2919	31 52 12	2928

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Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Dif.	XVh.	P. L. of Dif.	XVIIIh.	P. L. of Dif.	XXIh.	P. L. of Dif.
17	Pollux E.	84° 2' 51"	2213	82° 14' 43"	2211	80° 26' 32"	2210	78° 38' 19"	2208
18	α Aquilæ W.	98 42 21	3059	100 11 21	3069	101 40 8	3092	103 8 40	3096
	Saturn W.	81 21 17	2184	83 9 54	2185	84 58 29	2197	86 47 1	2199
	Fomalhaut W.	72 7 47	2444	73 50 19	2441	75 32 56	2438	77 15 36	2437
	α Pegasi W.	51 27 18	2696	53 4 1	2675	54 41 14	2657	56 18 52	2640
	Aldebaran E.	27 37 47	2557	25 57 53	2507	24 19 7	2468	22 41 44	2744
	Pollux E.	69 36 56	2208	67 48 40	2209	66 0 26	2211	64 12 15	2212
Sun E.	133 51 51	2519	132 10 54	2519	130 29 53	2514	128 40 4	2516	
19	Saturn W.	95 48 54	2219	97 37 4	2216	99 25 8	2220	101 13 6	2224
	Fomalhaut W.	85 49 6	2441	87 31 43	2444	89 14 15	2448	90 56 42	2452
	α Pegasi W.	64 31 48	2585	66 11 4	2579	67 50 28	2574	69 29 59	2569
	Pollux E.	55 12 6	2226	53 24 17	2230	51 36 34	2234	49 48 57	2237
	Regulus E.	91 57 22	2230	90 9 39	2233	88 22 1	2237	86 34 28	2241
	Sun E.	120 25 21	2530	118 44 49	2533	117 4 22	2538	115 24 1	2542
20	Fomalhaut W.	99 27 10	2489	101 8 48	2490	102 50 15	2499	104 31 30	2509
	α Pegasi W.	77 48 27	2565	79 28 10	2567	81 7 50	2569	82 47 27	2573
	α Arietis W.	34 38 14	2371	36 22 31	2367	38 6 53	2365	39 51 18	2364
	Pollux E.	40 52 30	2282	39 5 35	2268	37 18 48	2274	35 32 10	2279
	Regulus E.	77 38 21	2264	75 51 29	2270	74 4 45	2276	72 18 10	2280
	Sun E.	107 3 50	2566	105 24 9	2572	103 44 36	2578	102 5 11	2584
21	α Pegasi W.	91 4 5	2599	92 43 1	2606	94 21 48	2614	96 0 24	2623
	α Arietis W.	48 33 26	2369	50 17 45	2373	52 1 59	2377	53 46 7	2381
	Pollux E.	26 41 17	2313	24 55 37	2321	23 10 8	2328	21 24 50	2336
	Regulus E.	63 27 24	2311	61 41 41	2318	59 56 8	2325	58 10 45	2332
	Sun E.	93 50 12	2616	92 11 39	2623	90 33 15	2630	88 55 1	2637
	22	α Pegasi W.	104 10 15	2674	105 47 30	2687	107 24 28	2700	109 1 8	2715
α Arietis W.		62 25 16	2404	64 8 45	2410	65 52 5	2416	67 35 17	2422
Aldebaran W.		32 32 20	2567	34 11 33	2574	35 51 4	2581	37 30 48	2586
Regulus E.		49 26 24	2368	47 42 4	2376	45 57 55	2383	44 13 56	2391
Sun E.		80 46 13	2673	79 8 57	2681	77 31 51	2688	75 54 55	2695
23		α Arietis W.	76 9 7	2454	77 51 25	2460	79 33 34	2467	81 15 33	2475
	Aldebaran W.	45 51 19	2543	47 31 33	2543	49 11 47	2544	50 51 59	2546
	Regulus E.	35 36 53	2432	33 54 4	2441	32 11 28	2450	30 29 5	2460
	Sun E.	67 52 48	2735	66 16 54	2742	64 41 10	2750	63 5 36	2758
24	α Arietis W.	89 42 56	2519	91 23 53	2520	93 4 39	2527	94 45 15	2535
	Aldebaran W.	59 12 3	2564	60 51 48	2569	62 31 26	2574	64 10 57	2578
	Regulus E.	22 0 52	2520	20 20 6	2535	18 39 42	2552	16 59 41	2572
	Sun E.	55 10 27	2726	53 35 57	2807	52 1 38	2815	50 27 30	2823
25	α Arietis W.	103 5 27	2576	104 44 55	2585	106 24 11	2593	108 3 15	2603
	Aldebaran W.	72 26 38	2610	74 5 20	2616	75 43 53	2624	77 22 16	2631
	Pollux W.	28 28 35	2543	30 8 48	2551	31 48 51	2558	33 28 44	2566
	Sun E.	42 39 32	2686	41 6 30	2675	39 33 39	2683	38 0 59	2692
26	Aldebaran W.	85 31 39	2689	87 9 0	2678	88 46 9	2687	90 23 7	2695
	Pollux W.	41 45 25	2606	43 24 12	2615	45 2 47	2623	46 41 11	2632
	Sun E.	30 20 29	2638	28 48 58	2646	27 17 38	2656	25 46 30	2666

AT GREENWICH APPARENT NOON.									
Day of the Week.	Day of the Month.	THE SUN'S					Sideral Time of the Semidiameter passing the Meridian.	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Semi-diameter.			
Frid.	1	^h 12 ^m 28 ^s 57.22	9.058	S. 3° 7' 46.8"	-58.32	16' 1.42	64.35	^m 10 ^s 15.91	0.797
Sat.	2	12 32 34.76	9.070	3 31 5.4	58.23	16 1.70	64.40	10 34.87	0.785
Sun.	3	12 36 12.61	9.083	3 54 21.8	58.12	16 1.98	64.45	10 53.52	0.772
Mon.	4	12 39 50.78	9.099	4 17 35.3	58.00	16 2.27	64.50	11 11.85	0.758
Tues.	5	12 43 29.27	9.111	4 40 45.6	57.86	16 2.55	64.55	11 29.87	0.744
Wed.	6	12 47 8.12	9.126	5 3 52.3	57.70	16 2.84	64 60	11 47.53	0.729
Thur.	7	12 50 47.33	9.142	5 26 55.1	57.53	16 3.12	64.66	12 4.82	0.713
Frid.	8	12 54 26.94	9.159	5 49 53.5	57.34	16 3.41	64.72	12 21.71	0.696
Sat.	9	12 58 6.96	9.176	6 12 47.2	57.14	16 3.69	64.79	12 38.20	0.679
Sun.	10	13 1 47.42	9.195	6 35 36.0	56.92	16 3.97	64.86	12 54.25	0.660
Mon.	11	13 5 28.33	9.214	6 58 19.4	56.69	16 4.25	64.93	13 9.86	0.641
Tues.	12	13 9 9.70	9.234	7 20 57.0	56.44	16 4.53	65.00	13 25.00	0.621
Wed.	13	13 12 51.56	9.255	7 43 28.6	56.18	16 4.81	65.08	13 39.65	0.600
Thur.	14	13 16 33.95	9.277	8 5 53.8	55.91	16 5.09	65.16	13 53.78	0.578
Frid.	15	13 20 16.89	9.300	8 28 12.3	55.62	16 5.36	65.24	14 7.36	0.555
Sat.	16	13 24 0.38	9.324	8 50 23.6	55.31	16 5.63	65.32	14 20.38	0.531
Sun.	17	13 27 44.46	9.348	9 12 27.4	54.99	16 5.90	65.40	14 32.83	0.507
Mon.	18	13 31 29.13	9.374	9 34 23.3	54.60	16 6.17	65.49	14 44.68	0.481
Tues.	19	13 35 14.43	9.400	9 56 11.0	54.31	16 6.44	65.58	14 55.90	0.455
Wed.	20	13 39 0.37	9.427	10 17 50.1	53.94	16 6.71	65.67	15 6.48	0.428
Thur.	21	13 42 46.97	9.455	10 39 20.3	53.56	16 6.97	65.76	15 16.41	0.400
Frid.	22	13 46 34.25	9.484	11 0 41.2	53.16	16 7.23	65.86	15 25.67	0.371
Sat.	23	13 50 22.22	9.514	11 21 52.3	52.75	16 7.49	65.96	15 34.23	0.342
Sun.	24	13 54 10.90	9.544	11 42 53.2	52.32	16 7.75	66.06	15 42.08	0.312
Mon.	25	13 58 0.30	9.574	12 3 43.7	51.87	16 8.01	66.17	15 49.21	0.282
Tues.	26	14 1 50.45	9.604	12 24 23.1	51.40	16 8.27	66.27	15 55.61	0.252
Wed.	27	14 5 41.33	9.635	12 44 51.2	50.92	16 8.52	66.38	16 1.28	0.221
Thur.	28	14 9 32.96	9.667	13 5 7.3	50.42	16 8.78	66.49	16 6.20	0.189
Frid.	29	14 13 25.34	9.699	13 25 11.0	49.90	16 9.03	66.60	16 10.36	0.157
Sat.	30	14 17 18.46	9.731	13 45 2.1	49.36	16 9.29	66.71	16 13.74	0.125
Sun.	31	14 21 12.44	9.764	14 4 40.1	48.80	16 9.54	66.82	16 16.34	0.092
Mon.	32	14 25 7.18	9.797	S. 14 24 4.5	-48.22	16 9.80	66.93	16 18.15	0.059

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0.18 from the Sideral Time.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be added to Mean Time.	Diff. for 1 hour.	Sidereal Time or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.			
		h m s	s	° ' "	"			
Frid.	1	12 28 58.78	9.060	S. 3 7 56.8	58.33	10 16.04	0.797	12 39 14.82
Sat.	2	12 32 36.37	9.072	3 31 15.7	58.24	10 35.00	0.785	12 43 11.37
Sun.	3	12 36 14.27	9.085	3 54 32.3	58.13	10 53.66	0.772	12 47 7.93
Mon.	4	12 39 52.49	9.099	4 17 46.1	58.01	11 11.99	0.758	12 51 4.48
Tues.	5	12 43 31.03	9.113	4 40 56.7	57.87	11 30.01	0.744	12 55 1.04
Wed.	6	12 47 9.92	9.128	5 4 3.7	57.71	11 47.67	0.729	12 58 57.59
Thur.	7	12 50 49.18	9.144	5 27 6.7	57.54	12 4.96	0.713	13 2 54.14
Frid.	8	12 54 28.84	9.161	5 50 5.3	57.35	12 21.85	0.696	13 6 50.69
Sat.	9	12 58 8.91	9.178	6 12 59.3	57.15	12 38.34	0.679	13 10 47.25
Sun.	10	13 1 49.41	9.197	6 35 48.3	56.93	12 54.39	0.660	13 14 43.80
Mon.	11	13 5 30.36	9.216	6 58 31.9	56.70	13 10.00	0.641	13 18 40.36
Tues.	12	13 9 11.77	9.236	7 21 9.7	56.46	13 25.14	0.621	13 22 36.91
Wed.	13	13 12 53.68	9.257	7 43 41.5	56.19	13 39.79	0.600	13 26 33.47
Thur.	14	13 16 36.11	9.279	8 6 6.8	55.92	13 53.91	0.578	13 30 30.02
Frid.	15	13 20 19.09	9.302	8 28 25.4	55.63	14 7.49	0.555	13 34 26.58
Sat.	16	13 24 2.62	9.326	8 50 36.8	55.32	14 20.51	0.531	13 38 23.13
Sun.	17	13 27 46.73	9.350	9 12 40.7	55.00	14 32.96	0.507	13 42 19.69
Mon.	18	13 31 31.44	9.376	9 34 36.7	54.66	14 44.80	0.481	13 46 16.24
Tues.	19	13 35 16.78	9.402	9 56 24.5	54.31	14 56.01	0.455	13 50 12.79
Wed.	20	13 39 2.75	9.429	10 18 3.7	53.94	15 6.59	0.428	13 54 9.34
Thur.	21	13 42 49.38	9.457	10 39 34.0	53.56	15 16.52	0.400	13 58 5.90
Frid.	22	13 46 36.69	9.486	11 0 54.9	53.16	15 25.76	0.371	14 2 2.45
Sat.	23	13 50 24.69	9.515	11 22 6.0	52.75	15 34.32	0.342	14 5 59.01
Sun.	24	13 54 13.40	9.545	11 43 6.9	52.32	15 42.16	0.312	14 9 55.56
Mon.	25	13 58 2.83	9.575	12 3 57.3	51.87	15 49.29	0.282	14 13 52.12
Tues.	26	14 1 53.00	9.605	12 24 36.7	51.40	15 55.67	0.252	14 17 48.67
Wed.	27	14 5 43.90	9.636	12 45 4.7	50.92	16 1.33	0.221	14 21 45.23
Thur.	28	14 9 35.54	9.668	13 5 20.8	50.42	16 6.25	0.189	14 25 41.79
Frid.	29	14 13 27.95	9.700	13 25 24.4	49.90	16 10.40	0.157	14 29 38.35
Sat.	30	14 17 21.13	9.732	13 45 15.3	49.36	16 13.77	0.125	14 33 34.90
Sun.	31	14 21 15.09	9.765	14 4 53.2	48.80	16 16.37	0.092	14 37 31.46
Mon.	32	14 25 9.84	9.798	S. 14 24 17.6	48.22	16 18.17	0.050	14 41 28.01

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

Diff. for 1 hour.
+9°.8565

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S					Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE.				
		λ	λ'						
1	274	187° 53' 43.9"	53' 8.9"	147.71	-0.36	0.0002613	-52.4	11 ^h 18 ^m 53.66 ^s	
2	275	188 52 49.9	52 14.8	147.79	0.47	.0001349	52.7	11 14 57.75	
3	276	189 51 57.8	51 22.6	147.87	0.57	0.0000079	53.0	11 11 1.84	
4	277	190 51 7.5	50 32.2	147.95	0.66	9.9998804	53.2	11 7 5.93	
5	278	191 50 19.1	49 43.7	148.02	0.71	.9997524	53.4	11 3 10.02	
6	279	192 49 32.5	48 57.0	148.10	0.71	.9996242	53.5	10 59 14.12	
7	280	193 48 47.7	48 12.1	148.17	0.71	.9994959	53.5	10 55 18.21	
8	281	194 48 4.7	47 29.0	148.25	0.65	.9993676	53.4	10 51 22.30	
9	282	195 47 23.5	46 47.5	148.32	0.59	.9992396	53.2	10 47 26.40	
10	283	196 46 44.0	46 8.1	148.39	0.49	.9991122	53.0	10 43 30.49	
11	284	197 46 6.2	45 30.2	148.46	0.39	.9989858	52.7	10 39 34.58	
12	285	198 45 30.3	44 54.1	148.53	0.26	.9988593	52.4	10 35 38.67	
13	286	199 44 56.3	44 19.9	148.62	-0.13	.9987339	52.1	10 31 42.76	
14	287	200 44 24.3	43 47.8	148.70	0.00	.9986093	51.7	10 27 46.86	
15	288	201 43 54.4	43 17.8	148.79	+0.13	.9984856	51.3	10 23 50.95	
16	289	202 43 26.6	42 49.9	148.87	0.25	.9983629	50.9	10 19 55.05	
17	290	203 43 0.8	42 24.0	148.96	0.35	.9982412	50.5	10 15 59.14	
18	291	204 42 37.2	42 0.2	149.05	0.41	.9981205	50.1	10 12 3.23	
19	292	205 42 15.8	41 38.7	149.14	0.46	.9980008	49.7	10 8 7.32	
20	293	206 41 56.7	41 19.5	149.24	0.46	.9978820	49.4	10 4 11.41	
21	294	207 41 39.8	41 2.5	149.34	0.45	.9977639	49.1	10 0 15.50	
22	295	208 41 25.2	40 47.8	149.44	0.39	.9976464	48.8	9 56 19.59	
23	296	209 41 12.9	40 35.3	149.53	0.33	.9975295	48.6	9 52 23.68	
24	297	210 41 2.8	40 25.0	149.63	0.22	.9974132	48.4	9 48 27.77	
25	298	211 40 55.0	40 17.1	149.72	+0.12	.9972973	48.2	9 44 31.86	
26	299	212 40 49.4	40 11.4	149.81	-0.01	.9971817	48.0	9 40 35.95	
27	300	213 40 45.9	40 7.8	149.90	0.14	.9970665	47.9	9 36 40.04	
28	301	214 40 44.4	40 6.2	149.98	0.27	.9969516	47.8	9 32 44.13	
29	302	215 40 44.9	40 6.6	150.06	0.39	.9968369	47.7	9 28 48.22	
30	303	216 40 47.4	40 8.9	150.14	0.48	.9967224	47.6	9 24 52.31	
31	304	217 40 51.7	40 13.1	150.21	0.57	.9966083	47.4	9 20 56.40	
32	305	218 40 57.8	40 19.0	150.28	-0.63	9.9964947	-47.2	9 17 0.49	

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 0d.

Diff. for 1 hour.

-9^h.8296

GREENWICH MEAN TIME.									
THE MOON'S									
Day of the Month.	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.
							h m	m	d
1	14 59.0	14 55.9	54 52.6	-0.99	54 41.3	-0.90	1 12.6	1.78	2.0
2	14 53.2	14 50.8	54 31.2	0.78	54 22.6	0.64	1 56.1	1.85	3.0
3	14 49.0	14 47.6	54 15.8	0.50	54 10.8	-0.33	2 41.7	1.95	4.0
4	14 46.8	14 46.6	54 7.9	-0.15	54 7.2	+0.04	3 29.7	2.05	5.0
5	14 47.1	14 48.2	54 8.8	+0.24	54 13.0	0.45	4 19.9	2.13	6.0
6	14 50.0	14 52.5	54 19.6	0.66	54 28.9	0.88	5 11.6	2.17	7.0
7	14 55.7	14 59.6	54 40.7	1.09	54 55.0	1.30	6 3.8	2.17	8.0
8	15 4.2	15 9.4	55 11.8	1.49	55 30.8	1.68	6 55.3	2.12	9.0
9	15 15.2	15 21.5	55 52.1	1.85	56 15.2	1.99	7 45.5	2.06	10.0
10	15 28.2	15 35.2	56 39.8	2.11	57 5.7	2.19	8 34.1	1.99	11.0
11	15 42.4	15 49.7	57 32.3	2.23	57 59.0	2.23	9 21.5	1.96	12.0
12	15 56.9	16 3.9	58 25.5	2.17	58 51.0	2.07	10 8.3	1.96	13.0
13	16 10.4	16 16.4	59 14.9	1.92	59 36.8	1.72	10 55.8	2.01	14.0
14	16 21.6	16 25.9	59 55.9	1.47	60 11.9	1.18	11 45.3	2.12	15.0
15	16 29.3	16 31.6	60 24.2	0.87	60 32.7	+0.54	12 37.9	2.28	16.0
16	16 32.8	16 33.0	60 37.2	+0.21	60 37.7	-0.12	13 34.7	2.46	17.0
17	16 32.0	16 30.1	60 34.4	-0.43	60 27.4	0.72	14 35.8	2.62	18.0
18	16 27.4	16 23.8	60 17.2	0.97	60 4.1	1.19	15 39.8	2.69	19.0
19	16 19.6	16 14.9	59 48.8	1.36	59 31.5	1.50	16 44.1	2.64	20.0
20	16 9.9	16 4.6	59 13.0	1.59	58 53.5	1.65	17 45.5	2.47	21.0
21	15 59.1	15 53.7	58 33.6	1.67	58 13.5	1.67	18 42.3	2.26	22.0
22	15 48.3	15 42.9	57 53.6	1.64	57 34.1	1.60	19 34.0	2.05	23.0
23	15 37.8	15 32.8	57 15.2	1.55	56 56.8	1.50	20 21.1	1.89	24.0
24	15 28.0	15 23.5	56 39.3	1.43	56 22.4	1.37	21 5.0	1.78	25.0
25	15 19.1	15 14.9	56 6.4	1.30	55 51.2	1.23	21 46.9	1.72	26.0
26	15 11.0	15 7.3	55 36.8	1.16	55 23.3	1.10	22 28.0	1.71	27.0
27	15 3.9	15 0.6	55 10.5	1.03	54 58.6	0.96	23 9.5	1.75	28.0
28	14 57.6	14 54.9	54 47.6	0.88	54 37.4	0.80	23 52.2	1.82	29.0
29	14 52.4	14 50.2	54 28.3	0.72	54 20.2	0.63	6		0.3
30	14 48.3	14 46.7	54 13.2	0.53	54 7.5	0.42	0 37.0	1.91	1.3
31	14 45.5	14 44.7	54 3.1	0.30	54 0.3	-0.17	1 24.1	2.01	2.3
32	14 44.4	14 44.5	53 59.0	-0.03	53 59.6	+0.13	2 13.5	2.10	3.3

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 1.					SUNDAY 3.				
0	13 49 44.71	1.8993	S. 13 24 47.4	13.210	0	15 23 46.03	2.0413	S. 22 32 51.2	9.316
1	13 51 38.13	1.8915	13 37 58.2	13.148	1	15 25 48.62	2.0451	22 42 7.1	9.215
2	13 53 31.69	1.8937	13 51 5.2	13.085	2	15 27 51.44	2.0489	22 51 16.9	9.113
3	13 55 25.38	1.8960	14 4 8.4	13.022	3	15 29 54.49	2.0527	23 0 20.7	9.011
4	13 57 19.21	1.8984	14 17 7.8	12.958	4	15 31 57.77	2.0565	23 9 18.3	8.908
5	13 59 13.19	1.9009	14 30 3.3	12.894	5	15 34 1.27	2.0603	23 18 9.7	8.805
6	14 1 7.32	1.9034	14 42 54.8	12.830	6	15 36 5.00	2.0642	23 26 54.9	8.701
7	14 3 1.60	1.9059	14 55 42.4	12.765	7	15 38 8.97	2.0680	23 35 33.8	8.595
8	14 4 56.03	1.9084	15 8 25.9	12.701	8	15 40 13.16	2.0718	23 44 6.3	8.489
9	14 6 50.61	1.9110	15 21 5.3	12.637	9	15 42 17.58	2.0756	23 52 32.5	8.382
10	14 8 45.35	1.9137	15 33 40.6	12.573	10	15 44 22.23	2.0794	24 0 52.2	8.275
11	14 10 40.26	1.9165	15 46 11.7	12.509	11	15 46 27.11	2.0832	24 9 5.4	8.167
12	14 12 35.33	1.9192	15 58 38.6	12.445	12	15 48 32.22	2.0871	24 17 12.2	8.058
13	14 14 30.56	1.9220	16 11 1.2	12.381	13	15 50 37.56	2.0909	24 25 12.4	7.948
14	14 16 25.97	1.9249	16 23 19.5	12.316	14	15 52 43.13	2.0947	24 33 6.0	7.838
15	14 18 21.55	1.9278	16 35 33.3	12.252	15	15 54 48.92	2.0984	24 40 53.0	7.727
16	14 20 17.30	1.9307	16 47 42.7	12.187	16	15 56 54.94	2.1022	24 48 33.3	7.615
17	14 22 13.23	1.9337	16 59 47.6	12.124	17	15 59 1.19	2.1060	24 56 6.8	7.503
18	14 24 9.34	1.9367	17 11 48.1	11.968	18	16 1 7.66	2.1098	25 3 33.6	7.390
19	14 26 5.63	1.9397	17 23 43.9	11.893	19	16 3 14.36	2.1135	25 10 53.6	7.276
20	14 28 2.11	1.9428	17 35 35.1	11.814	20	16 5 21.28	2.1173	25 18 6.7	7.161
21	14 29 58.77	1.9459	17 47 21.6	11.736	21	16 7 28.42	2.1209	25 25 12.9	7.046
22	14 31 55.62	1.9491	17 59 3.4	11.657	22	16 9 35.79	2.1246	25 32 12.2	6.930
23	14 33 52.66	1.9523	S. 18 10 40.4	11.577	23	16 11 43.37	2.1282	S. 25 39 4.5	6.813
SATURDAY 2.					MONDAY 4.				
0	14 35 49.89	1.9555	S. 18 22 12.5	11.495	0	16 13 51.17	2.1318	S. 25 45 49.8	6.696
1	14 37 47.32	1.9588	18 33 39.7	11.413	1	16 15 59.19	2.1355	25 52 28.0	6.578
2	14 39 44.95	1.9621	18 45 2.1	11.331	2	16 18 7.43	2.1391	25 58 59.1	6.459
3	14 41 42.77	1.9654	18 56 19.5	11.248	3	16 20 15.88	2.1427	26 5 23.1	6.340
4	14 43 40.80	1.9688	19 7 31.9	11.164	4	16 22 24.55	2.1463	26 11 39.9	6.220
5	14 45 39.03	1.9722	19 18 39.2	11.079	5	16 24 33.43	2.1498	26 17 49.5	6.100
6	14 47 37.46	1.9757	19 29 41.4	10.993	6	16 26 42.52	2.1533	26 23 51.9	5.979
7	14 49 36.10	1.9791	19 40 38.4	10.907	7	16 28 51.82	2.1567	26 29 47.0	5.857
8	14 51 34.95	1.9826	19 51 30.2	10.820	8	16 31 1.32	2.1601	26 35 34.7	5.734
9	14 53 34.01	1.9861	20 2 16.8	10.732	9	16 33 11.03	2.1635	26 41 15.1	5.611
10	14 55 33.28	1.9897	20 12 58.0	10.643	10	16 35 20.94	2.1668	26 46 48.1	5.488
11	14 57 32.77	1.9933	20 23 33.9	10.553	11	16 37 31.05	2.1701	26 52 13.6	5.363
12	14 59 32.47	1.9968	20 34 4.4	10.463	12	16 39 41.36	2.1734	26 57 31.6	5.238
13	15 1 32.39	2.0004	20 44 29.4	10.371	13	16 41 51.86	2.1767	27 2 42.1	5.113
14	15 3 32.52	2.0040	20 54 48.9	10.279	14	16 44 2.56	2.1799	27 7 45.1	4.987
15	15 5 32.87	2.0077	21 5 2.9	10.187	15	16 46 13.45	2.1830	27 12 40.5	4.860
16	15 7 33.44	2.0113	21 15 11.3	10.093	16	16 48 24.52	2.1861	27 17 28.3	4.733
17	15 9 34.23	2.0150	21 25 14.0	9.998	17	16 50 35.78	2.1892	27 22 8.4	4.605
18	15 11 35.24	2.0188	21 35 11.0	9.903	18	16 52 47.22	2.1923	27 26 40.9	4.477
19	15 13 36.48	2.0225	21 45 2.3	9.807	19	16 54 58.84	2.1954	27 31 5.6	4.348
20	15 15 37.94	2.0262	21 54 47.8	9.710	20	16 57 10.64	2.1984	27 35 22.6	4.218
21	15 17 39.62	2.0299	22 4 27.5	9.612	21	16 59 22.61	2.2009	27 39 31.8	4.088
22	15 19 41.53	2.0337	22 14 1.3	9.514	22	17 1 34.75	2.2038	27 43 33.2	3.958
23	15 21 43.67	2.0375	22 23 29.2	9.416	23	17 3 47.06	2.2066	27 47 26.7	3.827
24	15 23 46.03	2.0413	S. 22 32 51.2	9.316	24	17 5 59.54	2.2093	S. 27 51 12.4	3.696

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 5.					THURSDAY 7.				
0	h m s 17 5 59.54	2.2093	S. 27 51 12.4	3.696	0	h m s a 18 53 57.13	2.2620	S. 28 10 26.7	2.972
1	17 8 12.18	2.2119	27 54 50.2	3.564	1	18 56 12.84	2.2614	28 7 24.1	3.113
2	17 10 24.97	2.2145	27 58 20.0	3.431	2	18 58 28.50	2.2607	28 4 13.1	3.254
3	17 12 37.92	2.2171	28 1 41.9	3.299	3	19 0 44.12	2.2599	28 0 53.6	3.396
4	17 14 51.02	2.2196	28 4 55.9	3.165	4	19 2 59.69	2.2591	27 57 25.6	3.537
5	17 17 4.27	2.2221	28 8 1.8	3.031	5	19 5 15.21	2.2583	27 53 49.2	3.678
6	17 19 17.67	2.2244	28 10 59.6	2.897	6	19 7 30.68	2.2573	27 50 4.3	3.818
7	17 21 31.20	2.2267	28 13 44.4	2.762	7	19 9 46.09	2.2563	27 46 11.0	3.958
8	17 23 44.87	2.2290	28 16 31.1	2.627	8	19 12 1.43	2.2551	27 42 9.3	4.098
9	17 25 58.68	2.2312	28 19 4.7	2.492	9	19 14 16.70	2.2539	27 37 59.2	4.238
10	17 28 12.62	2.2333	28 21 30.1	2.356	10	19 16 31.90	2.2527	27 33 40.7	4.378
11	17 30 26.68	2.2353	28 23 47.4	2.220	11	19 18 47.03	2.2515	27 29 13.8	4.518
12	17 32 40.86	2.2373	28 25 56.5	2.083	12	19 21 2.08	2.2502	27 24 38.5	4.658
13	17 34 55.16	2.2393	28 27 57.4	1.946	13	19 23 17.05	2.2489	27 19 54.9	4.797
14	17 37 9.57	2.2412	28 29 50.1	1.809	14	19 25 31.93	2.2473	27 15 2.9	4.936
15	17 39 24.10	2.2430	28 31 34.5	1.672	15	19 27 46.72	2.2458	27 10 2.6	5.074
16	17 41 38.73	2.2447	28 33 10.7	1.534	16	19 30 1.42	2.2443	27 4 54.0	5.212
17	17 43 53.46	2.2463	28 34 38.6	1.396	17	19 32 16.03	2.2427	26 59 37.2	5.349
18	17 46 8.29	2.2478	28 35 58.2	1.257	18	19 34 30.54	2.2410	26 54 12.1	5.487
19	17 48 23.21	2.2494	28 37 9.5	1.118	19	19 36 44.95	2.2393	26 48 38.8	5.624
20	17 50 38.22	2.2509	28 38 12.4	0.979	20	19 38 59.25	2.2375	26 42 57.2	5.761
21	17 52 53.32	2.2523	28 39 7.0	0.840	21	19 41 13.45	2.2357	26 37 7.4	5.898
22	17 55 8.50	2.2536	28 39 53.2	0.700	22	19 43 27.54	2.2338	26 31 9.4	6.034
23	17 57 23.75	2.2548	S. 28 40 31.0	0.560	23	19 45 41.51	2.2319	S. 26 25 3.3	6.169
WEDNESDAY 6.					FRIDAY 8.				
0	17 59 39.07	2.2559	S. 28 41 0.4	0.420	0	19 47 55.37	2.2300	S. 26 18 49.1	6.305
1	18 1 54.46	2.2570	28 41 21.4	0.280	1	19 50 9.11	2.2280	26 12 26.7	6.440
2	18 4 9.91	2.2581	28 41 34.0	-0.140	2	19 52 22.73	2.2260	26 5 56.3	6.574
3	18 6 25.43	2.2591	28 41 38.2	+0.001	3	19 54 36.23	2.2239	25 59 17.8	6.708
4	18 8 41.00	2.2599	28 41 33.9	0.142	4	19 56 49.60	2.2218	25 52 31.3	6.843
5	18 10 56.62	2.2607	28 41 21.2	0.283	5	19 59 2.84	2.2197	25 45 36.7	6.977
6	18 13 12.29	2.2615	28 41 0.0	0.424	6	20 1 15.96	2.2176	25 38 34.1	7.109
7	18 15 28.00	2.2621	28 40 30.3	0.565	7	20 3 28.95	2.2153	25 31 23.6	7.241
8	18 17 43.74	2.2627	28 39 52.2	0.706	8	20 5 41.80	2.2130	25 24 5.2	7.373
9	18 19 59.52	2.2633	28 39 5.6	0.847	9	20 7 54.51	2.2107	25 16 38.8	7.505
10	18 22 15.33	2.2637	28 38 10.5	0.989	10	20 10 7.08	2.2084	25 9 4.6	7.635
11	18 24 31.16	2.2640	28 37 6.9	1.130	11	20 12 19.52	2.2061	25 1 22.6	7.766
12	18 26 47.01	2.2643	28 35 54.9	1.272	12	20 14 31.82	2.2037	24 53 32.7	7.896
13	18 29 2.88	2.2645	28 34 34.3	1.414	13	20 16 43.97	2.2013	24 45 35.0	8.026
14	18 31 18.75	2.2646	28 33 5.2	1.556	14	20 18 55.98	2.1990	24 37 29.6	8.154
15	18 33 34.63	2.2647	28 31 27.6	1.697	15	20 21 7.85	2.1966	24 29 16.5	8.282
16	18 35 50.51	2.2647	28 29 41.5	1.839	16	20 23 19.57	2.1941	24 20 55.7	8.410
17	18 38 6.30	2.2647	28 27 46.9	1.981	17	20 25 31.14	2.1916	24 12 27.3	8.538
18	18 40 22.27	2.2645	28 25 43.8	2.123	18	20 27 42.56	2.1891	24 3 51.2	8.665
19	18 42 38.13	2.2643	28 23 32.2	2.264	19	20 29 53.83	2.1866	23 55 7.5	8.791
20	18 44 53.98	2.2640	28 21 12.1	2.406	20	20 32 4.95	2.1841	23 46 16.3	8.916
21	18 47 9.81	2.2637	28 18 43.5	2.548	21	20 34 15.92	2.1816	23 37 17.6	9.041
22	18 49 25.62	2.2632	28 16 6.4	2.689	22	20 36 26.74	2.1791	23 28 11.4	9.165
23	18 51 41.39	2.2626	28 13 20.8	2.831	23	20 38 37.41	2.1765	23 18 57.8	9.289
24	18 53 57.13	2.2620	S. 28 10 26.7	2.972	24	20 40 47.92	2.1739	S. 23 9 36.8	9.412

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 9.					MONDAY 11.				
0	^h 20 ^m 40 ^s 47.92	2.1739	S. 23° 9' 36.8"	9.412	0	^h 22 ^m 22 ^s 22.54	2.0687	S. 13° 29' 49.8"	14.430
1	20 42 58.28	2.1713	23 0 8.4	9.534	1	22 24 26.62	2.0673	13 15 21.5	14.513
2	20 45 8.48	2.1688	22 50 32.7	9.656	2	22 26 30.62	2.0660	13 0 48.3	14.594
3	20 47 18.53	2.1662	22 40 49.7	9.777	3	22 28 34.54	2.0648	12 46 10.2	14.675
4	20 49 28.42	2.1636	22 30 59.4	9.898	4	22 30 38.39	2.0637	12 31 27.3	14.755
5	20 51 38.16	2.1610	22 21 1.9	10.018	5	22 32 42.18	2.0627	12 16 39.6	14.833
6	20 53 47.74	2.1584	22 10 57.3	10.137	6	22 34 45.91	2.0617	12 1 47.3	14.911
7	20 55 57.17	2.1558	22 0 45.5	10.256	7	22 36 49.58	2.0607	11 46 50.3	14.988
8	20 58 6.44	2.1532	21 50 26.6	10.373	8	22 38 53.19	2.0597	11 31 48.8	15.063
9	21 0 15.56	2.1507	21 40 0.7	10.490	9	22 40 56.75	2.0589	11 16 42.8	15.137
10	21 2 24.52	2.1481	21 29 27.8	10.607	10	22 43 0.26	2.0581	11 1 32.4	15.210
11	21 4 33.33	2.1456	21 18 47.9	10.723	11	22 45 3.73	2.0574	10 46 17.6	15.282
12	21 6 41.99	2.1431	21 8 1.1	10.838	12	22 47 7.15	2.0567	10 30 58.5	15.353
13	21 8 50.50	2.1405	20 57 7.4	10.952	13	22 49 10.54	2.0562	10 15 35.2	15.423
14	21 10 58.85	2.1379	20 46 6.9	11.065	14	22 51 13.90	2.0557	10 0 7.7	15.492
15	21 13 7.05	2.1354	20 34 59.6	11.177	15	22 53 17.22	2.0552	9 44 36.1	15.560
16	21 15 15.10	2.1329	20 23 45.6	11.289	16	22 55 20.52	2.0548	9 29 0.5	15.626
17	21 17 23.00	2.1304	20 12 24.9	11.401	17	22 57 23.80	2.0544	9 13 21.0	15.691
18	21 19 30.75	2.1280	20 0 57.5	11.512	18	22 59 27.05	2.0541	8 57 37.6	15.755
19	21 21 38.36	2.1256	19 49 23.5	11.621	19	23 1 30.29	2.0538	8 41 50.4	15.818
20	21 23 45.82	2.1231	19 37 43.0	11.730	20	23 3 33.53	2.0536	8 25 59.4	15.880
21	21 25 53.13	2.1207	19 25 55.9	11.839	21	23 5 36.76	2.0538	8 10 4.8	15.940
22	21 28 0.30	2.1183	19 14 2.3	11.946	22	23 7 39.99	2.0539	7 54 6.6	15.999
23	21 30 7.33	2.1159	S. 19° 2' 2.4"	12.052	23	23 9 43.23	2.0540	S. 7° 38' 4.9"	16.057
SUNDAY 10.					TUESDAY 12.				
0	21 32 14.21	2.1136	S. 18° 49' 56.1"	12.157	0	23 11 46.47	2.0542	S. 7° 21' 59.7"	16.114
1	21 34 20.96	2.1113	18 37 43.5	12.262	1	23 13 49.73	2.0544	7 5 51.2	16.169
2	21 36 27.57	2.1090	18 25 24.6	12.367	2	23 15 53.00	2.0547	6 49 39.4	16.224
3	21 38 34.04	2.1068	18 12 59.5	12.470	3	23 17 56.29	2.0550	6 33 24.3	16.277
4	21 40 40.38	2.1046	18 0 28.2	12.572	4	23 19 59.60	2.0555	6 17 6.1	16.328
5	21 42 46.59	2.1024	17 47 50.8	12.673	5	23 22 2.95	2.0561	6 0 44.9	16.378
6	21 44 52.67	2.1003	17 35 7.4	12.774	6	23 24 6.33	2.0567	5 44 20.7	16.427
7	21 46 58.62	2.0982	17 22 17.9	12.874	7	23 26 9.75	2.0573	5 27 53.6	16.475
8	21 49 4.45	2.0961	17 9 22.5	12.973	8	23 28 13.21	2.0581	5 11 23.7	16.522
9	21 51 10.15	2.0940	16 56 21.2	13.071	9	23 30 16.72	2.0589	4 54 51.0	16.567
10	21 53 15.73	2.0920	16 43 14.0	13.168	10	23 32 20.29	2.0599	4 38 15.6	16.611
11	21 55 21.19	2.0901	16 30 1.0	13.264	11	23 34 23.91	2.0608	4 21 37.7	16.653
12	21 57 26.54	2.0882	16 16 42.3	13.359	12	23 36 27.59	2.0619	4 4 57.3	16.693
13	21 59 31.77	2.0863	16 3 17.9	13.454	13	23 38 31.34	2.0631	3 48 14.5	16.733
14	22 1 36.89	2.0844	15 49 47.8	13.548	14	23 40 35.16	2.0643	3 31 29.3	16.772
15	22 3 41.90	2.0826	15 36 12.2	13.640	15	23 42 39.06	2.0657	3 14 41.9	16.808
16	22 5 46.80	2.0809	15 22 31.0	13.732	16	23 44 43.04	2.0671	2 57 52.3	16.843
17	22 7 51.60	2.0792	15 8 44.4	13.822	17	23 46 47.11	2.0685	2 41 0.7	16.877
18	22 9 56.30	2.0775	14 54 52.4	13.912	18	23 48 51.26	2.0700	2 24 7.1	16.909
19	22 12 0.90	2.0759	14 40 55.0	14.001	19	23 50 55.51	2.0717	2 7 11.6	16.940
20	22 14 5.41	2.0743	14 26 52.3	14.088	20	23 52 59.86	2.0734	1 50 14.3	16.970
21	22 16 9.82	2.0727	14 12 44.4	14.175	21	23 55 4.32	2.0753	1 33 15.2	16.998
22	22 18 14.14	2.0713	13 58 31.3	14.261	22	23 57 8.89	2.0772	1 16 14.5	17.024
23	22 20 18.38	2.0700	13 44 13.1	14.346	23	23 59 13.58	2.0791	0 59 12.3	17.048
24	22 22 22.54	2.0687	S. 13° 29' 49.8"	14.430	24	0 1 18.38	2.0811	S. 0° 42' 8.7"	17.072

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 13.					FRIDAY 15.				
0	0 1 18.38	2.0811	S. 0 42' 8.7"	17.079	0	1 45 9.21	2.2772	N. 12° 51' 55.9"	16.135
1	0 3 23.31	2.0832	0 25 3.7	17.094	1	1 47 26.02	2.2833	13 8 2.0	16.067
2	0 5 28.37	2.0854	S. 0 7 57.4	17.114	2	1 49 43.19	2.2892	13 24 3.9	15.997
3	0 7 33.56	2.0878	N. 0 9 10.0	17.133	3	1 52 0.72	2.2953	13 40 1.6	15.925
4	0 9 38.90	2.0902	0 26 18.5	17.150	4	1 54 18.02	2.3014	13 55 54.9	15.852
5	0 11 44.3	2.0926	0 43 28.0	17.166	5	1 56 36.89	2.3076	14 11 43.8	15.776
6	0 13 50.01	2.0952	1 0 38.4	17.180	6	1 58 55.53	2.3138	14 27 28.1	15.698
7	0 15 55.80	2.0978	1 17 49.6	17.192	7	2 1 14.55	2.3202	14 43 7.6	15.617
8	0 18 1.75	2.1005	1 35 1.5	17.202	8	2 3 33.95	2.3266	14 58 42.2	15.535
9	0 20 7.86	2.1033	1 52 13.9	17.211	9	2 5 53.74	2.3330	15 14 11.8	15.451
10	0 22 14.14	2.1062	2 9 26.8	17.219	10	2 8 13.91	2.3394	15 29 36.3	15.364
11	0 24 20.60	2.1092	2 26 40.1	17.225	11	2 10 34.47	2.3460	15 44 55.5	15.275
12	0 26 27.24	2.1123	2 43 53.8	17.229	12	2 12 55.43	2.3526	16 0 9.3	15.184
13	0 28 34.07	2.1154	3 1 7.6	17.231	13	2 15 16.78	2.3592	16 15 17.6	15.091
14	0 30 41.09	2.1186	3 18 21.5	17.231	14	2 17 38.53	2.3658	16 30 20.2	14.996
15	0 32 48.30	2.1219	3 35 35.3	17.229	15	2 20 0.68	2.3725	16 45 17.1	14.899
16	0 34 55.71	2.1253	3 52 49.0	17.227	16	2 22 23.23	2.3792	17 0 8.1	14.799
17	0 37 3.33	2.1288	4 10 2.5	17.223	17	2 24 46.18	2.3859	17 14 53.0	14.696
18	0 39 11.17	2.1324	4 27 15.7	17.216	18	2 27 9.54	2.3927	17 29 31.6	14.592
19	0 41 19.22	2.1360	4 44 28.4	17.207	19	2 29 33.31	2.3996	17 44 4.0	14.486
20	0 43 27.49	2.1398	5 1 40.5	17.197	20	2 31 57.49	2.4064	17 58 30.0	14.378
21	0 45 35.99	2.1437	5 18 52.0	17.185	21	2 34 22.08	2.4132	18 12 49.4	14.268
22	0 47 44.73	2.1476	5 36 2.7	17.171	22	2 36 47.08	2.4201	18 27 2.1	14.155
23	0 49 53.70	2.1515	N. 5 53 12.5	17.156	23	2 39 12.49	2.4270	N. 18 41 8.0	14.040
THURSDAY 14.					SATURDAY 16.				
0	0 52 2.91	2.1556	N. 6 10 21.4	17.139	0	2 41 38.32	2.4339	N. 18 55 6.9	13.922
1	0 54 12.37	2.1597	6 27 29.2	17.119	1	2 44 4.56	2.4408	19 8 58.7	13.803
2	0 56 22.08	2.1640	6 44 35.7	17.098	2	2 46 31.22	2.4477	19 22 43.3	13.689
3	0 58 32.05	2.1683	7 1 40.9	17.075	3	2 48 58.30	2.4547	19 36 20.6	13.559
4	1 0 42.28	2.1727	7 18 44.7	17.050	4	2 51 25.79	2.4617	19 49 50.4	13.433
5	1 2 52.78	2.1772	7 35 46.9	17.023	5	2 53 53.70	2.4686	20 3 12.6	13.306
6	1 5 3.54	2.1817	7 52 47.4	16.994	6	2 56 22.02	2.4755	20 16 27.1	13.176
7	1 7 14.58	2.1864	8 9 46.2	16.963	7	2 58 50.76	2.4824	20 29 33.7	13.044
8	1 9 25.91	2.1912	8 26 43.0	16.930	8	3 1 19.91	2.4893	20 42 32.3	12.910
9	1 11 37.52	2.1960	8 43 37.8	16.895	9	3 3 49.48	2.4963	20 55 22.9	12.774
10	1 13 49.43	2.2009	9 0 30.4	16.859	10	3 6 19.46	2.5032	21 8 5.2	12.635
11	1 16 1.63	2.2058	9 17 20.8	16.821	11	3 8 49.86	2.5101	21 20 39.1	12.495
12	1 18 14.13	2.2108	9 34 8.9	16.781	12	3 11 20.67	2.5169	21 33 4.6	12.353
13	1 20 26.93	2.2160	9 50 54.5	16.738	13	3 13 51.89	2.5237	21 45 21.5	12.209
14	1 22 40.05	2.2212	10 7 37.4	16.693	14	3 16 23.51	2.5304	21 57 29.7	12.068
15	1 24 53.48	2.2265	10 24 17.6	16.646	15	3 18 55.54	2.5372	22 9 29.0	11.913
16	1 27 7.23	2.2318	10 40 54.9	16.597	16	3 21 27.98	2.5439	22 21 19.3	11.763
17	1 29 21.30	2.2372	10 57 29.2	16.547	17	3 24 0.81	2.5505	22 33 0.6	11.619
18	1 31 35.70	2.2428	11 14 0.5	16.494	18	3 26 34.04	2.5572	22 44 32.7	11.458
19	1 33 50.43	2.2484	11 30 28.5	16.439	19	3 29 7.67	2.5637	22 55 55.5	11.301
20	1 36 5.50	2.2540	11 46 53.2	16.382	20	3 31 41.69	2.5702	23 7 8.8	11.143
21	1 38 20.91	2.2597	12 3 14.4	16.323	21	3 34 16.09	2.5766	23 18 12.6	10.983
22	1 40 36.66	2.2654	12 19 31.9	16.262	22	3 36 50.88	2.5830	23 29 6.7	10.821
23	1 42 52.76	2.2713	12 35 45.8	16.200	23	3 39 26.05	2.5893	23 39 51.1	10.659
24	1 45 9.21	2.2772	N. 12 51 55.9	16.135	24	3 42 1.60	2.5956	N. 23 50 25.7	10.492

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 17.					TUESDAY 19.				
0	3 42 1.60	2.5956	N.23 50 25.7	10.492	0	5 51 31.25	2.7387	N.28 37 9.5	1.118
1	3 44 37.52	2.6017	24 0 50.2	10.325	1	5 54 15.53	2.7373	28 38 10.4	0.911
2	3 47 13.81	2.6078	24 11 4.6	10.156	2	5 56 59.72	2.7357	28 38 58.9	0.704
3	3 49 50.46	2.6138	24 21 8.9	9.985	3	5 59 43.81	2.7339	28 39 34.9	0.498
4	3 52 27.46	2.6197	24 31 2.8	9.813	4	6 2 27.79	2.7319	28 39 58.6	0.292
5	3 55 4.82	2.6256	24 40 46.4	9.639	5	6 5 11.64	2.7297	28 40 9.9	+0.086
6	3 57 42.53	2.6313	24 50 19.5	9.463	6	6 7 55.36	2.7274	28 40 8.9	-0.119
7	4 0 20.58	2.6369	24 59 42.0	9.286	7	6 10 38.93	2.7249	28 39 55.6	0.294
8	4 2 58.96	2.6424	25 8 53.8	9.107	8	6 13 22.35	2.7222	28 39 30.0	0.592
9	4 5 37.67	2.6478	25 17 54.8	8.926	9	6 16 5.60	2.7193	28 38 52.2	0.738
10	4 8 16.70	2.6531	25 26 44.9	8.744	10	6 18 48.67	2.7162	28 38 2.2	0.934
11	4 10 56.05	2.6583	25 35 24.1	8.561	11	6 21 31.54	2.7129	28 37 0.1	1.136
12	4 13 35.70	2.6633	25 43 52.3	8.376	12	6 24 14.21	2.7094	28 35 45.9	1.337
13	4 16 15.65	2.6683	25 52 9.3	8.190	13	6 26 56.67	2.7058	28 34 19.7	1.538
14	4 18 55.90	2.6732	26 0 15.1	8.002	14	6 29 38.91	2.7020	28 32 41.4	1.737
15	4 21 36.43	2.6779	26 8 9.6	7.813	15	6 32 20.91	2.6980	28 30 51.2	1.935
16	4 24 17.24	2.6824	26 15 52.7	7.623	16	6 35 2.66	2.6938	28 28 49.2	2.133
17	4 26 58.32	2.6867	26 23 24.3	7.431	17	6 37 44.16	2.6895	28 26 35.3	2.330
18	4 29 39.65	2.6909	26 30 44.4	7.238	18	6 40 25.40	2.6850	28 24 9.6	2.526
19	4 32 21.23	2.6951	26 37 52.9	7.045	19	6 43 6.36	2.6803	28 21 32.2	2.720
20	4 35 3.06	2.6992	26 44 49.8	6.850	20	6 45 47.04	2.6755	28 18 43.2	2.913
21	4 37 45.13	2.7030	26 51 34.9	6.653	21	6 48 27.42	2.6705	28 15 42.6	3.106
22	4 40 27.42	2.7066	26 58 8.2	6.456	22	6 51 7.50	2.6654	28 12 30.5	3.298
23	4 43 9.92	2.7100	N.27 4 29.6	6.258	23	6 53 47.27	2.6601	N.28 9 6.9	3.488
MONDAY 18.					WEDNESDAY 20.				
0	4 45 52.62	2.7134	N.27 10 39.1	6.058	0	6 56 26.72	2.6547	N.28 5 31.9	3.677
1	4 48 35.52	2.7166	27 16 36.6	5.858	1	6 59 5.84	2.6491	28 1 45.6	3.865
2	4 51 18.61	2.7196	27 22 22.1	5.658	2	7 1 44.62	2.6434	27 57 48.1	4.051
3	4 54 1.87	2.7224	27 27 55.5	5.456	3	7 4 23.05	2.6376	27 53 39.5	4.236
4	4 56 45.30	2.7251	27 33 16.8	5.254	4	7 7 1.13	2.6316	27 49 19.8	4.419
5	4 59 28.88	2.7275	27 38 25.9	5.051	5	7 9 38.84	2.6254	27 44 49.2	4.601
6	5 2 12.60	2.7297	27 43 22.9	4.848	6	7 12 16.18	2.6192	27 40 7.7	4.782
7	5 4 56.45	2.7319	27 48 7.6	4.643	7	7 14 53.15	2.6129	27 35 15.4	4.962
8	5 7 40.43	2.7339	27 52 40.0	4.438	8	7 17 29.73	2.6064	27 30 12.3	5.140
9	5 10 24.52	2.7357	27 57 0.1	4.232	9	7 20 5.92	2.5998	27 24 58.6	5.317
10	5 13 8.71	2.7372	28 1 7.8	4.025	10	7 22 41.71	2.5932	27 19 34.3	5.492
11	5 15 52.98	2.7385	28 5 3.1	3.819	11	7 25 17.10	2.5864	27 13 59.6	5.665
12	5 18 37.33	2.7397	28 8 46.1	3.612	12	7 27 52.08	2.5795	27 8 14.5	5.837
13	5 21 21.75	2.7407	28 12 16.6	3.405	13	7 30 26.64	2.5725	27 2 19.1	6.007
14	5 24 6.22	2.7415	28 15 34.7	3.198	14	7 33 0.78	2.5654	26 56 13.6	6.176
15	5 26 50.73	2.7421	28 18 40.3	2.990	15	7 35 34.49	2.5583	26 49 58.0	6.343
16	5 29 35.27	2.7425	28 21 33.5	2.782	16	7 38 7.77	2.5510	26 43 32.4	6.509
17	5 32 19.83	2.7427	28 24 14.2	2.574	17	7 40 40.61	2.5437	26 36 56.9	6.674
18	5 35 4.39	2.7427	28 26 42.4	2.366	18	7 43 13.01	2.5363	26 30 11.5	6.837
19	5 37 48.95	2.7425	28 28 58.1	2.158	19	7 45 44.96	2.5288	26 23 16.4	6.996
20	5 40 33.49	2.7421	28 31 1.3	1.950	20	7 48 16.46	2.5213	26 16 11.8	7.156
21	5 43 18.00	2.7415	28 32 52.1	1.742	21	7 50 47.51	2.5137	26 8 57.7	7.313
22	5 46 2.47	2.7407	28 34 30.4	1.534	22	7 53 18.10	2.5059	26 1 34.2	7.469
23	5 48 46.89	2.7398	28 35 56.2	1.326	23	7 55 48.22	2.4982	25 54 1.4	7.623
24	5 51 31.25	2.7387	N.28 37 9.5	1.118	24	7 58 17.88	2.4904	N.25 46 19.4	7.776

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 21.					SATURDAY 23.				
0	7 58 17.88	2.4904	N.25 46 19.4	7.776	0	9 48 40.40	2.1178	N.17 10 17.0	13.081
1	8 0 47.07	2.4828	25 38 28.3	7.927	1	9 50 47.27	2.1111	16 57 10.0	13.152
2	8 3 15.79	2.4747	25 30 28.2	8.076	2	9 52 53.74	2.1044	16 43 58.8	13.221
3	8 5 44.03	2.4667	25 22 19.2	8.223	3	9 54 59.80	2.0978	16 30 43.5	13.289
4	8 8 11.79	2.4587	25 14 1.4	8.368	4	9 57 5.47	2.0913	16 17 24.1	13.356
5	8 10 39.08	2.4508	25 5 35.0	8.519	5	9 59 10.76	2.0849	16 4 0.8	13.421
6	8 13 5.89	2.4428	24 57 0.0	8.654	6	10 1 15.66	2.0785	15 50 33.6	13.484
7	8 15 32.22	2.4348	24 48 16.5	8.794	7	10 3 20.18	2.0722	15 37 2.7	13.547
8	8 17 58.06	2.4267	24 39 24.7	8.933	8	10 5 24.32	2.0659	15 23 28.0	13.608
9	8 20 23.42	2.4186	24 30 24.6	9.070	9	10 7 28.09	2.0598	15 9 49.7	13.668
10	8 22 48.29	2.4104	24 21 16.3	9.205	10	10 9 31.50	2.0537	14 56 7.9	13.726
11	8 25 12.57	2.4023	24 12 0.0	9.338	11	10 11 34.54	2.0477	14 42 22.6	13.783
12	8 27 36.57	2.3942	24 2 35.7	9.470	12	10 13 37.22	2.0417	14 28 34.0	13.838
13	8 29 59.98	2.3861	23 53 3.6	9.600	13	10 15 39.55	2.0359	14 14 42.1	13.892
14	8 32 22.90	2.3779	23 43 23.7	9.728	14	10 17 41.53	2.0302	14 0 47.0	13.945
15	8 34 45.33	2.3697	23 33 36.2	9.854	15	10 19 43.17	2.0245	13 46 48.7	13.997
16	8 37 7.27	2.3616	23 23 41.2	9.978	16	10 21 44.47	2.0189	13 32 47.4	14.047
17	8 39 28.72	2.3535	23 13 38.8	10.101	17	10 23 45.44	2.0133	13 18 43.1	14.096
18	8 41 49.69	2.3454	23 3 29.1	10.222	18	10 25 46.07	2.0078	13 4 35.9	14.143
19	8 44 10.17	2.3373	22 53 12.2	10.341	19	10 27 46.38	2.0025	12 50 25.9	14.189
20	8 46 30.16	2.3292	22 42 48.2	10.459	20	10 29 46.37	1.9973	12 36 13.2	14.234
21	8 48 49.67	2.3211	22 32 17.1	10.576	21	10 31 46.05	1.9920	12 21 57.8	14.278
22	8 51 8.69	2.3130	22 21 39.1	10.690	22	10 33 45.41	1.9868	12 7 39.8	14.321
23	8 53 27.23	2.3050	N.22 10 54.3	10.802	23	10 35 44.47	1.9818	N.11 53 19.3	14.362
FRIDAY 22.					SUNDAY 24.				
0	8 55 45.29	2.2970	N.22 0 2.9	10.913	0	10 37 43.23	1.9768	N.11 38 56.4	14.402
1	8 58 2.87	2.2900	21 49 4.8	11.022	1	10 39 41.69	1.9720	11 24 31.1	14.441
2	9 0 19.07	2.2811	21 38 0.3	11.129	2	10 41 39.87	1.9672	11 10 3.5	14.478
3	9 2 36.60	2.2733	21 26 49.4	11.235	3	10 43 37.76	1.9625	10 55 33.7	14.515
4	9 4 52.75	2.2653	21 15 32.1	11.339	4	10 45 35.37	1.9578	10 41 1.7	14.551
5	9 7 8.43	2.2574	21 4 8.7	11.441	5	10 47 32.70	1.9532	10 26 27.6	14.585
6	9 9 23.64	2.2496	20 52 39.2	11.542	6	10 49 29.76	1.9487	10 11 51.6	14.617
7	9 11 38.38	2.2419	20 41 3.7	11.641	7	10 51 26.55	1.9444	9 57 13.6	14.649
8	9 13 52.66	2.2342	20 29 22.3	11.738	8	10 53 23.09	1.9402	9 42 33.7	14.679
9	9 16 6.48	2.2265	20 17 35.1	11.834	9	10 55 19.37	1.9359	9 27 52.1	14.708
10	9 18 19.84	2.2188	20 5 42.2	11.928	10	10 57 15.40	1.9318	9 13 8.7	14.737
11	9 20 32.74	2.2112	19 53 43.7	12.021	11	10 59 11.19	1.9278	8 58 23.6	14.764
12	9 22 45.18	2.2036	19 41 39.7	12.112	12	11 1 6.73	1.9238	8 43 37.0	14.790
13	9 24 57.17	2.1962	19 29 30.3	12.201	13	11 3 2.04	1.9199	8 28 48.8	14.815
14	9 27 8.72	2.1888	19 17 15.6	12.289	14	11 4 57.12	1.9161	8 13 59.2	14.839
15	9 29 19.83	2.1815	19 4 55.6	12.375	15	11 6 51.97	1.9123	7 59 8.2	14.862
16	9 31 30.50	2.1742	18 52 30.6	12.459	16	11 8 46.60	1.9087	7 44 15.8	14.883
17	9 33 40.73	2.1669	18 40 0.5	12.542	17	11 10 41.01	1.9051	7 29 22.2	14.903
18	9 35 50.52	2.1596	18 27 25.5	12.623	18	11 12 35.21	1.9016	7 14 27.4	14.923
19	9 37 59.88	2.1525	18 14 45.7	12.703	19	11 14 29.20	1.8982	6 59 31.4	14.942
20	9 40 8.82	2.1455	18 2 1.1	12.782	20	11 16 22.99	1.8949	6 44 34.4	14.959
21	9 42 17.34	2.1385	17 49 11.8	12.859	21	11 18 16.59	1.8917	6 29 36.4	14.975
22	9 44 25.44	2.1316	17 36 18.0	12.934	22	11 20 10.00	1.8885	6 14 37.4	14.991
23	9 46 33.13	2.1247	17 23 19.7	13.008	23	11 22 3.22	1.8854	5 59 37.5	15.005
24	9 48 40.40	2.1178	N.17 10 17.0	13.081	24	11 23 56.25	1.8824	N. 5 44 36.8	15.018

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 25.					WEDNESDAY 27.				
0	11 23 56.25	1.8624	N. 5 44' 36.8"	15.018	0	12 52 21.39	1.8305	S. 6 12' 55.9"	14.594
1	11 25 49.11	1.8706	5 29 35.4	15.030	1	12 54 11.24	1.8319	6 27 26.3	14.491
2	11 27 41.80	1.8768	5 14 33.2	15.041	2	12 56 1.14	1.8330	6 41 54.8	14.458
3	11 29 34.32	1.8740	4 59 30.4	15.051	3	12 57 51.08	1.8328	6 56 21.3	14.494
4	11 31 26.68	1.8713	4 44 27.1	15.060	4	12 59 41.07	1.8337	7 10 45.7	14.389
5	11 33 18.88	1.8688	4 29 23.2	15.068	5	13 1 31.12	1.8347	7 25 8.0	14.353
6	11 35 10.93	1.8663	4 14 18.9	15.075	6	13 3 21.23	1.8357	7 39 28.1	14.317
7	11 37 2.84	1.8639	3 59 14.2	15.082	7	13 5 11.40	1.8368	7 53 46.0	14.979
8	11 38 54.60	1.8615	3 44 9.1	15.087	8	13 7 1.64	1.8379	8 8 1.6	14.940
9	11 40 46.22	1.8592	3 29 3.8	15.091	9	13 8 51.95	1.8391	8 22 14.8	14.901
10	11 42 37.71	1.8571	3 13 58.2	15.094	10	13 10 42.33	1.8403	8 36 25.7	14.161
11	11 44 29.07	1.8550	2 58 52.5	15.096	11	13 12 32.79	1.8416	8 50 34.1	14.119
12	11 46 20.31	1.8530	2 43 46.7	15.097	12	13 14 23.33	1.8430	9 4 40.0	14.077
13	11 48 11.43	1.8511	2 28 40.9	15.097	13	13 16 13.95	1.8445	9 18 43.4	14.035
14	11 50 2.44	1.8496	2 13 35.1	15.097	14	13 18 4.67	1.8461	9 32 44.2	13.991
15	11 51 53.33	1.8474	1 58 29.3	15.095	15	13 19 55.48	1.8477	9 46 42.3	13.946
16	11 53 44.12	1.8457	1 43 23.7	15.093	16	13 21 46.39	1.8493	10 0 37.7	13.901
17	11 55 34.82	1.8441	1 28 18.2	15.089	17	13 23 37.40	1.8510	10 14 30.4	13.855
18	11 57 25.42	1.8426	1 13 13.0	15.084	18	13 25 28.51	1.8528	10 28 20.3	13.807
19	11 59 15.93	1.8411	0 58 8.1	15.079	19	13 27 19.73	1.8546	10 42 7.3	13.759
20	12 1 6.35	1.8397	0 43 3.5	15.073	20	13 29 11.06	1.8564	10 55 51.4	13.711
21	12 2 56.69	1.8383	0 27 59.4	15.065	21	13 31 2.50	1.8583	11 9 32.6	13.661
22	12 4 46.95	1.8371	N. 0 12 55.7	15.057	22	13 32 54.06	1.8603	11 23 10.7	13.610
23	12 6 37.14	1.8359	S. 0 2 7.4	15.047	23	13 34 45.74	1.8623	S. 11 36 45.8	13.558
TUESDAY 26.					THURSDAY 28.				
0	12 8 27.26	1.8348	S. 0 17 9.9	15.037	0	13 36 37.54	1.8644	S. 11 50 17.7	13.506
1	12 10 17.32	1.8338	0 32 11.8	15.026	1	13 38 29.47	1.8666	12 3 46.5	13.453
2	12 12 7.32	1.8329	0 47 13.0	15.014	2	13 40 21.53	1.8688	12 17 12.1	13.399
3	12 13 57.27	1.8321	1 2 13.5	15.002	3	13 42 13.73	1.8711	12 30 34.4	13.344
4	12 15 47.17	1.8313	1 17 13.2	14.988	4	13 44 6.06	1.8734	12 43 53.4	13.288
5	12 17 37.02	1.8305	1 32 12.1	14.973	5	13 45 58.53	1.8758	12 57 9.0	13.231
6	12 19 26.83	1.8299	1 47 10.0	14.957	6	13 47 51.15	1.8782	13 10 21.1	13.174
7	12 21 16.61	1.8294	2 2 6.9	14.941	7	13 49 43.91	1.8806	13 23 29.8	13.116
8	12 23 6.36	1.8288	2 17 2.9	14.924	8	13 51 36.82	1.8832	13 36 35.0	13.056
9	12 24 56.07	1.8283	2 31 57.8	14.905	9	13 53 29.89	1.8858	13 49 36.5	12.995
10	12 26 45.76	1.8280	2 46 51.5	14.886	10	13 55 23.11	1.8883	14 2 34.4	12.935
11	12 28 35.43	1.8278	3 1 44.1	14.866	11	13 57 16.49	1.8909	14 15 28.7	12.873
12	12 30 25.09	1.8276	3 16 35.4	14.845	12	13 59 10.02	1.8936	14 28 19.2	12.810
13	12 32 14.74	1.8274	3 31 25.5	14.822	13	14 1 3.72	1.8964	14 41 5.9	12.747
14	12 34 4.38	1.8273	3 46 14.2	14.800	14	14 2 57.59	1.8992	14 53 48.8	12.683
15	12 35 54.02	1.8273	4 1 1.5	14.776	15	14 4 51.63	1.9021	15 6 27.8	12.617
16	12 37 43.66	1.8274	4 15 47.3	14.752	16	14 6 45.84	1.9050	15 19 2.8	12.551
17	12 39 33.31	1.8276	4 30 31.7	14.727	17	14 8 40.23	1.9079	15 31 33.9	12.484
18	12 41 22.97	1.8278	4 45 14.5	14.700	18	14 10 34.79	1.9108	15 44 0.9	12.416
19	12 43 12.64	1.8281	4 59 55.7	14.673	19	14 12 29.53	1.9139	15 56 23.8	12.347
20	12 45 2.34	1.8285	5 14 35.3	14.645	20	14 14 24.46	1.9170	16 8 42.5	12.277
21	12 46 52.06	1.8289	5 29 13.1	14.616	21	14 16 19.57	1.9200	16 20 57.0	12.206
22	12 48 41.80	1.8293	5 43 49.2	14.587	22	14 18 14.86	1.9232	16 33 7.2	12.135
23	12 50 31.58	1.8299	5 58 23.5	14.556	23	14 20 10.35	1.9264	16 45 13.2	12.063
24	12 52 21.39	1.8305	S. 6 12 55.9	14.524	24	14 22 6.03	1.9296	S. 16 57 14.8	11.990

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 29.					SUNDAY 31.				
0	14 22 6.03	1.9296	S. 16 57 14.8	11.990	0	15 58 54.13	2.1078	S. 24 52 14.7	7.483
1	14 24 1.90	1.9329	17 9 12.0	11.916	1	16 1 0.71	2.1115	24 59 40.3	7.370
2	14 25 57.97	1.9362	17 21 4.7	11.841	2	16 3 7.51	2.1152	25 6 59.1	7.257
3	14 27 54.24	1.9395	17 32 52.9	11.765	3	16 5 14.54	2.1189	25 14 11.1	7.142
4	14 29 50.71	1.9428	17 44 36.5	11.688	4	16 7 21.78	2.1225	25 21 16.1	7.026
5	14 31 47.38	1.9462	17 56 15.5	11.611	5	16 9 29.24	2.1261	25 28 14.2	6.910
6	14 33 44.26	1.9497	18 7 49.8	11.533	6	16 11 36.91	2.1296	25 35 5.3	6.793
7	14 35 41.34	1.9531	18 19 19.4	11.453	7	16 13 44.79	2.1332	25 41 49.4	6.675
8	14 37 38.63	1.9566	18 30 44.2	11.373	8	16 15 52.89	2.1368	25 48 26.3	6.556
9	14 39 36.13	1.9601	18 42 4.2	11.293	9	16 18 1.20	2.1403	25 54 56.1	6.437
10	14 41 33.84	1.9637	18 53 19.3	11.211	10	16 20 9.72	2.1437	26 1 18.8	6.318
11	14 43 31.77	1.9672	19 4 29.5	11.128	11	16 22 18.44	2.1471	26 7 34.2	6.197
12	14 45 29.91	1.9708	19 15 34.6	11.044	12	16 24 27.37	2.1505	26 13 42.4	6.076
13	14 47 28.27	1.9745	19 26 34.7	10.960	13	16 26 36.50	2.1538	26 19 43.3	5.954
14	14 49 26.85	1.9781	19 37 29.8	10.875	14	16 28 45.82	2.1570	26 25 36.9	5.832
15	14 51 25.64	1.9817	19 48 19.7	10.789	15	16 30 55.34	2.1603	26 31 23.2	5.710
16	14 53 24.65	1.9854	19 59 4.4	10.702	16	16 33 5.06	2.1635	26 37 2.1	5.586
17	14 55 23.89	1.9891	20 9 43.9	10.613	17	16 35 14.96	2.1666	26 42 33.5	5.462
18	14 57 23.35	1.9929	20 20 18.0	10.525	18	16 37 25.05	2.1697	26 47 57.5	5.338
19	14 59 23.04	1.9967	20 30 46.8	10.436	19	16 39 35.33	2.1728	26 53 14.0	5.212
20	15 1 22.95	2.0004	20 41 10.3	10.346	20	16 41 45.79	2.1758	26 58 22.9	5.086
21	15 3 23.09	2.0042	20 51 28.3	10.255	21	16 43 56.43	2.1788	27 3 24.3	4.960
22	15 5 23.46	2.0080	21 1 40.8	10.163	22	16 46 7.24	2.1817	27 8 18.1	4.833
23	15 7 24.06	2.0118	S. 21 11 47.8	10.069	23	16 48 18.23	2.1846	S. 27 13 4.3	4.706
SATURDAY 30.					MONDAY, NOVEMBER 1.				
0	15 9 24.88	2.0156	S. 21 21 49.1	9.975	0	16 50 29.39	2.1874	S. 27 17 42.8	4.578
1	15 11 25.93	2.0195	21 31 44.8	9.881					
2	15 13 27.22	2.0234	21 41 34.8	9.786					
3	15 15 28.74	2.0273	21 51 19.1	9.690					
4	15 17 30.49	2.0311	22 0 57.6	9.593					
5	15 19 32.47	2.0349	22 10 30.2	9.495					
6	15 21 34.68	2.0388	22 19 56.9	9.396					
7	15 23 37.12	2.0427	22 29 17.7	9.297					
8	15 25 39.80	2.0466	22 38 32.5	9.196					
9	15 27 42.71	2.0504	22 47 41.2	9.095					
10	15 29 45.85	2.0543	22 56 43.8	8.993					
11	15 31 49.23	2.0582	23 5 40.3	8.890					
12	15 33 52.84	2.0621	23 14 30.6	8.786					
13	15 35 56.68	2.0659	23 23 14.6	8.682					
14	15 38 0.75	2.0698	23 31 52.4	8.578					
15	15 40 5.06	2.0737	23 40 23.9	8.473					
16	15 42 9.59	2.0775	23 48 49.0	8.365					
17	15 44 14.36	2.0814	23 57 7.7	8.258					
18	15 46 19.36	2.0853	24 5 19.9	8.149					
19	15 48 24.59	2.0891	24 13 25.6	8.040					
20	15 50 30.05	2.0928	24 21 24.7	7.930					
21	15 52 35.73	2.0966	24 29 17.2	7.820					
22	15 54 41.64	2.1003	24 37 3.1	7.709					
23	15 56 47.77	2.1041	24 44 42.3	7.596					
24	15 58 54.13	2.1078	S. 24 52 14.7	7.483					

PHASES OF THE MOON.

- ☽ First Quarter, d h m
8.993
- ☾ Full Moon, 14 11 14.7
- ☾ Last Quarter, 21 2 13.5
- New Moon, 28 17 12.7

- ☾ Apogee, d h
4 9.5
- ☾ Perigee, 16 7.6

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.
1	Sun W.	22 26 37	3296	23 50 53	3306	25 14 57	3315	26 38 51	3325
	Antares E.	37 47 41	2933	36 16 4	2942	34 44 38	2950	33 13 23	2958
	Mars E.	75 29 26	3153	74 2 21	3163	72 35 27	3172	71 8 44	3181
	α Aquilæ E.	90 46 0	3758	89 30 14	3767	88 14 37	3776	86 59 10	3785
	Saturn E.	109 31 48	2924	108 0 0	2934	106 28 24	2942	104 56 58	2950
2	Sun W.	33 35 49	3366	34 58 44	3373	36 21 31	3381	37 44 9	3388
	Antares E.	25 39 37	2997	24 9 20	3004	22 39 12	3010	21 9 12	3018
	Mars E.	63 57 45	3222	62 32 2	3231	61 6 29	3238	59 41 5	3245
	α Aquilæ E.	80 44 59	3852	79 30 50	3867	78 16 57	3884	77 3 21	3901
	Saturn E.	97 22 20	2989	95 51 53	2996	94 21 35	3002	92 51 25	3009
3	Sun W.	44 35 24	3420	45 57 18	3424	47 19 7	3430	48 40 50	3434
	Jupiter W.	19 45 59	3182	21 12 30	3180	22 39 3	3178	24 5 38	3178
	Mars E.	52 36 4	3276	51 11 25	3282	49 46 53	3288	48 22 27	3292
	α Aquilæ E.	70 59 59	4002	69 48 21	4025	68 37 6	4049	67 26 15	4075
	Saturn E.	85 22 31	3038	83 53 5	3043	82 23 45	3047	80 54 31	3052
	Fomalhaut E.	95 52 21	3264	94 27 27	3268	93 2 38	3272	91 37 54	3276
4	Sun W.	55 28 17	3451	56 49 36	3454	58 10 52	3454	59 32 7	3455
	Jupiter W.	31 18 39	3178	32 45 14	3178	34 11 50	3178	35 38 26	3177
	Mars E.	41 21 33	3312	39 57 35	3314	38 33 40	3316	37 9 47	3319
	α Aquilæ E.	61 38 46	4222	60 30 47	4265	59 23 22	4305	58 16 34	4346
	Saturn E.	73 29 29	3067	72 0 39	3069	70 31 52	3071	69 3 7	3073
	Fomalhaut E.	84 35 17	3294	83 10 58	3297	81 46 43	3300	80 22 31	3302
5	Sun W.	66 18 11	3455	67 39 25	3454	69 0 41	3452	70 21 59	3448
	Jupiter W.	42 51 40	3171	44 18 24	3168	45 45 11	3166	47 12 1	3163
	Mars E.	30 10 51	3294	28 47 7	3293	27 23 22	3293	25 59 37	3292
	α Aquilæ E.	52 52 48	4600	51 50 23	4663	50 48 52	4730	49 48 18	4805
	Saturn E.	61 39 35	3072	60 10 51	3071	58 42 6	3069	57 13 19	3068
	Fomalhaut E.	73 22 22	3317	71 58 30	3319	70 34 41	3322	69 10 55	3324
	α Pegasi E.	95 8 34	3373	93 45 47	3372	92 22 58	3369	91 0 6	3365
6	Sun W.	77 9 28	3428	78 31 13	3423	79 53 4	3416	81 15 2	3409
	Jupiter W.	54 27 16	3141	55 54 36	3135	57 22 3	3129	58 49 37	3123
	Antares W.	21 49 44	3053	23 18 51	3047	24 48 5	3042	26 17 26	3036
	Saturn E.	49 48 34	2050	48 19 23	2045	46 50 6	2039	45 20 42	2034
	Fomalhaut E.	62 12 46	3338	60 49 18	3341	59 25 54	3344	58 2 33	3347
	α Pegasi E.	84 4 55	3351	82 41 42	3348	81 18 26	3345	79 55 6	3341
7	Sun W.	88 7 0	3368	89 29 53	3358	90 52 57	3348	92 16 13	3337
	Antares W.	33 46 17	2997	35 16 33	2989	36 47 0	2979	38 17 39	2969
	Saturn E.	37 51 50	3000	36 21 37	2992	34 51 14	2983	33 20 40	2974
	Fomalhaut E.	51 7 5	3376	49 44 21	3384	48 21 46	3393	46 59 21	3403
	α Pegasi E.	72 57 26	3394	71 33 42	3390	70 9 54	3318	68 46 3	3314
8	Sun W.	99 15 53	3278	100 40 33	3262	102 5 29	3248	103 30 41	3234
	Antares W.	45 54 15	2912	47 26 18	2900	48 58 37	2887	50 31 13	2874
	Fomalhaut E.	40 11 10	3492	38 50 37	3520	37 30 35	3552	36 11 8	3590
	α Pegasi E.	61 46 2	3305	60 21 56	3305	58 57 50	3305	57 33 44	3306
	α Arietis E.	102 30 14	2951	100 59 0	2939	99 27 30	2925	97 55 43	2911
9	Sun W.	110 41 8	3156	112 8 10	3138	113 35 33	3122	115 3 16	3105
	Antares W.	58 18 37	2901	59 53 3	2785	61 27 50	2770	63 2 57	2754

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
1	Sun W.	28 2 34	3333	29 26 7	3341	30 49 31	3350	32 12 45	3358
	Antares E.	31 42 18	2966	30 11 23	2974	28 40 38	2982	27 10 3	2989
	Mars E.	69 42 12	3190	68 15 51	3198	66 49 40	3206	65 23 38	3214
	α Aquilæ E.	85 43 55	3799	84 28 52	3811	83 14 1	3823	81 59 23	3837
	Saturn E.	103 25 43	2958	101 54 38	2965	100 23 42	2973	98 52 56	2981
2	Sun W.	39 6 39	3394	40 29 2	3401	41 51 17	3408	43 13 24	3415
	Antares E.	19 39 21	3094	18 9 38	3030	16 40 2	3035	15 10 33	3040
	Mars E.	58 15 49	3252	56 50 41	3259	55 25 41	3265	54 0 49	3271
	α Aquilæ E.	75 50 2	3919	74 37 1	3938	73 24 20	3958	72 11 59	3979
	Saturn E.	91 21 23	3015	89 51 29	3023	88 21 43	3027	86 52 4	3032
3	Sun W.	50 2 28	3438	51 24 1	3442	52 45 30	3446	54 6 55	3448
	Jupiter W.	25 32 14	3177	26 58 51	3177	28 25 28	3178	29 52 4	3178
	Mars E.	46 58 6	3297	45 33 51	3301	44 9 41	3305	42 45 35	3308
	α Aquilæ E.	66 15 49	4103	65 5 50	4132	63 56 19	4162	62 47 17	4185
	Saturn E.	79 25 22	3056	77 56 18	3059	76 27 18	3062	74 58 22	3065
	Fomalhaut E.	90 13 14	3279	88 48 38	3283	87 24 7	3287	85 59 40	3290
4	Sun W.	60 53 21	3456	62 14 34	3457	63 35 46	3457	64 56 58	3456
	Jupiter W.	37 5 3	3177	38 31 40	3178	39 58 18	3174	41 24 58	3173
	Mars E.	35 45 57	3390	34 22 9	3391	32 58 22	3382	31 34 36	3383
	α Aquilæ E.	57 10 24	4390	56 4 54	4437	55 0 6	4488	53 56 3	4542
	Saturn E.	67 34 24	3073	66 5 42	3073	64 37 0	3073	63 8 18	3073
	Fomalhaut E.	78 58 22	3306	77 34 17	3308	76 10 15	3312	74 46 17	3314
5	Sun W.	71 43 21	3448	73 4 46	3449	74 26 15	3438	75 47 49	3433
	Jupiter W.	48 38 55	3159	50 5 53	3158	51 32 55	3152	53 0 2	3146
	Mars E.	24 35 51	3321	23 12 4	3320	21 48 16	3301	20 24 29	3291
	α Aquilæ E.	48 48 46	4884	47 50 18	4970	46 52 59	5064	45 56 54	5166
	Saturn E.	55 44 30	3085	54 15 37	3081	52 46 40	3068	51 17 39	3055
	Fomalhaut E.	67 47 11	3396	66 23 30	3399	64 59 52	3392	63 36 17	3385
	α Pegasi E.	89 37 10	3363	88 14 11	3360	86 51 9	3358	85 28 4	3354
6	Sun W.	82 37 8	3401	83 59 23	3394	85 21 46	3386	86 44 18	3378
	Jupiter W.	60 17 19	3115	61 45 10	3108	63 13 10	3101	64 41 19	3092
	Antares W.	27 46 54	3029	29 16 31	3022	30 46 17	3014	32 16 12	3006
	Saturn E.	43 51 12	3028	42 21 34	3022	40 51 48	3015	39 21 54	3007
	Fomalhaut F.	56 39 16	3351	55 16 4	3357	53 52 58	3362	52 29 58	3368
	α Pegasi E.	78 31 42	3338	77 8 14	3334	75 44 42	3331	74 21 6	3327
7	Sun W.	93 39 42	3325	95 3 24	3314	96 27 19	3302	97 51 28	3288
	Antares W.	39 48 31	2958	41 19 36	2948	42 50 54	2936	44 22 27	2924
	Saturn E.	31 49 55	2985	30 18 59	2957	28 47 52	2947	27 16 33	2937
	Fomalhaut E.	45 37 8	3416	44 15 10	3439	42 53 30	3449	41 32 9	3469
	α Pegasi E.	67 22 8	3312	65 58 10	3310	64 34 10	3307	63 10 7	3306
8	Sun W.	104 56 10	3220	106 21 56	3204	107 48 1	3188	109 14 25	3172
	Antares W.	52 4 5	2980	53 37 15	2945	55 10 44	2931	56 44 31	2917
	Fomalhaut E.	34 52 23	3635	33 34 26	3687	32 17 25	3748	31 1 29	3822
	α Pegasi E.	56 9 39	3308	54 45 37	3319	53 21 39	3316	51 57 46	3323
	α Arctis E.	96 23 38	2986	94 51 16	2983	93 18 36	2980	91 45 37	2983
9	Sun W.	116 31 20	3087	117 59 46	3089	119 28 33	3082	120 57 42	3033
	Antares W.	64 38 25	2738	66 14 14	2721	67 50 26	2704	69 27 0	2688

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.
9	Mars W.	15 55 36	3066	17 24 30	3044	18 53 48	3089	20 23 33	3001
	α Pegasi E.	50 34 1	3331	49 10 25	3349	47 47 2	3355	46 23 54	3371
	α Arietis E.	90 12 18	2838	88 38 40	2894	87 4 43	2908	85 30 25	2792
10	Sun W.	122 27 14	3014	123 57 9	2996	125 27 27	2977	126 58 9	2958
	Antares W.	71 3 56	2671	72 41 15	2653	74 18 58	2636	75 57 4	2618
	Mars W.	27 58 42	2901	29 30 59	2889	31 3 41	2880	32 36 48	2843
	α Pegasi E.	39 34 8	3512	38 13 57	3557	36 54 36	3611	35 36 14	3677
	α Arietis E.	77 33 38	2710	75 57 12	2683	74 20 23	2676	72 43 11	2660
	Aldebaran E.	108 12 10	2744	106 36 29	2725	105 0 23	2707	103 23 52	2689
11	Antares W.	84 13 38	2529	85 54 11	2512	87 35 8	2494	89 16 30	2476
	α Aquilæ W.	44 54 29	4646	45 56 14	4508	46 59 59	4379	48 5 39	4362
	Mars W.	40 28 39	2747	42 4 17	2728	43 40 20	2709	45 16 48	2689
	α Arietis E.	64 31 31	2576	62 52 3	2559	61 12 12	2543	59 31 59	2527
	Aldebaran E.	95 15 7	2586	93 36 7	2578	91 56 42	2561	90 16 53	2543
12	Antares W.	97 49 33	2389	99 33 23	2372	101 17 38	2355	103 2 17	2339
	α Aquilæ W.	53 59 19	3790	55 14 32	3714	56 31 4	3644	57 48 51	3578
	Mars W.	53 25 27	2598	55 4 25	2580	56 43 47	2563	58 23 33	2545
	Saturn W.	26 30 5	2404	28 13 34	2384	29 57 31	2366	31 41 54	2348
	α Arietis E.	51 5 27	2453	49 23 7	2439	47 40 28	2426	45 57 31	2414
	Aldebaran E.	81 51 43	2458	80 9 30	2441	78 26 54	2426	76 43 56	2410
13	Mars W.	66 48 12	2465	68 30 14	2450	70 12 38	2436	71 55 22	2422
	α Aquilæ W.	64 34 18	3311	65 58 17	3267	67 23 7	3227	68 48 44	3189
	Saturn W.	40 30 2	2967	42 16 50	2952	44 4 0	2938	45 51 31	2924
	Fomalhaut W.	33 59 20	3014	35 29 16	2936	37 0 49	2927	38 33 50	2906
	α Arietis E.	37 18 54	2370	35 34 36	2365	33 50 11	2363	32 5 43	2364
	Aldebaran E.	68 3 50	2342	66 18 51	2329	64 33 34	2317	62 48 0	2307
14	Mars W.	80 33 46	2360	82 18 18	2349	84 3 6	2339	85 48 8	2330
	α Aquilæ W.	76 7 1	3041	77 36 23	3018	79 6 13	2998	80 36 28	2980
	Saturn W.	54 54 0	2163	56 43 23	2153	58 33 2	2143	60 22 56	2134
	Fomalhaut W.	46 36 32	2580	48 15 55	2545	49 56 5	2516	51 36 56	2488
	α Pegasi W.	29 5 45	3732	30 21 58	3558	31 41 18	3408	33 3 25	3379
	Aldebaran E.	53 56 44	2267	52 9 56	2262	50 23 1	2258	48 36 0	2256
	Pollux E.	97 1 8	2163	95 11 45	2153	93 22 6	2143	91 32 13	2134
15	Mars W.	94 36 27	2283	96 22 37	2267	98 8 56	2262	99 55 22	2278
	α Aquilæ W.	88 12 33	2920	89 44 26	2915	91 16 26	2911	92 48 31	2910
	Saturn W.	69 35 37	2097	71 26 41	2092	73 17 53	2087	75 9 12	2083
	Fomalhaut W.	60 9 50	2384	61 53 48	2368	63 38 8	2355	65 22 47	2344
	α Pegasi W.	40 26 14	2645	41 59 44	2788	43 34 28	2737	45 10 19	2682
	Aldebaran E.	39 40 52	2270	37 54 9	2260	36 7 40	2253	34 21 30	2210
Pollux E.	82 19 38	2098	80 28 36	2092	78 37 25	2088	76 46 7	2084	
16	Saturn W.	84 27 5	2072	86 18 47	2072	88 10 30	2072	90 2 12	2073
	Fomalhaut W.	74 9 41	2304	75 55 34	2300	77 41 33	2298	79 27 36	2296
	α Pegasi W.	53 22 31	2535	55 2 55	2514	56 43 49	2496	58 25 8	2481
	Pollux E.	67 28 25	2073	65 36 45	2073	63 45 4	2073	61 53 24	2075
	Regulus E.	104 12 57	2077	102 21 23	2077	100 29 49	2077	98 38 15	2079
17	Saturn W.	99 19 57	2068	101 11 14	2063	103 2 24	2068	104 53 26	2103
	Fomalhaut W.	88 17 55	2304	90 3 49	2309	91 49 36	2314	93 35 15	2320

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Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
9	Mars W.	21° 53' 44"	2981	23° 24' 21"	2961	24° 55' 23"	2941	26° 26' 50"	2921
	α Pegasi E.	45 1 4	3390	43 38 36	3413	42 16 34	3440	40 55 3	3472
	α Arietis E.	83 55 46	2775	82 20 46	2760	80 45 25	2743	79 9 42	2727
10	Sun W.	128 29 14	2939	130 0 43	2920	131 32 37	2901	133 4 55	2882
	Antares W.	77 35 34	2601	79 14 28	2583	80 53 47	2565	82 33 30	2547
	Mars W.	34 10 20	2894	35 44 17	2905	37 18 30	2785	38 53 26	2766
	α Pegasi E.	34 19 2	3753	33 3 11	3843	31 48 53	3950	30 36 24	4078
	α Arietis E.	71 5 37	2643	69 27 40	2626	67 49 20	2609	66 10 37	2592
	Aldebaran E.	101 46 57	2670	100 9 37	2652	98 31 52	2633	96 53 42	2615
11	Antares W.	90 58 17	2458	92 40 29	2441	94 23 6	2424	96 6 7	2406
	α Aquilæ W.	49 13 7	4153	50 22 18	4061	51 33 7	3957	52 45 29	3870
	Mars W.	46 53 42	2671	48 31 1	2652	50 8 45	2634	51 46 54	2616
	α Arietis E.	57 51 23	2511	56 10 25	2496	54 29 6	2482	52 47 27	2467
	Aldebaran E.	88 36 39	2525	86 56 1	2508	85 14 59	2491	83 33 33	2474
12	Antares W.	104 47 19	2323	106 32 45	2307	108 18 34	2292	110 4 45	2277
	α Aquilæ W.	59 7 49	3517	60 27 54	3460	61 49 3	3407	63 11 12	3357
	Mars W.	60 3 43	2529	61 44 16	2512	63 25 12	2496	65 6 31	2480
	Saturn W.	33 26 43	2331	35 11 57	2315	36 57 35	2298	38 43 37	2283
	α Arietis E.	44 14 16	2403	42 30 46	2393	40 47 1	2384	39 3 3	2376
	Aldebaran E.	75 0 36	2396	73 16 55	2381	71 32 53	2367	69 48 31	2354
13	Mars W.	73 38 26	2408	75 21 49	2385	77 5 31	2363	78 49 30	2371
	α Aquilæ W.	70 15 6	3155	71 42 9	3123	73 9 51	3093	74 38 9	3065
	Saturn W.	47 39 23	2211	49 27 34	2198	51 16 5	2186	53 4 54	2174
	Fomalhaut W.	40 8 10	2750	41 43 43	2701	43 20 21	2657	44 57 59	2616
	α Arietis E.	30 21 16	2367	28 36 54	2374	26 52 42	2385	25 8 46	2403
	Aldebaran E.	61 2 11	2297	59 16 7	2289	57 29 51	2281	55 43 23	2273
14	Mars W.	87 33 24	2322	89 18 53	2313	91 4 34	2305	92 50 26	2299
	α Aquilæ W.	82 7 6	2964	83 38 4	2950	85 9 20	2939	86 40 50	2928
	Saturn W.	62 13 4	2125	64 3 25	2117	65 53 58	2110	67 44 42	2103
	Fomalhaut W.	53 18 26	2463	55 0 31	2440	56 43 9	2419	58 26 16	2401
	α Pegasi W.	34 28 1	3168	35 54 49	3069	37 23 36	2965	38 54 8	2910
	Aldebaran E.	46 48 56	2255	45 1 50	2256	43 14 45	2259	41 27 45	2264
	Pollux E.	89 42 6	2126	87 51 46	2118	86 1 14	2111	84 10 31	2104
15	Mars W.	101 41 54	2274	103 28 31	2272	105 15 12	2270	107 1 56	2269
	α Aquilæ W.	94 20 37	2910	95 52 43	2913	97 24 45	2918	98 56 41	2926
	Saturn W.	77 0 38	2079	78 52 9	2076	80 43 45	2074	82 35 24	2073
	Fomalhaut W.	67 7 43	2233	68 52 54	2234	70 38 19	2216	72 23 55	2209
	α Pegasi W.	46 47 10	2652	48 24 54	2617	50 3 26	2586	51 42 40	2559
	Aldebaran E.	32 35 45	2231	30 50 31	2257	29 5 54	2289	27 22 3	2429
	Pollux E.	74 54 43	2081	73 3 14	2078	71 11 41	2075	69 20 4	2074
16	Saturn W.	91 53 52	2075	93 45 30	2077	95 37 4	2061	97 28 33	2064
	Fomalhaut W.	81 13 41	2226	82 59 47	2226	84 45 52	2228	86 31 55	2200
	α Pegasi W.	60 6 48	2467	61 48 47	2456	63 31 2	2447	65 13 30	2439
	Pollux E.	60 1 46	2077	58 10 11	2079	56 18 39	2082	54 27 12	2085
	Regulus E.	96 46 43	2080	94 55 13	2083	93 3 47	2085	91 12 25	2088
17	Saturn W.	106 44 20	2110	108 35 4	2117	110 25 37	2124	112 15 59	2132
	Fomalhaut W.	95 20 45	2228	97 6 4	2227	98 51 10	2246	100 36 3	2255

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.
17	α Pegasi W.	66° 56' 9"	9433	68° 38' 56"	9430	70° 21' 48"	9437	72° 4' 44"	9436
	α Arietis W.	23° 21' 41"	2317	25° 7' 15"	2294	26° 53' 24"	2274	28° 40' 1"	2260
	Pollux E.	52° 35' 50"	2090	50° 44' 35"	2094	48° 53' 27"	2099	47° 2' 27"	2105
	Regulus E.	89° 21' 8"	2092	87° 29' 57"	2098	85° 38' 54"	2103	83° 47' 59"	2108
18	α Pegasi W.	80° 39' 16"	9438	82° 21' 56"	9444	84° 4' 28"	9451	85° 46' 50"	9458
	α Arietis W.	37° 36' 42"	2235	39° 24' 17"	2236	41° 11' 51"	2239	42° 59' 21"	2242
	Pollux E.	37° 49' 56"	2142	36° 0' 1"	2151	34° 10' 19"	2160	32° 20' 51"	2170
	Regulus E.	74° 35' 46"	2144	72° 45' 54"	2152	70° 56' 14"	2161	69° 6' 48"	2170
	SUN E.	131° 0' 46"	2443	129° 18' 13"	2452	127° 35' 52"	2461	125° 53' 44"	2471
19	α Pegasi W.	94° 15' 34"	2510	95° 56' 33"	2523	97° 37' 14"	2537	99° 17' 36"	2552
	α Arietis W.	51° 55' 3"	2273	53° 41' 42"	2282	55° 28' 8"	2291	57° 14' 21"	2300
	Aldebaran W.	22° 41' 59"	2672	24° 19' 17"	2694	25° 57' 40"	2687	27° 36' 53"	2559
	Regulus E.	60° 3' 19"	2223	58° 15' 25"	2233	56° 27' 47"	2245	54° 40' 26"	2257
	SUN E.	117° 26' 42"	2525	115° 46' 4"	2532	114° 5' 43"	2550	112° 25' 39"	2561
20	α Arietis W.	66° 1' 54"	2352	67° 46' 38"	2362	69° 31' 7"	2373	71° 15' 20"	2385
	Aldebaran W.	35° 59' 56"	2498	37° 41' 12"	2495	39° 22' 32"	2495	41° 3' 52"	2496
	Regulus E.	45° 48' 10"	2319	44° 2' 38"	2331	42° 17' 24"	2345	40° 32' 30"	2358
	SUN E.	104° 9' 33"	2626	102° 31' 13"	2632	100° 53' 10"	2652	99° 15' 25"	2666
21	α Arietis W.	79° 52' 12"	2445	81° 34' 43"	2456	83° 16' 58"	2468	84° 58' 56"	2480
	Aldebaran W.	49° 29' 32"	2520	51° 10' 18"	2527	52° 50' 54"	2535	54° 31' 19"	2543
	Regulus E.	31° 52' 51"	2428	30° 9' 56"	2443	28° 27' 22"	2458	26° 45' 9"	2473
	SUN E.	91° 11' 12"	2732	89° 35' 15"	2746	87° 59' 36"	2760	86° 24' 15"	2773
22	α Arietis W.	93° 24' 29"	2541	95° 4' 45"	2553	96° 44' 45"	2565	98° 24' 28"	2577
	Aldebaran W.	62° 50' 31"	2587	64° 29' 44"	2596	66° 8' 44"	2607	67° 47' 30"	2616
	Pollux W.	18° 43' 42"	2517	20° 24' 31"	2528	22° 5' 5"	2538	23° 45' 25"	2548
	SUN E.	78° 31' 50"	2832	76° 58' 12"	2851	75° 24' 50"	2864	73° 51' 45"	2877
23	α Arietis W.	106° 38' 57"	2637	108° 17' 2"	2648	109° 54' 52"	2660	111° 32' 26"	2671
	Aldebaran W.	75° 58' 2"	2666	77° 35' 28"	2675	79° 12' 41"	2686	80° 49' 40"	2695
	Pollux W.	32° 3' 32"	2601	33° 42' 26"	2611	35° 21' 6"	2621	36° 59' 32"	2632
	SUN E.	66° 10' 22"	2939	64° 38' 52"	2950	63° 7' 37"	2962	61° 36' 37"	2974
24	Aldebaran W.	88° 51' 16"	2745	90° 26' 56"	2756	92° 2' 22"	2765	93° 37' 36"	2775
	Pollux W.	45° 8' 13"	2681	46° 45' 18"	2692	48° 22' 9"	2701	49° 58' 47"	2710
	SUN E.	54° 5' 13"	3030	52° 35' 38"	3042	51° 6' 17"	3052	49° 37' 9"	3064
25	Aldebaran W.	101° 30' 33"	2894	103° 4' 30"	2933	104° 38' 15"	2943	106° 11' 47"	2953
	Pollux W.	57° 58' 54"	2756	59° 34' 19"	2765	61° 9' 33"	2773	62° 44' 36"	2782
	Regulus W.	21° 23' 26"	2794	22° 58' 2"	2798	24° 32' 32"	2803	26° 6' 56"	2808
	SUN E.	42° 14' 45"	3115	40° 46' 54"	3125	39° 19' 15"	3135	37° 51' 48"	3146
26	Pollux W.	70° 37' 3"	2823	72° 11' 1"	2831	73° 44' 48"	2839	75° 18' 25"	2847
	Regulus W.	33° 57' 6"	2839	35° 30' 43"	2845	37° 4' 12"	2852	38° 37' 32"	2859
	SUN E.	30° 37' 36"	3185	29° 11' 21"	3206	27° 45' 19"	3216	26° 19' 29"	3226
31	SUN W.	25° 21' 32"	3465	26° 42' 35"	3468	28° 3' 35"	3470	29° 24' 33"	3471
	Mars E.	62° 15' 33"	3325	60° 51' 50"	3326	59° 28' 11"	3332	58° 4' 36"	3335
	α Aquilæ E.	64° 19' 15"	4141	63° 9' 53"	4173	62° 1' 1"	4206	60° 52' 41"	4243
	Saturn E.	76° 41' 45"	3073	75° 13' 2"	3078	73° 44' 23"	3079	72° 15' 48"	3082
	Fomalhaut E.	87° 55' 39"	3222	86° 31' 7"	3266	85° 6' 39"	3290	83° 42' 16"	3294

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
17	α Pegasi W.	73 47 42	2496	75 30 40	2427	77 13 36	2429	78 56 29	2433
	α Arietis W.	30 26 59	2250	32 14 12	2242	34 1 37	2238	35 49 8	2236
	Pollux E.	45 11 36	2112	43 20 55	2118	41 30 24	2126	39 40 4	2134
	Regulus E.	81 57 12	2114	80 6 34	2130	78 16 6	2122	76 25 50	2136
18	α Pegasi W.	87 29 2	2467	89 11 1	2477	90 52 47	2487	92 34 18	2496
	α Arietis W.	44 46 46	2247	46 34 4	2253	48 21 13	2259	50 8 13	2266
	Pollux E.	30 31 38	2180	28 42 41	2190	26 53 59	2202	25 5 34	2213
	Regulus E.	67 17 36	2180	65 28 39	2190	63 39 57	2200	61 51 30	2211
	Sun E.	124 11 50	2469	122 30 11	2469	120 48 46	2502	119 7 36	2514
19	α Pegasi W.	100 57 37	2567	102 37 17	2583	104 16 35	2599	105 55 31	2617
	α Arietis W.	59 0 21	2309	60 46 7	2330	62 31 38	2330	64 16 54	2341
	Aldebaran W.	29 16 44	2538	30 57 5	2522	32 37 48	2510	34 18 47	2503
	Regulus E.	52 53 23	2269	51 6 38	2281	49 20 10	2294	47 34 1	2306
	Sun E.	110 45 51	2574	109 6 20	2587	107 27 7	2599	105 48 11	2612
20	α Arietis W.	72 59 16	2326	74 42 56	2408	76 26 19	2421	78 9 24	2433
	Aldebaran W.	42 45 11	2499	44 26 26	2503	46 7 35	2508	47 48 37	2513
	Regulus E.	38 47 55	2371	37 3 39	2385	35 19 43	2399	33 36 7	2413
	Sun E.	97 37 59	2679	96 0 51	2692	94 24 0	2705	92 47 27	2719
21	α Arietis W.	86 40 37	2492	88 22 1	2505	90 3 7	2517	91 43 56	2529
	Aldebaran W.	56 11 33	2551	57 51 36	2559	59 31 27	2569	61 11 5	2577
	Regulus E.	25 3 18	2469	23 21 50	2507	21 40 47	2525	20 0 49	2544
	Sun E.	84 49 12	2726	83 14 26	2729	81 39 57	2812	80 5 45	2825
22	α Arietis W.	100 3 54	2589	101 43 4	2601	103 21 58	2612	105 0 36	2625
	Aldebaran W.	69 26 3	2626	71 4 23	2636	72 42 29	2646	74 20 22	2655
	Pollux W.	25 25 31	2559	27 5 23	2569	28 45 0	2580	30 24 23	2590
	Sun E.	72 18 57	2890	70 46 25	2901	69 14 8	2914	67 42 7	2927
23	α Arietis W.	113 9 45	2683	114 46 48	2694	116 23 36	2706	118 0 8	2717
	Aldebaran W.	82 26 26	2706	84 2 58	2716	85 39 17	2725	87 15 23	2735
	Pollux W.	38 37 43	2643	40 15 40	2652	41 53 24	2662	43 30 55	2672
	Sun E.	60 5 52	2965	58 35 21	2997	57 5 4	3009	55 35 2	3019
24	Aldebaran W.	95 12 37	2785	96 47 25	2795	98 22 0	2804	99 56 23	2814
	Pollux W.	51 35 13	2719	53 11 27	2729	54 47 28	2738	56 23 17	2747
	Sun E.	48 8 15	3074	46 39 34	3084	45 11 5	3095	43 42 49	3105
25	Aldebaran W.	107 45 6	2862	109 18 13	2873	110 51 7	2882	112 23 49	2892
	Pollux W.	64 19 27	2721	65 54 7	2729	67 28 36	2737	69 2 55	2745
	Regulus W.	27 41 14	2814	29 15 24	2820	30 49 26	2826	32 23 20	2832
	Sun E.	36 24 34	3156	34 57 32	3166	33 30 42	3175	32 4 3	3185
26	Pollux W.	76 51 52	2855	78 25 9	2862	79 58 16	2869	81 31 14	2877
	Regulus W.	40 10 43	2866	41 43 45	2873	43 16 39	2880	44 49 24	2887
	Sun E.	24 53 51	3237	23 28 26	3246	22 3 14	3260	20 38 16	3271
31	Sun W.	30 45 29	3472	32 6 24	3474	33 27 17	3475	34 48 9	3477
	Mars E.	56 41 5	3338	55 17 37	3340	53 54 12	3342	52 30 49	3346
	α Aquilæ E.	59 44 55	4281	58 37 45	4222	57 31 13	4267	56 25 22	4414
	Saturn E.	70 47 16	3084	69 18 47	3087	67 50 21	3089	66 21 58	3091
	Fomalhaut E.	82 17 57	3297	80 53 42	3301	79 29 32	3306	78 5 28	3311

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sidereal Time of the Semi-diameter passing the Meridian.	Equation of Time, to be subtracted from Apparent Time.	Diff. for 1 hour.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Semi-diameter.				
Mon.	1	^h 14 ^m 25 ^s 7.18	9.797	S. 14° 24' 4.5"	48.22	16' 9.80	66.93	^m 16 ^s 18.15	0.059	
Tues.	2	14 29 2.71	9.831	14 43 15.0	47.64	16 10.05	67.05	16 19.18	+0.026	
Wed.	3	14 32 59.03	9.865	15 2 11.0	47.03	16 10.30	67.16	16 19.41	-0.008	
Thur.	4	14 36 56.15	9.898	15 20 52.0	46.40	16 10.55	67.28	16 18.85	0.041	
Frid.	5	14 40 54.07	9.931	15 39 17.9	45.75	16 10.80	67.40	16 17.49	0.074	
Sat.	6	14 44 52.81	9.965	15 57 28.1	45.09	16 11.05	67.52	16 15.31	0.108	
Sun.	7	14 48 52.37	9.999	16 15 22.3	44.42	16 11.29	67.64	16 12.31	0.142	
Mon.	8	14 52 52.75	10.033	16 33 0.0	43.72	16 11.53	67.76	16 8.50	0.176	
Tues.	9	14 56 53.96	10.067	16 50 20.8	43.01	16 11.77	67.88	16 3.87	0.210	
Wed.	10	15 0 55.99	10.102	17 7 24.4	42.28	16 12.00	68.00	15 58.41	0.245	
Thur.	11	15 4 58.87	10.137	17 24 10.4	41.54	16 12.23	68.12	15 52.10	0.290	
Frid.	12	15 9 2.60	10.173	17 40 38.4	40.78	16 12.45	68.24	15 44.94	0.315	
Sat.	13	15 13 7.18	10.208	17 56 48.2	40.01	16 12.67	68.36	15 36.93	0.350	
Sun.	14	15 17 12.61	10.244	18 12 39.1	39.22	16 12.88	68.48	15 28.09	0.386	
Mon.	15	15 21 18.88	10.279	18 28 11.0	38.42	16 13.09	68.60	15 18.41	0.421	
Tues.	16	15 25 26.01	10.315	18 43 23.5	37.60	16 13.30	68.71	15 7.87	0.457	
Wed.	17	15 29 34.00	10.350	18 58 16.0	36.76	16 13.50	68.83	14 56.47	0.492	
Thur.	18	15 33 42.84	10.386	19 12 48.2	35.91	16 13.70	68.94	14 44.22	0.528	
Frid.	19	15 37 52.53	10.421	19 26 59.9	35.04	16 13.89	69.06	14 31.13	0.563	
Sat.	20	15 42 3.06	10.456	19 40 50.7	34.16	16 14.08	69.17	14 17.20	0.598	
Sun.	21	15 46 14.43	10.491	19 54 20.1	33.26	16 14.27	69.28	14 2.43	0.633	
Mon.	22	15 50 26.63	10.525	20 7 27.8	32.35	16 14.45	69.39	13 46.83	0.667	
Tues.	23	15 54 39.64	10.558	20 20 13.2	31.42	16 14.63	69.50	13 30.42	0.700	
Wed.	24	15 58 53.46	10.591	20 32 36.3	30.48	16 14.80	69.61	13 13.21	0.733	
Thur.	25	16 3 8.07	10.624	20 44 36.4	29.52	16 14.98	69.72	12 55.20	0.765	
Frid.	26	16 7 23.44	10.656	20 56 13.3	28.54	16 15.15	69.82	12 36.44	0.797	
Sat.	27	16 11 39.56	10.686	21 7 26.6	27.55	16 15.32	69.92	12 16.94	0.837	
Sun.	28	16 15 56.40	10.716	21 18 16.0	26.55	16 15.48	70.02	11 56.71	0.857	
Mon.	29	16 20 13.95	10.745	21 28 41.3	25.54	16 15.64	70.12	11 35.77	0.886	
Tues.	30	16 24 32.19	10.773	21 38 42.0	24.51	16 15.80	70.21	11 14.15	0.914	
Wed.	31	16 28 51.08	10.797	S. 21 48 17.8	23.47	16 15.96	70.30	10 51.87	0.940	

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0^m.19 from the Sidereal Time.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be added to Mean Time.	Diff. for 1 hour.	Sidereal Time or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination	Diff. for 1 hour.			
Mon.	1	h m s 14 25 9.84	s 9.798	S. 14° 24' 17.6"	" -48.22	m s 16 18.17	s 0.059	h m s 14 41 28.01
Tues.	2	14 29 5.38	9.831	14 43 27.9	47.63	16 19.19	+0.026	14 45 24.57
Wed.	3	14 33 1.71	9.865	15 2 23.7	47.02	16 19.41	-0.008	14 49 21.12
Thur.	4	14 36 58.84	9.898	15 21 4.6	46.39	16 18.84	0.041	14 53 17.68
Frid.	5	14 40 56.76	9.931	15 39 30.2	45.74	16 17.47	0.074	14 57 14.23
Sat.	6	14 44 55.50	9.965	15 57 40.2	45.08	16 15.28	0.108	15 1 10.79
Sun.	7	14 48 55.07	9.999	16 15 34.2	44.41	16 12.27	0.142	15 5 7.34
Mon.	8	14 52 55.45	10.033	16 33 11.7	43.71	16 8.45	0.176	15 9 3.90
Tues.	9	14 56 56.65	10.067	16 50 32.3	43.00	16 3.81	0.210	15 13 0.46
Wed.	10	15 0 58.68	10.102	17 7 35.6	42.27	15 58.34	0.245	15 16 57.02
Thur.	11	15 5 1.55	10.137	17 24 21.3	41.53	15 52.02	0.280	15 20 53.57
Frid.	12	15 9 5.27	10.172	17 40 49.1	40.77	15 44.86	0.315	15 24 50.13
Sat.	13	15 13 9.84	10.207	17 56 58.5	40.00	15 36.84	0.350	15 28 46.68
Sun.	14	15 17 15.25	10.243	18 12 49.1	39.21	15 27.99	0.386	15 32 43.24
Mon.	15	15 21 21.50	10.278	18 28 20.7	38.41	15 18.30	0.421	15 36 39.80
Tues.	16	15 25 28.61	10.314	18 43 32.8	37.59	15 7.75	0.457	15 40 36.36
Wed.	17	15 29 36.57	10.349	18 58 25.0	36.75	14 56.34	0.492	15 44 32.91
Thur.	18	15 33 45.38	10.385	19 12 56.9	35.90	14 44.09	0.528	15 48 29.47
Frid.	19	15 37 55.04	10.420	19 27 8.3	35.03	14 30.99	0.563	15 52 26.03
Sat.	20	15 42 5.54	10.455	19 40 58.8	34.15	14 17.05	0.598	15 56 22.59
Sun.	21	15 46 16.87	10.490	19 54 27.8	33.25	14 2.27	0.633	16 0 19.14
Mon.	22	15 50 29.03	10.524	20 7 35.0	32.34	13 46.67	0.667	16 4 15.70
Tues.	23	15 54 42.00	10.557	20 20 20.2	31.41	13 30.26	0.700	16 8 12.26
Wed.	24	15 58 55.78	10.590	20 32 42.9	30.47	13 13.04	0.733	16 12 8.82
Thur.	25	16 3 10.34	10.622	20 44 42.6	29.51	12 55.03	0.765	16 16 5.37
Frid.	26	16 7 25.66	10.654	20 56 19.2	28.53	12 36.27	0.797	16 20 1.93
Sat.	27	16 11 41.72	10.684	21 7 32.2	27.54	12 16.77	0.827	16 23 58.49
Sun.	28	16 15 58.51	10.714	21 18 21.3	26.54	11 56.54	0.857	16 27 55.05
Mon.	29	16 20 16.01	10.743	21 28 46.2	25.53	11 35.60	0.886	16 31 51.61
Tues.	30	16 24 34.19	10.771	21 38 46.5	24.50	11 13.98	0.914	16 35 48.17
Wed.	31	16 28 53.02	10.795	S. 21° 48' 22.0"	" -23.46	10 51.70	0.940	16 39 44.72

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

Diff. for 1 hour.
+ 9".8566

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S					Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE.				
		λ	λ'						
1	305	218° 40' 57.8"	40' 19.0"	150.28	-0.63	9.9964947	-47.2	9 ^h 17 ^m 0.49 ^s	
2	306	219 41 5.5	40 26.4	150.35	0.65	.9963815	47.0	9 13 4.58	
3	307	220 41 14.9	40 35.9	150.42	0.65	.9962689	46.7	9 9 8.67	
4	308	221 41 25.9	40 46.7	150.48	0.63	.9961572	46.3	9 5 12.76	
5	309	222 41 38.4	40 59.0	150.55	0.55	.9960465	45.9	9 1 16.85	
6	310	223 41 52.4	41 12.8	150.61	0.47	.9959368	45.4	8 57 20.94	
7	311	224 42 7.9	41 28.2	150.67	0.35	.9958283	44.8	8 53 25.03	
8	312	225 42 24.6	41 44.9	150.73	0.23	.9957212	44.2	8 49 29.12	
9	313	226 42 43.1	42 3.0	150.79	-0.09	.9956157	43.5	8 45 33.21	
10	314	227 43 2.8	42 22.6	150.85	+0.04	.9955119	42.8	8 41 37.30	
11	315	228 43 24.1	42 43.7	150.91	0.17	.9954099	42.0	8 37 41.38	
12	316	229 43 47.1	43 6.6	150.98	0.29	.9953098	41.2	8 33 45.47	
13	317	230 44 11.7	43 31.0	151.05	0.38	.9952117	40.4	8 29 49.56	
14	318	231 44 37.9	43 57.0	151.13	0.47	.9951156	39.5	8 25 53.65	
15	319	232 45 5.8	44 24.7	151.19	0.52	.9950216	38.7	8 21 57.74	
16	320	233 45 35.3	44 54.1	151.26	0.54	.9949296	37.9	8 18 1.83	
17	321	234 46 6.5	45 25.2	151.33	0.51	.9948396	37.1	8 14 5.92	
18	322	235 46 39.5	45 58.1	151.40	0.46	.9947515	36.3	8 10 10.01	
19	323	236 47 14.3	46 32.7	151.48	0.40	.9946652	35.6	8 6 14.09	
20	324	237 47 50.8	47 9.0	151.56	0.32	.9945806	34.9	8 2 18.18	
21	325	238 48 29.1	47 47.1	151.63	0.20	.9944976	34.2	7 58 22.27	
22	326	239 49 9.1	48 27.0	151.70	+0.07	.9944162	33.6	7 54 26.36	
23	327	240 49 50.8	49 8.5	151.77	-0.06	.9943362	33.0	7 50 30.45	
24	328	241 50 34.2	49 51.7	151.84	0.19	.9942576	32.4	7 46 34.54	
25	329	242 51 19.1	50 36.4	151.90	0.32	.9941804	31.8	7 42 38.63	
26	330	243 52 5.5	51 22.6	151.96	0.42	.9941045	31.3	7 38 42.72	
27	331	244 52 53.3	52 10.3	152.02	0.52	.9940297	30.8	7 34 46.80	
28	332	245 53 42.4	52 59.2	152.07	0.57	.9939561	30.4	7 30 50.89	
29	333	246 54 32.7	53 49.3	152.12	0.61	.9938837	29.9	7 26 54.98	
30	334	247 55 24.0	54 40.4	152.16	0.61	.9938127	29.3	7 22 59.07	
31	335	248 56 16.3	55 32.5	152.20	-0.57	9.9937430	-28.7	7 19 3.15	

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 0d.

Diff. for 1 hour.
- 9°. 8296

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.
							h m	m	d
1	14 44.4	14 44.5	53 59.0	-0.03	53 59.6	+0.13	2 13.5	2.10	3.3
2	14 45.2	14 46.5	54 2.1	+0.30	54 6.7	0.47	3 4.6	2.15	4.3
3	14 48.3	14 50.8	54 18.5	0.66	54 22.5	0.85	3 56.3	2.15	5.3
4	14 53.9	14 57.7	54 33.9	1.05	54 47.7	1.25	4 47.4	2.10	6.3
5	15 2.1	15 7.1	55 3.9	1.45	55 22.5	1.65	5 37.1	2.03	7.3
6	15 12.8	15 19.1	55 43.4	1.83	56 6.5	2.01	6 24.9	1.96	8.3
7	15 25.9	15 33.2	56 31.5	2.16	56 58.3	2.29	7 11.3	1.91	9.3
8	15 40.8	15 48.8	57 26.4	2.39	57 55.4	2.44	7 57.0	1.90	10.3
9	15 56.8	16 4.7	58 24.8	2.45	58 54.0	2.41	8 42.9	1.94	11.3
10	16 12.4	16 19.7	59 22.3	2.30	59 49.1	2.14	9 30.4	2.03	12.3
11	16 26.4	16 32.2	60 18.4	1.91	60 34.8	1.63	10 21.1	2.20	13.3
12	16 37.0	16 40.6	60 52.5	1.30	61 5.9	0.93	11 16.3	2.41	14.3
13	16 43.0	16 44.1	61 14.7	+0.53	61 18.6	+0.11	12 16.7	2.62	15.3
14	16 43.8	16 42.2	61 17.6	-0.29	61 11.7	-0.69	13 21.7	2.77	16.3
15	16 39.3	16 35.3	61 1.2	1.05	60 46.5	1.38	14 28.8	2.78	17.3
16	16 30.4	16 24.6	60 28.3	1.65	60 7.0	1.87	15 34.2	2.64	18.3
17	16 18.2	16 11.4	59 43.5	2.03	59 18.4	2.14	16 35.0	2.41	19.3
18	16 4.2	15 57.1	58 52.3	2.19	58 25.9	2.20	17 29.8	2.16	20.3
19	15 49.9	15 42.9	57 59.7	2.16	57 34.1	2.10	18 19.2	1.96	21.3
20	15 36.2	15 29.9	57 9.5	2.00	56 46.0	1.89	19 4.3	1.81	22.3
21	15 23.9	15 18.3	56 24.0	1.77	56 3.5	1.64	19 46.7	1.73	23.3
22	15 13.2	15 8.5	55 44.7	1.51	55 27.4	1.37	20 27.7	1.70	24.3
23	15 4.2	15 0.4	55 11.7	1.24	54 57.7	1.11	21 8.6	1.72	25.3
24	14 57.0	14 54.0	54 45.2	0.98	54 34.2	0.85	21 50.5	1.78	26.3
25	14 51.4	14 49.2	54 24.7	0.73	54 16.6	0.62	22 34.2	1.87	27.3
26	14 47.3	14 45.8	54 9.8	0.51	54 4.3	0.40	23 20.4	1.98	28.3
27	14 44.7	14 43.9	54 0.1	0.30	53 57.2	-0.19	δ		29.3
28	14 43.4	14 43.3	53 55.4	-0.09	53 55.0	+0.02	0 9.1	2.08	0.6
29	14 43.5	14 44.2	53 55.9	+0.13	53 58.2	0.25	0 59.8	2.14	1.6
30	14 45.2	14 46.7	54 2.0	0.38	54 7.4	0.59	1 51.4	2.15	2.6
31	14 48.6	14 51.0	54 14.5	+0.66	54 23.3	+0.81	2 42.7	2.11	3.6

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 1.					WEDNESDAY 3.				
0	16 50 29.39	2.1874	S. 27 17 42.8	4.577	0	18 37 27.82	2.2418	S. 28 22 48.6	1.946
1	16 52 40.71	2.1901	27 22 13.6	4.448	1	18 39 42.31	2.2411	28 20 47.7	2.084
2	16 54 52.20	2.1928	27 26 36.6	4.319	2	18 41 56.75	2.2403	28 18 38.5	2.222
3	16 57 3.85	2.1954	27 30 51.9	4.190	3	18 44 11.15	2.2395	28 16 21.0	2.360
4	16 59 15.65	2.1980	27 34 59.4	4.060	4	18 46 25.49	2.2386	28 13 55.3	2.498
5	17 1 27.61	2.2006	27 38 59.1	3.930	5	18 48 39.78	2.2377	28 11 21.3	2.636
6	17 3 39.72	2.2030	27 42 51.0	3.799	6	18 50 54.01	2.2368	28 8 39.0	2.773
7	17 5 51.97	2.2053	27 46 35.0	3.668	7	18 53 8.17	2.2355	28 5 48.5	2.910
8	17 8 4.36	2.2077	27 50 11.1	3.536	8	18 55 22.26	2.2343	28 2 49.8	3.048
9	17 10 16.90	2.2101	27 53 39.3	3.403	9	18 57 36.29	2.2331	27 59 42.8	3.185
10	17 12 29.57	2.2123	27 56 59.5	3.270	10	18 59 50.24	2.2318	27 56 27.6	3.322
11	17 14 42.37	2.2144	28 0 11.7	3.137	11	19 2 4.11	2.2304	27 53 4.2	3.458
12	17 16 55.20	2.2164	28 3 16.0	3.004	12	19 4 17.89	2.2289	27 49 32.7	3.594
13	17 19 8.34	2.2184	28 6 12.2	2.870	13	19 6 31.58	2.2274	27 45 53.0	3.729
14	17 21 21.50	2.2203	28 9 0.4	2.736	14	19 8 45.18	2.2259	27 42 5.2	3.865
15	17 23 34.78	2.2222	28 11 40.5	2.602	15	19 10 58.69	2.2243	27 38 9.2	4.001
16	17 25 48.17	2.2240	28 14 12.6	2.467	16	19 13 12.10	2.2227	27 34 5.1	4.136
17	17 28 1.66	2.2257	28 16 36.5	2.331	17	19 15 25.41	2.2209	27 29 52.9	4.270
18	17 30 15.25	2.2273	28 18 52.3	2.196	18	19 17 38.61	2.2191	27 25 32.7	4.404
19	17 32 28.94	2.2289	28 21 0.0	2.060	19	19 19 51.70	2.2173	27 21 4.4	4.538
20	17 34 42.72	2.2304	28 22 59.5	1.924	20	19 22 4.68	2.2154	27 16 28.1	4.672
21	17 36 56.59	2.2319	28 24 50.8	1.787	21	19 24 17.55	2.2135	27 11 43.8	4.806
22	17 39 10.55	2.2333	28 26 33.9	1.650	22	19 26 30.30	2.2115	27 6 51.5	4.938
23	17 41 24.58	2.2345	S. 28 28 8.8	1.513	23	19 28 42.92	2.2094	S. 27 1 51.3	5.070
TUESDAY 2.					THURSDAY 4.				
0	17 43 38.69	2.2357	S. 28 29 35.5	1.376	0	19 30 55.42	2.2073	S. 26 56 43.1	5.202
1	17 45 52.87	2.2368	28 30 53.9	1.239	1	19 33 7.80	2.2051	26 51 27.0	5.334
2	17 48 7.11	2.2379	28 32 4.1	1.102	2	19 35 20.04	2.2029	26 46 3.0	5.466
3	17 50 21.42	2.2389	28 33 6.1	0.964	3	19 37 32.15	2.2007	26 40 31.1	5.597
4	17 52 35.78	2.2398	28 33 59.8	0.826	4	19 39 44.12	2.1984	26 34 51.4	5.727
5	17 54 50.19	2.2407	28 34 45.2	0.688	5	19 41 55.96	2.1961	26 29 3.9	5.858
6	17 57 4.66	2.2415	28 35 22.4	0.550	6	19 44 7.66	2.1938	26 23 8.5	5.988
7	17 59 19.17	2.2421	28 35 51.3	0.412	7	19 46 19.22	2.1914	26 17 5.4	6.116
8	18 1 33.71	2.2427	28 36 11.8	0.273	8	19 48 30.63	2.1889	26 10 54.6	6.244
9	18 3 48.29	2.2432	28 36 24.0	-0.134	9	19 50 41.89	2.1865	26 4 36.1	6.372
10	18 6 2.89	2.2436	28 36 27.9	+0.004	10	19 52 53.01	2.1840	25 58 9.9	6.500
11	18 8 17.52	2.2440	28 36 23.5	0.143	11	19 55 3.97	2.1814	25 51 36.1	6.628
12	18 10 32.17	2.2443	28 36 10.8	0.282	12	19 57 14.78	2.1789	25 44 54.6	6.755
13	18 12 46.84	2.2445	28 35 49.7	0.421	13	19 59 25.44	2.1763	25 38 5.5	6.881
14	18 15 1.51	2.2446	28 35 20.3	0.559	14	20 1 35.94	2.1737	25 31 8.9	7.006
15	18 17 16.19	2.2447	28 34 42.6	0.698	15	20 3 46.28	2.1711	25 24 4.8	7.131
16	18 19 30.87	2.2447	28 33 56.6	0.837	16	20 5 56.47	2.1684	25 16 53.2	7.256
17	18 21 45.55	2.2446	28 33 2.2	0.976	17	20 8 6.49	2.1657	25 9 34.1	7.381
18	18 24 0.22	2.2444	28 31 59.5	1.114	18	20 10 16.35	2.1630	25 2 7.5	7.506
19	18 26 14.88	2.2442	28 30 48.5	1.253	19	20 12 26.05	2.1603	24 54 33.5	7.627
20	18 28 29.52	2.2438	28 29 29.2	1.392	20	20 14 35.58	2.1575	24 46 52.2	7.749
21	18 30 44.14	2.2434	28 28 1.5	1.531	21	20 16 44.95	2.1547	24 39 3.6	7.871
22	18 32 58.73	2.2429	28 26 25.5	1.669	22	20 18 54.15	2.1519	24 31 7.6	7.993
23	18 35 13.29	2.2424	28 24 41.2	1.808	23	20 21 3.18	2.1491	24 23 4.4	8.113
24	18 37 27.82	2.2418	S. 28 22 48.6	1.946	24	20 23 12.05	2.1463	S. 24 14 54.0	8.233

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
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FRIDAY 5.

h	m	s	°	'	"	
0	20	23	12.05	2.1463	S. 24 14 54.0	8.323
1	20	25	20.74	2.1435	24 6 36.4	8.353
2	20	27	29.27	2.1407	23 58 11.6	8.473
3	20	29	37.63	2.1379	23 49 39.7	8.591
4	20	31	45.82	2.1351	23 41 0.7	8.709
5	20	33	53.84	2.1322	23 32 14.6	8.827
6	20	36	1.68	2.1294	23 23 21.5	8.943
7	20	38	9.36	2.1266	23 14 21.4	9.059
8	20	40	16.87	2.1237	23 5 14.4	9.174
9	20	42	24.20	2.1208	22 56 0.5	9.289
10	20	44	31.37	2.1180	22 46 39.7	9.403
11	20	46	38.36	2.1151	22 37 12.1	9.517
12	20	48	45.18	2.1123	22 27 37.7	9.630
13	20	50	51.83	2.1095	22 17 56.5	9.742
14	20	52	58.32	2.1067	22 8 8.6	9.853
15	20	55	4.64	2.1039	21 58 14.1	9.964
16	20	57	10.79	2.1011	21 48 12.9	10.075
17	20	59	16.77	2.0983	21 38 5.1	10.184
18	21	1	22.59	2.0955	21 27 50.8	10.293
19	21	3	28.24	2.0928	21 17 29.9	10.402
20	21	5	33.73	2.0901	21 7 2.6	10.509
21	21	7	39.05	2.0874	20 56 28.8	10.616
22	21	9	44.21	2.0847	20 45 48.6	10.723
23	21	11	49.21	2.0821	S. 20 35 2.1	10.828

SUNDAY 7.

h	m	s	°	'	"	
0	22	3	7.51	2.0263	S. 15 33 18.4	13.233
1	22	5	9.04	2.0247	15 20 1.8	13.319
2	22	7	10.48	2.0231	15 6 40.1	13.405
3	22	9	11.82	2.0216	14 53 13.2	13.491
4	22	11	13.07	2.0202	14 39 41.2	13.575
5	22	13	14.24	2.0188	14 26 4.3	13.657
6	22	15	15.32	2.0174	14 12 22.4	13.739
7	22	17	16.32	2.0160	13 58 35.6	13.821
8	22	19	17.24	2.0148	13 44 43.9	13.902
9	22	21	18.09	2.0136	13 30 47.4	13.983
10	22	23	18.87	2.0124	13 16 46.1	14.061
11	22	25	19.58	2.0113	13 2 40.1	14.139
12	22	27	20.23	2.0103	12 48 29.5	14.216
13	22	29	20.82	2.0094	12 34 14.2	14.293
14	22	31	21.36	2.0086	12 19 54.4	14.368
15	22	33	21.85	2.0078	12 5 30.1	14.443
16	22	35	22.29	2.0070	11 51 1.3	14.517
17	22	37	22.69	2.0063	11 36 28.1	14.589
18	22	39	23.04	2.0056	11 21 50.6	14.661
19	22	41	23.36	2.0051	11 7 8.8	14.733
20	22	43	23.65	2.0047	10 52 22.7	14.803
21	22	45	23.92	2.0043	10 37 32.4	14.873
22	22	47	24.16	2.0039	10 22 38.0	14.941
23	22	49	24.39	2.0036	S. 10 7 39.5	15.008

SATURDAY 6.

h	m	s	°	'	"	
0	21	13	54.06	2.0795	S. 20 24 9.3	10.933
1	21	15	58.75	2.0768	20 13 10.2	11.037
2	21	18	3.28	2.0742	20 2 4.9	11.141
3	21	20	7.65	2.0717	19 50 53.3	11.244
4	21	22	11.88	2.0692	19 39 35.6	11.346
5	21	24	15.95	2.0666	19 28 11.8	11.447
6	21	26	19.87	2.0641	19 16 42.0	11.548
7	21	28	23.64	2.0617	19 5 6.1	11.648
8	21	30	27.27	2.0593	18 53 24.3	11.747
9	21	32	30.76	2.0570	18 41 36.5	11.845
10	21	34	34.11	2.0547	18 29 42.9	11.943
11	21	36	37.32	2.0524	18 17 43.4	12.040
12	21	38	40.39	2.0501	18 5 38.1	12.136
13	21	40	43.33	2.0479	17 53 27.0	12.231
14	21	42	46.14	2.0457	17 41 10.3	12.326
15	21	44	48.81	2.0435	17 28 47.9	12.421
16	21	46	51.36	2.0414	17 16 19.8	12.514
17	21	48	53.78	2.0393	17 3 46.2	12.607
18	21	50	56.08	2.0373	16 51 7.0	12.698
19	21	52	58.26	2.0354	16 38 22.4	12.789
20	21	55	0.33	2.0336	16 25 32.3	12.880
21	21	57	2.29	2.0317	16 12 36.8	12.970
22	21	59	4.14	2.0299	15 59 35.9	13.058
23	22	1	5.88	2.0281	15 46 29.8	13.146
24	22	3	7.51	2.0263	S. 15 33 18.4	13.233

MONDAY 8.

h	m	s	°	'	"	
0	22	51	24.60	2.0034	S. 9 52 37.0	15.074
1	22	53	24.80	2.0033	9 37 30.6	15.140
2	22	55	25.00	2.0033	9 22 20.2	15.205
3	22	57	25.20	2.0033	9 7 6.0	15.269
4	22	59	25.40	2.0034	8 51 48.0	15.333
5	23	1	25.61	2.0036	8 36 26.2	15.393
6	23	3	25.83	2.0039	8 21 0.8	15.453
7	23	5	26.07	2.0043	8 5 31.8	15.513
8	23	7	26.34	2.0047	7 49 59.2	15.573
9	23	9	26.63	2.0051	7 34 23.1	15.631
10	23	11	26.95	2.0057	7 18 43.5	15.688
11	23	13	27.31	2.0063	7 3 0.6	15.743
12	23	15	27.71	2.0071	6 47 14.4	15.798
13	23	17	28.16	2.0079	6 31 24.9	15.851
14	23	19	28.66	2.0088	6 15 32.2	15.903
15	23	21	29.21	2.0098	5 59 36.5	15.954
16	23	23	29.83	2.0108	5 43 37.7	16.005
17	23	25	30.51	2.0119	5 27 35.9	16.054
18	23	27	31.26	2.0132	5 11 31.2	16.103
19	23	29	32.09	2.0145	4 55 23.6	16.150
20	23	31	33.00	2.0159	4 39 13.2	16.196
21	23	33	33.99	2.0174	4 23 0.1	16.241
22	23	35	35.08	2.0190	4 6 44.3	16.284
23	23	37	36.27	2.0206	3 50 26.0	16.326
24	23	39	37.55	2.0223	S. 3 34 5.2	16.368

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 9.					THURSDAY 11.				
0	23 39 37.55	2.0223	S. 3 34 5.2	16.368	0	1 20 26.58	2.2143	N. 9 52 45.1	16.640
1	23 41 38.95	2.0242	3 17 41.9	16.408	1	1 22 39.62	2.2205	10 9 22.4	16.604
2	23 43 40.46	2.0261	3 1 16.3	16.446	2	1 24 53.04	2.2268	10 25 57.5	16.565
3	23 45 42.08	2.0281	2 44 48.4	16.483	3	1 27 6.84	2.2333	10 42 30.2	16.523
4	23 47 43.83	2.0302	2 28 18.3	16.520	4	1 29 21.03	2.2398	10 59 0.3	16.480
5	23 49 45.70	2.0324	2 11 46.0	16.555	5	1 31 35.61	2.2463	11 15 27.8	16.435
6	23 51 47.71	2.0347	1 55 11.6	16.589	6	1 33 50.59	2.2530	11 31 52.5	16.388
7	23 53 49.86	2.0370	1 38 35.3	16.622	7	1 36 5.97	2.2598	11 48 14.3	16.338
8	23 55 52.15	2.0395	1 21 57.0	16.653	8	1 38 21.76	2.2667	12 4 33.1	16.287
9	23 57 54.60	2.0421	1 5 16.9	16.683	9	1 40 37.97	2.2737	12 20 48.7	16.233
10	23 59 57.20	2.0447	0 48 35.1	16.711	10	1 42 54.60	2.2807	12 37 1.0	16.177
11	0 1 59.96	2.0474	0 31 51.6	16.738	11	1 45 11.65	2.2877	12 53 9.9	16.118
12	0 4 2.88	2.0502	S. 0 15 6.5	16.764	12	1 47 29.12	2.2948	13 9 15.2	16.058
13	0 6 5.98	2.0533	N. 0 1 40.1	16.789	13	1 49 47.03	2.3020	13 25 16.8	15.995
14	0 8 9.26	2.0568	0 18 28.1	16.812	14	1 52 5.37	2.3093	13 41 14.6	15.931
15	0 10 12.72	2.0599	0 35 17.5	16.833	15	1 54 24.15	2.3167	13 57 8.5	15.864
16	0 12 16.37	2.0634	0 52 8.1	16.853	16	1 56 43.38	2.3241	14 12 58.3	15.794
17	0 14 20.21	2.0657	1 8 59.9	16.872	17	1 59 3.05	2.3316	14 28 43.8	15.722
18	0 16 24.25	2.0691	1 25 52.7	16.889	18	2 1 23.17	2.3392	14 44 24.9	15.648
19	0 18 28.50	2.0726	1 42 46.5	16.904	19	2 3 43.75	2.3468	15 0 1.5	15.572
20	0 20 32.96	2.0761	1 59 41.2	16.919	20	2 6 4.79	2.3545	15 15 33.5	15.493
21	0 22 37.63	2.0798	2 16 36.8	16.932	21	2 8 26.29	2.3622	15 31 0.7	15.412
22	0 24 42.53	2.0836	2 33 33.1	16.943	22	2 10 48.25	2.3700	15 46 23.0	15.329
23	0 26 47.66	2.0874	N. 2 50 30.0	16.953	23	2 13 10.69	2.3779	N.16 1 40.2	15.243
WEDNESDAY 10.					FRIDAY 12.				
0	0 28 53.02	2.0913	N. 3 7 27.4	16.961	0	2 15 33.60	2.3858	N.16 16 52.2	15.155
1	0 30 58. 2	2.0953	3 24 25.3	16.968	1	2 17 56.99	2.3937	16 31 58.8	15.064
2	0 33 4.46	2.0995	3 41 23.5	16.973	2	2 20 20.85	2.4017	16 46 59.9	14.972
3	0 35 10.56	2.1037	3 58 22.0	16.978	3	2 22 45.19	2.4098	17 1 55.4	14.877
4	0 37 16.91	2.1081	4 15 20.6	16.978	4	2 25 10.02	2.4179	17 16 45.1	14.779
5	0 39 23.53	2.1126	4 32 19.3	16.978	5	2 27 35.34	2.4260	17 31 28.9	14.679
6	0 41 30.42	2.1171	4 49 17.9	16.976	6	2 30 1.14	2.4341	17 46 6.6	14.576
7	0 43 37.58	2.1217	5 6 16.4	16.973	7	2 32 27.43	2.4422	18 0 38.0	14.471
8	0 45 45.02	2.1263	5 23 14.6	16.968	8	2 34 54.22	2.4505	18 15 3.1	14.364
9	0 47 52.74	2.1311	5 40 12.5	16.961	9	2 37 21.50	2.4588	18 29 21.7	14.254
10	0 50 0.75	2.1360	5 57 9.9	16.953	10	2 39 49.27	2.4670	18 43 33.6	14.142
11	0 52 9.06	2.1410	6 14 6.8	16.943	11	2 42 17.54	2.4753	18 57 38.7	14.028
12	0 54 17.67	2.1461	6 31 3.0	16.930	12	2 44 46.31	2.4836	19 11 36.9	13.911
13	0 56 26.59	2.1513	6 47 58.4	16.916	13	2 47 15.58	2.4919	19 25 28.0	13.791
14	0 58 35.82	2.1565	7 4 52.9	16.901	14	2 49 45.34	2.5002	19 39 11.8	13.668
15	1 0 45.37	2.1619	7 21 46.5	16.884	15	2 52 15.60	2.5085	19 52 48.2	13.544
16	1 2 55.25	2.1673	7 38 39.0	16.864	16	2 54 46.36	2.5168	20 6 17.1	13.417
17	1 5 5.45	2.1728	7 55 30.2	16.843	17	2 57 17.62	2.5252	20 19 38.2	13.287
18	1 7 15.99	2.1785	8 12 20.1	16.820	18	2 59 49.38	2.5335	20 32 51.5	13.155
19	1 9 26.87	2.1843	8 29 8.6	16.795	19	3 2 21.64	2.5418	20 45 56.8	13.021
20	1 11 38.10	2.1901	8 45 55.5	16.767	20	3 4 54.39	2.5500	20 58 54.0	12.884
21	1 13 49.68	2.1960	9 2 40.7	16.738	21	3 7 27.64	2.5583	21 11 42.9	12.745
22	1 16 1.62	2.2020	9 19 24.1	16.708	22	3 10 1.38	2.5665	21 24 23.4	12.603
23	1 18 13.92	2.2080	9 36 5.6	16.675	23	3 12 35.62	2.5747	21 36 55.3	12.460
24	1 20 26.58	2.2142	N. 9 52 45.1	16.640	24	3 15 10.35	2.5829	N.21 49 18.6	12.314

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 13.					MONDAY 15.				
0	3 15 10.35	2.5829	N.21° 49' 18.6"	12.314	0	5 26 45.07	2.8403	N.28° 12' 28.9"	3.037
1	3 17 45.57	2.5910	22 1 33.0	12.165	1	5 29 35.51	2.8410	28 15 24.4	2.814
2	3 20 21.27	2.5991	22 13 38.4	12.014	2	5 32 25.99	2.8416	28 18 6.6	2.591
3	3 22 57.46	2.6073	22 25 34.7	11.861	3	5 35 16.50	2.8419	28 20 35.4	2.368
4	3 25 34.13	2.6151	22 37 21.7	11.705	4	5 38 7.02	2.8419	28 22 50.8	2.146
5	3 28 11.27	2.6230	22 48 59.3	11.547	5	5 40 57.53	2.8416	28 24 52.9	1.923
6	3 30 48.89	2.6309	23 0 27.3	11.386	6	5 43 48.01	2.8411	28 26 41.6	1.701
7	3 33 26.98	2.6387	23 11 45.6	11.223	7	5 46 38.46	2.8405	28 28 17.0	1.478
8	3 36 5.53	2.6464	23 22 54.1	11.059	8	5 49 28.87	2.8396	28 29 39.0	1.255
9	3 38 44.55	2.6543	23 33 52.7	10.892	9	5 52 19.21	2.8384	28 30 47.6	1.033
10	3 41 24.03	2.6618	23 44 41.2	10.723	10	5 55 9.47	2.8369	28 31 42.9	0.811
11	3 44 3.96	2.6693	23 55 19.5	10.559	11	5 57 59.64	2.8352	28 32 24.9	0.589
12	3 46 44.33	2.6765	24 5 47.4	10.378	12	6 0 49.70	2.8333	28 32 53.5	0.367
13	3 49 25.14	2.6838	24 16 4.9	10.202	13	6 3 39.64	2.8319	28 33 8.9	+0.146
14	3 52 6.39	2.6911	24 26 11.7	10.024	14	6 6 29.44	2.8298	28 33 11.1	-0.075
15	3 54 48.07	2.6983	24 36 7.8	9.844	15	6 9 19.10	2.8283	28 33 0.0	0.295
16	3 57 30.17	2.7051	24 45 53.0	9.663	16	6 12 8.60	2.8265	28 32 35.7	0.514
17	4 0 12.68	2.7119	24 55 27.3	9.479	17	6 14 57.92	2.8203	28 31 58.4	0.731
18	4 2 55.60	2.7187	25 4 50.5	9.293	18	6 17 47.04	2.8170	28 31 8.0	0.946
19	4 5 38.92	2.7253	25 14 2.5	9.106	19	6 20 35.96	2.8135	28 30 4.6	1.165
20	4 8 22.63	2.7318	25 23 3.2	8.916	20	6 23 24.66	2.8098	28 28 48.2	1.382
21	4 11 6.73	2.7381	25 31 52.4	8.724	21	6 26 13.14	2.8059	28 27 18.8	1.597
22	4 13 51.20	2.7443	25 40 30.1	8.531	22	6 29 1.37	2.8017	28 25 36.6	1.811
23	4 16 36.04	2.7504	N.25 48 56.1	8.336	23	6 31 49.34	2.7973	N.26 23 41.5	2.024
SUNDAY 14.					TUESDAY 16.				
0	4 19 21.24	2.7563	N.25 57 10.4	8.139	0	6 34 37.03	2.7935	N.28 21 33.7	2.236
1	4 22 6.79	2.7620	26 5 12.8	7.941	1	6 37 24.44	2.7878	28 19 13.2	2.447
2	4 24 52.68	2.7675	26 13 3.3	7.749	2	6 40 11.56	2.7808	28 16 40.1	2.656
3	4 27 38.89	2.7738	26 20 41.8	7.540	3	6 42 58.37	2.7725	28 13 54.5	2.864
4	4 30 25.42	2.7781	26 28 8.1	7.327	4	6 45 44.86	2.7721	28 10 56.4	3.072
5	4 33 12.26	2.7832	26 35 22.2	7.139	5	6 48 31.02	2.7685	28 7 45.9	3.278
6	4 35 59.40	2.7881	26 42 23.9	6.925	6	6 51 16.84	2.7607	28 4 23.1	3.482
7	4 38 46.83	2.7926	26 49 13.2	6.718	7	6 54 2.30	2.7547	28 0 48.1	3.685
8	4 41 34.53	2.7973	26 55 50.1	6.510	8	6 56 47.40	2.7486	27 57 0.9	3.887
9	4 44 22.49	2.8015	27 2 14.4	6.300	9	6 59 32.13	2.7423	27 53 1.7	4.087
10	4 47 10.71	2.8056	27 8 26.0	6.089	10	7 2 16.47	2.7357	27 48 50.5	4.285
11	4 49 59.16	2.8095	27 14 25.0	5.877	11	7 5 0.41	2.7289	27 41 27.5	4.482
12	4 52 47.84	2.8132	27 20 11.2	5.663	12	7 7 43.94	2.7221	27 39 52.7	4.678
13	4 55 36.74	2.8167	27 25 44.5	5.448	13	7 10 27.06	2.7151	27 35 6.2	4.871
14	4 58 25.84	2.8199	27 31 4.9	5.233	14	7 13 9.76	2.7080	27 30 8.2	5.063
15	5 1 15.13	2.8230	27 36 12.4	5.017	15	7 15 52.02	2.7007	27 24 58.7	5.253
16	5 4 4.60	2.8256	27 41 6.9	4.799	16	7 18 33.84	2.6933	27 19 37.8	5.442
17	5 6 54.23	2.8284	27 45 48.3	4.581	17	7 21 15.22	2.6858	27 14 5.7	5.628
18	5 9 44.01	2.8308	27 50 16.6	4.362	18	7 23 56.14	2.6781	27 8 22.5	5.813
19	5 12 33.92	2.8329	27 54 31.7	4.143	19	7 26 36.59	2.6703	27 2 28.2	5.996
20	5 15 23.96	2.8349	27 58 33.7	3.923	20	7 29 16.57	2.6623	26 56 23.0	6.177
21	5 18 14.11	2.8366	28 2 22.4	3.701	21	7 31 56.07	2.6543	26 50 7.0	6.357
22	5 21 4.35	2.8381	28 5 57.8	3.480	22	7 34 35.08	2.6461	26 43 40.2	6.534
23	5 23 54.68	2.8393	28 9 20.0	3.259	23	7 37 13.60	2.6379	26 37 2.9	6.709
24	5 26 45.07	2.8403	N.28 12 28.9	3.037	24	7 39 51.63	2.6296	N.26 30 15.1	6.883

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 17.					FRIDAY 19.				
0	7 39 51.63	2.6296	N.26 30 15.1	6.883	0	9 35 38.85	2.1979	N.18 18 22.5	12.844
1	7 42 29.15	2.6311	26 23 16.9	7.055	1	9 37 50.48	2.1898	18 5 29.5	12.922
2	7 45 6.16	2.6194	26 16 8.5	7.224	2	9 40 1.62	2.1817	17 52 31.9	12.998
3	7 47 42.64	2.6037	26 8 50.0	7.392	3	9 42 12.28	2.1737	17 39 29.8	13.079
4	7 50 18.60	2.5850	26 1 21.5	7.558	4	9 44 22.46	2.1657	17 26 23.3	13.144
5	7 52 54.04	2.5663	25 53 43.1	7.722	5	9 46 32.16	2.1578	17 13 12.5	13.214
6	7 55 28.95	2.5774	25 45 54.9	7.883	6	9 48 41.39	2.1500	16 59 57.6	13.283
7	7 58 3.33	2.5685	25 37 57.1	8.043	7	9 50 50.16	2.1423	16 46 38.5	13.351
8	8 0 37.17	2.5595	25 29 49.8	8.201	8	9 52 58.47	2.1347	16 33 15.5	13.416
9	8 3 10.47	2.5504	25 21 33.0	8.356	9	9 55 6.32	2.1272	16 19 48.6	13.480
10	8 5 43.22	2.5413	25 13 7.0	8.509	10	9 57 13.73	2.1197	16 6 17.9	13.543
11	8 8 15.43	2.5322	25 4 31.9	8.661	11	9 59 20.69	2.1124	15 52 43.5	13.604
12	8 10 47.09	2.5230	24 55 47.7	8.811	12	10 1 27.21	2.1051	15 39 5.4	13.664
13	8 13 18.19	2.5138	24 46 54.6	8.958	13	10 3 33.30	2.0978	15 25 23.8	13.722
14	8 15 48.74	2.5046	24 37 52.8	9.103	14	10 5 38.95	2.0907	15 11 38.8	13.778
15	8 18 18.74	2.4953	24 28 42.3	9.246	15	10 7 44.18	2.0837	14 57 50.5	13.833
16	8 20 48.18	2.4860	24 19 23.3	9.387	16	10 9 48.99	2.0768	14 43 58.9	13.887
17	8 23 17.06	2.4767	24 9 55.9	9.526	17	10 11 53.39	2.0699	14 30 4.1	13.939
18	8 25 45.38	2.4673	24 0 20.2	9.663	18	10 13 57.38	2.0632	14 16 6.2	13.989
19	8 28 13.14	2.4580	23 50 36.4	9.797	19	10 16 0.97	2.0565	14 2 5.4	14.038
20	8 30 40.34	2.4486	23 40 44.6	9.930	20	10 18 4.16	2.0498	13 48 1.6	14.086
21	8 33 6.97	2.4393	23 30 44.8	10.061	21	10 20 6.95	2.0433	13 33 55.0	14.133
22	8 35 33.05	2.4300	23 20 37.3	10.189	22	10 22 9.36	2.0370	13 19 45.6	14.178
23	8 37 58.57	2.4206	N.23 10 22.1	10.316	23	10 24 11.39	2.0307	N.13 5 33.6	14.222
THURSDAY 18.					SATURDAY 20.				
0	8 40 23.52	2.4112	N.22 59 59.3	10.441	0	10 26 13.04	2.0244	N.12 51 19.0	14.264
1	8 42 47.91	2.4019	22 49 29.1	10.563	1	10 28 14.32	2.0183	12 37 1.9	14.305
2	8 45 11.75	2.3927	22 38 51.7	10.683	2	10 30 15.24	2.0123	12 22 42.4	14.345
3	8 47 35.03	2.3834	22 28 7.1	10.802	3	10 32 15.80	2.0064	12 8 20.5	14.383
4	8 49 57.75	2.3741	22 17 15.5	10.918	4	10 34 16.01	2.0006	11 53 56.4	14.420
5	8 52 19.92	2.3648	22 6 16.9	11.033	5	10 36 15.87	1.9948	11 39 30.1	14.457
6	8 54 41.53	2.3556	21 55 11.5	11.146	6	10 38 15.38	1.9891	11 25 1.6	14.492
7	8 57 2.59	2.3464	21 43 59.4	11.256	7	10 40 14.56	1.9836	11 10 31.1	14.525
8	8 59 23.10	2.3373	21 32 40.8	11.364	8	10 42 13.41	1.9781	10 55 58.6	14.557
9	9 1 43.07	2.3283	21 21 15.7	11.471	9	10 44 11.93	1.9727	10 41 24.3	14.587
10	9 4 2.49	2.3192	21 9 44.3	11.575	10	10 46 10.14	1.9675	10 26 48.2	14.617
11	9 6 21.37	2.3102	20 58 6.7	11.678	11	10 48 8.03	1.9623	10 12 10.3	14.646
12	9 8 39.71	2.3012	20 46 22.9	11.779	12	10 50 5.61	1.9572	9 57 30.7	14.673
13	9 10 57.51	2.2923	20 34 33.2	11.878	13	10 52 2.89	1.9522	9 42 49.5	14.699
14	9 13 14.78	2.2834	20 22 37.6	11.975	14	10 53 59.87	1.9473	9 28 6.8	14.724
15	9 15 31.52	2.2746	20 10 36.2	12.070	15	10 55 56.56	1.9425	9 13 22.6	14.748
16	9 17 47.73	2.2658	19 58 29.2	12.163	16	10 57 52.97	1.9378	8 58 37.0	14.771
17	9 20 3.42	2.2571	19 46 16.6	12.255	17	10 59 49.09	1.9332	8 43 50.1	14.793
18	9 22 18.58	2.2485	19 33 58.6	12.344	18	11 1 44.94	1.9286	8 29 1.9	14.813
19	9 24 33.23	2.2399	19 21 35.3	12.432	19	11 3 40.52	1.9241	8 14 12.5	14.833
20	9 26 47.37	2.2313	19 9 6.8	12.518	20	11 5 35.84	1.9197	7 59 22.0	14.851
21	9 29 0.99	2.2228	18 56 33.1	12.603	21	11 7 30.90	1.9155	7 44 30.4	14.868
22	9 31 14.11	2.2145	18 43 54.4	12.686	22	11 9 25.70	1.9113	7 29 37.8	14.885
23	9 33 26.73	2.2062	18 31 10.8	12.768	23	11 11 20.26	1.9073	7 14 44.2	14.900
24	9 35 38.85	2.1979	N.18 18 22.5	12.844	24	11 13 14.58	1.9033	N. 6 59 49.8	14.914

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 21.					TUESDAY 23.				
0	11 13 14.58	1.8933	N. 6 59 49.8	14.914	0	12 41 43.15	1.8158	S. 4 54 32.9	14.519
1	11 15 8.66	1.8985	6 44 54.5	14.927	1	12 43 32.10	1.8159	5 9 3.2	14.491
2	11 17 2.52	1.8957	6 29 58.5	14.930	2	12 45 21.06	1.8161	5 23 31.8	14.462
3	11 18 56.15	1.8920	6 15 1.8	14.950	3	12 47 10.03	1.8164	5 37 58.6	14.432
4	11 20 49.56	1.8884	6 0 4.5	14.960	4	12 48 59.03	1.8169	5 52 23.6	14.401
5	11 22 42.76	1.8848	5 45 6.6	14.970	5	12 50 48.06	1.8173	6 6 46.7	14.369
6	11 24 35.74	1.8814	5 30 8.1	14.978	6	12 52 37.11	1.8178	6 21 7.9	14.337
7	11 26 28.52	1.8781	5 15 9.2	14.985	7	12 54 26.19	1.8185	6 35 27.1	14.303
8	11 28 21.11	1.8749	5 0 9.9	14.992	8	12 56 15.32	1.8192	6 49 44.3	14.269
9	11 30 13.51	1.8717	4 45 10.2	14.997	9	12 58 4.49	1.8199	7 3 59.4	14.234
10	11 32 5.72	1.8687	4 30 10.3	15.001	10	12 59 53.71	1.8207	7 18 12.4	14.198
11	11 33 57.75	1.8657	4 15 10.1	15.004	11	13 1 42.98	1.8216	7 32 23.2	14.162
12	11 35 49.61	1.8629	4 0 9.8	15.007	12	13 3 32.30	1.8225	7 46 31.9	14.126
13	11 37 41.30	1.8601	3 45 9.3	15.008	13	13 5 21.68	1.8236	8 0 38.3	14.088
14	11 39 32.82	1.8573	3 30 8.8	15.008	14	13 7 11.13	1.8247	8 14 42.4	14.048
15	11 41 24.18	1.8547	3 15 8.3	15.007	15	13 9 0.65	1.8259	8 28 44.1	14.008
16	11 43 15.39	1.8522	3 0 7.8	15.007	16	13 10 50.24	1.8271	8 42 43.4	13.966
17	11 45 6.45	1.8497	2 45 7.4	15.005	17	13 12 39.91	1.8284	8 56 40.3	13.928
18	11 46 57.36	1.8474	2 30 7.2	15.002	18	13 14 29.65	1.8297	9 10 34.7	13.886
19	11 48 48.14	1.8451	2 15 7.2	14.998	19	13 16 19.48	1.8319	9 24 26.6	13.843
20	11 50 38.78	1.8429	2 0 7.4	14.993	20	13 18 9.40	1.8337	9 38 15.9	13.799
21	11 52 29.29	1.8408	1 45 8.0	14.987	21	13 19 59.41	1.8343	9 52 2.5	13.755
22	11 54 19.68	1.8389	1 30 9.0	14.980	22	13 21 49.52	1.8360	10 5 46.5	13.710
23	11 56 9.96	1.8370	N. 1 15 10.4	14.973	23	13 23 39.73	1.8377	S. 10 19 27.7	13.664
MONDAY 22.					WEDNESDAY 24.				
0	11 58 0.12	1.8352	N. 1 0 12.2	14.965	0	13 25 30.04	1.8394	S. 10 33 6.2	13.618
1	11 59 50.18	1.8334	0 45 14.6	14.956	1	13 27 20.46	1.8413	10 46 41.8	13.570
2	12 1 40.13	1.8317	0 30 17.5	14.947	2	13 29 10.99	1.8432	11 0 14.6	13.522
3	12 3 29.98	1.8301	0 15 21.0	14.936	3	13 31 1.64	1.8452	11 13 44.5	13.473
4	12 5 19.74	1.8287	N. 0 0 25.2	14.924	4	13 32 52.41	1.8472	11 27 11.4	13.423
5	12 7 9.42	1.8273	S. 0 14 29.8	14.911	5	13 34 43.30	1.8492	11 40 35.3	13.373
6	12 8 59.01	1.8259	0 29 24.1	14.898	6	13 36 34.31	1.8514	11 53 56.1	13.321
7	12 10 48.53	1.8246	0 44 17.5	14.884	7	13 38 25.46	1.8536	12 7 13.8	13.268
8	12 12 37.97	1.8234	0 59 10.1	14.869	8	13 40 16.74	1.8558	12 20 28.3	13.216
9	12 14 27.34	1.8223	1 14 1.8	14.853	9	13 42 8.15	1.8581	12 33 30.7	13.163
10	12 16 16.65	1.8214	1 28 52.5	14.836	10	13 43 59.71	1.8605	12 46 47.8	13.108
11	12 18 5.91	1.8205	1 43 42.1	14.819	11	13 45 51.41	1.8629	12 59 52.6	13.052
12	12 19 55.11	1.8197	1 58 30.7	14.801	12	13 47 43.25	1.8654	13 12 54.0	12.996
13	12 21 44.27	1.8189	2 13 18.2	14.782	13	13 49 35.25	1.8679	13 25 52.1	12.939
14	12 23 33.38	1.8182	2 28 4.5	14.762	14	13 51 27.40	1.8704	13 38 46.7	12.881
15	12 25 22.45	1.8176	2 42 49.6	14.741	15	13 53 19.70	1.8731	13 51 37.8	12.823
16	12 27 11.49	1.8171	2 57 33.4	14.719	16	13 55 12.17	1.8758	14 4 25.4	12.763
17	12 29 0.50	1.8166	3 12 15.9	14.697	17	13 57 4.80	1.8786	14 17 9.3	12.702
18	12 30 49.48	1.8163	3 26 57.1	14.675	18	13 58 57.60	1.8814	14 29 49.6	12.641
19	12 32 38.45	1.8160	3 41 36.9	14.651	19	14 0 50.57	1.8843	14 42 26.2	12.579
20	12 34 27.40	1.8157	3 56 15.2	14.626	20	14 2 43.71	1.8872	14 54 59.1	12.517
21	12 36 16.34	1.8156	4 10 52.0	14.601	21	14 4 37.03	1.8901	15 7 28.2	12.453
22	12 38 5.27	1.8156	4 25 27.3	14.574	22	14 6 30.52	1.8931	15 19 53.4	12.388
23	12 39 54.21	1.8157	4 40 0.9	14.547	23	14 8 24.20	1.8961	15 32 14.7	12.323
24	12 41 43.15	1.8158	S. 4 54 32.9	14.519	24	14 10 18.06	1.8992	S. 15 44 32.1	12.257

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 25.					SATURDAY 27.				
0	14 10 18.06	1.9099	S. 15 44 32.1	12.257	0	15 45 40.46	2.0689	S. 24 0 30.8	8.082
1	14 12 12.10	1.9094	15 56 45.5	12.190	1	15 47 45.51	2.0682	24 8 32.5	7.974
2	14 14 6.34	1.9056	16 8 54.9	12.122	2	15 49 50.80	2.0601	24 16 27.7	7.866
3	14 16 0.77	1.9088	16 21 0.1	12.053	3	15 51 56.32	2.0640	24 24 16.4	7.757
4	14 17 55.40	1.9191	16 33 1.2	11.983	4	15 54 2.08	2.0680	24 31 58.5	7.647
5	14 19 50.22	1.9154	16 44 58.1	11.913	5	15 56 8.08	2.1090	24 39 34.0	7.536
6	14 21 45.24	1.9187	16 56 50.8	11.843	6	15 58 14.32	2.1059	24 47 2.8	7.424
7	14 23 40.46	1.9291	17 8 30.2	11.770	7	16 0 20.79	2.1099	24 54 24.9	7.312
8	14 25 35.89	1.9256	17 20 23.2	11.697	8	16 2 27.49	2.1137	25 1 40.2	7.199
9	14 27 31.53	1.9291	17 32 2.9	11.624	9	16 4 34.43	2.1175	25 8 48.7	7.085
10	14 29 27.38	1.9326	17 43 38.1	11.549	10	16 6 41.59	2.1213	25 15 50.4	6.971
11	14 31 23.44	1.9361	17 55 8.8	11.473	11	16 8 48.98	2.1251	25 22 45.2	6.855
12	14 33 19.71	1.9397	18 6 34.9	11.397	12	16 10 56.60	2.1288	25 29 33.0	6.739
13	14 35 16.20	1.9433	18 17 56.4	11.320	13	16 13 4.44	2.1325	25 36 13.9	6.622
14	14 37 12.91	1.9469	18 29 13.3	11.242	14	16 15 12.50	2.1362	25 42 47.7	6.504
15	14 39 9.83	1.9506	18 40 25.5	11.163	15	16 17 20.78	2.1398	25 49 14.4	6.386
16	14 41 6.98	1.9543	18 51 32.9	11.083	16	16 19 29.28	2.1434	25 55 34.0	6.267
17	14 43 4.35	1.9581	19 2 35.5	11.003	17	16 21 37.99	2.1470	26 1 46.4	6.148
18	14 45 1.95	1.9619	19 13 33.3	10.922	18	16 23 46.92	2.1505	26 7 51.7	6.027
19	14 46 59.78	1.9657	19 24 26.1	10.839	19	16 25 56.05	2.1539	26 13 49.7	5.906
20	14 48 57.84	1.9695	19 35 13.9	10.756	20	16 28 5.39	2.1574	26 19 40.4	5.785
21	14 50 56.12	1.9733	19 45 56.8	10.673	21	16 30 14.94	2.1608	26 25 23.9	5.663
22	14 52 54.63	1.9772	19 56 34.6	10.588	22	16 32 24.69	2.1641	26 31 0.0	5.540
23	14 54 53.38	1.9812	S. 20 7 7.3	10.502	23	16 34 34.64	2.1674	S. 26 36 28.7	5.416
FRIDAY 26.					SUNDAY 28.				
0	14 56 52.37	1.9851	S. 20 17 34.8	10.415	0	16 36 44.78	2.1707	S. 26 41 49.9	5.292
1	14 58 51.59	1.9890	20 27 57.1	10.328	1	16 38 55.12	2.1738	26 47 3.7	5.167
2	15 0 51.05	1.9929	20 38 14.1	10.239	2	16 41 5.64	2.1769	26 52 9.9	5.041
3	15 2 50.74	1.9969	20 48 25.8	10.150	3	16 43 16.35	2.1800	26 57 8.6	4.915
4	15 4 50.67	2.0009	20 58 32.1	10.060	4	16 45 27.24	2.1830	27 1 59.7	4.789
5	15 6 50.85	2.0050	21 8 33.0	9.969	5	16 47 38.31	2.1860	27 6 43.2	4.662
6	15 8 51.27	2.0090	21 18 28.4	9.878	6	16 49 49.56	2.1889	27 11 19.1	4.534
7	15 10 51.93	2.0130	21 28 18.3	9.785	7	16 52 0.98	2.1918	27 15 47.3	4.405
8	15 12 52.83	2.0170	21 38 2.6	9.691	8	16 54 12.57	2.1945	27 20 7.7	4.276
9	15 14 53.97	2.0211	21 47 41.2	9.597	9	16 56 24.32	2.1973	27 24 20.4	4.147
10	15 16 55.36	2.0252	21 57 14.2	9.503	10	16 58 36.23	2.1998	27 28 25.3	4.017
11	15 18 56.99	2.0293	22 6 41.4	9.408	11	17 0 48.30	2.2024	27 32 22.4	3.887
12	15 20 58.87	2.0333	22 16 2.9	9.309	12	17 3 0.52	2.2049	27 36 11.7	3.756
13	15 23 0.99	2.0374	22 25 18.5	9.211	13	17 5 12.89	2.2074	27 39 53.1	3.624
14	15 25 3.36	2.0415	22 34 28.2	9.113	14	17 7 25.40	2.2098	27 43 26.6	3.492
15	15 27 5.97	2.0456	22 43 32.0	9.013	15	17 9 38.06	2.2121	27 46 52.2	3.360
16	15 29 8.83	2.0497	22 52 29.8	8.913	16	17 11 50.85	2.2143	27 50 9.8	3.228
17	15 31 11.93	2.0537	23 1 21.6	8.813	17	17 14 3.77	2.2164	27 53 19.5	3.095
18	15 33 15.27	2.0577	23 10 7.3	8.711	18	17 16 16.82	2.2185	27 56 21.2	2.962
19	15 35 18.86	2.0618	23 18 46.9	8.608	19	17 18 29.99	2.2205	27 59 14.9	2.828
20	15 37 22.69	2.0659	23 27 20.2	8.504	20	17 20 43.28	2.2224	28 2 0.5	2.693
21	15 39 26.77	2.0700	23 35 47.3	8.400	21	17 22 56.68	2.2243	28 4 38.0	2.558
22	15 41 31.09	2.0740	23 44 8.2	8.295	22	17 25 10.19	2.2260	28 7 7.4	2.423
23	15 43 35.65	2.0781	23 52 22.7	8.189	23	17 27 23.80	2.2277	28 9 28.7	2.286
24	15 45 40.46	2.0822	S. 24 0 30.8	8.082	24	17 29 37.51	2.2293	S. 28 11 41.9	2.152

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
MONDAY 29.					TUESDAY 30.				
0	17 ^h 29 ^m 37.51 ^s	2.9393	S. 28° 11' 41.9"	2.159	0	18 ^h 23 ^m 23.35 ^s	2.9409	S. 28° 23' 46.7"	1.156
1	17 31 51.32	2.9396	28 13 46.9	2.016	1	18 25 37.91	2.9404	28 22 33.2	1.994
2	17 34 5.21	2.9393	28 15 43.8	1.880	2	18 27 52.43	2.9418	28 21 11.4	1.432
3	17 36 19.19	2.9396	28 17 32.5	1.743	3	18 30 6.92	2.9411	28 19 41.4	1.569
4	17 38 33.25	2.9399	28 19 13.0	1.607	4	18 32 21.37	2.9403	28 18 3.1	1.707
5	17 40 47.38	2.9392	28 20 45.3	1.470	5	18 34 35.76	2.9394	28 16 16.5	1.845
6	17 43 1.59	2.9373	28 22 9.4	1.333	6	18 36 50.10	2.9385	28 14 21.7	1.983
7	17 45 15.86	2.9363	28 23 25.3	1.196	7	18 39 4.38	2.9375	28 12 18.6	2.120
8	17 47 30.19	2.9383	28 24 32.9	1.058	8	18 41 18.60	2.9365	28 10 7.3	2.258
9	17 49 44.57	2.9401	28 25 32.2	0.920	9	18 43 32.76	2.9353	28 7 47.7	2.395
10	17 51 59.00	2.9409	28 26 23.2	0.782	10	18 45 46.84	2.9341	28 5 19.9	2.531
11	17 54 13.47	2.9416	28 27 6.0	0.644	11	18 48 0.85	2.9328	28 2 44.0	2.667
12	17 56 27.99	2.9423	28 27 40.5	0.506	12	18 50 14.78	2.9314	27 59 59.9	2.803
13	17 58 42.54	2.9430	28 28 6.7	0.368	13	18 52 28.62	2.9299	27 57 7.6	2.939
14	18 0 57.12	2.9439	28 28 24.6	0.229	14	18 54 42.37	2.9284	27 54 7.2	3.075
15	18 3 11.72	2.9435	28 28 34.2	-0.091	15	18 56 56.03	2.9268	27 50 58.6	3.211
16	18 5 26.34	2.9438	28 28 35.5	+0.048	16	18 59 9.59	2.9252	27 47 41.9	3.346
17	18 7 40.97	2.9439	28 28 28.5	0.188	17	19 1 23.05	2.9234	27 44 17.1	3.481
18	18 9 55.61	2.9440	28 28 13.2	0.324	18	19 3 36.40	2.9216	27 40 44.2	3.615
19	18 12 10.25	2.9440	28 27 49.6	0.463	19	19 5 49.64	2.9197	27 37 3.3	3.748
20	18 14 24.89	2.9440	28 27 17.6	0.602	20	19 8 2.76	2.9178	27 33 14.4	3.882
21	18 16 39.53	2.9438	28 26 37.3	0.740	21	19 10 15.77	2.9158	27 29 17.4	4.016
22	18 18 54.15	2.9436	28 25 48.8	0.879	22	19 12 28.65	2.9137	27 25 12.5	4.149
23	18 21 8.76	2.9433	28 24 51.9	1.018	23	19 14 41.41	2.9116	27 20 59.6	4.282
24	18 23 23.35	2.9429	S. 28 23 46.7	1.156	24	19 16 54.04	2.9093	S. 27 16 38.7	4.414

PHASES OF THE MOON.

☾ First Quarter,	d	h	m
○ Full Moon,	12	21	30.1
☾ Last Quarter,	19	12	37.4
● New Moon,	27	11	44.3

☾ Apogee,	d	h
☾ Perigee,	13	15.4
☾ Apogee,	28	9.9

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Dif.	IIIh.	P. L. of Dif.	VIh.	P. L. of Dif.	IXh.	P. L. of Dif.	
1	SUN W.	36° 8' 59"	3478	37° 29' 48"	3478	38° 50' 37"	3478	40° 11' 26"	3479	
	Mars E.	51 7 29	3346	49 44 11	3348	48 20 55	3349	46 57 40	3350	
	α Aquilæ E.	55 20 13	4464	54 15 49	4519	53 12 14	4577	52 9 29	4639	
	Saturn E.	64 53 37	3092	63 25 18	3094	61 57 1	3095	60 28 45	3095	
	Fomalhaut E.	76 41 29	3315	75 17 35	3319	73 53 46	3323	72 30 1	3327	
	α Pegasi E.	98 21 58	3379	96 59 18	3379	95 36 37	3379	94 13 56	3378	
2	SUN W.	46 55 33	3474	48 16 26	3479	49 37 21	3470	50 58 19	3467	
	Mars E.	40 1 36	3351	38 38 23	3349	37 15 8	3348	35 51 52	3346	
	α Aquilæ E.	47 10 23	5036	46 13 56	5137	45 18 47	5948	44 25 1	5368	
	Saturn E.	53 7 29	3094	51 39 12	3093	50 10 54	3091	48 42 34	3090	
	Fomalhaut E.	65 32 36	3351	64 9 24	3357	62 46 18	3357	61 23 19	3368	
	α Pegasi E.	87 20 20	3375	85 57 35	3374	84 34 49	3374	83 12 3	3373	
3	SUN W.	57 44 0	3448	59 5 22	3444	60 26 49	3438	61 48 23	3431	
	Mars E.	28 55 0	3335	27 31 29	3332	26 7 54	3329	24 44 16	3325	
	Saturn E.	41 20 13	3075	39 51 33	3072	38 22 49	3068	36 54 0	3063	
	Fomalhaut E.	54 30 13	3405	53 8 2	3414	51 46 1	3423	50 24 11	3435	
	α Pegasi E.	76 18 4	3372	74 55 16	3372	73 32 27	3372	72 9 38	3372	
	α Arietis E.	118 6 16	3107	116 38 15	3101	115 10 6	3094	113 41 49	3088	
4	SUN W.	68 38 4	3394	70 0 27	3386	71 22 59	3378	72 45 41	3368	
	Saturn E.	29 28 22	3036	27 58 54	3030	26 29 18	3023	24 59 34	3018	
	Fomalhaut E.	43 38 40	3513	42 18 30	3536	40 58 44	3559	39 39 25	3587	
	α Pegasi E.	65 15 37	3374	63 52 51	3378	62 30 7	3378	61 7 25	3380	
	α Arietis E.	106 18 22	3051	104 49 12	3043	103 19 52	3034	101 50 21	3024	
	5	SUN W.	79 42 10	3313	81 6 7	3300	82 30 19	3287	83 54 46	3274
Fomalhaut E.		33 12 9	3807	31 57 14	3874	30 43 28	3959	29 31 1	4045	
α Pegasi E.		54 14 52	3404	52 52 40	3419	51 30 37	3421	50 8 44	3431	
α Arietis E.		94 19 42	2972	92 48 54	2961	91 17 52	2948	89 46 34	2936	
6		SUN W.	91 1 4	3201	92 27 12	3184	93 53 40	3168	95 20 28	3151
		α Pegasi E.	43 23 15	3594	42 3 17	3553	40 43 51	3587	39 25 2	3635
	α Arietis E.	82 6 2	2969	80 33 3	2955	78 59 46	2940	77 26 10	2925	
	Aldebaran E.	112 44 17	2909	111 12 9	2892	109 39 40	2875	108 6 49	2859	
	7	SUN W.	102 39 36	3063	104 8 31	3044	105 37 49	3025	107 7 31	3005
		α Aquilæ W.	41 53 53	5366	42 47 25	5089	43 43 11	4927	44 41 4	4777
Mars W.		17 35 56	2982	19 6 31	2959	20 37 35	2936	22 9 8	2913	
α Arietis E.		69 33 11	2746	67 57 32	2729	66 21 31	2713	64 45 9	2696	
Aldebaran E.		100 17 5	2771	98 41 59	2753	97 6 30	2735	95 30 37	2717	
8		SUN W.	114 42 5	2907	116 14 15	2887	117 46 51	2868	119 19 53	2846
	α Aquilæ W.	49 59 2	4183	51 7 44	4087	52 17 58	3999	53 29 39	3916	
	Mars W.	29 54 0	2905	31 28 22	2783	33 3 12	2762	34 38 30	2741	
	Saturn W.	20 49 35	2986	22 28 35	2974	24 8 5	2959	25 48 6	2930	
	α Arietis E.	56 37 39	2612	54 59 0	2596	53 19 50	2579	51 40 35	2563	
	Aldebaran E.	87 25 3	2624	85 46 41	2605	84 7 53	2587	82 28 40	2568	
9	SUN W.	127 11 37	2744	128 47 18	2725	130 23 25	2705	131 59 58	2686	
	α Aquilæ W.	59 47 40	3569	61 6 48	3511	62 27 0	3456	63 48 13	3405	
	Mars W.	42 41 57	2636	44 20 3	2615	45 58 37	2596	47 37 38	2575	
	Saturn W.	34 15 40	2425	35 58 39	2405	37 42 6	2388	39 26 1	2366	
	Fomalhaut W.	29 5 57	3476	30 26 48	3350	31 50 2	3241	33 15 23	3143	

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
1	SUN W.	41 32 14	3478	42 53 3	3478	44 13 52	3477	45 34 42	3476
	Mars E.	45 34 26	3351	44 11 13	3351	42 48 1	3351	41 24 49	3351
	α Aquilæ E.	51 7 38	4707	50 6 44	4780	49 6 51	4859	48 8 3	4943
	Saturn E.	59 0 29	3096	57 32 14	3096	56 4 0	3096	54 35 45	3095
	Fomalhaut E.	71 6 21	3339	69 42 46	3337	68 19 17	3342	66 55 54	3346
α Pegasi E.	92 51 14	3377	91 28 31	3377	90 5 48	3376	88 43 4	3376	
2	SUN W.	52 19 20	3464	53 40 24	3469	55 1 31	3457	56 22 43	3453
	Mars E.	34 28 34	3345	33 5 14	3343	31 41 52	3340	30 18 27	3338
	α Aquilæ E.	43 32 43	5500	42 41 59	5643	41 52 54	5603	41 5 35	5981
	Saturn E.	47 14 12	3087	45 45 47	3085	44 17 19	3083	42 48 48	3079
	Fomalhaut E.	60 0 26	3374	58 37 40	3381	57 15 2	3389	55 52 33	3397
α Pegasi E.	81 49 16	3373	80 26 29	3379	79 3 41	3379	77 40 53	3379	
3	SUN W.	63 10 4	3485	64 31 52	3419	65 53 47	3411	67 15 51	3403
	Mars E.	23 20 34	3393	21 56 49	3319	20 33 0	3317	19 9 8	3314
	Saturn E.	35 25 5	3058	33 56 4	3053	32 26 57	3047	30 57 43	3042
	Fomalhaut E.	49 2 34	3447	47 41 11	3461	46 20 3	3476	44 59 12	3483
	α Pegasi E.	70 46 49	3379	69 24 0	3372	68 1 12	3379	66 38 24	3373
α Arietis E.	112 13 25	3082	110 44 53	3074	109 16 12	3067	107 47 22	3059	
4	SUN W.	74 8 34	3358	75 31 39	3346	76 54 57	3336	78 18 27	3325
	Saturn E.	23 29 43	3012	21 59 45	3006	20 29 40	3001	18 59 28	2995
	Fomalhaut E.	38 20 37	3690	37 2 24	3657	35 44 51	3700	34 28 4	3749
	α Pegasi E.	59 44 46	3363	58 22 10	3386	56 59 38	3392	55 37 12	3397
	α Arietis E.	100 20 38	3014	98 50 43	3005	97 20 36	2994	95 50 16	2983
5	SUN W.	85 19 28	3260	86 44 26	3246	88 9 41	3231	89 35 14	3216
	Fomalhaut E.	28 20 6	4154	27 10 56	4284	26 3 49	4440	24 50 4	4694
	α Pegasi E.	48 47 3	3445	47 25 37	3461	46 4 29	3478	44 43 40	3490
	α Arietis E.	88 15 1	2994	86 43 12	2910	85 11 6	2897	83 38 43	2883
6	SUN W.	96 47 36	3134	98 15 4	3117	99 42 53	3100	101 11 3	3081
	α Pegasi E.	38 6 55	3671	36 49 37	3796	35 33 17	3789	34 18 3	3660
	α Arietis E.	75 52 15	2810	74 18 0	2794	72 43 24	2779	71 8 28	2763
	Aldebaran E.	106 33 37	2849	105 0 3	2894	103 26 6	2807	101 51 47	2789
7	SUN W.	108 37 37	2986	110 8 7	2967	111 39 1	2947	113 10 20	2927
	α Aquilæ W.	45 40 59	4840	46 42 49	4519	47 46 30	4395	48 51 56	4285
	Mars W.	23 41 10	2691	25 13 40	2669	26 46 39	2647	28 20 6	2626
	α Arietis E.	63 8 24	2680	61 31 17	2663	59 53 47	2646	58 15 55	2629
	Aldebaran E.	93 54 20	2698	92 17 38	2680	90 40 31	2662	89 3 0	2643
8	SUN W.	120 53 21	2696	122 27 15	2605	124 1 36	2785	125 36 23	2765
	α Aquilæ W.	54 42 43	3837	55 57 7	3765	57 12 46	3695	58 29 38	3630
	Mars W.	36 14 15	2790	37 50 28	2699	39 27 9	2678	41 4 19	2657
	Saturn W.	27 28 37	2509	29 9 38	2487	30 51 9	2466	32 33 10	2445
	α Arietis E.	50 0 49	2547	48 20 41	2531	46 40 11	2515	44 59 19	2501
	Aldebaran E.	80 49 1	2549	79 8 56	2531	77 28 26	2519	75 47 30	2494
9	SUN W.	133 36 57	2686	135 14 22	2647	136 52 13	2629	138 30 29	2610
	α Aquilæ W.	65 10 24	3357	66 33 30	3311	67 57 29	3267	69 22 19	3226
	Mars W.	49 17 7	2558	50 57 3	2535	52 37 27	2515	54 18 19	2496
	Saturn W.	41 10 25	2346	42 55 17	2327	44 40 37	2309	46 26 24	2290
	Fomalhaut W.	34 42 40	3057	36 11 42	2980	37 42 20	2911	39 14 25	2847

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
9	α Arietis E.	43 18 7	9487	41 36 35	9474	39 54 45	9461	38 12 37	9450
	Aldebaran E.	74 6 9	9477	72 24 23	9458	70 42 11	9441	68 59 35	9424
	Pollux E.	117 32 52	9406	115 49 26	9387	114 5 33	9368	112 21 13	9349
10	α Aquilæ W.	70 47 57	3188	72 14 20	3159	73 41 27	3118	75 9 15	3088
	Mars W.	55 59 38	2477	57 41 24	2459	59 23 35	2441	61 6 11	2424
	Saturn W.	48 12 38	2273	49 59 19	2254	51 46 26	2237	53 33 59	2219
	Fomalhaut W.	40 47 52	2790	42 22 33	2736	43 58 25	2688	45 35 21	2643
	α Pegasi W.	25 1 14	4717	26 1 59	4388	27 7 31	4113	28 17 20	3882
	Aldebaran E.	60 20 38	2345	58 35 44	2331	56 50 30	2317	55 4 56	2305
Pollux E.	103 32 43	2258	101 45 41	2240	99 58 13	2223	98 10 20	2206	
11	α Aquilæ W.	82 37 10	2258	84 8 16	2239	85 39 46	2220	87 11 39	2205
	Mars W.	69 45 20	2242	71 30 19	2236	73 15 40	2212	75 1 22	2200
	Saturn W.	62 37 55	2141	64 27 52	2126	66 18 11	2113	68 8 50	2100
	Fomalhaut W.	53 53 50	2465	55 35 53	2436	57 18 37	2409	59 1 59	2384
	α Pegasi W.	34 56 30	3129	36 23 54	3030	37 53 29	2943	39 24 53	2866
	Aldebaran E.	46 13 3	2259	44 26 3	2253	42 38 55	2251	40 51 43	2249
Pollux E.	89 4 46	2128	87 14 30	2115	85 23 53	2101	83 32 55	2088	
12	α Aquilæ W.	94 55 7	2259	96 28 19	2255	98 1 35	2255	99 34 52	2257
	Mars W.	83 54 29	2241	85 41 56	2231	87 29 37	2220	89 17 31	2215
	Saturn W.	77 26 45	2044	79 19 10	2035	81 11 49	2026	83 4 40	2021
	Fomalhaut W.	67 46 51	2286	69 33 11	2271	71 19 53	2258	73 6 55	2245
	α Pegasi W.	47 23 36	2587	49 2 49	2547	50 42 57	2512	52 23 54	2479
	Aldebaran E.	31 56 36	2289	30 10 21	2211	28 24 38	2240	26 39 37	2279
	Pollux E.	74 13 28	2033	72 20 45	2025	70 27 49	2016	68 34 40	2008
Regulus E.	110 57 34	2037	109 4 58	2028	107 12 7	2019	105 19 3	2012	
13	α Aquilæ W.	107 19 34	2205	108 51 46	2224	110 23 35	2242	111 54 56	2270
	Mars W.	98 19 31	2128	100 8 17	2125	101 57 7	2122	103 46 1	2121
	Saturn W.	92 31 28	1923	94 25 13	1921	96 19 2	1929	98 12 53	1928
	Fomalhaut W.	82 6 2	2204	83 54 24	2199	85 42 53	2195	87 31 28	2193
	α Pegasi W.	60 58 37	2262	62 43 7	2246	64 27 59	2233	66 13 10	2222
	Pollux E.	59 6 21	1923	57 12 20	1920	55 18 14	1922	53 24 5	1927
	Regulus E.	95 51 10	1925	93 57 12	1922	92 3 10	1921	90 9 5	1922
14	Saturn W.	107 42 14	1924	109 35 58	1927	111 29 37	2001	113 23 9	2006
	Fomalhaut W.	96 34 27	2203	98 22 50	2208	100 11 5	2215	101 59 10	2224
	α Pegasi W.	75 2 31	2289	76 48 46	2287	78 35 4	2288	80 21 21	2289
	α Arietis W.	31 44 11	2109	33 34 56	2101	35 25 54	2094	37 17 2	2089
	Pollux E.	43 53 18	1923	41 59 17	1922	40 5 21	1921	38 11 32	1926
	Regulus E.	80 38 32	1924	78 44 33	1927	76 50 39	1922	74 56 52	1927
15	α Pegasi W.	89 11 36	2217	90 57 11	2226	92 42 33	2237	94 27 39	2248
	α Arietis W.	46 33 23	2026	48 24 29	2100	50 15 28	2107	52 6 17	2113
	Aldebaran W.	17 55 33	2789	19 30 41	2852	21 8 25	2926	22 48 7	2900
	Pollux E.	28 45 0	2025	26 52 20	2045	24 59 56	2057	23 7 50	2068
	Regulus E.	65 30 17	2032	63 37 33	2041	61 45 3	2052	59 52 49	2062
16	α Pegasi W.	103 8 25	2424	104 51 26	2443	106 34 0	2462	108 16 6	2483
	α Arietis W.	61 17 15	2162	63 6 40	2174	64 55 47	2186	66 44 36	2199
	Aldebaran W.	31 23 5	2255	33 7 45	2245	34 52 39	2240	36 37 40	2237
	Regulus E.	50 36 1	2122	48 45 37	2137	46 55 34	2151	45 5 53	2167
	Spica E.	104 35 3	2115	102 44 26	2128	100 54 10	2141	99 4 14	2156

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XV ^h .	P. L. of Diff.	XVIII ^h .	P. L. of Diff.	XXI ^h .	P. L. of Diff.
9	α Arietis E.	36 30 13	9440	34 47 35	9439	33 4 46	9496	31 21 48	9499
	Aldebaran E.	67 16 34	9407	65 33 9	9391	63 49 21	9375	62 5 11	9359
	Pollux E.	110 36 25	9331	108 51 10	9319	107 5 28	9294	105 19 19	9275
10	α Aquilæ W.	76 37 42	3056	78 6 45	3029	79 36 22	3003	81 6 31	2979
	Mars W.	62 49 12	9406	64 32 38	9389	66 16 29	9373	68 0 43	9357
	Saturn W.	55 21 58	9309	57 10 22	9196	58 59 10	9171	60 48 21	9156
	Fomalhaut W.	47 13 18	9801	48 52 11	9564	50 31 56	9598	52 12 30	9495
	α Pegasi W.	29 30 58	3685	30 48 1	3515	32 8 8	3369	33 31 0	3943
	Aldebaran E.	53 19 4	2994	51 32 55	2983	49 46 31	2974	47 59 53	2966
	Pollux E.	96 22 1	9189	94 33 17	9173	92 44 9	9159	90 54 39	9143
11	α Aquilæ W.	88 43 51	2991	90 16 21	2980	91 49 5	2971	93 22 1	2963
	Mars W.	76 47 23	2986	78 33 43	2974	80 20 21	2969	82 7 17	2951
	Saturn W.	69 59 49	9088	71 51 7	9076	73 42 43	9065	75 34 36	9055
	Fomalhaut W.	60 45 56	2369	62 30 26	2340	64 15 27	2331	66 0 56	2303
	α Pegasi W.	40 57 55	9798	42 32 26	9736	44 8 18	9681	45 45 24	9632
	Aldebaran E.	39 4 29	2951	37 17 17	2955	35 30 11	2969	33 43 15	2973
	Pollux E.	81 41 38	9076	79 50 2	9064	77 58 8	9053	76 5 56	9043
12	α Aquilæ W.	101 8 6	2961	102 41 15	2958	104 14 15	2978	105 47 2	2990
	Mars W.	91 5 36	2908	92 53 52	2909	94 42 17	2196	96 30 50	2191
	Saturn W.	84 57 42	9014	86 50 55	9007	88 44 18	9009	90 37 49	1907
	Fomalhaut W.	74 54 16	2934	76 41 53	2925	78 29 44	2916	80 17 48	2909
	α Pegasi W.	54 5 37	9450	55 48 1	9424	57 31 1	9401	59 14 34	9390
	Aldebaran E.	24 55 32	9489	23 12 38	9494	21 31 17	9509	19 51 57	2906
	Pollux E.	66 41 19	9001	64 47 47	1996	62 54 6	1991	61 0 17	1986
	Regulus E.	103 25 48	2005	101 32 22	1989	99 38 46	1994	97 45 2	1989
	13	α Aquilæ W.	113 25 46	2999	114 56 0	3039	116 25 33	3069	117 54 21	3110
Mars W.		105 34 57	9180	107 23 54	9181	109 12 50	9182	111 1 44	2184
Saturn W.		100 6 46	1987	102 0 40	1987	103 54 34	1989	105 48 26	1991
Fomalhaut W.		89 20 6	2193	91 8 44	2193	92 57 22	2195	94 45 57	2198
α Pegasi W.		67 58 38	2311	69 44 21	2303	71 30 16	2297	73 16 20	2292
Pollux E.		51 29 54	1977	49 35 43	1977	47 41 32	1978	45 47 23	1981
Regulus E.		88 14 58	1979	86 20 50	1979	84 26 42	1980	82 32 36	1981
14		Saturn W.	115 16 34	2019	117 9 49	2019	119 2 54	2026	120 55 48	2034
	Fomalhaut W.	103 47 2	2233	105 34 40	2244	107 22 2	2256	109 9 6	2269
	α Pegasi W.	82 7 36	2292	83 53 47	2296	85 39 52	2302	87 25 49	2309
	α Arietis W.	39 8 17	2068	40 59 35	2067	42 50 54	2066	44 42 11	2092
	Pollux E.	36 17 52	2003	34 24 22	2009	32 31 2	2017	30 37 54	2026
	Regulus E.	73 3 13	2003	71 9 43	2009	69 16 23	2016	67 23 14	2024
15	α Pegasi W.	96 12 29	2361	97 57 0	2375	99 41 10	2390	101 24 59	2406
	α Arietis W.	53 56 56	2122	55 47 22	2130	57 37 35	2140	59 27 33	2151
	Aldebaran W.	24 20 20	9459	26 11 41	9415	27 54 54	9389	29 38 45	2368
	Pollux E.	21 16 2	2062	19 24 35	2097	17 33 31	2113	15 42 51	2130
	Regulus E.	58 0 52	2073	56 9 12	2085	54 17 49	2097	52 26 45	2110
16	α Pegasi W.	109 57 43	2505	111 38 49	2529	113 19 22	2553	114 59 21	2579
	α Arietis W.	68 33 5	2212	70 21 14	2226	72 9 3	2241	73 56 30	2256
	Aldebaran W.	38 22 45	2338	40 7 49	2341	41 52 49	2346	43 37 42	2351
	Regulus E.	43 16 35	2181	41 27 39	2197	39 39 7	2213	37 50 59	2229
	Spica E.	97 14 40	9170	95 25 28	9185	93 36 38	9200	91 48 11	2216

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
16	SUN E.	135° 52' 34"	2439	134° 9' 55"	2453	132° 27' 35"	2466	130° 45' 34"	2481
17	α Arietis W.	75 43 35	2270	77 30 18	2285	79 16 39	2301	81 2 37	2317
	Aldebaran W.	45 22 27	2359	47 7 1	2368	48 51 22	2378	50 35 29	2388
	Regulus E.	36 3 15	2246	34 15 56	2264	32 29 3	2282	30 42 37	2300
	Spica E.	90 0 7	2232	88 12 27	2247	86 25 10	2263	84 38 16	2279
	SUN E.	122 20 48	2560	120 40 58	2577	119 1 31	2593	117 22 27	2611
18	α Arietis W.	89 46 34	2400	91 30 9	2417	93 13 20	2433	94 56 7	2450
	Aldebaran W.	59 11 56	2450	60 54 19	2465	62 36 22	2479	64 18 5	2494
	Pollux W.	15 4 30	2387	16 48 23	2401	18 31 57	2414	20 15 12	2429
	Spica E.	75 49 51	2363	74 5 23	2380	72 21 20	2397	70 37 41	2413
	SUN E.	109 13 6	2700	107 36 26	2718	106 0 10	2736	104 24 18	2754
19	α Arietis W.	103 24 2	2535	105 4 26	2553	106 44 26	2569	108 24 3	2586
	Aldebaran W.	72 41 31	2568	74 21 10	2583	76 0 28	2599	77 39 25	2613
	Pollux W.	28 46 13	2504	30 27 21	2520	32 8 7	2535	33 48 31	2551
	Spica E.	62 5 20	2427	60 24 2	2513	58 43 7	2530	57 2 35	2545
	SUN E.	96 30 55	2644	94 57 24	2662	93 24 16	2680	91 51 31	2697
20	Aldebaran W.	85 49 5	2688	87 26 1	2703	89 2 37	2717	90 38 54	2732
	Pollux W.	42 5 16	2626	43 43 35	2640	45 21 35	2655	46 59 16	2669
	Spica E.	48 45 19	2623	47 6 55	2638	45 28 51	2652	43 51 6	2666
	SUN E.	84 13 12	2661	82 42 36	2697	81 12 20	2713	79 42 23	2728
21	Aldebaran W.	98 35 38	2801	100 10 4	2815	101 44 13	2828	103 18 5	2841
	Pollux W.	55 2 59	2737	56 38 50	2749	58 14 25	2761	59 49 44	2773
	Regulus W.	18 27 48	2779	20 2 43	2787	21 37 28	2795	23 12 3	2802
	Spica E.	35 47 7	2735	34 11 13	2747	32 35 36	2760	31 0 15	2773
	SUN E.	72 17 25	3104	70 49 20	3118	69 21 32	3132	67 54 1	3146
22	Aldebaran W.	111 3 15	2905	112 35 28	2916	114 7 26	2928	115 39 9	2940
	Pollux W.	67 42 27	2830	69 16 16	2840	70 49 52	2851	72 23 14	2860
	Regulus W.	31 2 17	2846	32 35 45	2855	34 9 2	2864	35 42 7	2873
	SUN E.	60 40 25	3209	59 14 27	3221	57 48 43	3233	56 23 13	3245
23	Pollux W.	80 7 3	2905	81 39 15	2914	83 11 16	2922	84 43 7	2930
	Regulus W.	43 24 49	2914	44 56 50	2922	46 28 41	2929	48 0 23	2937
	SUN E.	49 19 0	3299	47 54 47	3308	46 30 45	3318	45 6 54	3328
24	Pollux W.	92 20 0	2965	93 50 57	2971	95 21 46	2977	96 52 27	2984
	Regulus W.	55 36 37	2970	57 7 27	2977	58 38 9	2982	60 8 44	2988
	SUN E.	38 10 29	3375	36 47 44	3385	35 25 10	3393	34 2 46	3402
29	SUN W.	17 5 7	3604	18 23 37	3585	19 42 28	3569	21 1 36	3555
	Saturn E.	57 14 21	3103	55 46 15	3102	54 18 8	3101	52 50 0	3101
	Mars E.	61 57 35	3349	60 34 20	3348	59 11 4	3348	57 47 48	3346
	Fomalhaut E.	68 29 42	3338	67 6 14	3344	65 42 53	3350	64 19 39	3356
α Pegasi E.	90 11 41	3363	88 48 42	3363	87 25 43	3363	86 2 44	3362	
30	SUN W.	27 40 19	3510	29 0 32	3504	30 20 52	3497	31 41 19	3491
	Saturn E.	45 29 2	3095	44 0 46	3092	42 32 27	3090	41 4 5	3088
	Mars E.	50 51 4	3338	49 27 36	3336	48 4 6	3334	46 40 34	3332
	Fomalhaut E.	57 25 21	3393	56 2 56	3402	54 40 42	3419	53 18 39	3423
	α Pegasi E.	79 7 50	3365	77 44 53	3365	76 21 57	3367	74 59 3	3369

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XV ^h .	P. L. of Diff.	XVIII ^h .	P. L. of Diff.	XXI ^h .	P. L. of Diff.
16	SUN E.	129° 3' 54"	2496	127° 23' 35"	2511	125° 41' 37"	2527	124° 1' 1"	2543
17	α Arietis W.	82 48 12	2333	84 33 23	2349	86 18 11	2366	88 2 35	2383
	Aldebaran W.	52 19 21	2400	54 2 56	2412	55 46 14	2424	57 29 14	2437
	Regulus E.	28 56 38	2319	27 11 6	2339	25 26 3	2359	23 41 29	2370
	Spica E.	82 51 46	2296	81 5 41	2313	79 20 0	2329	77 34 43	2346
SUN E.	115 43 47	2629	114 5 31	2646	112 27 38	2664	110 50 10	2682	
18	α Arietis W.	96 38 30	2467	98 20 29	2485	100 2 4	2502	101 43 15	2519
	Aldebaran W.	65 59 27	2508	67 40 29	2523	69 21 10	2538	71 1 31	2553
	Pollux W.	21 58 6	2443	23 40 39	2458	25 22 52	2473	27 4 43	2488
	Spica E.	68 54 25	2430	67 11 33	2447	65 29 5	2464	63 47 1	2480
SUN E.	102 48 50	2772	101 13 46	2791	99 39 6	2808	98 4 49	2826	
19	α Arietis W.	110 3 17	2603	111 42 8	2620	113 20 36	2636	114 58 42	2652
	Aldebaran W.	79 18 2	2628	80 56 19	2643	82 34 15	2659	84 11 50	2674
	Pollux W.	35 28 34	2564	37 8 16	2581	38 47 37	2596	40 26 37	2612
	Spica E.	55 22 25	2561	53 42 37	2577	52 3 10	2592	50 24 4	2607
SUN E.	90 19 8	2914	88 47 7	2931	87 15 27	2948	85 44 9	2965	
20	Aldebaran W.	92 14 52	2746	93 50 31	2760	95 25 52	2774	97 0 54	2788
	Pollux W.	48 36 37	2694	50 13 39	2697	51 50 23	2710	53 26 50	2723
	Spica E.	42 13 41	2681	40 36 35	2695	38 59 48	2708	37 23 19	2721
	SUN E.	78 12 45	3043	76 43 26	3060	75 14 27	3075	73 45 47	3090
21	Aldebaran W.	104 51 40	2853	106 24 59	2866	107 58 1	2880	109 30 46	2892
	Pollux W.	61 24 47	2785	62 59 34	2797	64 34 6	2808	66 8 24	2819
	Regulus W.	24 46 28	2811	26 20 42	2819	27 54 45	2828	29 28 37	2837
	Spica E.	29 25 11	2785	27 50 23	2796	26 15 50	2808	24 41 32	2818
SUN E.	66 26 47	3159	64 59 49	3172	63 33 6	3184	62 6 38	3197	
22	Aldebaran W.	117 10 37	2952	118 41 50	2965	120 12 47	2977	121 43 29	2988
	Pollux W.	73 56 24	2870	75 29 21	2880	77 2 6	2888	78 34 40	2897
	Regulus W.	37 15 1	2881	38 47 44	2890	40 20 16	2898	41 52 38	2906
	SUN E.	54 57 57	3256	53 32 54	3266	52 8 3	3277	50 43 25	3288
23	Pollux W.	86 14 48	2937	87 46 20	2945	89 17 42	2952	90 48 55	2958
	Regulus W.	49 31 55	2944	51 3 18	2950	52 34 33	2958	54 5 39	2964
	SUN E.	43 43 15	3338	42 19 47	3347	40 56 30	3357	39 33 24	3366
24	Pollux W.	98 23 0	2969	99 53 26	2994	101 23 46	3000	102 53 59	3005
	Regulus W.	61 39 12	2993	63 9 33	2999	64 39 47	3004	66 9 55	3009
	SUN E.	32 40 32	3412	31 18 29	3422	29 56 37	3431	28 34 56	3443
29	SUN W.	22 20 59	3545	23 40 34	3535	25 0 20	3526	26 20 15	3518
	Saturn E.	51 21 51	3100	49 53 41	3098	48 25 29	3097	46 57 16	3096
	Mars E.	56 24 30	3345	55 1 11	3345	53 37 51	3343	52 14 29	3340
	Fomalhaut E.	62 56 32	3369	61 33 32	3369	60 10 40	3376	58 47 56	3384
α Pegasi E.	84 39 44	3363	83 16 45	3363	81 53 46	3364	80 30 48	3364	
30	SUN W.	33 1 53	3485	34 22 34	3478	35 43 23	3471	37 4 19	3465
	Saturn E.	39 35 41	3086	38 7 14	3082	36 38 43	3080	35 10 9	3078
	Mars E.	45 16 59	3328	43 53 20	3325	42 29 38	3321	41 5 51	3318
	Fomalhaut E.	51 56 49	3436	50 35 13	3449	49 13 52	3463	47 52 47	3480
α Pegasi E.	73 36 11	3371	72 13 21	3372	70 50 33	3374	69 27 47	3377	

AT GREENWICH APPARENT NOON.

Day of the Week.	Day of the Month.	THE SUN'S						Sidereal Time of the Semi-diameter passing the Meridian.	Equation of Time, to be subtracted from		Diff. for 1 hour.				
		Apparent Right Ascension.		Diff. for 1 hour.	Apparent Declination.		Diff. for 1 hour.		Semi-diameter.	added to Apparent Time.					
		h	m		s	°						'	"		
Wed.	1	16	28	51.08	10.797	S. 21	48	17.8	-23.47	16	15.96	70.30	10	51.87	0.940
Thur.	2	16	33	10.61	10.826	21	57	28.5	22.41	16	16.11	70.38	10	28.96	0.966
Frid.	3	16	37	30.75	10.851	22	6	13.8	21.35	16	16.26	70.44	10	5.44	0.991
Sat.	4	16	41	51.48	10.875	22	14	33.3	20.27	16	16.41	70.54	9	41.34	1.015
Sun.	5	16	46	12.76	10.898	22	22	26.8	19.19	16	16.55	70.62	9	16.69	1.038
Mon.	6	16	50	34.57	10.920	22	29	54.1	18.09	16	16.69	70.69	8	51.51	1.060
Tues.	7	16	54	56.90	10.941	22	36	55.1	16.99	16	16.82	70.76	8	25.81	1.081
Wed.	8	16	59	19.71	10.960	22	43	29.5	15.87	16	16.95	70.83	7	59.63	1.100
Thur.	9	17	3	42.98	10.978	22	49	37.0	14.75	16	17.07	70.89	7	32.99	1.118
Frid.	10	17	8	6.67	10.995	22	55	17.5	13.62	16	17.19	70.95	7	5.93	1.135
Sat.	11	17	12	30.78	11.011	23	0	30.9	12.49	16	17.30	71.00	6	38.47	1.151
Sun.	12	17	16	55.24	11.026	23	5	17.0	11.35	16	17.40	71.05	6	10.64	1.166
Mon.	13	17	21	20.05	11.040	23	9	35.6	10.19	16	17.50	71.10	5	42.45	1.180
Tues.	14	17	25	45.19	11.053	23	13	25.6	9.04	16	17.59	71.14	5	13.94	1.193
Wed.	15	17	30	10.64	11.065	23	16	49.9	7.88	16	17.68	71.18	4	45.14	1.205
Thur.	16	17	34	36.36	11.076	23	19	45.3	6.72	16	17.76	71.21	4	16.07	1.216
Frid.	17	17	39	2.32	11.086	23	22	12.7	5.55	16	17.84	71.24	3	46.74	1.225
Sat.	18	17	43	28.49	11.094	23	24	12.0	4.38	16	17.91	71.26	3	17.21	1.233
Sun.	19	17	47	54.84	11.101	23	25	43.1	3.21	16	17.97	71.28	2	47.51	1.240
Mon.	20	17	52	21.33	11.106	23	26	46.0	2.03	16	18.03	71.29	2	17.66	1.245
Tues.	21	17	56	47.92	11.110	23	27	20.7	-0.85	16	18.08	71.30	1	47.71	1.249
Wed.	22	18	1	14.60	11.112	23	27	27.0	+0.33	16	18.13	71.30	1	17.67	1.251
Thur.	23	18	5	41.31	11.113	23	27	4.9	1.51	16	18.17	71.30	0	47.59	1.252
Frid.	24	18	10	8.03	11.112	23	26	14.5	2.69	16	18.21	71.30	0	17.51	1.251
Sat.	25	18	14	34.71	11.110	23	24	55.9	3.87	16	18.25	71.29	0	12.52	1.249
Sun.	26	18	19	1.31	11.106	23	23	9.0	5.05	16	18.28	71.28	0	42.48	1.245
Mon.	27	18	23	27.80	11.100	23	20	53.7	6.23	16	18.31	71.26	1	12.33	1.239
Tues.	28	18	27	54.14	11.093	23	18	10.2	7.40	16	18.34	71.24	1	42.03	1.232
Wed.	29	18	32	20.29	11.085	23	14	58.5	8.57	16	18.36	71.21	2	11.55	1.224
Thur.	30	18	36	46.21	11.075	23	11	18.8	9.73	16	18.38	71.18	2	40.83	1.214
Frid.	31	18	41	11.87	11.063	23	7	11.2	10.89	16	18.39	71.14	3	9.85	1.202
Sat.	32	18	45	37.23	11.050	S. 23	2	35.9	+12.04	16	18.40	71.10	3	38.56	1.189

NOTE.—Mean Time of the Semidiameter passing may be found by subtracting 0^m.19 from the Sidereal Time.

— prefixed to the hourly change of declination, indicates that north declinations are decreasing, and south declinations are increasing.

AT GREENWICH MEAN NOON.

Day of the Week.	Day of the Month.	THE SUN'S				Equation of Time, to be added to		Diff. for 1 hour.	Sidereal Time or Right Ascension of Mean Sun.
		Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	subtracted from Mean Time.			
						m	s		
Wed.	1	16 ^h 28 ^m 53.02 ^s	10.795	S. 21° 48' 22.0"	-23.46	10	51.70	0.940	16 ^h 39 ^m 44.72 ^s
Thur.	2	16 33 12.49	10.823	21 57 32.3	22.40	10	28.79	0.966	16 43 41.28
Frid.	3	16 37 32.56	10.848	22 6 17.3	21.34	10	5.28	0.991	16 47 37.84
Sat.	4	16 41 53.22	10.872	22 14 36.5	20.26	9	41.18	1.015	16 51 34.40
Sun.	5	16 46 14.43	10.895	22 22 29.7	19.18	9	16.53	1.038	16 55 30.96
Mon.	6	16 50 36.17	10.917	22 29 56.7	18.08	8	51.35	1.060	16 59 27.52
Tues.	7	16 54 58.42	10.938	22 36 57.4	16.98	8	25.66	1.081	17 3 24.08
Wed.	8	16 59 21.15	10.957	22 43 31.5	15.86	7	59.49	1.100	17 7 20.64
Thur.	9	17 3 44.34	10.975	22 49 38.8	14.74	7	32.85	1.118	17 11 17.19
Frid.	10	17 8 7.95	10.992	22 55 19.1	13.61	7	5.80	1.135	17 15 13.75
Sat.	11	17 12 31.97	11.008	23 0 32.2	12.48	6	38.34	1.151	17 19 10.31
Sun.	12	17 16 56.35	11.023	23 5 18.1	11.34	6	10.52	1.166	17 23 6.87
Mon.	13	17 21 21.08	11.037	23 9 36.5	10.19	5	42.35	1.180	17 27 3.43
Tues.	14	17 25 46.14	11.050	23 13 27.3	9.04	5	13.85	1.193	17 30 59.99
Wed.	15	17 30 11.50	11.062	23 16 50.4	7.88	4	45.05	1.205	17 34 56.55
Thur.	16	17 34 37.13	11.073	23 19 45.7	6.72	4	15.98	1.216	17 38 53.11
Frid.	17	17 39 3.00	11.082	23 22 13.0	5.55	3	46.66	1.225	17 42 49.66
Sat.	18	17 43 29.08	11.090	23 24 12.2	4.38	3	17.14	1.233	17 46 46.22
Sun.	19	17 47 55.33	11.097	23 25 43.2	3.21	2	47.45	1.240	17 50 42.78
Mon.	20	17 52 21.73	11.102	23 26 46.1	2.03	2	17.61	1.245	17 54 39.34
Tues.	21	17 56 48.23	11.106	23 27 20.7	-0.85	1	47.67	1.249	17 58 35.90
Wed.	22	18 1 14.82	11.108	23 27 27.0	+0.33	1	17.64	1.251	18 2 32.46
Thur.	23	18 5 41.44	11.109	23 27 4.9	1.51	0	47.58	1.252	18 6 29.02
Frid.	24	18 10 8.07	11.108	23 26 14.6	2.69	0	17.51	1.251	18 10 25.58
Sat.	25	18 14 34.65	11.106	23 24 56.0	3.87	0	12.51	1.249	18 14 22.14
Sun.	26	18 19 1.16	11.102	23 23 9.1	5.05	0	42.46	1.245	18 18 18.70
Mon.	27	18 23 27.56	11.096	23 20 53.9	6.23	1	12.30	1.239	18 22 15.26
Tues.	28	18 27 53.81	11.089	23 18 10.5	7.40	1	41.99	1.232	18 26 11.82
Wed.	29	18 32 19.87	11.081	23 14 58.9	8.57	2	11.50	1.224	18 30 8.37
Thur.	30	18 36 45.70	11.071	23 11 19.3	9.73	2	40.77	1.214	18 34 4.93
Frid.	31	18 41 11.27	11.059	23 7 11.8	10.88	3	9.78	1.202	18 38 1.49
Sat.	32	18 45 36.54	11.046	S. 23 2 36.7	+12.03	3	38.49	1.189	18 41 58.05

NOTE.—The Semidiameter for Mean Noon may be assumed the same as that for Apparent Noon.

+ prefixed to the hourly change of declination, indicates that north declinations are increasing, and south declinations are decreasing.

Diff. for 1 hour.
+ 0°.8565

AT GREENWICH MEAN NOON.									
Day of the Month.	Day of the Year.	THE SUN'S					Logarithm of the Radius Vector of the Earth.	Diff. for 1 hour.	Mean Time of Sidereal Oh.
		True LONGITUDE.		Diff. for 1 hour.	LATITUDE				
		λ	λ'						
1	335	248° 56' 16.3"	55' 32.5"	152.20	-0.57	.99937430	-28.7	7 ^h 19 ^m 3.15 ^s	
2	336	249 57 9.5	56 25.5	152.23	0.52	.99936747	28.1	7 15 7.24	
3	337	250 58 3.6	57 19.4	152.27	0.43	.99936060	27.4	7 11 11.33	
4	338	251 58 58.5	58 14.1	152.30	0.33	.99935429	26.7	7 7 15.42	
5	339	252 59 54.2	59 9.6	152.34	0.21	.99934797	25.9	7 3 19.50	
6	340	254 0 50.7	0 5.9	152.37	-0.08	.99934185	25.0	6 59 23.59	
7	341	255 1 47.8	1 2.9	152.40	+0.05	.99933595	24.1	6 55 27.68	
8	342	256 2 45.6	2 0.5	152.43	0.18	.99933027	23.2	6 51 31.77	
9	343	257 3 44.0	2 58.7	152.46	0.31	.99932483	22.2	6 47 35.85	
10	344	258 4 43.1	3 57.6	152.48	0.42	.99931964	21.1	6 43 39.94	
11	345	259 5 42.9	4 57.2	152.51	0.49	.99931471	20.0	6 39 44.03	
12	346	260 6 43.3	5 57.4	152.53	0.55	.99931005	18.8	6 35 48.12	
13	347	261 7 44.4	6 58.3	152.56	0.57	.99930566	17.7	6 31 52.20	
14	348	262 8 46.2	7 59.9	152.59	0.57	.99930154	16.6	6 27 56.29	
15	349	263 9 48.9	9 2.4	152.62	0.52	.99929769	15.5	6 24 0.38	
16	350	264 10 52.4	10 5.7	152.66	0.47	.99929411	14.4	6 20 4.46	
17	351	265 11 56.7	11 9.8	152.69	0.38	.99929080	13.3	6 16 8.55	
18	352	266 13 1.9	12 14.8	152.73	0.28	.99928774	12.3	6 12 12.64	
19	353	267 14 7.9	13 20.6	152.76	0.15	.99928491	11.3	6 8 16.73	
20	354	268 15 14.7	14 27.2	152.80	+0.02	.99928232	10.3	6 4 20.81	
21	355	269 16 22.2	15 34.5	152.83	-0.10	.99927996	9.4	6 0 24.89	
22	356	270 17 30.4	16 42.5	152.86	0.23	.99927780	8.6	5 56 28.98	
23	357	271 18 39.3	17 51.2	152.89	0.34	.99927583	7.8	5 52 33.07	
24	358	272 19 48.8	19 0.5	152.91	0.44	.99927404	7.1	5 48 37.15	
25	359	273 20 58.8	20 10.3	152.93	0.50	.99927243	6.3	5 44 41.24	
26	360	274 22 9.2	21 20.5	152.94	0.54	.99927100	5.6	5 40 45.33	
27	361	275 23 20.0	22 31.1	152.95	0.56	.99926973	4.9	5 36 49.42	
28	362	276 24 31.0	23 41.9	152.96	0.53	.99926862	4.2	5 32 53.50	
29	363	277 25 42.1	24 52.8	152.96	0.47	.99926767	3.5	5 28 57.59	
30	364	278 26 53.1	26 3.6	152.96	0.39	.99926690	2.8	5 25 1.68	
31	365	279 28 4.1	27 14.4	152.96	0.28	.99926631	2.1	5 21 5.77	
32	366	280 29 15.0	28 25.1	152.95	-0.18	9.9926591	-1.3	5 17 9.85	

NOTE: λ corresponds to the true equinox of the date, λ' to the mean equinox of January 0d.

Diff. for 1 hour.

-9^h.8296

GREENWICH MEAN TIME.

THE MOON'S

Day of the Month.

	SEMI-DIAMETER.		HORIZONTAL PARALLAX.				MERIDIAN PASSAGE.		AGE.
	Noon.	Midnight.	Noon.	Diff. for 1 hour.	Midnight.	Diff. for 1 hour.		Diff. for 1 hour.	Noon.
				"		"	h m	m	d
1	14 48.6	14 51.0	54 14.5	+0.66	54 23.3	+0.81	2 42.7	2.11	3.6
2	14 53.9	14 57.3	54 34.0	0.97	54 46.5	1.13	3 32.4	2.03	4.6
3	15 1.3	15 5.8	55 1.1	1.30	55 17.7	1.47	4 20.2	1.94	5.6
4	15 10.9	15 16.5	55 36.3	1.64	55 56.9	1.80	5 5.9	1.87	6.6
5	15 22.6	15 29.3	56 19.5	1.96	56 43.8	2.10	5 50.3	1.83	7.6
6	15 36.4	15 43.8	57 9.8	2.22	57 37.1	2.32	6 34.3	1.84	8.6
7	15 51.5	15 59.3	58 5.4	2.39	58 34.3	2.41	7 19.1	1.91	9.6
8	16 7.1	16 14.8	59 3.0	2.38	59 31.1	2.29	8 6.4	2.04	10.6
9	16 22.1	16 28.8	59 57.9	2.15	60 22.5	1.94	8 57.7	2.24	11.6
10	16 34.7	16 39.7	60 44.3	1.68	61 2.5	1.35	9 54.3	2.49	12.6
11	16 43.5	16 46.1	61 16.6	0.98	61 25.9	+0.57	10 56.9	2.72	13.6
12	16 47.2	16 47.0	61 30.2	+0.14	61 29.3	-0.29	12 4.1	2.85	14.6
13	16 45.3	16 42.3	61 23.1	-0.72	61 12.1	1.13	13 12.6	2.81	15.6
14	16 38.0	16 32.6	60 56.3	1.49	60 36.5	1.80	14 18.1	2.62	16.6
15	16 26.3	16 19.2	60 13.2	2.06	59 47.3	2.25	15 18.0	2.36	17.6
16	16 11.6	16 3.7	59 19.4	2.38	58 50.4	2.45	16 11.6	2.11	18.6
17	15 55.7	15 47.7	58 20.8	2.46	57 51.4	2.42	16 59.9	1.92	19.6
18	15 39.9	15 32.4	57 22.8	2.34	56 55.3	2.23	17 44.2	1.79	20.6
19	15 25.3	15 18.7	56 29.3	2.09	56 5.2	1.93	18 26.3	1.73	21.6
20	15 12.7	15 7.3	55 43.1	1.76	55 23.0	1.58	19 7.6	1.72	22.6
21	15 2.4	14 58.1	55 5.1	1.40	54 49.4	1.22	19 49.2	1.76	23.6
22	14 54.4	14 51.3	54 35.9	1.04	54 24.5	0.86	20 32.3	1.84	24.6
23	14 48.8	14 46.8	54 15.1	0.69	54 7.8	0.53	21 17.5	1.94	25.6
24	14 45.3	14 44.3	54 2.3	0.38	53 58.6	-0.24	22 5.4	2.04	26.6
25	14 43.7	14 43.6	53 56.6	-0.11	53 56.1	+0.02	22 55.5	2.13	27.6
26	14 43.9	14 44.5	53 57.0	+0.13	53 59.3	0.24	23 47.1	2.16	28.6
27	14 45.4	14 46.7	54 2.8	0.34	54 7.6	0.44	6		29.6
28	14 48.3	14 50.3	54 13.5	0.54	54 20.6	0.64	0 38.0	2.14	0.7
29	14 52.5	14 55.2	54 28.9	0.74	54 38.4	0.84	1 29.4	2.07	1.7
30	14 58.0	15 1.3	54 49.1	0.94	55 1.0	1.05	2 17.9	1.97	2.7
31	15 4.9	15 8.9	55 14.3	1.16	55 28.9	1.27	3 4.1	1.88	3.7
32	15 13.2	15 17.9	55 44.8	+1.39	56 2.1	+1.50	3 48.3	1.81	4.7

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
WEDNESDAY 1.					FRIDAY 3.				
0	19 16 54.04	2.9093	S. 27 16 38.7	4.414	0	20 59 36.35	2.0617	S. 21 22 59.1	10.079
1	19 19 6.53	2.9070	27 12 9.9	4.545	1	21 1 39.96	2.0585	21 12 51.3	10.180
2	19 21 18.87	2.9047	27 7 33.3	4.676	2	21 3 43.37	2.0552	21 2 37.5	10.261
3	19 23 31.10	2.9024	27 2 48.8	4.807	3	21 5 46.58	2.0520	20 52 17.6	10.381
4	19 25 43.17	2.1999	26 57 56.5	4.937	4	21 7 49.60	2.0488	20 41 51.8	10.480
5	19 27 55.09	2.1973	26 52 56.4	5.067	5	21 9 52.43	2.0456	20 31 20.0	10.579
6	19 30 6.85	2.1948	26 47 48.5	5.196	6	21 11 55.07	2.0424	20 20 42.3	10.677
7	19 32 18.46	2.1922	26 42 32.9	5.325	7	21 13 57.52	2.0393	20 9 58.8	10.773
8	19 34 29.91	2.1896	26 37 9.5	5.454	8	21 15 59.78	2.0369	19 59 9.5	10.869
9	19 36 41.21	2.1869	26 31 38.4	5.582	9	21 18 1.86	2.0338	19 48 14.5	10.965
10	19 38 52.34	2.1842	26 25 59.7	5.709	10	21 20 3.76	2.0301	19 37 13.7	11.060
11	19 41 3.31	2.1814	26 20 13.4	5.835	11	21 22 5.47	2.0270	19 26 7.3	11.154
12	19 43 14.11	2.1786	26 14 19.5	5.961	12	21 24 7.00	2.0240	19 14 55.3	11.247
13	19 45 24.74	2.1757	26 8 18.1	6.087	13	21 26 8.35	2.0211	19 3 37.7	11.339
14	19 47 35.19	2.1728	26 2 9.1	6.213	14	21 28 9.53	2.0182	18 52 14.6	11.431
15	19 49 45.47	2.1698	25 55 52.6	6.337	15	21 30 10.53	2.0153	18 40 46.0	11.522
16	19 51 55.57	2.1668	25 49 28.7	6.460	16	21 32 11.36	2.0124	18 29 12.0	11.619
17	19 54 5.49	2.1638	25 42 57.4	6.583	17	21 34 12.02	2.0096	18 17 32.6	11.702
18	19 56 15.22	2.1607	25 36 18.7	6.706	18	21 36 12.51	2.0068	18 5 47.8	11.791
19	19 58 24.77	2.1576	25 29 32.6	6.828	19	21 38 12.84	2.0041	17 53 57.7	11.878
20	20 0 34.13	2.1545	25 22 39.3	6.949	20	21 40 13.01	2.0014	17 42 2.4	11.965
21	20 2 43.31	2.1514	25 15 38.7	7.070	21	21 42 13.01	1.9988	17 30 1.9	12.052
22	20 4 52.30	2.1482	25 8 30.8	7.191	22	21 44 12.86	1.9962	17 17 56.2	12.138
23	20 7 1.10	2.1450	S. 25 1 15.8	7.310	23	21 46 12.55	1.9936	S. 17 5 45.4	12.223
THURSDAY 2.					SATURDAY 4.				
0	20 9 9.70	2.1418	S. 24 53 53.6	7.429	0	21 48 12.09	1.9911	S. 16 53 29.5	12.307
1	20 11 18.11	2.1385	24 46 24.3	7.548	1	21 50 11.48	1.9887	16 41 8.6	12.390
2	20 13 26.32	2.1353	24 38 47.9	7.665	2	21 52 10.73	1.9863	16 28 42.7	12.473
3	20 15 34.34	2.1320	24 31 4.5	7.782	3	21 54 9.83	1.9839	16 16 11.9	12.554
4	20 17 42.16	2.1287	24 23 14.1	7.898	4	21 56 8.79	1.9816	16 3 36.2	12.635
5	20 19 49.78	2.1254	24 15 16.7	8.014	5	21 58 7.62	1.9793	15 50 55.7	12.715
6	20 21 57.21	2.1221	24 7 12.4	8.129	6	22 0 6.31	1.9771	15 38 10.4	12.795
7	20 24 4.44	2.1187	23 59 1.2	8.243	7	22 2 4.87	1.9750	15 25 20.3	12.874
8	20 26 11.46	2.1153	23 50 43.2	8.357	8	22 4 3.31	1.9729	15 12 25.5	12.952
9	20 28 18.28	2.1120	23 42 18.4	8.470	9	22 6 1.62	1.9708	14 59 26.1	13.029
10	20 30 24.90	2.1086	23 33 46.8	8.583	10	22 7 59.81	1.9688	14 46 22.1	13.105
11	20 32 31.31	2.1052	23 25 8.5	8.694	11	22 9 57.88	1.9669	14 33 13.5	13.181
12	20 34 37.52	2.1018	23 16 23.5	8.805	12	22 11 55.84	1.9651	14 20 0.4	13.255
13	20 36 43.53	2.0985	23 7 31.9	8.915	13	22 13 53.69	1.9633	14 6 42.9	13.329
14	20 38 49.34	2.0951	22 58 33.7	9.024	14	22 15 51.43	1.9615	13 53 20.9	13.403
15	20 40 54.94	2.0918	22 49 29.0	9.133	15	22 17 49.07	1.9598	13 39 54.5	13.476
16	20 43 0.35	2.0884	22 40 17.8	9.241	16	22 19 46.61	1.9589	13 26 23.8	13.548
17	20 45 5.55	2.0850	22 31 0.1	9.348	17	22 21 44.06	1.9567	13 12 48.8	13.618
18	20 47 10.55	2.0817	22 21 36.0	9.455	18	22 23 41.41	1.9552	12 59 9.6	13.686
19	20 49 15.35	2.0783	22 12 5.5	9.561	19	22 25 38.68	1.9537	12 45 26.2	13.758
20	20 51 19.95	2.0750	22 2 28.7	9.666	20	22 27 35.86	1.9523	12 31 38.7	13.827
21	20 53 24.35	2.0717	21 52 45.6	9.770	21	22 29 32.96	1.9510	12 17 47.0	13.895
22	20 55 28.55	2.0683	21 42 56.3	9.874	22	22 31 29.98	1.9498	12 3 51.3	13.961
23	20 57 32.55	2.0650	21 33 0.8	9.977	23	22 33 26.94	1.9487	11 49 51.7	14.027
24	20 59 36.35	2.0617	S. 21 22 59.1	10.079	24	22 35 23.83	1.9476	S. 11 35 48.1	14.093

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SUNDAY 5.					TUESDAY 7.				
0	22 35 23.83	1.9476	S. 11 35 48.1	14.093	0	0 9 6.20	1.9698	N. 0 30 47.5	16.198
1	22 37 20.65	1.9466	11 21 40.6	14.158	1	0 11 5.68	1.9698	0 56 0.0	16.918
2	22 39 17.42	1.9457	11 7 29.2	14.222	2	0 13 5.34	1.9690	1 12 13.6	16.926
3	22 41 14.13	1.9448	10 53 14.0	14.284	3	0 15 5.20	1.9683	1 28 28.3	16.953
4	22 43 10.79	1.9439	10 38 55.1	14.346	4	0 17 5.26	2.0027	1 44 43.9	16.968
5	22 45 7.40	1.9430	10 24 32.5	14.408	5	0 19 5.52	2.0069	2 1 0.4	16.983
6	22 47 3.97	1.9425	10 10 6.2	14.468	6	0 21 6.00	2.0097	2 17 17.8	16.996
7	22 49 0.50	1.9419	9 55 36.3	14.528	7	0 23 6.69	2.0134	2 33 35.9	16.308
8	22 50 57.00	1.9414	9 41 2.9	14.587	8	0 25 7.61	2.0173	2 49 54.7	16.318
9	22 52 53.47	1.9410	9 26 25.9	14.646	9	0 27 8.76	2.0212	3 6 14.1	16.327
10	22 54 49.92	1.9406	9 11 45.4	14.703	10	0 29 10.15	2.0251	3 22 34.0	16.336
11	22 56 46.35	1.9403	8 57 1.6	14.759	11	0 31 11.77	2.0291	3 38 54.3	16.342
12	22 58 42.76	1.9401	8 42 14.4	14.814	12	0 33 13.64	2.0333	3 55 15.0	16.348
13	23 0 39.16	1.9400	8 27 23.9	14.869	13	0 35 15.77	2.0376	4 11 36.0	16.352
14	23 2 35.56	1.9400	8 12 30.2	14.923	14	0 37 18.16	2.0420	4 27 57.2	16.354
15	23 4 31.96	1.9400	7 57 33.2	14.976	15	0 39 20.81	2.0464	4 44 18.5	16.355
16	23 6 28.36	1.9401	7 42 33.0	15.028	16	0 41 23.73	2.0511	5 0 39.8	16.355
17	23 8 24.77	1.9403	7 27 29.8	15.079	17	0 43 26.94	2.0558	5 17 1.1	16.354
18	23 10 21.20	1.9406	7 12 23.5	15.130	18	0 45 30.43	2.0606	5 33 22.3	16.352
19	23 12 17.64	1.9409	6 57 14.2	15.180	19	0 47 34.21	2.0655	5 49 43.3	16.347
20	23 14 14.11	1.9414	6 42 1.9	15.228	20	0 49 38.29	2.0705	6 6 3.9	16.340
21	23 16 10.61	1.9419	6 26 46.8	15.275	21	0 51 42.67	2.0756	6 22 24.1	16.333
22	23 18 7.14	1.9425	6 11 28.9	15.322	22	0 53 47.36	2.0808	6 38 43.8	16.324
23	23 20 3.71	1.9432	S. 5 56 8.1	15.369	23	0 55 52.37	2.0862	N. 6 55 3.0	16.314
MONDAY 6.					WEDNESDAY 8.				
0	23 22 0.33	1.9440	S. 5 40 44.6	15.414	0	0 57 57.70	2.0916	N. 7 11 21.5	16.308
1	23 23 56.99	1.9443	5 25 18.4	15.458	1	1 0 3.36	2.0971	7 27 39.2	16.298
2	23 25 53.71	1.9458	5 9 49.6	15.501	2	1 2 9.35	2.1027	7 43 56.1	16.273
3	23 27 50.49	1.9468	4 54 18.3	15.543	3	1 4 15.68	2.1084	8 0 12.0	16.256
4	23 29 47.33	1.9480	4 38 44.5	15.584	4	1 6 22.36	2.1141	8 16 26.9	16.238
5	23 31 44.25	1.9492	4 23 8.2	15.625	5	1 8 29.38	2.1200	8 32 40.6	16.218
6	23 33 41.24	1.9505	4 7 29.5	15.664	6	1 10 36.76	2.1261	8 48 53.0	16.196
7	23 35 38.31	1.9518	3 51 48.5	15.703	7	1 12 44.51	2.1322	9 5 4.1	16.173
8	23 37 35.46	1.9533	3 36 5.2	15.741	8	1 14 52.63	2.1384	9 21 13.7	16.148
9	23 39 32.71	1.9550	3 20 19.6	15.778	9	1 17 1.12	2.1448	9 37 21.8	16.121
10	23 41 30.06	1.9567	3 4 31.9	15.813	10	1 19 10.00	2.1512	9 53 28.2	16.093
11	23 43 27.51	1.9584	2 48 42.1	15.847	11	1 21 19.26	2.1577	10 9 32.9	16.062
12	23 45 25.06	1.9602	2 32 50.3	15.880	12	1 23 28.92	2.1643	10 25 35.7	16.030
13	23 47 22.73	1.9622	2 16 56.5	15.913	13	1 25 38.98	2.1710	10 41 36.5	15.996
14	23 49 20.52	1.9642	2 1 0.8	15.944	14	1 27 49.44	2.1778	10 57 35.2	15.961
15	23 51 18.43	1.9663	1 45 3.2	15.974	15	1 30 0.32	2.1847	11 13 31.8	15.923
16	23 53 16.47	1.9685	1 29 3.9	16.003	16	1 32 11.61	2.1917	11 29 26.0	15.883
17	23 55 14.65	1.9708	1 13 2.8	16.032	17	1 34 23.32	2.1989	11 45 17.8	15.842
18	23 57 12.97	1.9732	0 57 0.1	16.059	18	1 36 35.47	2.2061	12 1 7.0	15.798
19	23 59 11.44	1.9757	0 40 55.8	16.085	19	1 38 48.05	2.2133	12 16 53.6	15.753
20	0 1 10.06	1.9783	0 24 49.9	16.110	20	1 41 1.07	2.2207	12 32 37.4	15.706
21	0 3 8.84	1.9811	S. 0 8 42.6	16.134	21	1 43 14.53	2.2282	12 48 18.3	15.657
22	0 5 7.79	1.9839	N. 0 7 26.1	16.157	22	1 45 28.45	2.2357	13 3 56.2	15.605
23	0 7 6.91	1.9868	0 23 36.2	16.178	23	1 47 42.82	2.2433	13 19 30.9	15.552
24	0 9 6.20	1.9898	N. 0 39 47.5	16.196	24	1 49 57.65	2.2511	N. 13 35 2.4	15.497

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
THURSDAY 9.					SATURDAY 11.				
0	1 49 57.65	2.2511	N.13 35 24	15.497	0	3 48 4.12	2.6785	N.24 12 11.2	10.127
1	1 52 12.95	2.2589	13 50 30.5	15.439	1	3 50 45.09	2.6871	24 22 13.7	9.956
2	1 54 28.72	2.2668	14 5 55.1	15.380	2	3 53 26.57	2.6956	24 32 5.9	9.789
3	1 56 44.97	2.2748	14 21 16.1	15.318	3	3 56 8.56	2.7040	24 41 47.6	9.606
4	1 59 1.70	2.2829	14 36 33.3	15.254	4	3 58 51.05	2.7123	24 51 18.6	9.428
5	2 1 18.92	2.2910	14 51 46.6	15.189	5	4 1 34.04	2.7206	25 0 38.9	9.248
6	2 3 36.62	2.2992	15 6 56.0	15.121	6	4 4 17.52	2.7287	25 9 48.3	9.065
7	2 5 54.82	2.3075	15 22 1.2	15.051	7	4 7 1.48	2.7366	25 18 46.7	8.880
8	2 8 13.52	2.3159	15 37 2.1	14.978	8	4 9 45.91	2.7444	25 27 33.9	8.692
9	2 10 32.73	2.3244	15 51 58.6	14.903	9	4 12 30.81	2.7522	25 36 9.8	8.503
10	2 12 52.45	2.3329	16 6 50.5	14.827	10	4 15 16.17	2.7597	25 44 34.3	8.312
11	2 15 12.68	2.3415	16 21 37.8	14.748	11	4 18 1.98	2.7671	25 52 47.3	8.119
12	2 17 33.43	2.3502	16 36 20.3	14.667	12	4 20 48.22	2.7744	26 0 48.6	7.923
13	2 19 54.70	2.3589	16 50 57.8	14.583	13	4 23 34.90	2.7815	26 8 38.1	7.726
14	2 22 16.50	2.3676	17 5 30.2	14.497	14	4 26 22.00	2.7884	26 16 15.7	7.527
15	2 24 38.82	2.3764	17 19 57.4	14.408	15	4 29 9.51	2.7952	26 23 41.3	7.326
16	2 27 1.67	2.3853	17 34 19.2	14.317	16	4 31 57.43	2.8019	26 30 54.8	7.123
17	2 29 25.06	2.3943	17 48 35.5	14.225	17	4 34 45.74	2.8083	26 37 56.1	6.918
18	2 31 48.99	2.4033	18 2 46.2	14.130	18	4 37 34.42	2.8145	26 44 45.0	6.712
19	2 34 13.46	2.4123	18 16 51.1	14.032	19	4 40 23.47	2.8205	26 51 21.5	6.504
20	2 36 38.47	2.4214	18 30 50.0	13.933	20	4 43 12.88	2.8263	26 57 45.5	6.294
21	2 39 4.03	2.4306	18 44 42.9	13.832	21	4 46 2.63	2.8320	27 3 56.7	6.083
22	2 41 30.14	2.4398	18 58 29.5	13.729	22	4 48 52.72	2.8375	27 9 55.3	5.870
23	2 43 56.80	2.4489	N.19 12 9.7	13.617	23	4 51 43.13	2.8429	N.27 15 41.1	5.655
FRIDAY 10.					SUNDAY 12.				
0	2 46 24.01	2.4581	N.19 25 43.5	13.507	0	4 54 33.84	2.8477	N.27 21 13.9	5.438
1	2 48 51.78	2.4674	19 39 10.6	13.395	1	4 57 24.85	2.8525	27 26 33.7	5.221
2	2 51 20.10	2.4767	19 52 30.9	13.280	2	5 0 16.14	2.8571	27 31 40.5	5.003
3	2 53 48.98	2.4860	20 5 44.2	13.163	3	5 3 7.70	2.8615	27 36 34.1	4.783
4	2 56 18.42	2.4953	20 18 50.4	13.043	4	5 5 59.52	2.8656	27 41 14.5	4.562
5	2 58 48.42	2.5047	20 31 49.3	12.920	5	5 8 51.57	2.8694	27 45 41.6	4.340
6	3 1 18.99	2.5141	20 44 40.8	12.796	6	5 11 43.85	2.8731	27 49 55.3	4.117
7	3 3 50.11	2.5234	20 57 24.8	12.669	7	5 14 36.34	2.8765	27 53 55.6	3.893
8	3 6 21.80	2.5328	21 10 1.0	12.539	8	5 17 29.03	2.8797	27 57 42.4	3.668
9	3 8 54.05	2.5422	21 22 29.4	12.407	9	5 20 21.90	2.8826	28 1 15.7	3.443
10	3 11 26.86	2.5515	21 34 49.8	12.273	10	5 23 14.94	2.8852	28 4 35.4	3.215
11	3 14 0.23	2.5608	21 47 2.0	12.134	11	5 26 8.13	2.8876	28 7 41.5	2.988
12	3 16 34.15	2.5700	21 59 5.9	11.995	12	5 29 1.45	2.8897	28 10 34.0	2.760
13	3 19 8.63	2.5793	22 11 1.4	11.853	13	5 31 54.89	2.8916	28 13 12.7	2.531
14	3 21 43.67	2.5886	22 22 48.2	11.708	14	5 34 48.44	2.8932	28 15 37.7	2.302
15	3 24 19.27	2.5979	22 34 26.3	11.561	15	5 37 42.08	2.8946	28 17 48.9	2.073
16	3 26 55.42	2.6071	22 45 55.5	11.412	16	5 40 35.79	2.8957	28 19 46.4	1.843
17	3 29 32.12	2.6162	22 57 15.7	11.260	17	5 43 29.56	2.8964	28 21 30.0	1.613
18	3 32 9.36	2.6253	23 8 26.7	11.105	18	5 46 23.36	2.8969	28 22 59.8	1.382
19	3 34 47.15	2.6343	23 19 28.4	10.948	19	5 49 17.19	2.8973	28 24 15.8	1.151
20	3 37 25.48	2.6433	23 30 20.5	10.788	20	5 52 11.03	2.8973	28 25 17.9	0.920
21	3 40 4.34	2.6522	23 41 3.0	10.627	21	5 55 4.86	2.8969	28 26 6.2	0.689
22	3 42 43.74	2.6611	23 51 35.7	10.463	22	5 57 58.66	2.8964	28 26 40.6	0.458
23	3 45 23.67	2.6698	24 1 58.5	10.296	23	6 0 52.43	2.8956	28 27 1.2	+0.226
24	3 48 4.12	2.6785	N.24 12 11.2	10.127	24	6 3 46.14	2.8945	N.28 27 8.0	-0.003

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
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MONDAY 13.

h	m	s	a	o	'	"
0	6	3	46.14	28	27	8.0
1	6	6	39.78	28	27	0.9
2	6	9	33.33	28	26	40.1
3	6	12	26.77	28	26	5.5
4	6	15	20.09	28	25	17.1
5	6	18	13.28	28	24	15.1
6	6	21	6.31	28	22	50.4
7	6	23	59.18	28	21	30.1
8	6	26	51.86	28	19	47.2
9	6	29	44.34	28	17	50.7
10	6	32	36.61	28	15	40.8
11	6	35	28.65	28	13	17.5
12	6	38	20.45	28	10	40.8
13	6	41	11.99	28	7	50.8
14	6	44	3.25	28	4	47.5
15	6	46	54.23	28	1	31.1
16	6	49	44.91	27	58	1.6
17	6	52	35.27	27	54	19.1
18	6	55	25.31	27	50	23.7
19	6	58	15.01	27	46	15.5
20	7	1	4.35	27	41	54.5
21	7	3	53.33	27	37	20.8
22	7	6	41.93	27	32	34.6
23	7	9	30.14	27	27	35.9

TUESDAY 14.

h	m	s	a	o	'	"
0	7	12	17.94	27	22	24.9
1	7	15	5.33	27	17	1.6
2	7	17	52.30	27	11	26.1
3	7	20	38.83	27	5	38.6
4	7	23	24.92	26	50	39.2
5	7	26	10.55	26	53	27.9
6	7	28	55.72	26	47	4.9
7	7	31	40.42	26	40	30.3
8	7	34	24.63	26	33	44.3
9	7	37	8.25	26	26	46.9
10	7	39	51.57	26	19	38.3
11	7	42	34.29	26	12	18.6
12	7	45	16.49	26	4	48.0
13	7	47	58.17	25	57	6.6
14	7	50	39.32	25	49	14.4
15	7	53	19.93	25	41	11.6
16	7	56	0.00	25	32	58.4
17	7	58	39.53	25	24	34.9
18	8	1	18.50	25	16	1.2
19	8	3	56.91	25	7	17.5
20	8	6	34.76	24	58	23.9
21	8	9	12.05	24	49	20.5
22	8	11	48.76	24	40	7.5
23	8	14	24.90	24	30	45.1
24	8	17	0.46	24	21	13.3

WEDNESDAY 15.

h	m	s	a	o	'	"
0	8	17	0.46	24	21	13.3
1	8	19	35.44	24	11	32.3
2	8	22	9.83	24	1	42.2
3	8	24	43.64	23	51	43.2
4	8	27	16.86	23	41	35.4
5	8	29	49.48	23	31	19.0
6	8	32	21.51	23	20	54.1
7	8	34	52.95	23	10	20.9
8	8	37	23.79	22	59	39.4
9	8	39	54.04	22	48	49.8
10	8	42	23.69	22	37	52.3
11	8	44	52.75	22	26	47.0
12	8	47	21.21	22	15	34.0
13	8	49	49.07	22	4	13.5
14	8	52	16.34	21	52	45.7
15	8	54	43.02	21	41	10.6
16	8	57	9.10	21	29	28.4
17	8	59	34.59	21	17	39.3
18	9	1	59.49	21	5	43.4
19	9	4	23.80	20	53	40.8
20	9	6	47.52	20	41	31.6
21	9	9	10.66	20	29	15.9
22	9	11	33.22	20	16	54.0
23	9	13	55.20	20	4	26.0

THURSDAY 16.

h	m	s	a	o	'	"
0	9	16	16.60	19	51	51.9
1	9	18	37.42	19	39	12.0
2	9	20	57.68	19	26	26.3
3	9	23	17.37	19	13	34.9
4	9	25	36.49	19	0	38.0
5	9	27	55.06	18	47	35.8
6	9	30	13.07	18	34	28.3
7	9	32	30.52	18	21	15.7
8	9	34	47.42	18	7	58.1
9	9	37	3.78	17	54	35.7
10	9	39	19.59	17	41	8.5
11	9	41	34.87	17	27	36.6
12	9	43	49.62	17	14	0.2
13	9	46	3.84	17	0	19.4
14	9	48	17.54	16	46	34.3
15	9	50	30.71	16	32	45.1
16	9	52	43.37	16	18	51.8
17	9	54	55.53	16	4	54.5
18	9	57	7.18	15	50	53.4
19	9	59	18.34	15	36	48.6
20	10	1	29.00	15	22	40.2
21	10	3	39.17	15	8	28.2
22	10	5	48.86	14	54	12.8
23	10	7	58.08	14	39	54.1
24	10	10	6.82	14	25	32.3

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
FRIDAY 17.					SUNDAY 19.				
0	10 10 6.82	2.1418	N. 14 25 32.3	14.389	0	11 45 47.16	1.8828	N. 2 22 30.2	15.253
1	10 12 15.10	2.1342	14 11 7.4	14.440	1	11 47 40.04	1.8798	2 7 15.3	15.243
2	10 14 22.92	2.1265	13 56 30.5	14.490	2	11 49 32.71	1.8769	1 52 1.0	15.233
3	10 16 30.28	2.1190	13 42 8.6	14.538	3	11 51 25.27	1.8743	1 36 47.4	15.221
4	10 18 37.20	2.1116	13 27 35.0	14.583	4	11 53 17.64	1.8714	1 21 34.5	15.209
5	10 20 43.67	2.1042	13 12 58.7	14.627	5	11 55 9.84	1.8688	1 6 22.3	15.196
6	10 22 49.70	2.0969	12 58 19.9	14.669	6	11 57 1.89	1.8663	0 51 11.0	15.182
7	10 24 55.30	2.0898	12 43 38.5	14.710	7	11 58 53.79	1.8638	0 36 0.5	15.167
8	10 27 0.47	2.0828	12 28 54.7	14.749	8	12 0 45.55	1.8616	0 20 51.0	15.150
9	10 29 5.23	2.0759	12 14 8.6	14.787	9	12 2 37.18	1.8594	N. 0 5 42.5	15.133
10	10 31 9.58	2.0690	11 59 20.3	14.823	10	12 4 28.68	1.8573	S. 0 9 25.0	15.116
11	10 33 13.51	2.0622	11 44 29.8	14.858	11	12 6 20.05	1.8551	0 24 31.4	15.097
12	10 35 17.04	2.0556	11 29 37.2	14.892	12	12 8 11.29	1.8531	0 39 36.6	15.078
13	10 37 20.18	2.0490	11 14 42.7	14.924	13	12 10 2.42	1.8513	0 54 40.7	15.058
14	10 39 22.92	2.0425	10 59 46.3	14.954	14	12 11 53.44	1.8495	1 9 43.6	15.036
15	10 41 25.28	2.0362	10 44 48.2	14.983	15	12 13 44.36	1.8478	1 24 45.1	15.014
16	10 43 27.26	2.0299	10 29 48.4	15.010	16	12 15 35.18	1.8462	1 39 45.3	14.992
17	10 45 28.87	2.0238	10 14 47.0	15.037	17	12 17 25.91	1.8447	1 54 44.1	14.968
18	10 47 30.12	2.0178	9 59 44.0	15.062	18	12 19 16.54	1.8432	2 9 41.5	14.944
19	10 49 31.01	2.0118	9 44 39.6	15.085	19	12 21 7.09	1.8419	2 24 37.4	14.919
20	10 51 31.54	2.0059	9 29 33.8	15.107	20	12 22 57.57	1.8406	2 39 31.8	14.893
21	10 53 31.72	2.0002	9 14 26.7	15.128	21	12 24 47.97	1.8394	2 54 24.6	14.867
22	10 55 31.56	1.9945	8 59 18.4	15.148	22	12 26 38.30	1.8383	3 9 15.8	14.839
23	10 57 31.06	1.9890	N. 8 44 9.0	15.166	23	12 28 28.57	1.8373	S. 3 24 5.3	14.812
SATURDAY 18.					MONDAY 20.				
0	10 59 30.24	1.9836	N. 8 28 58.5	15.183	0	12 30 18.78	1.8364	S. 3 38 53.2	14.783
1	11 1 29.09	1.9782	8 13 47.0	15.199	1	12 32 8.94	1.8356	3 53 39.3	14.753
2	11 3 27.62	1.9730	7 58 34.6	15.213	2	12 33 59.05	1.8348	4 8 23.6	14.723
3	11 5 25.85	1.9679	7 43 21.4	15.227	3	12 35 49.12	1.8343	4 23 6.0	14.691
4	11 7 23.77	1.9629	7 28 7.4	15.239	4	12 37 39.16	1.8337	4 37 46.5	14.659
5	11 9 21.39	1.9578	7 12 52.7	15.250	5	12 39 29.16	1.8331	4 52 25.1	14.627
6	11 11 18.71	1.9530	6 57 37.4	15.259	6	12 41 19.13	1.8327	5 7 1.7	14.593
7	11 13 15.75	1.9483	6 42 21.6	15.266	7	12 43 9.08	1.8324	5 21 36.3	14.559
8	11 15 12.50	1.9436	6 27 5.2	15.276	8	12 44 59.02	1.8322	5 36 8.8	14.524
9	11 17 8.98	1.9391	6 11 48.4	15.283	9	12 46 48.94	1.8319	5 50 39.2	14.489
10	11 19 5.19	1.9346	5 56 31.3	15.288	10	12 48 38.85	1.8316	6 5 7.5	14.453
11	11 21 1.13	1.9303	5 41 13.9	15.292	11	12 50 28.76	1.8318	6 19 33.6	14.416
12	11 22 56.82	1.9261	5 25 56.3	15.295	12	12 52 18.67	1.8319	6 33 57.4	14.378
13	11 24 52.26	1.9219	5 10 38.6	15.297	13	12 54 8.59	1.8321	6 48 18.9	14.339
14	11 26 47.45	1.9178	4 55 20.7	15.298	14	12 55 58.52	1.8323	7 2 38.1	14.300
15	11 28 42.40	1.9139	4 40 2.8	15.298	15	12 57 48.46	1.8326	7 16 54.9	14.260
16	11 30 37.12	1.9101	4 24 44.9	15.297	16	12 59 38.43	1.8330	7 31 9.3	14.219
17	11 32 31.61	1.9063	4 9 27.1	15.295	17	13 1 28.42	1.8334	7 45 21.2	14.178
18	11 34 25.88	1.9027	3 54 9.5	15.292	18	13 3 18.44	1.8340	7 59 30.7	14.137
19	11 36 19.83	1.8991	3 38 52.1	15.288	19	13 5 8.50	1.8346	8 13 37.6	14.094
20	11 38 13.77	1.8957	3 23 34.9	15.283	20	13 6 58.59	1.8352	8 27 41.9	14.050
21	11 40 7.41	1.8923	3 8 18.1	15.277	21	13 8 48.72	1.8359	8 41 43.6	14.006
22	11 42 0.85	1.8891	2 53 1.7	15.270	22	13 10 38.90	1.8366	8 55 42.6	13.961
23	11 43 54.10	1.8859	2 37 45.7	15.263	23	13 12 29.14	1.8378	9 9 38.9	13.915
24	11 45 47.16	1.8828	N. 2 22 30.2	15.253	24	13 14 19.43	1.8387	S. 9 23 32.4	13.868

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
TUESDAY 21.					THURSDAY 23.				
0	13 14 19.43	1.8387	S. 9° 23' 32.4"	13.868	0	14 44 56.62	1.9587	S. 19° 22' 7.0"	10.786
1	13 16 9.78	1.8398	9 37 23.1	13.821	1	14 46 54.25	1.9624	19 32 51.7	10.703
2	13 18 0.20	1.8409	9 51 11.0	13.774	2	14 48 52.11	1.9661	19 43 31.4	10.620
3	13 19 50.69	1.8421	10 4 56.0	13.725	3	14 50 50.19	1.9699	19 54 6.1	10.536
4	13 21 41.25	1.8433	10 18 38.0	13.676	4	14 52 48.50	1.9736	20 4 35.7	10.450
5	13 23 31.89	1.8447	10 32 17.1	13.627	5	14 54 47.03	1.9774	20 15 0.1	10.364
6	13 25 22.61	1.8461	10 45 53.2	13.578	6	14 56 45.79	1.9813	20 55 19.4	10.278
7	13 27 13.42	1.8476	10 59 26.2	13.529	7	14 58 44.79	1.9852	20 35 33.5	10.190
8	13 29 4.32	1.8491	11 12 56.1	13.472	8	15 0 44.02	1.9891	20 45 42.2	10.101
9	13 30 55.31	1.8507	11 26 22.9	13.420	9	15 2 43.48	1.9930	20 55 45.6	10.012
10	13 32 46.40	1.8523	11 39 46.5	13.368	10	15 4 43.18	1.9970	21 5 43.6	9.922
11	13 34 37.59	1.8541	11 53 6.8	13.319	11	15 6 43.12	2.0009	21 15 36.2	9.832
12	13 36 28.89	1.8559	12 6 23.9	13.268	12	15 8 43.29	2.0048	21 25 23.4	9.740
13	13 38 20.30	1.8578	12 19 37.7	13.202	13	15 10 43.70	2.0089	21 35 5.0	9.647
14	13 40 11.83	1.8597	12 32 48.1	13.145	14	15 12 44.36	2.0130	21 44 41.0	9.554
15	13 42 3.47	1.8617	12 45 55.1	13.088	15	15 14 45.26	2.0170	21 54 11.5	9.460
16	13 43 55.23	1.8638	12 58 58.7	13.030	16	15 16 46.40	2.0211	22 3 36.2	9.365
17	13 45 47.12	1.8659	13 11 58.7	12.971	17	15 18 47.79	2.0252	22 12 55.2	9.269
18	13 47 39.14	1.8681	13 24 55.2	12.913	18	15 20 49.42	2.0293	22 22 8.5	9.173
19	13 49 31.29	1.8703	13 37 48.1	12.852	19	15 22 51.30	2.0333	22 31 15.9	9.075
20	13 51 23.58	1.8727	13 50 37.4	12.792	20	15 24 53.42	2.0373	22 40 17.5	8.977
21	13 53 16.01	1.8751	14 3 23.1	12.731	21	15 26 55.78	2.0414	22 49 13.2	8.878
22	13 55 8.59	1.8775	14 16 5.1	12.668	22	15 28 58.39	2.0456	22 58 2.9	8.778
23	13 57 1.31	1.8799	S. 14° 28' 43.3"	12.605	23	15 31 1.25	2.0497	S. 23° 6' 46.6"	8.678
WEDNESDAY 22.					FRIDAY 24.				
0	13 58 54.18	1.8825	S. 14° 41' 17.7"	12.542	0	15 33 4.35	2.0538	S. 23° 15' 24.2"	8.576
1	14 0 47.21	1.8859	14 53 48.3	12.478	1	15 35 7.70	2.0579	23 23 55.7	8.474
2	14 2 40.40	1.8878	15 6 15.0	12.412	2	15 37 11.30	2.0621	23 32 21.1	8.373
3	14 4 33.74	1.8904	15 18 37.7	12.346	3	15 39 15.15	2.0662	23 40 40.3	8.268
4	14 6 27.25	1.8932	15 30 56.5	12.279	4	15 41 19.24	2.0703	23 48 53.2	8.163
5	14 8 20.93	1.8961	15 43 11.2	12.212	5	15 43 23.58	2.0744	23 56 59.8	8.058
6	14 10 14.78	1.8990	15 55 21.9	12.144	6	15 45 28.17	2.0785	24 5 0.1	7.951
7	14 12 8.81	1.9019	16 7 28.5	12.075	7	15 47 33.00	2.0826	24 12 54.0	7.844
8	14 14 3.01	1.9048	16 19 30.9	12.005	8	15 49 38.08	2.0867	24 20 41.4	7.737
9	14 15 57.39	1.9078	16 31 29.1	11.935	9	15 51 43.40	2.0907	24 28 22.4	7.628
10	14 17 51.95	1.9109	16 43 23.1	11.864	10	15 53 48.96	2.0947	24 35 56.8	7.518
11	14 19 46.70	1.9141	16 55 12.8	11.793	11	15 55 54.76	2.0987	24 43 24.6	7.408
12	14 21 41.64	1.9173	17 6 58.1	11.719	12	15 58 0.81	2.1028	24 50 45.8	7.298
13	14 23 36.77	1.9205	17 18 39.1	11.646	13	16 0 7.10	2.1068	24 58 0.3	7.186
14	14 25 32.10	1.9237	17 30 15.6	11.572	14	16 2 13.63	2.1108	25 5 8.1	7.074
15	14 27 27.62	1.9270	17 41 47.7	11.498	15	16 4 20.39	2.1147	25 12 9.2	6.961
16	14 29 23.34	1.9304	17 53 15.2	11.420	16	16 6 27.39	2.1187	25 19 3.4	6.847
17	14 31 19.27	1.9338	18 4 38.1	11.344	17	16 8 34.63	2.1226	25 25 50.8	6.733
18	14 33 15.40	1.9372	18 15 56.5	11.267	18	16 10 42.10	2.1264	25 32 31.3	6.618
19	14 35 11.73	1.9407	18 27 10.2	11.189	19	16 12 49.80	2.1303	25 39 4.9	6.501
20	14 37 8.28	1.9442	18 38 19.2	11.110	20	16 14 57.73	2.1341	25 45 31.5	6.384
21	14 39 5.04	1.9478	18 49 23.4	11.030	21	16 17 5.89	2.1378	25 51 51.0	6.267
22	14 41 2.02	1.9514	19 0 22.8	10.949	22	16 19 14.27	2.1416	25 58 3.5	6.148
23	14 42 59.21	1.9550	19 11 17.3	10.868	23	16 21 22.88	2.1453	26 4 8.8	6.029
24	14 44 56.62	1.9587	S. 19° 22' 7.0"	10.786	24	16 23 31.71	2.1490	S. 26° 10' 7.0"	5.910

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
SATURDAY 25.					MONDAY 27.				
0	16 23 31.71	2.1490	S. 26 10 7.0	5.910	0	18 9 48.99	2.2514	S. 28 25 3.6	0.446
1	16 25 40.76	2.1527	26 15 58.0	5.789	1	18 12 4.08	2.2516	28 24 32.7	0.585
2	16 27 50.03	2.1563	26 21 41.7	5.668	2	18 14 19.18	2.2517	28 23 53.4	0.735
3	16 29 59.51	2.1598	26 27 18.2	5.547	3	18 16 34.28	2.2516	28 23 5.7	0.884
4	16 32 9.20	2.1633	26 32 47.3	5.424	4	18 18 49.37	2.2514	28 22 9.7	1.003
5	16 34 19.10	2.1668	26 38 9.1	5.301	5	18 21 4.45	2.2512	28 21 5.3	1.149
6	16 36 29.21	2.1702	26 43 23.5	5.178	6	18 23 19.52	2.2509	28 19 52.6	1.299
7	16 38 39.52	2.1735	26 48 30.5	5.053	7	18 25 34.56	2.2505	28 18 31.5	1.422
8	16 40 50.03	2.1768	26 53 29.9	4.928	8	18 27 49.58	2.2501	28 17 2.0	1.561
9	16 43 0.73	2.1800	26 58 21.8	4.803	9	18 30 4.57	2.2495	28 15 24.2	1.700
10	16 45 11.63	2.1832	27 3 6.2	4.678	10	18 32 19.52	2.2488	28 13 38.1	1.839
11	16 47 22.72	2.1864	27 7 42.9	4.549	11	18 34 34.43	2.2481	28 11 43.6	1.978
12	16 49 34.00	2.1895	27 12 12.0	4.422	12	18 36 49.29	2.2473	28 9 40.8	2.117
13	16 51 45.46	2.1925	27 16 33.5	4.294	13	18 39 4.10	2.2463	28 7 29.6	2.255
14	16 53 57.10	2.1955	27 20 47.3	4.165	14	18 41 18.85	2.2453	28 5 10.2	2.393
15	16 56 8.92	2.1984	27 24 53.3	4.036	15	18 43 33.54	2.2442	28 2 42.5	2.531
16	16 58 20.91	2.2013	27 28 51.6	3.907	16	18 45 48.16	2.2430	28 0 6.5	2.668
17	17 0 33.07	2.2040	27 32 42.1	3.777	17	18 48 2.70	2.2417	27 57 22.3	2.806
18	17 2 45.39	2.2067	27 36 24.8	3.646	18	18 50 17.17	2.2404	27 54 29.8	2.943
19	17 4 57.88	2.2094	27 39 59.6	3.514	19	18 52 31.55	2.2390	27 51 29.1	3.080
20	17 7 10.52	2.2119	27 43 26.5	3.383	20	18 54 45.85	2.2376	27 48 20.2	3.217
21	17 9 23.31	2.2144	27 46 45.6	3.251	21	18 57 0.06	2.2360	27 45 3.0	3.354
22	17 11 36.25	2.2168	27 49 56.7	3.118	22	18 59 14.17	2.2343	27 41 37.7	3.490
23	17 13 49.33	2.2192	S. 27 52 59.8	2.985	23	19 1 28.17	2.2325	S. 27 38 4.2	3.627
SUNDAY 26.					TUESDAY 28.				
0	17 16 2.55	2.2215	S. 27 55 54.9	2.852	0	19 3 42.07	2.2307	S. 27 34 22.5	3.763
1	17 18 15.91	2.2237	27 58 42.0	2.718	1	19 5 55.86	2.2288	27 30 32.7	3.897
2	17 20 29.39	2.2257	28 1 21.0	2.583	2	19 8 9.53	2.2268	27 26 34.9	4.031
3	17 22 43.00	2.2278	28 3 51.9	2.448	3	19 10 23.08	2.2248	27 22 29.0	4.165
4	17 24 56.73	2.2298	28 6 14.8	2.313	4	19 12 36.51	2.2226	27 18 15.1	4.299
5	17 27 10.58	2.2318	28 8 29.5	2.178	5	19 14 49.80	2.2204	27 13 53.1	4.433
6	17 29 24.54	2.2336	28 10 36.1	2.042	6	19 17 2.96	2.2182	27 9 23.1	4.566
7	17 31 38.61	2.2352	28 12 34.5	1.905	7	19 19 15.99	2.2159	27 4 45.2	4.698
8	17 33 52.77	2.2369	28 14 24.7	1.769	8	19 21 28.87	2.2135	26 59 59.3	4.831
9	17 36 7.03	2.2385	28 16 6.8	1.632	9	19 23 41.61	2.2111	26 55 5.5	4.963
10	17 38 21.39	2.2400	28 17 40.6	1.495	10	19 25 54.20	2.2085	26 50 3.8	5.095
11	17 40 35.83	2.2414	28 19 6.2	1.358	11	19 28 6.63	2.2059	26 44 54.3	5.228
12	17 42 50.35	2.2427	28 20 23.6	1.221	12	19 30 18.91	2.2033	26 39 37.0	5.363
13	17 45 4.95	2.2439	28 21 32.7	1.083	13	19 32 31.03	2.2006	26 34 11.9	5.493
14	17 47 19.62	2.2450	28 22 33.5	0.944	14	19 34 42.98	2.1979	26 28 39.0	5.613
15	17 49 34.35	2.2460	28 23 26.0	0.806	15	19 36 54.77	2.1951	26 22 58.4	5.741
16	17 51 49.14	2.2469	28 24 10.2	0.667	16	19 39 6.39	2.1922	26 17 10.1	5.868
17	17 54 3.98	2.2478	28 24 46.1	0.528	17	19 41 17.83	2.1892	26 11 14.2	5.995
18	17 56 18.88	2.2487	28 25 13.6	0.389	18	19 43 29.09	2.1862	26 5 10.7	6.122
19	17 58 33.82	2.2494	28 25 32.8	0.251	19	19 45 40.17	2.1832	25 58 59.6	6.248
20	18 0 48.80	2.2499	28 25 43.7	-0.112	20	19 47 51.07	2.1802	25 52 41.0	6.373
21	18 3 3.81	2.2504	28 25 46.2	+0.027	21	19 50 1.79	2.1771	25 46 14.8	6.498
22	18 5 18.85	2.2508	28 25 40.4	0.167	22	19 52 12.32	2.1739	25 39 41.2	6.622
23	18 7 33.91	2.2512	28 25 26.2	0.307	23	19 54 22.66	2.1707	25 33 0.2	6.745
24	18 9 48.99	2.2514	S. 28 25 3.6	0.446	24	19 56 32.80	2.1674	S. 25 26 11.8	6.868

GREENWICH MEAN TIME.

THE MOON'S RIGHT ASCENSION AND DECLINATION.

Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.	Hour.	Right Ascension.	Diff. for 1 m.	Declination.	Diff. for 1 m.
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WEDNESDAY 29.

Hour	h	m	s	Diff.	S.	°	'	"	Diff.
0	19	56	32.80	2.1674	26	11.8		6.888	
1	19	58	42.74	2.1641	25	19 16.0		6.991	
2	20	0	52.49	2.1608	25	12 12.9		7.112	
3	20	3	2.04	2.1575	25	5 2.6		7.232	
4	20	5	11.39	2.1541	24	57 45.1		7.352	
5	20	7	20.53	2.1508	24	50 20.4		7.472	
6	20	9	29.46	2.1472	24	42 48.5		7.590	
7	20	11	38.19	2.1437	24	35 9.6		7.708	
8	20	13	46.70	2.1401	24	27 23.6		7.825	
9	20	15	55.00	2.1365	24	19 30.6		7.942	
10	20	18	3.09	2.1331	24	11 30.6		8.058	
11	20	20	10.97	2.1295	24	3 23.7		8.172	
12	20	22	18.63	2.1259	23	55 10.0		8.286	
13	20	24	26.07	2.1223	23	46 49.4		8.399	
14	20	26	33.30	2.1187	23	38 22.1		8.512	
15	20	28	40.31	2.1150	23	29 48.0		8.623	
16	20	30	47.10	2.1113	23	21 7.3		8.734	
17	20	32	53.67	2.1076	23	12 19.9		8.845	
18	20	35	0.01	2.1039	23	3 25.9		8.954	
19	20	37	6.14	2.1002	22	54 25.4		9.063	
20	20	39	12.04	2.0965	22	45 18.4		9.171	
21	20	41	17.72	2.0928	22	36 4.9		9.277	
22	20	43	23.18	2.0892	22	26 45.1		9.383	
23	20	45	28.42	2.0854	S. 22	17 18.9		9.489	

THURSDAY 30.

Hour	h	m	s	Diff.	S.	°	'	"	Diff.
0	20	47	33.43	2.0817	22	7 46.4		9.594	
1	20	49	38.22	2.0780	21	58 7.6		9.694	
2	20	51	42.79	2.0743	21	48 22.7		9.800	
3	20	53	47.14	2.0706	21	38 31.6		9.902	
4	20	55	51.27	2.0669	21	28 34.4		10.003	
5	20	57	55.17	2.0632	21	18 31.2		10.103	
6	20	59	58.85	2.0595	21	8 22.0		10.203	
7	21	2	2.31	2.0558	20	58 6.8		10.301	
8	21	4	5.55	2.0522	20	47 45.8		10.399	
9	21	6	8.58	2.0485	20	37 18.9		10.497	
10	21	8	11.39	2.0450	20	26 46.2		10.593	
11	21	10	13.98	2.0414	20	16 7.8		10.688	
12	21	12	16.36	2.0378	20	5 23.7		10.782	
13	21	14	18.52	2.0343	19	54 34.0		10.875	
14	21	16	20.47	2.0307	19	43 38.7		10.968	
15	21	18	22.21	2.0272	19	32 37.8		11.060	
16	21	20	23.73	2.0237	19	21 31.5		11.151	
17	21	22	25.05	2.0202	19	10 19.7		11.242	
18	21	24	26.16	2.0166	18	59 2.5		11.331	
19	21	26	27.07	2.0134	18	47 40.0		11.419	
20	21	28	27.77	2.0100	18	36 12.3		11.506	
21	21	30	28.27	2.0067	18	24 39.3		11.593	
22	21	32	28.57	2.0034	18	13 1.1		11.679	
23	21	34	28.67	2.0001	18	1 17.8		11.764	
24	21	36	28.58	1.9969	S. 17	49 29.5		11.848	

FRIDAY 31.

Hour	h	m	s	Diff.	S.	°	'	"	Diff.
0	21	36	28.58	1.9939	S. 17	49 29.5		11.848	
1	21	38	28.30	1.9906	17	37 36.1		11.931	
2	21	40	27.82	1.9874	17	25 37.8		12.013	
3	21	42	27.15	1.9843	17	13 34.6		12.094	
4	21	44	26.30	1.9812	17	1 26.5		12.175	
5	21	46	25.26	1.9782	16	49 13.6		12.254	
6	21	48	24.04	1.9752	16	36 56.0		12.333	
7	21	50	22.64	1.9723	16	24 33.7		12.411	
8	21	52	21.07	1.9694	16	12 6.7		12.488	
9	21	54	19.33	1.9665	15	59 35.1		12.565	
10	21	56	17.41	1.9637	15	46 58.9		12.640	
11	21	58	15.33	1.9609	15	34 18.3		12.714	
12	22	0	13.08	1.9582	15	21 33.2		12.788	
13	22	2	10.67	1.9555	15	8 43.7		12.861	
14	22	4	8.10	1.9529	14	55 49.9		12.933	
15	22	6	5.38	1.9503	14	42 51.8		13.004	
16	22	8	2.50	1.9478	14	29 49.4		13.074	
17	22	9	59.47	1.9453	14	16 42.9		13.143	
18	22	11	56.30	1.9429	14	3 32.2		13.211	
19	22	13	52.98	1.9406	13	50 17.5		13.279	
20	22	15	49.53	1.9413	13	36 58.7		13.347	
21	22	17	45.94	1.9391	13	23 35.9		13.413	
22	22	19	42.22	1.9369	13	10 9.2		13.477	
23	22	21	38.37	1.9348	S. 12	56 38.7		13.541	

SATURDAY, JANUARY 1, 1876.

0	22	23	34.39	1.9327	S. 12	43 4.3	13.605
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PHASES OF THE MOON.

☽	First Quarter,	5	13	56.1
☾	Full Moon,	12	7	45.5
☾	Last Quarter,	19	2	55.9
●	New Moon,	27	7	4.3

☾	Perigee,	12	3.9
☾	Apogee,	25	10.1

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	IIIh.	P. L. of Diff.	VIh.	P. L. of Diff.	IXh.	P. L. of Diff.
1	SUN W.	38° 25' 22"	3459	39 46 32	3453	41 7 49	3446	42 29 13	3439
	Saturn E.	33 41 32	3074	32 12 51	3070	30 44 5	3067	29 15 15	3064
	Mars E.	39 42 0	3313	38 18 4	3309	36 54 3	3305	35 29 57	3300
	Fomalhaut E.	46 32 1	3498	45 11 35	3518	43 51 31	3541	42 31 52	3566
	α Pegasi E.	68 5 4	3379	66 42 24	3363	65 19 48	3367	63 57 17	3399
α Arietis E.	109 23 12	3081	107 54 39	3075	106 25 59	3070	104 57 13	3065	
2	SUN W.	49 18 14	3402	50 40 28	3393	52 2 52	3386	53 25 25	3377
	Mars E.	28 27 58	3279	27 3 14	3266	25 38 23	3259	24 13 24	3253
	Fomalhaut E.	36 1 40	3748	34 45 44	3801	33 30 43	3881	32 16 44	3931
	α Pegasi E.	57 6 6	3422	55 44 14	3431	54 22 32	3440	53 1 1	3451
	α Arietis E.	97 31 31	3034	96 2 3	3026	94 32 24	3019	93 2 35	3011
3	SUN W.	60 20 49	3398	61 44 28	3317	63 8 20	3306	64 32 25	3294
	α Pegasi E.	46 17 7	3533	44 57 19	3556	43 37 57	3583	42 19 4	3613
	α Arietis E.	85 30 59	2969	84 0 7	2960	82 29 4	2950	80 57 49	2940
	Aldebaran E.	116 11 25	3014	114 41 29	3001	113 11 18	2990	111 40 53	2978
	SUN W.	71 36 20	3231	73 1 53	3217	74 27 42	3204	75 53 47	3189
α Pegasi E.	35 54 35	3248	34 40 22	3219	33 27 21	4000	32 15 41	4005	
α Arietis E.	73 18 14	2986	71 45 37	2973	70 12 44	2962	68 39 36	2949	
Aldebaran E.	104 4 57	2915	102 32 57	2902	101 0 41	2889	99 28 8	2875	
5	SUN W.	83 8 41	3111	84 36 37	3085	86 4 53	3078	87 33 29	3061
	α Aquilæ W.	46 58 10	4582	48 0 50	4474	49 5 5	4374	50 10 50	4279
	Saturn W.	15 16 1	2802	16 50 26	2781	18 25 19	2760	20 0 39	2740
	α Arietis E.	60 49 52	2785	59 15 4	2771	57 39 58	2757	56 4 34	2744
	Aldebaran E.	91 40 48	2892	90 6 23	2877	88 31 38	2879	86 56 33	2856
6	SUN W.	95 1 54	2971	96 32 43	2953	98 3 55	2934	99 35 31	2915
	α Aquilæ W.	55 59 58	3891	57 13 27	3825	58 28 3	3765	59 43 42	3707
	Saturn W.	28 3 54	2644	29 41 49	2625	31 20 10	2607	32 58 56	2588
	Fomalhaut W.	25 40 35	4125	26 50 13	3937	28 2 55	3779	29 18 19	3643
	Mars W.	18 46 34	2869	20 19 33	2848	21 52 59	2827	23 26 52	2807
	α Arietis E.	48 2 59	2674	46 25 44	2661	44 48 12	2648	43 10 22	2635
	Aldebaran E.	78 55 53	2675	77 18 40	2659	75 41 5	2643	74 3 8	2626
	Pollux E.	122 24 27	2610	120 45 46	2592	119 6 40	2574	117 27 10	2557
	SUN W.	107 19 39	2818	108 53 44	2798	110 28 14	2779	112 3 10	2759
α Aquilæ W.	66 16 26	3457	67 37 38	3415	68 59 38	3374	70 22 24	3335	
Saturn W.	41 19 16	2493	43 0 39	2474	44 42 29	2455	46 24 46	2436	
Fomalhaut W.	36 7 28	3155	37 34 31	3086	39 2 58	3022	40 32 44	2969	
Mars W.	31 22 54	2705	32 59 27	2685	34 36 27	2665	36 13 54	2646	
α Arietis E.	34 57 2	2580	33 17 40	2573	31 38 8	2567	29 58 28	2545	
Aldebaran E.	65 47 45	2544	64 7 33	2527	62 26 58	2511	60 46 0	2495	
Pollux E.	109 3 26	2465	107 21 24	2447	105 38 56	2429	103 56 2	2410	
8	SUN W.	120 4 18	2662	121 41 49	2643	123 19 46	2624	124 58 8	2607
	α Aquilæ W.	77 26 51	3168	78 53 39	3138	80 21 2	3111	81 48 58	3086
	Saturn W.	55 2 53	2342	56 47 52	2324	58 33 17	2305	60 19 9	2287
	Fomalhaut W.	48 18 33	2724	49 54 41	2685	51 31 41	2649	53 9 29	2615
	Mars W.	44 27 54	2545	46 8 4	2527	47 48 40	2507	49 29 43	2489
	α Pegasi W.	30 11 7	2694	31 28 0	2640	32 47 40	2606	34 9 50	2588
	Aldebaran E.	52 15 53	2424	50 32 52	2411	48 49 33	2399	47 5 57	2386
	Pollux E.	95 14 50	2317	93 29 15	2299	91 43 14	2281	89 56 46	2263

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
1	Sun W.	43 50 45	3432	45 12 25	3425	46 34 13	3418	47 56 9	3410
	Saturn E.	27 46 21	3080	26 17 22	3058	24 48 19	3059	23 19 11	3048
	Mars E.	34 5 46	3985	32 41 29	3989	31 17 5	3984	29 52 35	3978
	Fomalhaut E.	41 12 41	3585	39 54 1	3625	38 35 54	3661	37 18 25	3702
	α Pegasi E.	62 34 51	3386	61 12 30	3401	59 50 15	3408	58 28 7	3414
α Arietis E.	103 28 20	3050	101 59 20	3053	100 30 13	3047	99 0 58	3040	
2	Sun W.	54 48 8	3368	56 11 1	3358	57 34 6	3348	58 57 22	3338
	Mars E.	22 48 18	3947	21 23 4	3940	19 57 42	3933	18 32 12	3926
	Fomalhaut E.	31 3 56	4019	29 52 28	4106	28 42 32	4216	27 34 21	4345
	α Pegasi E.	51 39 42	3464	50 18 38	3478	48 57 49	3494	47 37 18	3512
	α Arietis E.	91 32 36	3003	90 2 27	2995	88 32 8	2987	87 1 39	2978
3	Sun W.	65 56 43	3982	67 21 15	3970	68 46 2	3958	70 11 3	3944
	α Pegasi E.	41 0 44	3649	39 43 2	3688	38 26 2	3734	37 9 51	3787
	α Arietis E.	79 26 21	2999	77 54 39	2919	76 22 44	2909	74 50 36	2898
	Aldebaran E.	110 10 13	2966	108 39 18	2954	107 8 7	2941	105 36 40	2928
4	Sun W.	77 20 9	3174	78 46 49	3158	80 13 48	3143	81 41 5	3128
	α Pegasi E.	31 5 34	4905	29 57 13	4335	28 50 53	4491	27 46 53	4678
	α Arietis E.	67 6 12	2637	65 32 32	2625	63 58 36	2611	62 24 23	2798
	Aldebaran E.	97 55 17	2661	96 22 8	2646	94 48 40	2632	93 14 54	2617
5	Sun W.	89 2 26	3043	90 31 45	3028	92 1 25	3008	93 31 28	2989
	α Aquilæ W.	51 18 2	4192	52 26 36	4109	53 36 29	4031	54 47 38	3959
	Saturn W.	21 36 26	2719	23 12 40	2701	24 49 19	2681	26 26 24	2663
	α Arietis E.	54 28 52	2730	52 52 52	2716	51 16 33	2701	49 39 55	2688
	Aldebaran E.	85 21 7	2741	83 45 21	2724	82 9 13	2708	80 32 44	2692
6	Sun W.	101 7 31	2685	102 39 56	2676	104 12 45	2657	105 45 59	2637
	α Aquilæ W.	61 0 22	3659	62 18 0	3599	63 36 35	3550	64 56 4	3502
	Saturn W.	34 38 8	2569	36 17 46	2550	37 57 50	2531	39 38 20	2512
	Fomalhaut W.	30 36 8	3521	31 56 9	3415	33 18 9	3319	34 41 58	3233
	Mars W.	25 1 11	2786	26 35 57	2766	28 11 9	2746	29 46 48	2725
	α Arietis E.	41 32 14	2629	39 53 49	2610	38 15 8	2599	36 36 12	2589
	Aldebaran E.	72 24 49	2610	70 46 7	2593	69 7 2	2577	67 27 35	2560
	Pollux E.	115 47 16	2530	114 6 57	2520	112 26 12	2502	110 45 2	2484
7	Sun W.	113 38 32	2739	115 14 20	2719	116 50 34	2701	118 27 13	2681
	α Aquilæ W.	71 45 55	3996	73 10 9	3963	74 35 4	3929	76 0 39	3198
	Saturn W.	48 7 29	2417	49 50 39	2398	51 34 16	2379	53 18 21	2360
	Fomalhaut W.	42 3 44	2908	43 35 53	2858	45 9 6	2811	46 43 20	2766
	Mars W.	37 51 47	2626	39 30 7	2605	41 8 55	2585	42 48 11	2565
	α Arietis E.	28 18 45	2565	26 39 2	2569	24 59 25	2578	23 20 0	2591
	Aldebaran E.	59 4 40	2480	57 22 59	2465	55 40 57	2451	53 58 35	2437
	Pollux E.	102 12 41	2391	100 28 53	2373	98 44 39	2354	96 59 58	2335
8	Sun W.	126 36 54	2588	128 16 5	2570	129 55 41	2553	131 35 40	2536
	α Aquilæ W.	83 17 25	3082	84 46 21	3040	86 15 44	3019	87 45 33	3000
	Saturn W.	62 5 28	2469	63 52 13	2451	65 39 24	2434	67 27 1	2417
	Fomalhaut W.	54 48 4	2582	56 27 24	2550	58 7 28	2520	59 48 13	2492
	Mars W.	51 11 13	2470	52 53 9	2450	54 35 32	2432	56 18 21	2415
	α Pegasi W.	35 34 16	3184	37 0 44	3091	38 29 5	3008	39 59 8	2933
	Aldebaran E.	45 22 5	2378	43 37 59	2371	41 53 42	2364	40 9 15	2359
	Pollux E.	88 9 52	2245	86 22 31	2227	84 34 44	2210	82 46 32	2194

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.
9	α Aquilæ W.	89 15 46	2983	90 46 20	2967	92 17 14	2954	93 48 25	2942
	Saturn W.	69 15 3	2900	71 3 30	2184	72 52 22	2168	74 41 38	2153
	Fomalhaut W.	61 29 37	2465	63 11 39	2441	64 54 16	2416	66 37 28	2394
	Mars W.	58 1 35	2397	59 45 14	2380	61 29 18	2364	63 13 45	2347
	α Pegasi W.	41 30 45	2985	43 3 49	2963	44 38 13	2747	46 13 51	2685
	Aldebaran E.	38 24 42	2357	36 40 5	2357	34 55 28	2359	33 10 55	2366
	Pollux E.	80 57 55	2177	79 8 53	2161	77 19 26	2145	75 29 35	2130
Regulus E.	117 42 17	2180	115 53 20	2164	114 3 58	2148	112 14 12	2133	
10	α Aquilæ W.	101 27 19	2919	102 59 23	2919	104 31 26	2916	106 3 25	2901
	Saturn W.	83 53 35	2083	85 45 1	2070	87 36 46	2059	89 28 49	2048
	Fomalhaut W.	75 21 4	2297	77 7 8	2281	78 53 35	2267	80 40 23	2253
	Mars W.	72 1 43	2274	73 48 21	2260	75 35 19	2248	77 22 35	2237
	α Pegasi W.	54 27 36	2494	56 8 58	2463	57 51 3	2434	59 33 49	2408
	Pollux E.	66 14 46	2060	64 22 45	2048	62 30 26	2037	60 37 49	2026
Regulus E.	102 59 42	2062	101 7 45	2050	99 15 28	2038	97 22 53	2027	
11	Saturn W.	98 53 1	2003	100 46 31	1996	102 40 11	1990	104 34 1	1985
	Fomalhaut W.	89 38 52	2204	91 27 14	2197	93 15 46	2190	95 4 26	2186
	Mars W.	86 22 52	2190	88 11 35	2182	90 0 29	2176	91 49 33	2170
	α Pegasi W.	68 16 3	2307	70 1 52	2293	71 48 2	2279	73 34 32	2268
	α Arietis W.	24 43 20	2179	26 32 19	2147	28 22 6	2191	30 12 33	2098
	Pollux E.	51 10 49	1962	49 16 46	1975	47 22 32	1969	45 28 9	1965
Regulus E.	87 56 2	1963	86 2 1	1975	84 7 48	1969	82 13 25	1964	
12	Fomalhaut W.	104 8 31	2189	105 57 15	2194	107 45 52	2200	109 34 20	2207
	Mars W.	100 56 30	2157	102 46 3	2156	104 35 37	2156	106 25 11	2157
	α Pegasi W.	82 30 26	2235	84 18 2	2232	86 5 42	2231	87 53 23	2231
	α Arietis W.	39 31 43	2033	41 24 26	2026	43 17 20	2021	45 10 21	2017
	Pollux E.	35 54 47	1953	33 59 59	1953	32 5 11	1955	30 10 25	1957
Regulus E.	72 39 56	1951	70 45 4	1951	68 50 12	1951	66 55 21	1953	
13	α Pegasi W.	9 50 53	2256	98 37 57	2266	100 24 47	2276	102 11 22	2287
	α Arietis W.	54 36 8	2019	56 29 12	2024	58 22 9	2029	60 14 58	2035
	Aldebaran W.	25 2 6	2235	26 47 15	2226	28 33 20	2226	30 20 10	2223
	Regulus E.	57 22 7	1973	55 27 50	1979	53 33 43	1987	51 39 48	1994
	Spica E.	111 22 4	1967	109 27 38	1973	107 33 21	1980	105 39 15	1988
14	α Arietis W.	69 36 18	2077	71 27 52	2068	73 19 9	2101	75 10 7	2114
	Aldebaran W.	39 20 17	2196	41 8 47	2196	42 57 17	2208	44 45 42	2206
	Regulus E.	42 13 48	2048	40 21 28	2060	38 29 27	2073	36 37 47	2068
	Spica E.	96 12 14	2037	94 19 38	2050	92 27 21	2062	90 35 24	2076
	Jupiter E.	124 18 11	2116	122 27 37	2127	120 37 19	2139	118 47 19	2152
15	α Arietis W.	84 19 50	2186	86 8 39	2202	87 57 4	2218	89 45 5	2225
	Aldebaran W.	53 45 26	2249	55 32 40	2261	57 19 37	2274	59 6 15	2287
	Spica E.	81 21 0	2149	79 31 16	2166	77 41 57	2189	75 53 3	2200
	Jupiter E.	109 42 30	2225	107 54 39	2241	106 7 13	2256	104 20 11	2275
	Sun E.	141 58 37	2504	140 17 29	2519	138 36 42	2534	136 56 16	2551
16	α Arietis W.	98 38 41	2226	100 24 3	2244	102 8 58	2264	103 53 25	2283
	Aldebaran W.	67 54 5	2265	69 38 30	2282	71 22 31	2299	73 6 7	2417
	Pollux W.	23 58 2	2202	25 43 59	2219	27 29 31	2237	29 14 37	2256
	Spica E.	66 55 4	2289	65 8 48	2308	63 23 0	2326	61 37 39	2346
	Jupiter E.	95 31 28	2264	93 47 2	2283	92 3 3	2403	90 19 32	2422

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Midnight.	P.L. of Dist.	XVh.	P.L. of Dist.	XVIIIh.	P.L. of Dist.	XXIh.	P.L. of Dist.
9	α Aquilæ W.	95 19 51	2931	96 51 30	2923	98 23 20	2917	99 55 17	2913
	Saturn W.	76 31 17	2137	78 21 19	2123	80 11 43	2109	82 2 29	2096
	Fomalhaut W.	68 21 12	2379	70 5 27	2351	71 50 12	2332	73 35 25	2314
	Mars W.	64 58 36	2331	66 43 50	2315	68 29 27	2301	70 15 25	2287
	α Pegasi W.	47 50 38	2648	49 28 28	2604	51 7 18	2564	52 47 2	2528
	Aldebaran E.	31 26 32	2378	29 42 26	2395	27 58 44	2419	26 15 37	2454
	Pollux E.	73 39 22	2115	71 48 46	2100	69 57 47	2086	68 6 27	2073
Regulus E.	110 24 3	2118	108 33 31	2103	106 42 36	2088	104 51 19	2075	
10	α Aquilæ W.	107 35 17	2930	109 6 58	2923	110 38 24	2916	112 9 32	2914
	Saturn W.	91 21 9	2037	93 13 45	2027	95 6 37	2018	96 59 43	2010
	Fomalhaut W.	82 27 32	2341	84 14 59	2329	86 2 43	2320	87 50 41	2311
	Mars W.	79 10 8	2296	80 57 57	2215	82 46 2	2206	84 34 21	2198
	α Pegasi W.	61 17 12	2384	63 1 9	2362	64 45 38	2343	66 30 37	2323
	Pollux E.	58 44 55	2016	56 51 45	2006	54 58 20	1997	53 4 41	1989
	Regulus E.	95 30 1	2016	93 36 52	2007	91 43 28	1998	89 49 51	1991
11	Saturn W.	106 27 59	1981	108 22 4	1977	110 16 15	1974	112 10 30	1973
	Fomalhaut W.	96 53 11	2186	98 42 0	2184	100 30 51	2184	102 19 42	2186
	Mars W.	93 38 45	2106	95 28 4	2102	97 17 29	2159	99 6 58	2157
	α Pegasi W.	75 21 18	2258	77 8 19	2250	78 55 32	2243	80 42 55	2238
	α Arietis W.	32 3 35	2080	33 55 5	2064	35 46 59	2059	37 39 13	2041
	Pollux E.	43 33 39	1980	41 39 2	1957	39 44 20	1955	37 49 34	1954
	Regulus E.	80 18 54	1980	78 24 16	1958	76 29 33	1954	74 34 46	1952
12	Fomalhaut W.	111 22 37	2216	113 10 40	2227	114 58 27	2239	116 45 56	2253
	Mars W.	108 14 43	2100	110 4 11	2163	111 53 34	2167	113 42 51	2179
	α Pegasi W.	89 41 4	2234	91 28 41	2237	93 16 13	2249	95 3 38	2249
	α Arietis W.	47 3 28	2016	48 56 38	2015	50 49 49	2015	52 43 0	2017
	Pollux E.	28 15 43	1980	26 21 6	1985	24 26 37	1971	22 32 17	1979
	Regulus E.	65 0 32	1955	63 5 47	1958	61 11 7	1962	59 16 33	1967
	α Pegasi W.	103 57 40	2301	105 43 38	2316	107 29 14	2333	109 14 26	2351
13	α Arietis W.	62 7 38	2049	64 0 7	2049	65 52 25	2058	67 44 29	2068
	Aldebaran W.	32 7 34	2226	33 55 23	2213	35 43 31	2206	37 31 50	2200
	Regulus E.	49 46 5	2004	47 52 37	2014	45 59 24	2024	44 6 27	2035
	Spica E.	103 45 22	1998	101 51 42	2006	99 58 17	2016	98 5 7	2026
	α Arietis W.	77 0 45	2127	78 51 3	2140	80 41 1	2155	82 30 37	2170
	Aldebaran W.	46 34 1	2219	48 22 11	2219	50 10 10	2228	51 57 56	2239
	Regulus E.	34 46 29	2103	32 55 34	2118	31 5 3	2135	29 14 57	2153
14	Spica E.	88 43 48	2080	86 52 33	2103	85 1 39	2118	83 11 8	2134
	Jupiter E.	116 57 39	2166	115 8 20	2180	113 19 22	2194	111 30 45	2206
	α Arietis W.	91 32 41	2250	93 19 51	2270	95 6 34	2288	96 52 51	2307
	Aldebaran W.	60 52 33	2208	62 38 30	2217	64 24 5	2233	66 9 17	2249
	Spica E.	74 4 35	2217	72 16 33	2235	70 28 57	2259	68 41 47	2270
	Jupiter E.	102 33 35	2229	100 47 24	2210	99 1 39	2226	97 16 20	2246
	Sun E.	135 16 13	2267	133 36 33	2265	131 57 17	2263	130 18 25	2261
15	α Arietis W.	105 37 24	2403	107 20 55	2423	109 3 57	2443	110 46 31	2462
	Aldebaran W.	74 49 18	2434	76 32 4	2453	78 14 24	2471	79 56 18	2489
	Pollux W.	30 59 17	2373	32 43 31	2391	34 27 19	2409	36 10 41	2428
	Spica E.	50 52 46	2264	58 8 20	2284	56 24 22	2302	54 40 51	2322
	Jupiter E.	88 36 29	2441	86 53 53	2460	85 11 44	2480	83 30 3	2499
	α Arietis W.	105 37 24	2403	107 20 55	2423	109 3 57	2443	110 46 31	2462
	Aldebaran W.	74 49 18	2434	76 32 4	2453	78 14 24	2471	79 56 18	2489
16	Pollux W.	30 59 17	2373	32 43 31	2391	34 27 19	2409	36 10 41	2428
	Spica E.	50 52 46	2264	58 8 20	2284	56 24 22	2302	54 40 51	2322
	Jupiter E.	88 36 29	2441	86 53 53	2460	85 11 44	2480	83 30 3	2499

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.	Noon.	P. L. of Diff.	III ^h .	P. L. of Diff.	VI ^h .	P. L. of Diff.	IX ^h .	P. L. of Diff.
16	SUN E.	128° 39' 58"	2640	127° 1' 57"	2658	125° 24' 21"	2678	123° 47' 11"	2697
17	Aldebaran W.	81 37 46	2508	83 18 48	2527	84 59 24	2545	86 39 34	2564
	Pollux W.	37 53 36	2446	39 36 5	2465	41 18 7	2484	42 59 43	2502
	Spica E.	52 57 47	2441	51 15 11	2460	49 33 2	2479	47 51 19	2497
	Jupiter E.	81 48 49	2519	80 8 2	2538	78 27 42	2558	76 47 49	2577
	SUN E.	115 47 57	2798	114 13 26	2818	112 39 21	2838	111 5 42	2858
18	Aldebaran W.	94 54 0	2657	96 31 37	2676	98 8 49	2694	99 45 37	2713
	Pollux W.	51 21 16	2594	53 0 19	2619	54 38 57	2630	56 17 11	2647
	Spica E.	39 29 18	2591	37 50 11	2610	36 11 29	2627	34 33 11	2644
	Jupiter E.	68 35 2	2673	66 57 46	2692	65 20 55	2710	63 44 29	2729
	SUN E.	103 23 54	2958	101 52 48	2977	100 22 6	2996	98 51 48	3014
19	Aldebaran W.	107 43 35	2901	109 18 1	2919	110 52 4	2936	112 25 45	2952
	Pollux W.	64 22 38	2730	65 58 38	2746	67 34 17	2762	69 9 35	2777
	Regulus W.	27 41 17	2747	29 16 55	2760	30 52 15	2774	32 27 17	2788
	Spica E.	26 27 28	2729	24 51 26	2745	23 15 46	2760	21 40 26	2775
	Jupiter E.	55 48 16	2818	54 14 11	2834	52 40 27	2850	51 7 4	2866
	SUN E.	91 26 2	3108	89 58 0	3123	88 30 18	3139	87 2 56	3156
	Pollux W.	77 1 17	2847	78 34 44	2860	80 7 54	2873	81 40 48	2885
20	Regulus W.	40 17 56	2855	41 51 13	2867	43 24 14	2879	44 57 0	2891
	Jupiter E.	43 25 20	2945	41 53 58	2961	40 22 56	2976	38 52 13	2990
	SUN E.	79 50 57	3224	78 25 28	3248	77 0 16	3262	75 35 20	3276
	Pollux W.	89 21 33	2940	90 53 1	2950	92 24 17	2959	93 55 21	2969
21	Regulus W.	52 37 13	2945	54 8 35	2954	55 39 46	2963	57 10 45	2973
	Jupiter E.	31 23 11	3064	29 54 17	3079	28 25 42	3095	26 57 26	3112
	SUN E.	68 34 29	3338	67 11 1	3348	65 47 45	3359	64 24 42	3370
	Pollux W.	101 27 58	3008	102 58 1	3015	104 27 55	3022	105 57 41	3028
22	Regulus W.	64 43 2	3011	66 13 1	3018	67 42 52	3023	69 12 36	3030
	SUN E.	57 32 17	3416	56 10 19	3424	54 48 30	3432	53 26 50	3439
	Regulus W.	76 39 31	3055	78 8 36	3058	79 37 37	3061	81 6 34	3065
23	Spica W.	22 36 58	3052	24 6 7	3055	25 35 12	3059	27 4 12	3061
	SUN E.	46 40 29	3473	45 19 35	3479	43 58 47	3484	42 38 5	3490
	Regulus W.	88 30 21	3077	89 58 59	3079	91 27 34	3080	92 56 8	3089
24	Spica W.	34 28 22	3073	35 57 4	3075	37 25 44	3077	38 54 22	3078
	SUN E.	35 56 8	3516	34 36 2	3522	33 16 2	3527	31 56 8	3533
	SUN W.	30 7 49	3383	31 30 25	3371	32 53 15	3359	34 16 18	3348
30	Mars E.	39 20 3	3304	37 53 59	3197	36 27 46	3190	35 1 25	3183
	α Pegasi E.	48 44 8	3471	47 23 12	3492	46 2 39	3515	44 42 31	3540
	α Arietis E.	88 21 23	2973	86 50 37	2967	85 19 43	2960	83 48 40	2954
	Aldebaran E.	119 3 44	3025	117 34 2	3017	116 4 10	3008	114 34 7	2998
	SUN W.	41 14 44	3394	42 39 3	3382	44 3 35	3372	45 28 19	3361
31	Venus W.	16 50 54	3397	18 13 14	3381	19 35 52	3366	20 58 47	3351
	Mars E.	27 47 23	3143	26 20 6	3134	24 52 38	3125	23 24 59	3117
	α Pegasi E.	38 10 14	3731	36 54 0	3727	35 38 44	3651	34 24 34	3634
	α Arietis E.	76 11 15	2918	74 39 19	2910	73 7 13	2902	71 34 57	2894
	Aldebaran E.	107 1 1	2954	105 29 50	2945	103 58 28	2935	102 26 54	2926

GREENWICH MEAN TIME.

LUNAR DISTANCES.

Day of the Month.	Star's Name and Position.		Midnight.	P. L. of Diff.	XVh.	P. L. of Diff.	XVIIIh.	P. L. of Diff.	XXIh.	P. L. of Diff.
16	SUN	E.	122° 10' 27"	2717	120° 34' 10"	2737	118° 58' 19"	2757	117° 22' 55"	2777
17	Aldebaran	W.	88 19 19	2583	89 58 38	2601	91 37 31	2621	93 15 58	2639
	Pollux	W.	44 40 53	2521	46 21 37	2540	48 1 55	2558	49 41 48	2576
	Spica	E.	46 10 2	2517	44 29 12	2535	42 48 48	2554	41 8 50	2573
	Jupiter	E.	75 8 23	2587	73 29 24	2616	71 50 51	2635	70 12 44	2654
	SUN	E.	109 32 29	2678	107 59 42	2696	106 27 21	2718	104 55 25	2636
18	Aldebaran	W.	101 22 0	2731	102 57 59	2749	104 33 34	2766	106 8 46	2784
	Pollux	W.	57 55 2	2664	59 32 30	2681	61 9 35	2698	62 46 17	2714
	Spica	E.	32 55 16	2662	31 17 45	2679	29 40 37	2696	28 3 52	2712
	Jupiter	E.	62 8 27	2747	60 32 49	2765	58 57 35	2782	57 22 44	2800
	SUN	E.	97 21 53	3033	95 52 21	3052	94 23 12	3070	92 54 26	3088
19	Aldebaran	W.	113 59 5	2869	115 32 3	2887	117 4 39	2903	118 36 54	2919
	Pollux	W.	70 44 33	2792	72 19 12	2806	73 53 32	2821	75 27 33	2834
	Regulus	W.	34 2 0	2803	35 36 25	2815	37 10 33	2829	38 44 23	2842
	Spica	E.	20 5 26	2791	18 30 46	2805	16 56 25	2820	15 22 23	2834
	Jupiter	E.	49 34 2	2863	48 1 21	2889	46 29 1	2915	44 57 1	2930
SUN	E.	85 35 54	3173	84 9 12	3188	82 42 49	3204	81 16 44	3219	
20	Pollux	W.	83 13 26	2907	84 45 49	2908	86 17 58	2920	87 49 52	2930
	Regulus	W.	46 29 31	2902	48 1 47	2913	49 33 49	2924	51 5 38	2935
	Jupiter	E.	37 21 48	3005	35 51 41	3020	34 21 53	3034	32 52 23	3049
	SUN	E.	74 10 40	3268	72 46 15	3301	71 22 5	3314	69 58 10	3326
21	Pollux	W.	95 26 13	2977	96 56 54	2985	98 27 25	2993	99 57 46	3001
	Regulus	W.	58 41 33	2981	60 12 10	2989	61 42 37	2997	63 12 54	3004
	Jupiter	E.	25 29 31	3129	24 1 57	3148	22 34 46	3168	21 7 59	3190
	SUN	E.	63 1 51	3379	61 39 11	3390	60 16 43	3399	58 54 25	3406
22	Pollux	W.	107 27 19	3034	108 56 50	3039	110 26 15	3043	111 55 34	3048
	Regulus	W.	70 42 12	3035	72 11 41	3040	73 41 4	3045	75 10 21	3051
	SUN	E.	52 5 18	3446	50 43 54	3454	49 22 38	3461	48 1 30	3467
23	Regulus	W.	82 35 26	3069	84 4 14	3071	85 32 59	3073	87 1 41	3075
	Spica	W.	28 33 9	3065	30 2 2	3068	31 30 51	3069	32 59 38	3073
	SUN	E.	41 17 30	3496	39 57 1	3501	38 36 38	3506	37 16 20	3511
24	Regulus	W.	94 24 40	3082	95 53 11	3082	97 21 42	3083	98 50 12	3083
	Spica	W.	40 22 59	3078	41 51 35	3079	43 20 10	3079	44 48 45	3080
	SUN	E.	30 36 20	3539	29 16 39	3545	27 57 5	3552	26 37 38	3560
30	SUN	W.	35 39 34	3337	37 3 3	3396	38 26 44	3315	39 50 38	3305
	Mars	E.	33 34 55	3175	32 8 16	3168	30 41 28	3159	29 14 30	3152
	α Pegasi	E.	43 22 51	3569	42 3 43	3602	40 45 11	3640	39 27 20	3682
	α Arctis	E.	82 17 29	2946	80 46 9	2939	79 14 40	2932	77 43 2	2925
	Aldebaran	E.	113 3 52	2969	111 33 26	2961	110 2 49	2973	108 32 1	2968
31	SUN	W.	46 53 16	3250	48 18 26	3239	49 43 49	3227	51 9 26	3216
	Venus	W.	22 21 59	3338	23 45 27	3394	25 9 11	3310	26 33 11	3297
	Mars	E.	21 57 10	3107	20 29 9	3098	19 0 57	3089	17 32 34	3079
	α Pegasi	E.	33 11 39	4009	32 0 8	4107	30 50 13	4221	29 42 7	4354
	α Arctis	E.	70 2 31	2987	68 29 55	2978	66 57 8	2970	65 24 11	2962
	Aldebaran	E.	100 55 8	2916	99 23 10	2906	97 50 59	2897	96 18 36	2887

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
1	16 34 18.98	+1.335	-17 21 34.0	+10.01	21 48.4	1	17 46 22.29	+ 9.004	-18 57 17.5	-12.03	21 1.0
2	16 34 55.60	1.717	17 17 58.6	7.98	21 45.1	2	17 50 0.02	9.140	19 2 1.1	11.56	21 0.7
3	16 35 41.28	2.089	17 15 10.7	6.04	21 42.1	3	17 53 40.94	9.271	19 6 32.5	11.03	21 0.4
4	16 36 35.78	2.451	17 13 8.5	4.18	21 39.2	4	17 57 24.93	9.396	19 10 50.7	10.45	21 0.2
5	16 37 38.85	2.803	17 11 49.9	2.42	21 36.5	5	18 1 11.88	9.516	19 14 54.5	9.83	21 0.1
6	16 38 50.24	3.144	17 11 12.5	+ 0.75	21 33.8	6	18 5 1.67	9.638	19 18 42.8	9.17	21 0.1
7	16 40 9.68	3.475	17 11 14.1	- 0.83	21 31.3	7	18 8 54.19	9.743	19 22 14.4	8.46	21 0.1
8	16 41 36.93	3.794	17 11 52.2	2.31	21 29.0	8	18 12 49.32	9.850	19 25 28.4	7.76	21 0.1
9	16 43 11.72	4.103	17 13 4.7	3.69	21 26.7	9	18 16 46.95	9.952	19 28 23.8	6.91	21 0.2
10	16 44 53.82	4.403	17 14 49.3	4.98	21 24.6	10	18 20 47.00	10.051	19 30 59.7	6.08	21 0.3
11	16 46 43.01	4.693	17 17 3.7	6.18	21 22.6	11	18 24 49.38	10.145	19 33 15.2	5.21	21 0.4
12	16 48 39.04	4.974	17 19 45.7	7.98	21 20.7	12	18 28 53.98	10.236	19 35 9.5	4.31	21 0.5
13	16 50 41.70	5.246	17 22 53.1	8.39	21 18.9	13	18 33 0.71	10.323	19 36 41.9	3.38	21 0.7
14	16 52 50.77	5.509	17 26 23.5	9.21	21 17.1	14	18 37 9.48	10.407	19 37 51.5	2.41	21 0.9
15	16 55 6.05	5.763	17 30 14.9	10.04	21 15.5	15	18 41 20.20	10.486	19 38 37.5	1.41	21 1.2
16	16 57 27.33	6.008	17 34 25.0	10.78	21 14.1	16	18 45 32.79	10.562	19 38 59.3	- 0.38	21 1.5
17	16 59 54.42	6.247	17 38 51.8	11.43	21 12.7	17	18 49 47.16	10.635	19 38 56.1	+ 0.67	21 1.8
18	17 2 27.12	6.478	17 43 33.3	12.00	21 11.4	18	18 54 3.23	10.704	19 38 27.4	1.74	21 2.2
19	17 5 5.26	6.700	17 48 27.5	12.48	21 10.1	19	18 58 20.92	10.769	19 37 32.8	2.83	21 2.6
20	17 7 48.67	6.916	17 53 32.2	12.88	21 9.0	20	19 2 40.14	10.833	19 36 11.6	3.95	21 3.0
21	17 10 37.18	7.125	17 58 45.6	13.20	21 8.0	21	19 7 0.83	10.892	19 34 23.1	5.09	21 3.4
22	17 13 30.62	7.328	18 4 5.8	13.45	21 7.0	22	19 11 22.92	10.947	19 32 7.0	6.25	21 3.9
23	17 16 28.83	7.523	18 9 31.0	13.62	21 6.1	23	19 15 46.31	11.000	19 29 22.9	7.42	21 4.3
24	17 19 31.65	7.711	18 14 59.2	13.71	21 5.3	24	19 20 10.92	11.050	19 26 10.3	8.63	21 4.8
25	17 22 38.92	7.894	18 20 28.8	13.79	21 4.5	25	19 24 36.68	11.096	19 22 28.8	9.84	21 5.3
26	17 25 50.50	8.070	18 25 58.0	13.67	21 3.7	26	19 29 3.52	11.139	19 18 18.1	11.06	21 5.8
27	17 29 6.23	8.240	18 31 25.3	13.56	21 3.1	27	19 33 31.34	11.179	19 13 37.9	12.29	21 6.3
28	17 32 25.97	8.405	18 36 49.0	13.38	21 2.6	28	19 38 0.07	11.215	19 8 28.2	13.56	21 6.9
29	17 35 49.59	8.563	18 42 7.6	13.13	21 2.1	29	19 42 29.65	11.249	19 2 48.6	14.77	21 7.5
30	17 39 16.94	8.715	18 47 19.4	12.82	21 1.7	30	19 47 0.00	11.280	18 56 38.9	16.03	21 8.1
31	17 42 47.89	8.862	18 52 23.2	12.45	21 1.3	31	19 51 31.04	11.307	18 49 50.1	17.29	21 8.7
32	17 46 22.29	+9.004	-18 57 17.5	-12.03	21 1.0	32	19 56 2.70	+11.331	-18 42 49.2	+12.55	21 9.3

Day of the Month.	1st.	5th.	11th.	16th.	21st.	26th.	31st.	Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.
Semidiameter	25.4	23.4	21.5	19.9	18.4	17.0	15.8	Semidiameter	14.8	13.9	13.1	12.3	11.7	11.1
Hor. Parallax	26.3	24.2	22.3	20.5	19.0	17.6	16.4	Hor. Parallax	15.3	14.4	13.5	12.8	12.1	11.5

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.	h m		Noon.	Noon.	Noon.	Noon.	h m
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	19 42 29.65	+11.949	19 2 48.6	+14.77	21 7.5	1	22 3 32.47	+11.968	12 6 51.6	+50.51	21 26.3
2	19 47 0.00	11.960	18 56 38.9	16.03	21 8.1	2	22 8 2.47	11.941	11 46 28.3	51.42	21 26.9
3	19 51 31.04	11.307	18 49 59.1	17.29	21 8.7	3	22 12 32.06	11.924	11 25 43.5	52.30	21 27.4
4	19 56 2.70	11.331	18 42 49.2	18.55	21 9.3	4	22 17 1.23	11.907	11 4 38.0	53.15	21 28.0
5	20 0 34.91	11.353	18 35 8.9	19.81	21 9.9	5	22 21 29.99	11.190	10 43 12.3	53.98	21 28.5
6	20 5 7.60	11.371	18 26 58.3	21.07	21 10.5	6	22 35 58.33	11.173	10 21 26.9	54.79	21 29.0
7	20 9 40.71	11.368	18 18 17.5	22.33	21 11.1	7	22 30 26.26	11.155	9 59 22.5	55.57	21 29.5
8	20 14 14.18	11.402	18 9 6.5	23.58	21 11.7	8	22 34 53.76	11.138	9 36 59.6	56.32	21 30.0
9	20 18 47.95	11.413	17 59 25.4	24.83	21 12.3	9	22 39 20.85	11.120	9 14 19.0	57.05	21 30.5
10	20 23 21.96	11.421	17 49 14.3	26.08	21 12.9	10	22 43 47.53	11.103	8 51 21.1	57.76	21 31.0
11	20 27 56.16	11.428	17 38 33.3	27.33	21 13.5	11	22 48 13.82	11.087	8 28 6.5	58.45	21 31.5
12	20 32 30.50	11.432	17 27 22.7	28.57	21 14.1	12	22 52 39.73	11.072	8 4 35.7	59.11	21 32.0
13	20 37 4.92	11.436	17 15 42.5	29.79	21 14.7	13	22 57 5.28	11.057	7 40 49.5	59.74	21 32.5
14	20 41 39.39	11.437	17 3 33.1	31.00	21 15.4	14	23 1 30.48	11.043	7 16 48.4	60.35	21 33.0
15	20 46 13.87	11.436	16 50 54.6	32.21	21 16.0	15	23 5 55.35	11.030	6 52 33.0	60.93	21 33.4
16	20 50 48.33	11.435	16 37 47.2	33.41	21 16.6	16	23 10 19.90	11.017	6 28 4.0	61.48	21 33.9
17	20 55 22.72	11.431	16 24 11.2	34.59	21 17.2	17	23 14 44.15	11.005	6 3 21.8	62.02	21 34.3
18	20 59 57.01	11.426	16 10 6.9	35.76	21 17.9	18	23 19 8.12	10.994	5 38 27.1	62.52	21 34.8
19	21 4 31.17	11.421	15 55 34.7	36.92	21 18.5	19	23 23 31.84	10.984	5 13 20.6	63.00	21 35.2
20	21 9 5.18	11.414	15 40 34.7	38.08	21 19.2	20	23 27 55.34	10.975	4 48 2.8	63.46	21 35.7
21	21 13 39.00	11.405	15 25 7.3	39.21	21 19.8	21	23 32 18.64	10.967	4 22 34.2	63.90	21 36.1
22	21 18 12.61	11.396	15 9 12.5	40.32	21 20.5	22	23 36 41.76	10.960	3 56 55.5	64.31	21 36.6
23	21 22 45.98	11.385	14 52 51.6	41.42	21 21.1	23	23 41 4.73	10.954	3 31 7.2	64.69	21 37.0
24	21 27 19.10	11.375	14 36 4.2	42.51	21 21.7	24	23 45 27.55	10.949	3 5 10.1	65.05	21 37.5
25	21 31 51.94	11.362	14 18 50.9	43.58	21 22.3	25	23 49 50.26	10.945	2 39 4.8	65.38	21 37.9
26	21 36 24.48	11.349	14 1 12.2	44.63	21 22.9	26	23 54 12.01	10.943	2 12 51.9	65.69	21 38.3
27	21 40 56.70	11.335	13 43 8.4	45.67	21 23.5	27	23 58 35.51	10.941	1 46 32.0	65.96	21 38.7
28	21 45 28.58	11.321	13 24 40.0	46.69	21 24.1	28	0 2 58.06	10.940	1 20 5.9	66.21	21 39.2
29	21 50 0.12	11.306	13 5 47.6	47.68	21 24.7	29	0 7 20.61	10.940	0 53 34.2	66.43	21 39.6
30	21 54 31.29	11.290	12 46 31.8	48.65	21 25.2	30	0 11 43.19	10.941	0 26 57.4	66.62	21 40.1
31	21 59 2.07	11.274	12 26 53.0	49.59	21 25.8	31	0 16 5.81	10.944	0 0 16.2	66.79	21 40.5
32	22 3 32.47	+11.258	12 6 51.6	+50.51	21 26.3	32	0 20 28.52	+10.948	+0 26 28.5	+66.93	21 40.9

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.
Semidiameter	11.1	10.6	10.1	9.7	9.3	8.9	Semidiameter	8.6	8.3	8.0	7.7	7.5	7.3	7.1
Hor. Parallax	11.5	10.9	10.5	10.0	9.6	9.2	Hor. Parallax	8.9	8.6	8.3	8.0	7.8	7.5	7.3

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing: - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.						JUNE.								
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.			
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.		Noon.		
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m			
1	0 16 5.81	+10.944	0 0 16.2	+66.79	21 40.5	1	2 34 54.69	+11.649	+13 22 3.6	+58.15	21 57.2			
2	0 20 28.52	10.948	0 26 28.5	66.93	21 40.9	2	2 39 34.76	11.690	13 45 10.4	57.41	21 58.0			
3	0 24 51.33	10.953	0 53 16.3	67.03	21 41.3	3	2 44 15.83	11.732	14 7 59.2	56.64	21 58.8			
4	0 29 14.27	10.959	1 20 6.3	67.12	21 41.8	4	2 48 57.91	11.775	14 30 29.2	55.84	21 59.6			
5	0 33 37.36	10.966	1 46 57.9	67.17	21 42.2	5	2 53 41.02	11.818	14 52 39.8	55.02	22 0.4			
6	0 38 0.64	10.975	2 13 50.5	67.20	21 42.7	6	2 58 25.16	11.861	15 14 30.2	54.17	22 1.2			
7	0 42 24.13	10.985	2 40 43.3	67.19	21 43.1	7	3 3 10.35	11.904	15 35 59.7	53.28	22 2.0			
8	0 46 47.88	10.996	3 7 35.8	67.16	21 43.6	8	3 7 56.61	11.949	15 57 7.7	52.37	22 2.9			
9	0 51 11.91	11.007	3 34 27.2	67.11	21 44.1	9	3 12 43.94	11.994	16 17 53.3	51.43	22 3.7			
10	0 55 36.23	11.020	4 1 17.0	67.02	21 44.5	10	3 17 32.36	12.040	16 38 15.9	50.45	22 4.6			
11	1 0 0.89	11.035	4 28 4.4	66.90	21 45.0	11	3 22 21.87	12.086	16 58 14.8	49.45	22 5.5			
12	1 4 25.92	11.052	4 54 48.6	66.76	21 45.5	12	3 27 12.47	12.132	17 17 49.5	48.42	22 6.4			
13	1 8 51.36	11.069	5 21 29.1	66.60	21 46.0	13	3 32 4.18	12.178	17 36 59.1	47.37	22 7.3			
14	1 13 17.23	11.088	5 48 5.3	66.40	21 46.5	14	3 36 57.00	12.224	17 55 43.1	46.28	22 8.3			
15	1 17 43.58	11.108	6 14 36.6	66.18	21 47.0	15	3 41 50.94	12.271	18 14 0.8	45.17	22 9.3			
16	1 22 10.43	11.130	6 41 2.3	65.94	21 47.5	16	3 46 46.01	12.318	18 31 51.6	44.04	22 10.3			
17	1 26 37.82	11.153	7 7 21.6	65.66	21 48.0	17	3 51 42.19	12.364	18 49 14.7	42.87	22 11.3			
18	1 31 5.78	11.177	7 33 34.1	65.36	21 48.5	18	3 56 39.48	12.410	19 6 9.5	41.68	22 12.4			
19	1 35 34.35	11.204	7 59 39.1	65.03	21 49.1	19	4 1 37.88	12.456	19 22 35.5	40.46	22 13.4			
20	1 40 3.56	11.232	8 25 35.8	64.67	21 49.7	20	4 6 37.37	12.502	19 38 31.9	39.22	22 14.5			
21	1 44 33.44	11.261	8 51 23.5	64.28	21 50.2	21	4 11 37.97	12.547	19 53 58.0	37.95	22 15.6			
22	1 49 4.02	11.291	9 17 1.6	63.87	21 50.8	22	4 16 39.64	12.593	20 8 53.4	36.65	22 16.7			
23	1 53 35.34	11.322	9 42 29.4	63.43	21 51.4	23	4 21 42.38	12.637	20 23 17.4	35.32	22 17.8			
24	1 58 7.42	11.354	10 7 46.3	62.95	21 52.0	24	4 26 46.18	12.680	20 37 9.3	33.98	22 18.9			
25	2 2 40.29	11.387	10 32 51.5	62.45	21 52.6	25	4 31 51.01	12.722	20 50 23.7	32.62	22 20.0			
26	2 7 13.97	11.422	10 57 44.4	61.93	21 53.2	26	4 36 56.84	12.764	21 3 14.9	31.22	22 21.2			
27	2 11 48.50	11.457	11 22 24.3	61.37	21 53.8	27	4 42 3.67	12.804	21 15 27.3	29.81	22 22.4			
28	2 16 23.91	11.494	11 46 50.5	60.79	21 54.4	28	4 47 11.46	12.844	21 27 5.4	28.37	22 23.6			
29	2 21 0.21	11.532	12 11 2.3	60.17	21 55.1	29	4 52 20.17	12.882	21 38 8.7	26.91	22 24.8			
30	2 25 37.43	11.570	12 34 58.8	59.53	21 55.8	30	4 57 29.77	12.918	21 48 36.7	25.42	22 26.0			
31	2 30 15.59	11.609	12 58 39.5	58.86	21 56.5	31	5 2 40.22	12.953	21 58 28.7	23.91	22 27.3			
32	2 34 54.69	+11.649	+13 22 3.6	+58.15	21 57.2	32	5 7 51.49	+12.986	+22 7 44.4	+22.39	22 28.5			
Day of the Month.	1st.	6th.	11th.	16th.	21st.	26th.	31st.	Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.
Semidiameter	7.1	6.9	6.7	6.6	6.4	6.3	6.1	Semidiameter	6.0	5.9	5.8	5.7	5.6	5.5
Hor. Parallax	7.3	7.1	7.0	6.8	6.6	6.5	6.4	Hor. Parallax	6.2	6.1	6.0	5.9	5.8	5.7

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

JULY.						AUGUST.						
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.		Noon.
	h m s	s	o ' "	"			h m	h m s	s	o ' "		"	h m
1	5 2 40.22	+12.953	+21 58 28.7	+23.91	22 27.3	1	7 46 0.25	+13.060	+21 41 59.7	-26.97	23 8.5	
2	5 7 51.49	12.968	22 7 44.4	23.39	22 28.5	2	7 51 13.33	13.030	21 30 53.5	26.55	23 9.7	
3	5 13 3.55	13.018	22 16 23.3	20.84	22 29.8	3	7 56 25.70	13.000	21 19 9.6	30.11	23 11.0	
4	5 18 16.35	13.048	22 24 25.0	19.29	22 31.1	4	8 1 37.32	12.968	21 6 48.5	31.65	23 12.2	
5	5 23 29.84	13.076	22 31 49.1	17.71	22 32.4	5	8 6 48.14	12.934	20 53 50.6	33.18	23 13.4	
6	5 28 43.98	13.102	22 38 35.2	16.12	22 33.7	6	8 11 58.14	12.899	20 40 16.4	34.69	23 14.6	
7	5 33 58.73	13.127	22 44 42.9	14.51	22 35.0	7	8 17 7.30	12.863	20 26 6.2	36.17	23 15.9	
8	5 39 14.05	13.150	22 50 12.0	12.90	22 36.3	8	8 22 15.57	12.826	20 11 20.4	37.64	23 17.0	
9	5 44 29.88	13.170	22 55 2.1	11.36	22 37.6	9	8 27 22.95	12.788	19 55 59.7	39.08	23 18.2	
10	5 49 46.17	13.188	22 50 12.8	9.82	22 39.0	10	8 32 29.39	12.749	19 40 4.7	40.50	23 19.4	
11	5 55 2.87	13.204	23 2 44.1	7.97	22 40.3	11	8 37 34.88	12.709	19 23 35.8	41.90	23 20.6	
12	6 0 19.94	13.218	23 5 35.7	6.32	22 41.7	12	8 42 39.40	12.668	19 6 33.5	43.28	23 21.7	
13	6 5 37.34	13.230	23 7 47.4	4.65	22 43.0	13	8 47 42.94	12.627	18 48 58.5	44.64	23 22.8	
14	6 10 55.00	13.240	23 9 19.0	2.98	22 44.4	14	8 52 45.49	12.586	18 30 51.4	45.96	23 23.9	
15	6 16 12.82	13.248	23 10 10.4	+ 1.30	22 45.7	15	8 57 47.05	12.544	18 12 12.7	47.26	23 24.9	
16	6 21 30.92	13.254	23 10 21.4	- 0.36	22 47.1	16	9 2 47.61	12.502	17 53 2.9	48.54	23 25.9	
17	6 26 49.07	13.258	23 9 51.9	2.07	22 48.5	17	9 7 47.16	12.460	17 33 22.7	49.79	23 27.0	
18	6 32 7.22	13.260	23 8 41.9	3.76	22 49.8	18	9 12 45.69	12.418	17 13 12.8	51.02	23 28.0	
19	6 37 25.50	13.259	23 6 51.4	5.45	22 51.3	19	9 17 43.20	12.375	16 52 33.8	52.23	23 29.0	
20	6 42 43.69	13.257	23 4 20.4	7.14	22 52.6	20	9 22 39.69	12.333	16 31 26.4	53.40	23 30.0	
21	6 48 1.80	13.252	23 1 8.9	8.83	22 53.9	21	9 27 35.18	12.291	16 9 51.1	54.55	23 30.9	
22	6 53 19.76	13.245	22 57 16.9	10.51	22 55.3	22	9 32 29.66	12.250	15 47 48.6	55.67	23 31.9	
23	6 58 37.51	13.235	22 52 44.3	12.19	22 56.7	23	9 37 23.14	12.208	15 25 19.5	56.76	23 32.8	
24	7 3 55.01	13.224	22 47 31.4	13.87	22 58.0	24	9 42 15.62	12.167	15 2 24.5	57.82	23 33.7	
25	7 9 12.22	13.210	22 41 38.4	15.54	22 59.3	25	9 47 7.13	12.126	14 39 4.4	58.85	23 34.6	
26	7 14 29.09	13.194	22 35 5.5	17.20	23 0.7	26	9 51 57.67	12.085	14 15 19.9	59.86	23 35.5	
27	7 19 45.56	13.177	22 27 52.7	18.86	23 2.0	27	9 56 47.25	12.045	13 51 11.4	60.84	23 36.4	
28	7 25 1.59	13.158	22 20 0.2	20.50	23 3.3	28	10 1 35.89	12.006	13 26 39.8	61.78	23 37.3	
29	7 30 17.11	13.136	22 11 28.4	22.14	33 4.6	29	10 6 23.59	11.968	13 1 45.9	62.70	23 38.1	
30	7 35 32.09	13.112	22 2 17.5	23.76	23 5.9	30	10 11 10.38	11.931	12 36 30.3	63.59	23 38.9	
31	7 40 46.48	13.087	21 52 27.8	25.37	23 7.3	31	10 15 56.27	11.894	12 10 53.9	64.44	23 39.7	
32	7 46 0.25	+13.060	+21 41 59.7	-26.97	23 8.5	32	10 20 41.28	+11.858	+11 44 57.3	-65.26	23 40.5	

Day of the Month.	5th.	10th.	15th.	20th.	25th.	30th.	Day of the Month.	4th.	9th.	14th.	19th.	24th.	29th.
Semidiameter	5.5	5.4	5.3	5.3	5.2	5.2	Semidiameter	5.1	5.1	5.1	5.0	5.0	5.0
Hor. Parallax	5.6	5.6	5.5	5.5	5.4	5.4	Hor. Parallax	5.3	5.3	5.2	5.2	5.2	5.2

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing; - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.						OCTOBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	10 20 41.28	+11.858	+11 44 57.3	-65.96	23 40.5	1	12 38 57.39	+11.425	- 2 49 34.6	-75.94	
2	10 25 25.45	11.822	11 18 41.2	66.06	23 41.3	2	12 43 31.70	11.436	3 19 55.7	75.82	0 0.4
3	10 30 8.78	11.786	10 52 6.4	66.83	23 42.1	3	12 48 6.30	11.448	3 50 13.4	75.67	0 1.0
4	10 34 51.30	11.755	10 25 13.6	67.57	23 42.8	4	12 52 41.22	11.462	4 20 27.1	75.48	0 1.6
5	10 39 33.03	11.723	9 58 3.6	68.27	23 43.5	5	12 57 16.51	11.478	4 50 35.8	75.26	0 2.3
6	10 44 14.03	11.693	9 30 37.1	68.94	23 44.2	6	13 1 52.21	11.496	5 20 30.0	75.01	0 2.9
7	10 48 54.28	11.663	9 2 54.8	69.58	23 44.9	7	13 6 28.35	11.516	5 50 35.8	74.73	0 3.6
8	10 53 33.85	11.635	8 34 57.4	70.19	23 45.6	8	13 11 4.97	11.536	6 20 25.4	74.41	0 4.2
9	10 58 12.76	11.609	8 6 45.8	70.77	23 46.3	9	13 15 42.12	11.559	6 50 7.2	74.06	0 4.9
10	11 2 51.04	11.583	7 38 20.5	71.33	23 47.0	10	13 20 19.84	11.584	7 19 40.4	73.68	0 5.6
11	11 7 28.72	11.558	7 9 42.4	71.85	23 47.7	11	13 24 58.17	11.610	7 49 4.1	73.28	0 6.3
12	11 12 5.84	11.535	6 40 52.0	72.34	23 48.4	12	13 29 37.14	11.638	8 18 17.6	72.84	0 7.0
13	11 16 42.43	11.514	6 11 50.2	72.80	23 49.1	13	13 34 16.81	11.668	8 47 20.1	72.36	0 7.7
14	11 21 18.54	11.495	5 42 37.8	73.23	23 49.8	14	13 38 57.20	11.699	9 16 11.0	71.86	0 8.4
15	11 25 54.21	11.478	5 13 15.3	73.63	23 50.4	15	13 43 38.36	11.732	9 44 49.4	71.33	0 9.2
16	11 30 29.47	11.461	4 43 43.5	74.00	23 51.1	16	13 48 20.32	11.766	10 13 14.6	70.76	0 10.0
17	11 35 4.36	11.447	4 14 3.2	74.34	23 51.7	17	13 53 3.13	11.802	10 41 25.7	70.16	0 10.7
18	11 39 38.93	11.435	3 44 15.0	74.66	23 52.4	18	13 57 46.81	11.839	11 9 22.0	69.53	0 11.5
19	11 44 13.22	11.424	3 14 19.7	74.94	23 53.0	19	14 2 31.40	11.878	11 37 2.7	68.87	0 12.3
20	11 48 47.26	11.414	2 44 18.0	75.20	23 53.6	20	14 7 16.93	11.917	12 4 27.1	68.16	0 13.1
21	11 53 21.10	11.406	2 14 10.5	75.43	23 54.2	21	14 12 3.45	11.959	12 31 34.3	67.43	0 14.0
22	11 57 54.79	11.400	1 43 58.1	75.62	23 54.8	22	14 16 50.98	12.002	12 59 23.6	66.67	0 14.8
23	12 2 28.35	11.396	1 13 41.5	75.77	23 55.4	23	14 21 39.55	12.045	13 24 54.2	65.87	0 15.7
24	12 7 1.82	11.394	0 43 21.4	75.90	23 56.0	24	14 26 29.19	12.090	13 51 5.1	65.03	0 16.6
25	12 11 35.25	11.393	+ 0 12 58.5	76.00	23 56.6	25	14 31 19.91	12.136	14 16 55.7	64.17	0 17.5
26	12 16 8.69	11.394	- 0 17 26.4	76.07	23 57.3	26	14 36 11.75	12.183	14 42 25.0	63.27	0 18.4
27	12 20 42.16	11.396	0 47 52.5	76.11	23 57.9	27	14 41 4.73	12.231	15 7 32.4	62.33	0 19.4
28	12 25 15.75	11.401	1 18 19.2	76.11	23 58.5	28	14 45 58.86	12.279	15 32 16.9	61.36	0 20.3
29	12 29 49.45	11.408	1 48 45.6	76.09	23 59.1	29	14 50 54.16	12.329	15 56 37.7	60.36	0 21.3
30	12 34 23.32	11.416	2 19 11.0	76.03	23 59.7	30	14 55 50.66	12.379	16 20 34.1	59.32	0 22.3
31	12 38 57.39	11.425	2 49 34.6	75.94		31	15 0 48.36	12.429	16 44 5.2	58.25	0 23.3
32	12 43 31.70	+11.436	- 3 19 55.7	-75.82	0 0.4	32	15 5 47.27	+12.480	-17 7 10.3	-57.15	0 24.4

Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.	Day of the Month.	3d.	8th.	13th.	18th.	23d.	28th.
Semidiameter	5.0	5.0	5.0	5.0	5.0	5.0	Semidiameter	5.0	5.0	5.0	5.0	5.0	5.0
Hor. Parallax	5.2	5.2	5.1	5.1	5.1	5.1	Hor. Parallax	5.1	5.2	5.2	5.2	5.2	5.2

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

NOVEMBER.						DECEMBER.															
Day of Month.	Apparent Right Ascension.			Var. of R. A. for 1 Hour.		Meridian Passage.	Day of Month.	Apparent Right Ascension.			Var. of Dec. for 1 Hour.		Meridian Passage.								
	h	m	s	''	'''			h	m	s	''	'''									
1	15	5	47.27	+12.480	-17	7	10.3	-57.15	0	24.4	1	17	43	59.64	+13.707	-24	17	1.1	-10.70	1	4.3
2	15	10	47.40	12.531	17	29	48.4	56.02	0	25.4	2	17	49	28.76	13.730	24	20	55.5	8.83	1	5.9
3	15	15	48.76	12.582	17	51	58.8	54.84	0	26.5	3	17	54	58.15	13.739	24	24	5.1	6.96	1	7.4
4	15	20	51.35	12.633	18	13	40.6	53.64	0	27.6	4	18	0	27.74	13.736	24	26	29.7	5.08	1	9.0
5	15	25	55.17	12.685	18	34	53.2	52.41	0	28.7	5	18	5	57.45	13.740	24	28	9.3	3.90	1	10.6
6	15	31	0.22	12.736	18	55	35.7	51.14	0	29.8	6	18	11	27.24	13.749	24	29	3.6	-1.31	1	12.1
7	15	36	6.51	12.788	19	15	47.4	49.84	0	31.0	7	18	16	57.05	13.741	24	29	12.5	+0.58	1	13.7
8	15	41	14.04	12.839	19	35	27.6	48.51	0	32.2	8	18	22	26.79	13.737	24	28	36.2	2.46	1	15.2
9	15	46	22.78	12.890	19	54	35.4	47.15	0	33.4	9	18	27	56.42	13.731	24	27	14.6	4.34	1	16.8
10	15	51	32.73	12.939	20	13	10.2	45.75	0	34.6	10	18	33	25.84	13.731	24	25	7.8	6.22	1	18.3
11	15	56	43.88	12.989	20	31	11.2	44.33	0	35.9	11	18	38	54.98	13.708	24	22	15.9	8.10	1	19.9
12	16	1	56.23	13.039	20	48	37.7	42.87	0	37.1	12	18	44	23.78	13.682	24	18	39.0	9.97	1	21.4
13	16	7	9.75	13.088	21	5	29.0	41.39	0	38.4	13	18	49	52.18	13.674	24	14	17.2	11.83	1	22.9
14	16	12	24.42	13.136	21	21	44.4	39.89	0	39.7	14	18	55	20.13	13.654	24	9	10.7	13.69	1	24.4
15	16	17	40.23	13.183	21	37	23.3	38.35	0	41.0	15	19	0	47.56	13.631	24	3	19.8	15.55	1	26.0
16	16	22	57.16	13.229	21	52	24.9	36.79	0	42.4	16	19	6	14.42	13.606	23	56	44.6	17.39	1	27.5
17	16	28	15.18	13.274	22	6	48.8	35.20	0	43.8	17	19	11	40.63	13.578	23	49	25.5	19.21	1	29.0
18	16	33	34.27	13.317	22	20	34.2	33.58	0	45.1	18	19	17	6.14	13.548	23	41	22.8	21.03	1	30.4
19	16	38	54.38	13.358	22	33	40.5	31.94	0	46.5	19	19	22	30.90	13.515	23	32	36.8	22.82	1	31.9
20	16	44	15.47	13.399	22	46	7.2	30.28	0	47.9	20	19	27	54.86	13.481	23	23	7.8	24.59	1	33.4
21	16	49	37.51	13.438	22	57	53.7	28.50	0	49.3	21	19	33	17.97	13.444	23	12	56.2	26.36	1	34.8
22	16	55	0.47	13.475	23	8	59.5	26.88	0	50.8	22	19	38	40.18	13.405	23	2	2.7	28.10	1	36.2
23	17	0	24.30	13.510	23	19	24.0	25.15	0	52.3	23	19	44	1.43	13.365	22	50	27.6	29.82	1	37.6
24	17	5	48.94	13.543	23	29	6.7	23.41	0	53.7	24	19	49	21.68	13.322	22	38	11.3	31.53	1	39.0
25	17	11	14.35	13.574	23	38	7.2	21.64	0	55.2	25	19	54	40.89	13.278	22	25	14.3	33.21	1	40.4
26	17	16	40.46	13.603	23	46	25.1	19.85	0	56.7	26	19	59	59.00	13.231	22	11	37.2	34.87	1	41.7
27	17	22	7.22	13.628	23	54	0.0	18.05	0	58.2	27	20	5	15.99	13.183	21	57	20.6	36.50	1	43.1
28	17	27	34.58	13.652	24	0	51.3	16.22	0	59.7	28	20	10	31.81	13.134	21	42	25.1	38.11	1	44.4
29	17	33	2.48	13.673	24	6	58.7	14.39	1	1.3	29	20	15	46.43	13.083	21	26	51.3	39.69	1	45.7
30	17	38	30.86	13.691	24	12	22.1	12.55	1	2.8	30	20	20	59.81	13.031	21	10	39.6	41.25	1	47.0
31	17	43	59.64	13.707	24	17	1.1	10.70	1	4.3	31	20	26	11.93	12.978	20	53	51.3	42.78	1	48.2
32	17	49	28.76	+13.730	-24	20	55.5	-8.83	1	5.9	32	20	31	22.76	+19.934	-20	36	26.4	+44.98	1	49.5

Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	Day of the Month.	2d.	7th.	12th.	17th.	22d.	27th.	32d.
Semidiameter	5'.1	5'.1	5'.1	5'.2	5'.2	5'.3	Semidiameter	5'.3	5'.4	5'.4	5'.5	5'.6	5'.6	5'.7
Hor. Parallax	5.3	5.3	5.3	5.4	5.4	5.5	Hor. Parallax	5.5	5.6	5.6	5.7	5.8	5.8	5.9

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing; - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	14 16 43.63	+5.719	12 26 1.1	-29.79	19 32.5	1	15 27 42.29	+5.700	-17 47 45.9	-21.75	18 41.3
2	14 19 0.92	5.721	12 37 53.5	29.57	19 30.8	2	15 29 59.04	5.695	17 56 24.8	21.47	18 39.6
3	14 21 18.25	5.722	12 49 40.3	29.34	19 29.2	3	15 32 15.66	5.690	18 4 57.1	21.19	18 38.0
4	14 23 35.62	5.724	13 1 21.8	29.11	19 27.5	4	15 34 32.16	5.684	18 13 22.6	20.90	18 36.3
5	14 25 53.03	5.726	13 12 57.8	28.87	19 25.9	5	15 36 48.52	5.678	18 21 40.8	20.61	18 34.6
6	14 28 10.46	5.727	13 24 28.1	28.63	19 24.2	6	15 39 4.71	5.672	18 29 52.1	20.31	18 33.0
7	14 30 27.92	5.727	13 35 52.8	28.40	19 22.6	7	15 41 26.73	5.664	18 37 56.2	20.02	18 31.3
8	14 32 45.39	5.728	13 47 11.7	28.16	19 20.9	8	15 43 36.57	5.656	18 45 53.2	19.72	18 29.6
9	14 35 2.88	5.729	13 58 24.7	27.91	19 19.2	9	15 45 52.22	5.648	18 53 43.2	19.44	18 28.0
10	14 37 20.39	5.729	14 9 31.7	27.66	19 17.6	10	15 48 7.67	5.639	19 1 26.3	19.14	18 26.3
11	14 39 37.91	5.729	14 20 32.8	27.42	19 16.0	11	15 50 22.91	5.630	19 9 2.2	18.84	18 24.5
12	14 41 55.42	5.729	14 31 28.0	27.17	19 14.3	12	15 52 37.94	5.622	19 16 31.2	18.55	18 22.8
13	14 44 12.92	5.729	14 42 17.2	26.91	19 12.7	13	15 54 52.76	5.613	19 23 53.1	18.26	18 21.1
14	14 46 30.43	5.729	14 53 0.3	26.66	19 11.0	14	15 57 7.37	5.604	19 31 7.9	17.96	18 19.4
15	14 48 47.94	5.729	15 3 37.2	26.41	19 9.4	15	15 59 21.75	5.593	19 38 15.6	17.67	18 17.7
16	14 51 5.46	5.729	15 14 7.9	26.14	19 7.7	16	16 1 35.86	5.582	19 35 16.3	17.38	18 16.0
17	14 53 22.97	5.729	15 24 32.4	25.88	19 6.1	17	16 3 49.71	5.571	19 52 10.1	17.09	18 14.3
18	14 55 40.46	5.728	15 34 50.8	25.62	19 4.4	18	16 6 3.29	5.559	19 58 56.8	16.80	18 12.6
19	14 57 57.95	5.728	15 45 2.9	25.36	19 2.8	19	16 8 16.58	5.548	20 5 36.8	16.51	18 10.8
20	15 0 15.44	5.727	15 55 8.5	25.09	19 1.1	20	16 10 29.58	5.535	20 12 9.8	16.23	18 9.1
21	15 2 32.93	5.727	16 5 7.6	24.83	18 59.5	21	16 12 42.28	5.522	20 18 36.0	15.94	18 7.4
22	15 4 50.36	5.726	16 15 0.3	24.56	18 57.8	22	16 14 54.67	5.509	20 24 55.2	15.65	18 5.6
23	15 7 7.77	5.725	16 24 46.8	24.30	18 56.2	23	16 17 6.72	5.495	20 31 7.6	15.37	18 3.9
24	15 9 25.16	5.723	16 34 26.8	24.01	18 54.5	24	16 19 18.43	5.480	20 37 13.1	15.08	18 2.1
25	15 11 42.52	5.722	16 44 0.2	23.74	18 52.9	25	16 21 29.77	5.468	20 43 11.7	14.80	18 0.4
26	15 13 59.83	5.720	16 53 20.7	23.47	18 51.2	26	16 23 40.72	5.447	20 49 3.5	14.51	17 58.6
27	15 16 17.09	5.717	17 2 46.8	23.19	18 49.6	27	16 25 51.26	5.430	20 54 48.6	14.24	17 56.9
28	15 18 34.28	5.714	17 12 0.2	22.91	18 47.9	28	16 28 1.39	5.412	21 0 27.0	13.96	17 55.1
29	15 20 51.41	5.711	17 21 6.8	22.63	18 46.2	29	16 30 11.09	5.394	21 5 58.8	13.68	17 53.3
30	15 23 8.47	5.708	17 30 6.7	22.34	18 44.6	30	16 32 20.32	5.374	21 11 23.8	13.40	17 51.5
31	15 25 25.43	5.705	17 38 59.9	22.04	18 42.9	31	16 34 29.07	5.354	21 16 42.1	-13.19	17 49.7
32	15 27 42.29	+5.700	-17 47 45.9	-21.75	18 41.3	32	16 36 37.32	+5.333	-21 21 53.2	-12.95	17 47.9

Day of the Month.	1st.	9th.	17th.	25th.	Day of the Month.	2d.	10th.	18th.	26th.
Semidiameter	2.8	2.9	3.1	3.2	Semidiameter	3.4	3.6	3.8	4.0
Horizontal Parallax	4.9	5.1	5.3	5.6	Horizontal Parallax	5.9	6.2	6.6	7.0

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.	h m		Noon.	Noon.	Noon.	Noon.	h m
	h m s	s	° ' "	"			h m s	s	° ' "	"	
1	16 30 11.09	+5.394	21 5 58.8	-13.68	17 53.3	1	17 31 41.23	+4.371	23 8 41.8	-6.83	16 52.3
2	16 32 20.32	5.374	21 11 23.8	13.40	17 51.5	2	17 33 25.53	4.350	23 11 24.2	6.70	16 50.1
3	16 34 29.07	5.354	21 16 42.1	13.12	17 49.7	3	17 35 8.58	4.327	23 14 3.4	6.57	16 47.9
4	16 36 37.32	5.333	21 21 53.8	12.85	17 47.9	4	17 36 50.34	4.292	23 16 39.6	6.44	16 45.7
5	16 38 45.04	5.310	21 26 59.1	12.58	17 46.1	5	17 38 30.77	4.156	23 19 13.0	6.33	16 43.4
6	16 40 52.22	5.286	21 31 57.9	12.31	17 44.3	6	17 40 9.84	4.099	23 21 43.8	6.23	16 41.1
7	16 42 58.92	5.262	21 36 50.2	12.04	17 42.4	7	17 41 47.53	4.040	23 24 12.1	6.13	16 28.8
8	16 45 4.81	5.237	21 41 36.1	11.78	17 40.6	8	17 43 23.76	3.980	23 26 38.2	6.04	16 36.4
9	16 47 10.21	5.212	21 46 15.8	11.52	17 38.8	9	17 44 58.52	3.919	23 29 2.2	5.96	16 34.0
10	16 49 14.99	5.185	21 50 49.2	11.26	17 36.9	10	17 46 31.80	3.854	23 31 24.3	5.90	16 31.6
11	16 51 19.13	5.158	21 55 16.7	11.00	17 35.0	11	17 48 3.56	3.790	23 33 44.9	5.83	16 29.2
12	16 53 22.60	5.130	21 59 38.1	10.77	17 33.1	12	17 49 33.75	3.724	23 36 4.1	5.77	16 26.7
13	16 55 25.40	5.102	22 3 53.7	10.53	17 31.2	13	17 51 2.35	3.657	23 38 22.0	5.73	16 24.3
14	16 57 27.50	5.073	22 8 3.6	10.29	17 29.3	14	17 52 29.31	3.588	23 40 38.9	5.69	16 21.8
15	16 59 28.89	5.042	22 12 7.8	10.06	17 27.4	15	17 53 54.61	3.518	23 42 55.1	5.66	16 19.5
16	17 1 29.54	5.010	22 16 6.4	9.84	17 25.4	16	17 55 18.22	3.547	23 45 10.7	5.64	16 16.8
17	17 3 29.43	4.980	22 19 59.6	9.61	17 23.5	17	17 56 40.08	3.474	23 47 25.8	5.62	16 14.1
18	17 5 28.55	4.947	22 23 47.4	9.39	17 21.5	18	17 58 0.16	3.399	23 49 40.7	5.62	16 11.5
19	17 7 26.88	4.913	22 27 29.9	9.16	17 19.5	19	17 59 18.42	3.322	23 51 55.6	5.63	16 8.8
20	17 9 24.40	4.878	22 31 7.4	8.95	17 17.5	20	18 0 34.81	3.143	23 54 10.9	5.65	16 6.1
21	17 11 21.06	4.843	22 34 30.9	8.74	17 15.5	21	18 1 49.28	3.062	23 56 26.7	5.67	16 3.4
22	17 13 16.91	4.808	22 38 7.5	8.55	17 13.5	22	18 3 1.80	2.978	23 58 43.1	5.69	16 0.7
23	17 15 11.85	4.770	22 41 30.3	8.35	17 11.5	23	18 4 12.31	2.894	24 1 0.3	5.74	15 57.9
24	17 17 5.86	4.731	22 44 48.5	8.16	17 9.4	24	18 5 20.74	2.807	24 3 18.5	5.79	15 55.0
25	17 18 58.93	4.690	22 48 2.1	7.97	17 7.3	25	18 6 27.05	2.717	24 5 38.1	5.85	15 52.2
26	17 20 51.02	4.648	22 51 11.3	7.79	17 5.3	26	18 7 31.18	2.625	24 7 59.2	5.92	15 49.2
27	17 22 42.11	4.606	22 54 16.1	7.62	17 3.2	27	18 8 33.10	2.532	24 10 22.0	6.00	15 46.4
28	17 24 32.17	4.563	22 57 16.9	7.45	17 1.0	28	18 9 32.73	2.435	24 12 46.8	6.07	15 43.4
29	17 26 21.13	4.517	23 0 13.8	7.28	16 58.9	29	18 10 29.98	2.336	24 15 13.7	6.14	15 40.4
30	17 28 8.98	4.470	23 3 6.9	7.12	16 56.7	30	18 11 24.83	2.234	24 17 42.9	6.22	15 37.3
31	17 29 55.70	4.421	23 5 56.2	6.97	16 54.6	31	18 12 17.23	2.131	24 20 14.4	6.36	15 34.3
32	17 31 41.23	+4.371	23 8 41.8	-6.83	16 52.3	32	18 13 7.13	+2.025	24 22 48.8	-6.50	15 31.2

Day of the Month.	6th.	14th.	22d.	30th.	Day of the Month.	7th.	15th.	23d.	31st.
Semidiameter	4.3	4.6	4.9	5.4	Semidiameter	5.9	6.4	6.9	7.5
Horizontal Parallax	7.5	8.1	8.7	9.4	Horizontal Parallax	10.2	11.1	12.1	13.2

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing: - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.					JUNE.						
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.		Noon.
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	18 12 17.23	+2.131	24 20 14.4	-6.36	15 34.3	1	18 15 6.34	-1.861	26 9 13.0	-10.85	13 34.1
2	18 13 7.13	2.025	24 22 48.8	6.50	15 31.2	2	18 14 20.06	1.094	26 13 33.7	10.67	13 29.4
3	18 13 54.44	1.917	24 25 26.4	6.63	15 28.0	3	18 13 30.63	2.124	26 17 54.7	10.67	13 24.6
4	18 14 39.13	1.806	24 28 7.2	6.77	15 24.7	4	18 12 38.11	2.250	26 22 15.5	10.85	13 19.8
5	18 15 21.14	1.694	24 30 51.1	6.90	15 21.4	5	18 11 42.61	2.372	26 26 35.7	10.81	13 14.9
6	18 16 0.43	1.580	24 33 38.3	7.04	15 18.1	6	18 10 44.22	2.491	26 30 54.6	10.75	13 10.0
7	18 16 36.97	1.464	24 36 29.1	7.20	15 14.8	7	18 9 43.05	2.604	26 35 11.7	10.67	13 5.1
8	18 17 10.70	1.346	24 39 23.7	7.36	15 11.4	8	18 8 39.21	2.712	26 39 26.7	10.57	13 0.1
9	18 17 41.57	1.226	24 42 22.2	7.52	15 8.0	9	18 7 32.85	2.815	26 43 38.9	10.44	12 55.0
10	18 18 9.57	1.105	24 45 24.7	7.69	15 4.4	10	18 6 24.10	2.911	26 47 48.0	10.30	12 49.9
11	18 18 34.63	0.982	24 48 31.4	7.87	15 0.9	11	18 5 13.10	3.001	26 51 53.5	10.13	12 44.7
12	18 18 56.72	0.859	24 51 42.3	8.04	14 57.3	12	18 4 0.00	3.087	26 55 54.5	9.94	12 39.6
13	18 19 15.83	0.733	24 54 57.5	8.23	14 53.7	13	18 2 44.93	3.168	26 59 50.5	9.72	12 34.3
14	18 19 31.88	0.605	24 58 17.2	8.41	14 50.0	14	18 1 28.05	3.237	27 3 41.0	9.48	12 29.2
15	18 19 44.87	0.476	25 1 41.2	8.59	14 46.2	15	18 0 9.54	3.301	27 7 25.5	9.22	12 23.9
16	18 19 54.75	0.345	25 5 9.7	8.78	14 42.4	16	17 58 49.58	3.359	27 11 3.5	8.94	12 18.7
17	18 20 1.47	0.212	25 8 42.6	8.96	14 38.6	17	17 57 28.33	3.409	27 14 34.7	8.65	12 13.4
18	18 20 4.98	+0.079	25 12 19.7	9.13	14 34.7	18	17 56 5.98	3.450	27 17 58.5	8.33	12 8.1
19	18 20 5.27	-0.055	25 16 0.9	9.30	14 30.7	19	17 54 42.72	3.484	27 21 14.6	8.01	12 2.8
20	18 20 2.33	0.191	25 19 46.3	9.47	14 26.7	20	17 53 18.75	3.510	27 24 22.9	7.68	11 57.4
21	18 19 56.10	0.327	25 23 35.7	9.64	14 22.6	21	17 51 54.26	3.527	27 27 23.1	7.33	11 52.1
22	18 19 46.58	0.466	25 27 29.0	9.80	14 18.5	22	17 50 29.43	3.537	27 30 14.9	6.97	11 46.7
23	18 19 33.73	0.605	25 31 26.3	9.96	14 14.3	23	17 49 4.45	3.539	27 32 57.9	6.60	11 41.4
24	18 19 17.52	0.746	25 35 27.1	10.11	14 10.1	24	17 47 39.55	3.531	27 35 31.9	6.22	11 36.1
25	18 18 57.93	0.887	25 39 31.4	10.25	14 5.8	25	17 46 14.93	3.515	27 37 56.6	5.83	11 30.8
26	18 18 34.95	1.029	25 43 38.9	10.37	14 1.4	26	17 44 50.80	3.491	27 40 12.0	5.45	11 25.5
27	18 18 8.57	1.170	25 47 49.2	10.48	13 57.0	27	17 43 27.36	3.457	27 42 18.1	5.06	11 20.1
28	18 17 38.81	1.310	25 52 2.0	10.58	13 52.6	28	17 42 4.83	3.415	27 44 15.0	4.68	11 14.8
29	18 17 5.67	1.450	25 56 17.1	10.67	13 48.1	29	17 40 43.44	3.363	27 46 2.9	4.31	11 9.6
30	18 16 29.20	1.589	26 0 34.3	10.75	13 43.5	30	17 39 23.40	3.302	27 47 41.7	3.93	11 4.3
31	18 15 49.41	1.726	26 4 53.0	10.81	13 38.8	31	17 38 4.92	3.232	27 49 11.5	3.56	10 59.1
32	18 15 6.34	-1.861	26 9 13.0	-10.85	13 34.1	32	17 36 48.22	-3.155	27 50 32.6	-3.30	10 53.9

Day of the Month.	1st.	9th.	17th.	25th.	Day of the Month.	2d.	10th.	18th.	25th.
Semidiameter	7.5	8.2	9.0	9.7	Semidiameter	10.5	11.1	11.4	11.6
Horizontal Parallax	13.2	14.4	15.7	17.0	Horizontal Parallax	18.3	19.4	20.1	20.4

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

JULY.					AUGUST.						
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
1	17 38 4.92	-3.238	27 49 11.5	-3.56	10 59.1	1	17 22 29.70	+1.084	27 50 28.6	+1.36	8 42.5
2	17 36 48.22	3.155	27 50 32.6	3.90	10 53.9	2	17 22 57.55	1.226	27 49 55.8	1.37	8 39.0
3	17 35 33.48	3.069	27 51 45.3	2.86	10 48.7	3	17 23 20.05	1.387	27 49 22.9	1.38	8 35.6
4	17 34 20.89	2.975	27 52 49.8	2.52	10 43.7	4	17 24 4.16	1.537	27 48 49.6	1.39	8 32.3
5	17 33 10.66	2.874	27 53 46.4	2.90	10 38.6	5	17 24 42.83	1.685	27 48 16.2	1.40	8 29.0
6	17 32 2.94	2.768	27 54 35.2	1.89	10 33.5	6	17 25 25.02	1.830	27 47 42.4	1.42	8 25.8
7	17 30 57.89	2.651	27 55 16.6	1.58	10 28.5	7	17 26 10.69	1.974	27 47 8.1	1.44	8 22.7
8	17 29 55.65	2.531	27 55 51.0	1.30	10 23.6	8	17 26 59.77	2.115	27 46 33.2	1.47	8 19.6
9	17 28 56.40	2.404	27 56 19.1	1.05	10 18.7	9	17 27 52.21	2.254	27 45 57.5	1.50	8 16.6
10	17 28 0.24	2.273	27 56 41.0	0.79	10 13.9	10	17 28 47.94	2.390	27 45 21.0	1.54	8 13.6
11	17 27 7.29	2.137	27 56 57.1	0.56	10 9.1	11	17 29 46.91	2.522	27 44 43.6	1.58	8 10.6
12	17 26 17.63	1.998	27 57 8.0	0.35	10 4.4	12	17 30 49.03	2.652	27 44 4.9	1.64	8 7.7
13	17 25 31.36	1.855	27 57 13.9	-0.15	9 59.7	13	17 31 54.26	2.781	27 43 25.0	1.69	8 4.9
14	17 24 48.55	1.709	27 57 15.2	+0.03	9 55.1	14	17 33 2.53	2.908	27 42 43.7	1.76	8 2.1
15	17 24 9.28	1.561	27 57 12.4	0.90	9 50.5	15	17 34 13.78	3.028	27 42 0.7	1.83	7 59.4
16	17 23 33.60	1.411	27 57 5.7	0.35	9 46.0	16	17 35 27.92	3.147	27 41 16.0	1.91	7 56.7
17	17 23 1.53	1.260	27 56 55.4	0.49	9 41.6	17	17 36 44.87	3.265	27 40 29.1	2.00	7 54.0
18	17 22 33.12	1.108	27 56 42.0	0.62	9 37.2	18	17 38 4.65	3.382	27 39 40.0	2.10	7 51.4
19	17 22 8.42	0.951	27 56 25.8	0.73	9 32.9	19	17 39 27.21	3.495	27 38 48.5	2.20	7 48.9
20	17 21 47.45	0.795	27 56 7.0	0.83	9 28.7	20	17 40 52.44	3.605	27 37 54.2	2.32	7 46.4
21	17 21 30.23	0.639	27 55 45.9	0.92	9 24.5	21	17 42 20.28	3.714	27 36 57.0	2.44	7 43.9
22	17 21 16.77	0.482	27 55 22.7	1.00	9 20.3	22	17 43 50.69	3.820	27 35 56.9	2.57	7 41.5
23	17 21 7.08	0.325	27 54 57.7	1.07	9 16.3	23	17 45 23.62	3.924	27 34 53.5	2.72	7 39.1
24	17 21 1.17	0.167	27 54 31.2	1.13	9 12.3	24	17 46 59.03	4.026	27 33 46.5	2.87	7 36.8
25	17 20 59.05	-0.010	27 54 3.5	1.17	9 8.3	25	17 48 36.88	4.126	27 32 35.8	3.03	7 34.5
26	17 21 0.70	+0.147	27 53 34.8	1.21	9 4.4	26	17 50 17.12	4.225	27 31 21.1	3.20	7 32.2
27	17 21 6.14	0.305	27 53 5.2	1.25	9 0.6	27	17 51 59.71	4.322	27 30 2.0	3.38	7 30.0
28	17 21 15.35	0.462	27 52 35.0	1.27	8 56.9	28	17 53 44.62	4.417	27 28 38.5	3.57	7 27.8
29	17 21 28.33	0.619	27 52 4.3	1.29	8 53.2	29	17 55 31.77	4.510	27 27 10.4	3.77	7 25.7
30	17 21 45.06	0.775	27 51 32.9	1.32	8 49.5	30	17 57 21.11	4.601	27 25 37.5	3.96	7 23.6
31	17 22 5.52	0.930	27 51 1.0	1.34	8 46.0	31	17 59 12.60	4.690	27 23 59.4	4.20	7 21.5
32	17 22 29.70	+1.084	27 50 28.6	+1.36	8 42.5	32	18 1 6.21	+4.777	27 22 16.1	+4.42	7 19.5

Day of the Month.	4th.	12th.	20th.	28th.	Day of the Month.	5th.	13th.	21st.	29th.
Semidiameter	11.6	11.4	10.9	10.3	Semidiameter	9.6	9.0	8.4	7.9
Horizontal Parallax	20.3	19.7	18.9	17.9	Horizontal Parallax	16.9	15.8	14.8	13.9

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing; - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.						OCTOBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.		Noon.
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	18 1 6.21	+4.777	-27 22 16.1	+ 4.42	7 19.5	1	19 10 13.80	+6.484	-25 31 6.3	+15.16	6 30.6
2	18 3 1.91	4.862	27 20 27.1	4.67	7 17.5	2	19 12 49.83	6.517	25 24 57.0	15.61	6 29.3
3	18 4 59.61	4.945	27 18 32.1	4.92	7 15.5	3	19 15 26.65	6.549	25 18 36.8	16.07	6 28.0
4	18 6 59.28	5.026	27 16 31.0	5.18	7 13.6	4	19 18 4.21	6.579	25 12 5.5	16.53	6 26.7
5	18 9 0.85	5.104	27 14 23.4	5.45	7 11.7	5	19 20 42.46	6.607	25 5 23.2	16.99	6 25.4
6	18 11 4.27	5.180	27 12 9.2	5.73	7 9.8	6	19 23 21.39	6.635	24 58 29.8	17.45	6 24.1
7	18 13 9.49	5.254	27 9 48.1	6.03	7 8.0	7	19 26 0.95	6.660	24 51 25.5	17.91	6 22.8
8	18 15 16.46	5.326	27 7 19.8	6.32	7 6.2	8	19 28 41.11	6.684	24 44 10.1	18.37	6 21.5
9	18 17 25.15	5.396	27 4 44.6	6.62	7 4.4	9	19 31 21.83	6.707	24 36 43.4	18.84	6 20.3
10	18 19 35.48	5.463	27 2 2.1	6.93	7 2.6	10	19 34 3.07	6.730	24 29 5.5	19.30	6 19.0
11	18 21 47.40	5.529	26 59 11.9	7.26	7 0.9	11	19 36 44.81	6.749	24 21 16.4	19.77	6 17.8
12	18 24 0.85	5.591	26 56 13.8	7.60	6 59.2	12	19 39 27.03	6.768	24 13 16.2	20.24	6 16.6
13	18 26 15.78	5.653	26 53 7.6	7.94	6 57.5	13	19 42 9.69	6.786	24 5 4.8	20.71	6 15.4
14	18 28 32.16	5.712	26 49 52.8	8.28	6 55.7	14	19 44 52.75	6.802	23 56 42.1	21.17	6 14.2
15	18 30 49.93	5.769	26 46 29.5	8.64	6 54.1	15	19 47 36.20	6.817	23 48 8.3	21.64	6 12.9
16	18 33 9.06	5.825	26 42 57.7	9.00	6 52.5	16	19 50 19.99	6.831	23 39 23.4	22.10	6 11.7
17	18 35 29.50	5.878	26 39 17.3	9.37	6 50.9	17	19 53 4.11	6.845	23 30 27.3	22.57	6 10.5
18	18 37 51.22	5.930	26 35 28.1	9.75	6 49.3	18	19 55 48.57	6.857	23 21 20.0	23.03	6 9.3
19	18 40 14.15	5.982	26 11 29.7	10.13	6 47.8	19	19 58 33.32	6.870	23 12 1.5	23.50	6 8.1
20	18 42 38.29	6.031	26 27 22.0	10.52	6 46.3	20	20 1 18.33	6.881	23 2 31.8	23.96	6 6.9
21	18 45 3.61	6.078	26 23 4.9	10.90	6 44.8	21	20 4 3.59	6.891	22 52 51.1	24.43	6 5.7
22	18 47 30.06	6.125	26 18 38.3	11.31	6 43.3	22	20 6 49.09	6.901	22 42 59.2	24.89	6 4.5
23	18 49 57.60	6.171	26 14 2.0	11.72	6 41.8	23	20 9 34.82	6.910	22 32 56.3	25.36	6 3.3
24	18 52 26.21	6.214	26 9 15.8	12.13	6 40.3	24	20 12 20.76	6.918	22 22 42.5	25.81	6 2.1
25	18 54 55.87	6.256	26 4 19.6	12.55	6 38.9	25	20 15 6.90	6.927	22 12 17.6	26.26	6 1.0
26	18 57 26.52	6.297	25 59 13.4	12.97	6 37.5	26	20 17 53.20	6.933	22 1 41.8	26.71	5 59.8
27	18 59 56.14	6.338	25 53 57.0	13.40	6 36.1	27	20 20 39.67	6.939	21 50 55.2	27.17	5 58.6
28	19 2 30.72	6.376	25 48 30.2	13.84	6 34.7	28	20 23 26.30	6.944	21 39 57.5	27.63	5 57.4
29	19 5 4.22	6.413	25 42 52.8	14.28	6 33.3	29	20 26 13.04	6.949	21 28 48.9	28.07	5 56.3
30	19 7 38.59	6.450	25 37 4.9	14.71	6 31.9	30	20 28 59.88	6.953	21 17 29.7	28.52	5 55.1
31	19 10 13.80	6.484	25 31 6.3	15.16	6 30.6	31	20 31 46.81	6.957	21 5 59.9	28.96	5 54.0
32	19 12 49.83	+6.517	-25 24 57.0	+15.61	6 29.3	32	20 34 33.82	+6.960	-20 54 19.5	+29.40	5 52.8

Day of the Month.	6th.	14th.	22d.	30th.	Day of the Month.	8th.	16th.	24th.	32d.
Semidiameter	7.5	7.0	6.5	6.2	Semidiameter	5.9	5.6	5.3	5.1
Horizontal Parallax	13.2	12.3	11.5	10.8	Horizontal Parallax	10.2	9.7	9.2	8.8

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

NOVEMBER.						DECEMBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	20 34 33.82	+6.960	20 54 19.5	+29.40	5 52.8	1	21 57 30.09	+6.820	13 52 2.1	+40.16	5 17.5
2	20 37 20.90	6.962	20 42 28.6	29.83	5 51.7	2	22 0 13.67	6.812	13 35 55.0	40.43	5 16.3
3	20 40 8.00	6.963	20 30 27.2	30.26	5 50.5	3	22 2 57.06	6.804	13 19 41.4	40.70	5 15.1
4	20 42 55.11	6.963	20 18 15.5	30.69	5 49.3	4	22 5 40.25	6.796	13 3 21.6	40.95	5 13.9
5	20 45 42.23	6.962	20 5 53.7	31.11	5 48.1	5	22 8 23.24	6.787	12 46 55.9	41.20	5 12.7
6	20 48 29.32	6.961	19 53 21.9	31.52	5 47.0	6	22 11 6.02	6.778	12 30 24.2	41.44	5 11.5
7	20 51 16.37	6.960	19 40 40.3	31.93	5 45.8	7	22 13 48.57	6.769	12 13 46.8	41.66	5 10.3
8	20 54 3.38	6.957	19 27 48.8	32.36	5 44.7	8	22 16 30.90	6.759	11 57 4.1	41.89	5 9.0
9	20 56 50.33	6.954	19 14 47.5	32.75	5 43.5	9	22 19 13.01	6.750	11 40 16.2	42.10	5 7.8
10	20 59 37.21	6.951	19 1 36.7	33.14	5 42.4	10	22 21 54.90	6.741	11 23 23.2	42.31	5 6.5
11	21 2 23.99	6.946	18 48 16.6	33.53	5 41.2	11	22 24 36.59	6.733	11 6 25.3	42.52	5 5.3
12	21 5 10.65	6.941	18 34 47.3	33.91	5 40.0	12	22 27 18.09	6.725	10 49 22.6	42.71	5 4.0
13	21 7 57.19	6.936	18 21 9.0	34.28	5 38.8	13	22 29 59.38	6.717	10 32 15.2	42.89	5 2.8
14	21 10 43.62	6.932	18 7 21.8	34.65	5 37.6	14	22 32 40.47	6.708	10 15 3.4	43.07	5 1.5
15	21 13 29.92	6.927	17 53 25.7	35.02	5 36.5	15	22 35 21.36	6.700	9 57 47.5	43.24	5 0.2
16	21 16 16.08	6.921	17 39 20.6	35.40	5 35.3	16	22 38 2.05	6.691	9 40 27.4	43.43	4 58.9
17	21 19 2.10	6.915	17 25 6.8	35.75	5 34.1	17	22 40 42.54	6.683	9 23 3.1	43.59	4 57.6
18	21 21 47.97	6.908	17 10 44.7	36.10	5 33.0	18	22 43 22.84	6.675	9 5 35.1	43.74	4 56.4
19	21 24 33.70	6.902	16 56 14.3	36.44	5 31.8	19	22 46 2.95	6.666	8 48 3.5	43.89	4 55.1
20	21 27 19.29	6.896	16 41 35.7	36.78	5 30.6	20	22 48 42.88	6.659	8 30 28.2	44.04	4 53.8
21	21 30 4.73	6.890	16 26 48.9	37.12	5 29.4	21	22 51 22.64	6.652	8 12 49.5	44.18	4 52.5
22	21 32 50.01	6.883	16 11 53.9	37.45	5 28.3	22	22 54 2.24	6.646	7 55 7.4	44.31	4 51.3
23	21 35 35.13	6.876	15 56 51.1	37.77	5 27.1	23	22 56 41.68	6.640	7 37 22.3	44.46	4 50.0
24	21 38 20.09	6.869	15 41 40.7	38.09	5 25.9	24	22 59 20.97	6.634	7 19 34.3	44.56	4 48.7
25	21 41 4.88	6.863	15 26 22.7	38.41	5 24.7	25	23 2 0.12	6.628	7 1 43.3	44.69	4 47.4
26	21 43 49.51	6.856	15 10 57.0	38.73	5 23.5	26	23 4 39.12	6.622	6 43 49.6	44.80	4 46.1
27	21 46 33.98	6.849	14 55 23.9	39.03	5 22.3	27	23 7 17.96	6.615	6 25 53.2	44.90	4 44.8
28	21 49 18.28	6.842	14 39 43.8	39.32	5 21.1	28	23 9 56.66	6.609	6 7 54.6	44.99	4 43.5
29	21 52 2.40	6.835	14 23 56.7	39.61	5 19.9	29	23 12 35.22	6.603	5 49 53.8	45.07	4 42.2
30	21 54 46.33	6.827	14 8 2.7	39.89	5 18.7	30	23 15 13.65	6.598	5 31 51.0	45.16	4 40.9
31	21 57 30.09	6.820	13 52 2.1	40.16	5 17.5	31	23 17 51.95	6.592	5 13 46.3	45.23	4 39.6
32	22 0 13.67	+6.812	-13 35 55.0	+40.43	5 16.3	32	23 20 30.13	+6.587	-4 55 40.1	+45.29	4 38.3

Day of the Month.	1st.	9th.	17th.	25th.	Day of the Month.	2d.	11th.	19th.	27th.	35th.
Semidiameter	5.1	4.8	4.5	4.3	Semidiameter	4.1	3.9	3.8	3.6	3.5
Horizontal Parallax	8.8	8.3	7.9	7.5	Horizontal Parallax	7.2	6.9	6.5	6.3	6.0

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing; - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.		Noon.
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	13 48 19.41	+1.906	9 50 50.0	-6.27	19 2.6	1	13 58 43.72	+0.429	-10 41 21.1	-1.73	17 10.9
2	13 48 48.15	1.187	9 53 18.9	6.14	18 59.2	2	13 58 53.70	0.400	10 42 0.8	1.57	17 7.1
3	13 49 16.38	1.165	9 55 44.7	6.01	18 55.7	3	13 59 2.97	0.371	10 42 36.6	1.41	17 3.3
4	13 49 44.09	1.143	9 58 7.4	5.88	18 52.2	4	13 59 11.53	0.342	10 43 8.5	1.25	16 59.5
5	13 50 11.28	1.122	10 0 26.8	5.74	18 48.7	5	13 59 19.37	0.312	10 43 36.0	1.09	16 55.7
6	13 50 37.94	1.100	10 2 42.9	5.60	18 45.2	6	13 59 26.50	0.283	10 44 0.9	0.93	16 51.9
7	13 51 4.07	1.077	10 4 55.7	5.46	18 41.7	7	13 59 32.93	0.253	10 44 21.2	0.77	16 48.1
8	13 51 29.65	1.054	10 7 5.2	5.32	18 38.2	8	13 59 38.64	0.223	10 44 37.6	0.61	16 44.2
9	13 51 54.68	1.031	10 9 11.3	5.18	18 34.7	9	13 59 43.64	0.193	10 44 50.2	0.45	16 40.4
10	13 52 19.15	1.008	10 11 14.0	5.04	18 31.2	10	13 59 47.92	0.163	10 44 59.0	0.29	16 36.5
11	13 52 43.06	0.984	10 13 13.4	4.90	18 27.7	11	13 59 51.47	0.133	10 45 3.8	-0.12	16 32.6
12	13 53 6.39	0.960	10 15 9.4	4.76	18 24.1	12	13 59 54.30	0.103	10 45 4.8	+0.04	16 28.7
13	13 53 29.14	0.936	10 17 1.9	4.62	18 20.5	13	13 59 56.41	0.073	10 45 1.9	0.90	16 24.8
14	13 53 51.31	0.911	10 18 51.0	4.48	18 17.0	14	13 59 57.80	0.043	10 44 55.1	0.38	16 20.9
15	13 54 12.89	0.886	10 20 36.6	4.33	18 13.4	15	13 59 58.47	+0.013	10 44 44.4	0.53	16 17.0
16	13 54 33.87	0.861	10 22 18.7	4.18	18 9.8	16	13 59 58.41	-0.017	10 44 29.8	0.69	16 13.0
17	13 54 54.24	0.836	10 23 57.3	4.04	18 6.2	17	13 59 57.63	0.047	10 44 11.4	0.85	16 9.1
18	13 55 14.00	0.811	10 25 32.3	3.89	18 2.6	18	13 59 56.13	0.077	10 43 49.1	1.01	16 5.1
19	13 55 33.15	0.785	10 27 3.7	3.74	17 59.0	19	13 59 53.92	0.107	10 43 23.0	1.17	16 1.1
20	13 55 51.69	0.759	10 28 31.6	3.59	17 55.4	20	13 59 50.98	0.137	10 42 53.1	1.33	15 57.1
21	13 56 9.61	0.733	10 29 56.0	3.44	17 51.7	21	13 59 47.31	0.167	10 42 19.4	1.49	15 53.1
22	13 56 26.90	0.707	10 31 16.7	3.29	17 48.1	22	13 59 42.93	0.197	10 41 41.9	1.65	15 49.1
23	13 56 43.55	0.680	10 32 33.8	3.14	17 44.4	23	13 59 37.84	0.227	10 41 0.6	1.81	15 45.1
24	13 56 59.55	0.653	10 33 47.3	2.99	17 40.7	24	13 59 32.03	0.257	10 40 15.5	1.96	15 41.1
25	13 57 14.90	0.626	10 34 57.1	2.84	17 37.0	25	13 59 25.51	0.286	10 39 26.7	2.11	15 37.0
26	13 57 29.60	0.599	10 36 3.2	2.68	17 33.3	26	13 59 18.28	0.316	10 38 34.1	2.27	15 33.0
27	13 57 43.64	0.571	10 37 5.6	2.53	17 29.6	27	13 59 10.34	0.346	10 37 37.8	2.43	15 28.9
28	13 57 57.01	0.543	10 38 4.2	2.37	17 25.9	28	13 59 1.70	0.375	10 36 37.8	2.58	15 24.8
29	13 58 9.70	0.515	10 38 59.1	2.21	17 22.1	29	13 58 52.35	0.404	10 35 34.1	2.73	15 20.7
30	13 58 21.72	0.487	10 39 50.2	2.05	17 18.4	30	13 58 42.31	0.433	10 34 26.8	2.88	15 16.6
31	13 58 33.06	0.458	10 40 37.5	1.89	17 14.6	31	13 58 31.58	0.462	10 33 15.8	3.03	15 12.5
32	13 58 43.72	+0.429	-10 41 21.1	-1.73	17 10.9	32	13 58 20.16	-0.490	-10 32 1.2	+3.18	15 8.4

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	16.6	17.1	17.6	18.1	Polar Semidiameter	18.2	18.7	19.3	19.8
Horizontal Parallax	1.6	1.6	1.6	1.7	Horizontal Parallax	1.7	1.8	1.8	1.9

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.		Noon.
	h m s	s	° ' "	" "	h m		h m s	s	° ' "	" "	h m
1	13 58 52.35	-0.404	10 35 34.1	+2.73	15 20.7	1	13 49 1.30	-1.103	9 36 28.7	+6.35	13 8.9
2	13 58 42.31	0.433	10 34 26.8	2.88	15 16.6	2	13 48 34.67	1.116	9 33 55.3	6.42	13 4.5
3	13 58 31.58	0.462	10 33 15.8	3.03	15 12.5	3	13 48 7.74	1.128	9 31 20.4	6.48	13 0.1
4	13 58 20.16	0.490	10 32 1.2	3.18	15 8.4	4	13 47 40.52	1.139	9 28 44.2	6.54	12 55.7
5	13 58 8.06	0.518	10 30 43.0	3.33	15 4.3	5	13 47 13.04	1.150	9 26 6.7	6.59	12 51.3
6	13 57 55.28	0.546	10 29 21.3	3.48	15 0.1	6	13 46 45.32	1.160	9 23 28.0	6.64	12 46.9
7	13 57 41.84	0.573	10 27 56.1	3.62	14 56.0	7	13 46 17.37	1.169	9 20 48.2	6.68	12 42.5
8	13 57 27.74	0.600	10 26 27.4	3.76	14 51.8	8	13 45 49.22	1.177	9 18 7.6	6.71	12 38.1
9	13 57 12.99	0.627	10 24 55.3	3.90	14 47.6	9	13 45 20.88	1.184	9 15 26.1	6.74	12 33.7
10	13 56 57.59	0.654	10 23 19.9	4.04	14 43.4	10	13 44 52.38	1.190	9 12 43.9	6.77	12 29.3
11	13 56 41.56	0.680	10 21 41.2	4.18	14 39.2	11	13 44 23.75	1.195	9 10 1.1	6.79	12 24.9
12	13 56 24.91	0.705	10 19 59.3	4.31	14 35.0	12	13 43 55.00	1.199	9 7 17.9	6.80	12 20.5
13	13 56 7.66	0.730	10 18 14.2	4.44	14 30.8	13	13 43 26.15	1.203	9 4 34.3	6.81	12 16.1
14	13 55 49.81	0.755	10 16 26.0	4.57	14 26.5	14	13 42 57.23	1.206	9 1 50.5	6.82	12 11.7
15	13 55 31.37	0.779	10 14 34.8	4.70	14 22.3	15	13 42 28.25	1.208	8 59 6.6	6.83	12 7.3
16	13 55 12.37	0.803	10 12 40.7	4.82	14 18.0	16	13 41 59.23	1.209	8 56 22.7	6.83	12 2.9
17	13 54 52.81	0.826	10 10 43.6	4.94	14 13.8	17	13 41 30.19	1.209	8 53 38.9	6.82	11 58.5
18	13 54 32.70	0.848	10 8 43.7	5.06	14 9.5	18	13 41 1.16	1.209	8 50 55.3	6.81	11 54.1
19	13 54 12.05	0.870	10 6 41.1	5.17	14 5.2	19	13 40 32.15	1.208	8 48 12.0	6.80	11 49.7
20	13 53 50.89	0.892	10 4 35.8	5.28	14 0.9	20	13 40 3.17	1.206	8 45 29.1	6.78	11 45.2
21	13 53 29.22	0.913	10 2 27.8	5.39	13 56.6	21	13 39 34.25	1.203	8 42 46.8	6.75	11 40.8
22	13 53 7.05	0.933	10 0 17.3	5.49	13 52.3	22	13 39 5.41	1.199	8 40 5.2	6.73	11 36.4
23	13 52 44.40	0.953	9 58 4.3	5.59	13 48.0	23	13 38 36.68	1.195	8 37 24.3	6.68	11 32.0
24	13 52 21.28	0.972	9 55 48.9	5.69	13 43.7	24	13 38 8.06	1.190	8 34 44.3	6.64	11 27.6
25	13 51 57.70	0.991	9 53 31.1	5.79	13 39.4	25	13 37 39.57	1.184	8 32 5.3	6.60	11 23.2
26	13 51 33.69	1.009	9 51 11.1	5.88	13 35.0	26	13 37 11.23	1.177	8 29 27.3	6.55	11 18.8
27	13 51 9.26	1.026	9 48 49.0	5.97	13 30.7	27	13 36 43.07	1.169	8 26 50.6	6.50	11 14.4
28	13 50 44.42	1.042	9 46 24.7	6.05	13 26.3	28	13 36 15.10	1.160	8 24 15.2	6.44	11 10.0
29	13 50 19.19	1.058	9 43 58.4	6.13	13 22.0	29	13 35 47.35	1.151	8 21 41.2	6.38	11 5.6
30	13 49 53.58	1.074	9 41 30.3	6.21	13 17.6	30	13 35 19.83	1.141	8 19 8.8	6.32	11 1.2
31	13 49 27.61	1.089	9 39 0.4	6.28	13 13.3	31	13 34 52.56	1.131	8 16 38.0	6.25	10 56.8
32	13 49 1.30	-1.103	9 36 28.7	+6.35	13 8.9	32	13 34 25.56	-1.119	8 14 9.0	+6.18	10 52.4

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	19".	20".	20".6	21".0	Polar Semidiameter	21".0	21".1	21".2	21".1
Horizontal Parallax	1.9	1.9	1.9	2.0	Horizontal Parallax	2.0	2.0	2.0	2.0

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing: - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

MAY.						JUNE.									
Day of Month.	Apparent Right Ascension.			Var. of R. A. for 1 Hour.		Meridian Passage.	Day of Month.	Apparent Right Ascension.			Var. of R. A. for 1 Hour.		Meridian Passage.		
	h	m	s	''	'''			h	m	s	''	'''			
1	13	34	52.56	-1.131	-8 16 38.0	+6.95	10 56.8	1	13	24	16.51	-0.502	-7 20 46.6	+2.31	8 44.5
2	13	34	25.56	1.119	8 14 9.0	6.18	10 52.4	2	13	24	4.79	0.475	7 19 53.1	2.15	8 40.4
3	13	33	58.85	1.106	8 11 41.9	6.10	10 48.0	3	13	23	53.72	0.448	7 19 3.5	1.99	8 36.3
4	13	33	32.44	1.093	8 9 16.7	6.01	10 43.6	4	13	23	43.30	0.421	7 18 17.8	1.82	8 32.2
5	13	33	6.35	1.079	8 6 53.6	5.92	10 39.3	5	13	23	33.53	0.393	7 17 36.1	1.65	8 28.1
6	13	32	40.61	1.065	8 4 32.7	5.82	10 34.9	6	13	23	24.42	0.366	7 16 58.4	1.48	8 24.0
7	13	32	15.23	1.050	8 2 14.1	5.72	10 30.6	7	13	23	15.97	0.339	7 16 24.8	1.31	8 19.9
8	13	31	50.22	1.034	7 59 57.9	5.62	10 26.2	8	13	23	8.19	0.311	7 15 55.3	1.14	8 15.8
9	13	31	25.60	1.017	7 57 44.3	5.51	10 21.9	9	13	23	1.08	0.283	7 15 29.8	0.97	8 11.8
10	13	31	1.39	1.000	7 55 33.2	5.40	10 17.5	10	13	22	54.63	0.255	7 15 8.5	0.80	8 7.8
11	13	30	37.61	0.982	7 53 24.8	5.29	10 13.2	11	13	22	48.86	0.227	7 14 51.3	0.63	8 3.8
12	13	30	14.26	0.963	7 51 19.1	5.17	10 8.9	12	13	22	43.76	0.199	7 14 38.2	0.46	7 59.8
13	13	29	51.36	0.944	7 49 16.3	5.05	10 4.6	13	13	22	39.33	0.171	7 14 29.2	0.29	7 55.8
14	13	29	28.93	0.924	7 47 16.4	4.93	10 0.3	14	13	22	35.57	0.143	7 14 24.3	+0.12	7 51.8
15	13	29	6.97	0.904	7 45 19.6	4.81	9 56.0	15	13	22	32.49	0.115	7 14 23.4	-0.05	7 47.8
16	13	28	45.50	0.884	7 43 25.8	4.68	9 51.7	16	13	22	30.07	0.087	7 14 26.7	0.22	7 43.9
17	13	28	24.53	0.863	7 41 35.0	4.55	9 47.5	17	13	22	28.33	0.059	7 14 34.0	0.39	7 39.9
18	13	28	4.07	0.841	7 39 47.4	4.42	9 43.2	18	13	22	27.25	0.031	7 14 45.3	0.56	7 35.9
19	13	27	44.14	0.819	7 38 3.1	4.28	9 38.9	19	13	22	26.85	-0.003	7 15 0.5	0.73	7 32.0
20	13	27	24.74	0.797	7 36 22.1	4.14	9 34.7	20	13	22	27.12	+0.025	7 15 19.7	0.89	7 28.1
21	13	27	5.87	0.775	7 34 44.5	4.00	9 30.5	21	13	22	28.05	0.053	7 15 43.0	1.06	7 24.2
22	13	26	47.55	0.752	7 33 10.3	3.86	9 26.2	22	13	22	29.66	0.081	7 16 10.3	1.23	7 20.3
23	13	26	29.79	0.728	7 31 39.5	3.71	9 22.0	23	13	22	31.93	0.109	7 16 41.5	1.39	7 16.4
24	13	26	12.60	0.704	7 30 12.2	3.56	9 17.8	24	13	22	34.87	0.137	7 17 16.7	1.55	7 12.5
25	13	25	55.98	0.680	7 28 48.5	3.41	9 13.6	25	13	22	38.47	0.164	7 17 55.8	1.71	7 8.6
26	13	25	39.95	0.656	7 27 28.4	3.26	9 9.4	26	13	22	42.74	0.192	7 18 38.8	1.88	7 4.8
27	13	25	24.51	0.631	7 26 11.9	3.11	9 5.2	27	13	22	47.67	0.220	7 19 25.8	2.05	7 0.9
28	13	25	9.67	0.606	7 24 59.2	2.95	9 1.0	28	13	22	53.26	0.247	7 20 16.7	2.21	6 57.1
29	13	24	55.45	0.580	7 23 50.3	2.79	8 56.9	29	13	22	59.50	0.274	7 21 11.6	2.37	6 53.3
30	13	24	41.85	0.554	7 22 45.2	2.63	8 52.7	30	13	23	6.40	0.301	7 22 10.4	2.53	6 49.5
31	13	24	28.87	0.528	7 21 44.0	2.47	8 48.6	31	13	23	13.95	0.328	7 23 13.0	2.69	6 45.7
32	13	24	16.51	-0.502	-7 20 46.6	+2.31	8 44.5	32	13	23	22.16	+0.355	-7 24 19.5	-2.85	6 41.9

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	21.1	20.8	20.4	20.0	Polar Semidiameter	19.9	19.4	19.0	18.4
Horizontal Parallax	2.0	2.0	1.9	1.9	Horizontal Parallax	1.9	1.8	1.8	1.7

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

JULY.						AUGUST.															
Day of Month.	Apparent Light Ascension.		Var. of R. A. for 1 Hour.	Apparent Declination.		Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.		Var. of R. A. for 1 Hour.	Apparent Declination.		Var. of Dec. for 1 Hour.	Meridian Passage.						
	Noon.		Noon.	Noon.		Noon.			Noon.		Noon.	Noon.		Noon.							
	h	m	s	"	"	"	h	m	s	"	"	"	"	h	m						
1	13	23	13.95	+0.328	-7	23	13.0	-2.69	6	45.7	1	13	32	10.59	+1.082	-8	24	28.8	-6.94	4	52.7
2	13	23	22.16	0.355	7	24	19.5	2.85	6	41.9	2	13	32	36.83	1.103	8	27	16.8	7.05	4	49.2
3	13	23	31.02	0.382	7	25	29.6	3.01	6	38.1	3	13	33	3.58	1.124	8	30	7.4	7.16	4	45.7
4	13	23	40.52	0.409	7	26	43.9	3.17	6	34.3	4	13	33	30.83	1.145	8	33	0.7	7.27	4	42.2
5	13	23	50.66	0.436	7	28	1.8	3.33	6	30.5	5	13	33	58.57	1.166	8	35	56.6	7.38	4	38.8
6	13	24	1.45	0.463	7	29	23.4	3.48	6	26.7	6	13	34	26.80	1.186	8	38	55.0	7.48	4	35.3
7	13	24	12.87	0.489	7	30	48.7	3.63	6	23.0	7	13	34	55.52	1.206	8	41	55.9	7.58	4	31.8
8	13	24	24.92	0.515	7	32	17.6	3.78	6	19.3	8	13	35	24.71	1.226	8	44	59.2	7.68	4	28.4
9	13	24	37.60	0.541	7	33	50.1	3.93	6	15.6	9	13	35	54.37	1.246	8	48	4.9	7.78	4	25.0
10	13	24	50.90	0.567	7	35	26.2	4.08	6	11.9	10	13	36	24.49	1.265	8	51	13.0	7.88	4	21.5
11	13	25	4.82	0.593	7	37	5.9	4.23	6	8.2	11	13	36	55.07	1.284	8	54	23.4	7.98	4	18.1
12	13	25	19.34	0.618	7	38	49.1	4.38	6	4.5	12	13	37	26.11	1.303	8	57	36.0	8.07	4	14.7
13	13	25	34.47	0.643	7	40	35.7	4.52	6	0.8	13	13	37	57.60	1.321	9	0	50.8	8.16	4	11.3
14	13	25	50.20	0.668	7	42	25.7	4.66	5	57.1	14	13	38	29.53	1.339	9	4	7.8	8.25	4	7.9
15	13	26	6.53	0.693	7	44	19.1	4.80	5	53.5	15	13	39	1.89	1.357	9	7	27.0	8.34	4	4.5
16	13	26	23.45	0.717	7	46	15.9	4.94	5	49.9	16	13	39	34.68	1.375	9	10	48.2	8.43	4	1.1
17	13	26	40.95	0.741	7	48	16.0	5.08	5	46.3	17	13	40	7.89	1.393	9	14	11.4	8.51	3	57.7
18	13	26	59.04	0.765	7	50	19.3	5.22	5	42.6	18	13	40	41.52	1.410	9	17	36.6	8.59	3	54.3
19	13	27	17.70	0.789	7	52	25.6	5.35	5	39.0	19	13	41	15.57	1.427	9	21	3.7	8.67	3	50.9
20	13	27	36.93	0.813	7	54	35.5	5.48	5	35.4	20	13	41	50.03	1.444	9	24	32.8	8.75	3	47.6
21	13	27	56.72	0.836	7	56	48.4	5.61	5	31.8	21	13	42	24.90	1.461	9	28	3.8	8.83	3	44.3
22	13	28	17.08	0.859	7	59	4.4	5.74	5	28.2	22	13	43	0.18	1.478	9	31	36.6	8.91	3	40.9
23	13	28	38.00	0.882	8	1	23.5	5.87	5	24.6	23	13	43	35.86	1.495	9	35	11.2	8.98	3	37.5
24	13	28	59.46	0.905	8	3	45.6	6.00	5	21.0	24	13	44	11.93	1.511	9	38	47.6	9.05	3	34.2
25	13	29	21.47	0.928	8	6	10.8	6.12	5	17.4	25	13	44	48.39	1.527	9	42	25.7	9.12	3	30.9
26	13	29	44.03	0.951	8	8	39.0	6.24	5	13.8	26	13	45	25.23	1.543	9	46	5.5	9.19	3	27.6
27	13	30	7.13	0.973	8	11	10.1	6.36	5	10.3	27	13	46	2.46	1.559	9	49	47.0	9.26	3	24.3
28	13	30	30.77	0.995	8	13	44.2	6.48	5	6.8	28	13	46	40.06	1.575	9	53	30.2	9.33	3	21.0
29	13	30	54.94	1.017	8	16	21.1	6.60	5	3.2	29	13	47	18.03	1.590	9	57	15.0	9.39	3	17.7
30	13	31	19.64	1.039	8	19	0.9	6.72	4	59.7	30	13	47	56.36	1.605	10	1	1.3	9.45	3	14.4
31	13	31	44.86	1.061	8	21	43.5	6.83	4	56.2	31	13	48	35.05	1.620	10	4	49.1	9.52	3	11.1
32	13	32	10.59	+1.082	-8	24	28.8	-6.94	4	52.7	32	13	49	14.10	+1.635	-10	8	38.3	-9.58	3	7.8

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	18.4	17.8	17.3	16.8	Polar Semidiameter	16.8	16.4	16.0	15.7
Horizontal Parallax	1.7	1.7	1.6	1.6	Horizontal Parallax	1.6	1.5	1.5	1.5

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing; - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.						OCTOBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.		Noon.
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	13 49 14.10	+1.635	-10 8 35.3	-9.58	3 7.8	1	14 11 5.54	+1.980	-12 11 7.9	-10.61	1 31.6
2	13 49 53.51	1.649	10 12 28.9	9.64	3 4.6	2	14 11 53.16	1.988	12 15 22.6	10.62	1 28.5
3	13 50 33.26	1.663	10 16 20.9	9.70	3 1.3	3	14 12 40.99	1.996	12 19 37.4	10.63	1 25.3
4	13 51 13.35	1.677	10 20 14.2	9.75	2 58.0	4	14 13 29.01	2.004	12 23 52.5	10.63	1 22.2
5	13 51 53.77	1.691	10 24 8.8	9.80	2 54.7	5	14 14 17.22	2.012	12 28 7.7	10.64	1 19.0
6	13 52 34.52	1.704	10 28 4.7	9.85	2 51.5	6	14 15 5.61	2.020	12 32 22.9	10.64	1 15.9
7	13 53 15.59	1.717	10 32 1.7	9.90	2 48.2	7	14 15 54.18	2.027	12 36 38.2	10.64	1 12.8
8	13 53 56.98	1.730	10 35 59.8	9.95	2 44.9	8	14 16 42.93	2.034	12 40 53.6	10.64	1 9.7
9	13 54 38.68	1.743	10 39 59.1	10.00	2 41.7	9	14 17 31.85	2.041	12 45 9.0	10.64	1 6.5
10	13 55 20.68	1.756	10 43 59.5	10.04	2 38.5	10	14 18 20.93	2.048	12 49 24.4	10.64	1 3.4
11	13 56 2.98	1.769	10 48 0.9	10.08	2 35.2	11	14 19 10.18	2.055	12 53 39.7	10.64	1 0.3
12	13 56 45.56	1.781	10 52 3.2	10.12	2 32.0	12	14 19 59.59	2.062	12 57 54.9	10.63	0 57.2
13	13 57 28.47	1.793	10 56 6.5	10.16	2 28.8	13	14 20 49.14	2.068	13 2 10.0	10.63	0 54.1
14	13 58 11.64	1.805	11 0 10.6	10.20	2 25.6	14	14 21 38.84	2.074	13 6 25.0	10.63	0 51.0
15	13 58 55.10	1.817	11 4 15.6	10.23	2 22.4	15	14 22 28.68	2.080	13 10 39.8	10.61	0 47.9
16	13 59 38.84	1.829	11 8 21.4	10.26	2 19.2	16	14 23 18.67	2.086	13 14 54.3	10.60	0 44.8
17	14 0 22.85	1.839	11 12 28.1	10.29	2 16.0	17	14 24 8.79	2.092	13 19 8.6	10.59	0 41.7
18	14 1 7.14	1.850	11 16 35.6	10.32	2 12.8	18	14 24 59.05	2.097	13 23 22.7	10.58	0 38.6
19	14 1 51.69	1.861	11 20 43.8	10.35	2 9.6	19	14 25 49.44	2.102	13 27 36.5	10.57	0 35.5
20	14 2 36.50	1.872	11 24 52.8	10.38	2 6.4	20	14 26 39.95	2.107	13 31 49.9	10.56	0 32.4
21	14 3 21.57	1.883	11 29 2.4	10.41	2 3.2	21	14 27 30.59	2.112	13 36 3.0	10.54	0 29.3
22	14 4 6.89	1.894	11 33 12.7	10.44	2 0.1	22	14 28 21.35	2.117	13 40 15.7	10.52	0 26.2
23	14 4 52.47	1.904	11 37 23.5	10.47	1 56.9	23	14 29 12.22	2.122	13 44 28.0	10.50	0 23.1
24	14 5 38.30	1.914	11 41 34.9	10.49	1 53.7	24	14 30 3.19	2.126	13 48 39.8	10.48	0 20.1
25	14 6 24.37	1.924	11 45 46.9	10.51	1 50.5	25	14 30 54.26	2.130	13 52 51.1	10.46	0 17.0
26	14 7 10.67	1.934	11 49 59.4	10.53	1 47.4	26	14 31 45.43	2.134	13 57 1.9	10.44	0 13.9
27	14 7 57.20	1.944	11 54 12.3	10.55	1 44.2	27	14 32 36.69	2.138	14 1 12.2	10.42	0 10.8
28	14 8 43.96	1.953	11 58 25.6	10.57	1 41.1	28	14 33 28.04	2.141	14 5 22.0	10.40	0 7.8
29	14 9 30.94	1.962	12 2 39.3	10.59	1 37.9	29	14 34 19.46	2.144	14 9 31.2	10.37	0 4.7
30	14 10 18.13	1.971	12 6 53.5	10.60	1 34.8	30	14 35 10.96	2.147	14 13 39.7	10.34	0 1.6 23 58.5
31	14 11 5.54	1.980	12 11 7.9	10.61	1 31.6	31	14 36 2.54	2.150	14 17 47.5	10.31	23 55.4
32	14 11 53.16	+1.988	-12 15 22.6	-10.62	1 28.5	32	14 36 54.18	+2.153	-14 21 54.5	-10.28	23 52.4

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	15.6	15.3	15.1	14.9	Polar Semidiameter	14.9	14.8	14.7	14.7
Horizontal Parallax	1.5	1.4	1.4	1.4	Horizontal Parallax	1.4	1.4	1.4	1.4

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

NOVEMBER.						DECEMBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	"	° ' "	"	h m		h m s	"	° ' "	"	h m
1	14 36 54.18	+2.153	14 21 54.5	-10.38	23 52.4	1	15 2 47.22	+2.128	16 17 43.3	-8.87	22 20.2
2	14 37 45.87	2.155	14 26 0.8	10.25	23 49.3	2	15 3 38.24	2.123	16 21 15.4	8.81	22 17.1
3	14 38 37.61	2.157	14 30 6.4	10.22	23 46.2	3	15 4 29.14	2.118	16 24 46.0	8.75	22 14.0
4	14 39 29.40	2.159	14 34 11.2	10.19	23 43.1	4	15 5 19.93	2.113	16 28 15.1	8.69	22 10.9
5	14 40 21.24	2.161	14 38 15.1	10.15	23 40.1	5	15 6 10.60	2.108	16 31 42.6	8.62	22 7.8
6	14 41 13.12	2.162	14 42 18.1	10.11	23 37.0	6	15 7 1.14	2.103	16 35 8.6	8.55	22 4.7
7	14 42 5.02	2.163	14 46 20.2	10.07	23 33.9	7	15 7 51.54	2.097	16 38 33.0	8.49	22 1.6
8	14 42 56.95	2.164	14 50 21.5	10.03	23 30.8	8	15 8 41.80	2.091	16 41 55.7	8.42	21 58.5
9	14 43 48.89	2.165	14 54 21.8	9.99	23 27.8	9	15 9 31.91	2.085	16 45 16.8	8.35	21 55.4
10	14 44 40.86	2.165	14 58 21.1	9.95	23 24.7	10	15 10 21.87	2.078	16 48 36.3	8.28	21 52.3
11	14 45 32.84	2.166	15 2 19.4	9.91	23 21.7	11	15 11 11.66	2.071	16 51 54.1	8.21	21 49.2
12	14 46 24.82	2.166	15 6 16.7	9.87	23 18.6	12	15 12 1.29	2.064	16 55 10.2	8.14	21 46.1
13	14 47 16.80	2.166	15 10 13.1	9.83	23 15.6	13	15 12 50.74	2.057	16 58 24.7	8.07	21 43.0
14	14 48 8.79	2.166	15 14 8.4	9.79	23 12.6	14	15 13 40.01	2.049	17 1 37.5	8.00	21 39.9
15	14 49 0.77	2.165	15 18 2.6	9.74	23 9.5	15	15 14 29.10	2.041	17 4 48.6	7.93	21 36.7
16	14 49 52.73	2.165	15 21 55.7	9.69	23 6.4	16	15 15 18.00	2.033	17 7 58.0	7.85	21 33.6
17	14 50 44.68	2.164	15 25 47.6	9.64	23 3.3	17	15 16 6.71	2.025	17 11 5.6	7.78	21 30.5
18	14 51 36.61	2.163	15 29 38.4	9.59	23 0.3	18	15 16 55.22	2.016	17 14 11.5	7.71	21 27.4
19	14 52 28.52	2.162	15 33 28.1	9.54	22 57.2	19	15 17 43.52	2.007	17 17 15.6	7.64	21 24.2
20	14 53 20.40	2.161	15 37 16.5	9.49	22 54.1	20	15 18 31.61	1.998	17 20 17.9	7.56	21 21.1
21	14 54 12.24	2.159	15 41 3.7	9.44	22 51.0	21	15 19 19.47	1.989	17 23 18.4	7.48	21 18.0
22	14 55 4.03	2.157	15 44 49.6	9.39	22 48.0	22	15 20 7.10	1.979	17 26 17.1	7.41	21 14.8
23	14 55 55.77	2.155	15 48 34.3	9.34	22 44.9	23	15 20 54.50	1.969	17 29 14.0	7.33	21 11.6
24	14 56 47.46	2.153	15 52 17.8	9.29	22 41.8	24	15 21 41.65	1.959	17 32 9.0	7.25	21 8.5
25	14 57 39.09	2.150	15 55 59.9	9.23	22 38.7	25	15 22 28.54	1.949	17 35 2.1	7.17	21 5.4
26	14 58 30.65	2.147	15 59 40.7	9.17	22 35.7	26	15 23 15.18	1.938	17 37 53.3	7.09	21 2.2
27	14 59 22.14	2.144	16 3 20.1	9.11	22 32.6	27	15 24 1.56	1.927	17 40 42.5	7.01	20 59.0
28	15 0 13.55	2.140	16 6 58.1	9.05	22 29.5	28	15 24 47.66	1.915	17 43 29.8	6.93	20 55.9
29	15 1 4.87	2.136	16 10 34.6	8.99	22 26.4	29	15 25 33.48	1.903	17 46 15.2	6.85	20 52.7
30	15 1 56.09	2.132	16 14 9.7	8.93	22 23.3	30	15 26 19.00	1.890	17 48 58.7	6.77	20 49.5
31	15 2 47.22	2.128	16 17 43.3	8.87	22 20.2	31	15 27 4.21	1.877	17 51 40.3	6.69	20 46.3
32	15 3 38.24	+2.123	16 21 15.4	-8.81	22 17.1	32	15 27 49.11	+1.864	17 54 20.0	-6.60	20 43.1

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	14".7	14".7	14".8	14".9	Polar Semidiameter	14".9	15".1	15".3	15".6
Horizontal Parallax	1.4	1.4	1.4	1.4	Horizontal Parallax	1.4	1.4	1.4	1.5

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing; - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

JANUARY.						FEBRUARY.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.		Noon.
	h m s	s	o ' "	"	h m		h m s	s	o ' "	"	h m
1	21 1 28.43	+1.089	-17 53 34.8	+4.53	2 18.2	1	21 15 51.41	+1.199	-16 52 5.3	+5.95	0 30.6
2	21 1 54.65	1.096	17 51 45.6	4.57	2 14.7	2	21 16 20.20	1.200	16 49 59.0	5.27	0 27.2
3	21 2 21.03	1.102	17 49 55.6	4.60	2 11.2	3	21 16 49.00	1.200	16 47 52.4	5.28	0 23.7
4	21 2 47.56	1.108	17 48 4.8	4.63	2 7.7	4	21 17 17.80	1.200	16 45 45.5	5.29	0 20.3
5	21 3 14.23	1.114	17 46 13.2	4.67	2 4.2	5	21 17 46.59	1.199	16 43 38.4	5.30	0 16.8
6	21 3 41.03	1.120	17 44 20.8	4.70	2 0.7	6	21 18 15.37	1.199	16 41 31.2	5.30	0 13.4
7	21 4 7.97	1.125	17 42 27.6	4.73	1 57.3	7	21 18 44.15	1.199	16 39 23.8	5.31	0 9.9
8	21 4 35.05	1.131	17 40 33.7	4.76	1 53.8	8	21 19 12.92	1.198	16 37 16.3	5.31	0 6.5
9	21 5 2.26	1.136	17 38 39.0	4.79	1 50.3	9	21 19 41.67	1.197	16 35 8.7	5.32	0 3.0
10	21 5 29.58	1.141	17 36 43.6	4.82	1 46.8	10	21 20 10.39	1.196	16 33 1.0	5.32	23 56.1
11	21 5 57.02	1.146	17 34 47.5	4.85	1 43.4	11	21 20 39.08	1.195	16 30 53.2	5.32	23 52.6
12	21 6 24.57	1.150	17 32 50.8	4.88	1 39.9	12	21 21 7.74	1.193	16 28 45.4	5.32	23 49.2
13	21 6 52.23	1.155	17 30 53.5	4.90	1 36.4	13	21 21 36.35	1.191	16 26 37.6	5.32	23 45.7
14	21 7 19.99	1.159	17 28 55.5	4.93	1 32.9	14	21 22 4.91	1.189	16 24 29.9	5.32	23 42.3
15	21 7 47.84	1.162	17 26 56.9	4.96	1 29.5	15	21 22 33.42	1.187	16 22 22.3	5.31	23 38.8
16	21 8 15.78	1.166	17 24 57.6	4.98	1 26.0	16	21 23 1.87	1.185	16 20 14.8	5.31	23 35.3
17	21 8 43.80	1.169	17 22 57.7	5.01	1 22.5	17	21 23 30.27	1.182	16 18 7.3	5.31	23 31.9
18	21 9 11.90	1.172	17 20 57.3	5.03	1 19.1	18	21 23 58.62	1.180	16 15 59.8	5.31	23 28.4
19	21 9 40.08	1.176	17 18 56.4	5.05	1 15.6	19	21 24 26.91	1.177	16 13 52.4	5.31	23 25.0
20	21 10 8.34	1.179	17 16 55.1	5.06	1 12.1	20	21 24 55.13	1.174	16 11 45.1	5.30	23 21.5
21	21 10 36.66	1.181	17 14 53.3	5.09	1 8.7	21	21 25 23.27	1.171	16 9 38.0	5.29	23 18.0
22	21 11 5.04	1.184	17 12 51.0	5.11	1 5.2	22	21 25 51.32	1.167	16 7 31.1	5.28	23 14.6
23	21 11 33.48	1.186	17 10 48.2	5.13	1 1.7	23	21 26 19.30	1.164	16 5 24.5	5.27	23 11.1
24	21 12 1.98	1.189	17 8 45.0	5.14	0 58.3	24	21 26 47.20	1.161	16 3 18.2	5.26	23 7.6
25	21 12 30.53	1.191	17 6 41.3	5.16	0 54.8	25	21 27 15.01	1.157	16 1 12.1	5.25	23 4.2
26	21 12 59.13	1.192	17 4 37.2	5.18	0 51.4	26	21 27 42.72	1.152	15 59 6.2	5.24	23 0.7
27	21 13 27.77	1.194	17 2 32.7	5.19	0 47.9	27	21 28 10.33	1.148	15 57 0.6	5.22	22 57.2
28	21 13 56.44	1.195	17 0 27.9	5.21	0 44.4	28	21 28 37.84	1.144	15 54 55.4	5.21	22 53.7
29	21 14 25.14	1.196	16 58 22.7	5.22	0 41.0	29	21 29 5.25	1.140	15 52 50.5	5.20	22 50.2
30	21 14 53.87	1.198	16 56 17.2	5.24	0 37.5	30	21 29 32.56	1.135	15 50 46.0	5.18	22 46.8
31	21 15 22.63	1.199	16 54 11.4	5.25	0 34.1	31	21 29 59.75	1.130	15 48 41.9	5.16	22 43.3
32	21 15 51.41	+1.199	-16 52 5.3	+5.26	0 30.6	32	21 30 26.81	+1.125	-15 46 38.2	+5.15	22 39.8

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	7.3	7.2	7.2	7.2	Polar Semidiameter	7.2	7.2	7.2	7.2
Horizontal Parallax	0.8	0.8	0.8	0.8	Horizontal Parallax	0.8	0.8	0.8	0.8

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

MARCH.						APRIL.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.		Noon.
	h m s	s	o ' "	"	h m		h m s	s	o ' "	"	h m
1	21 29 5.25	+1.140	15 52 50.5	+5.20	22 50.2	1	21 41 58.80	+0.914	14 53 25.1	+4.94	21 1.1
2	21 29 32.56	1.135	15 50 46.0	5.18	22 46.8	2	21 42 20.61	0.904	14 51 44.0	4.19	20 57.5
3	21 29 59.75	1.130	15 48 41.9	5.16	22 43.3	3	21 42 42.18	0.894	14 50 4.1	4.14	20 53.9
4	21 30 26.81	1.125	15 46 38.2	5.15	22 39.8	4	21 43 3.50	0.883	14 48 25.5	4.08	20 50.3
5	21 30 53.74	1.120	15 44 34.9	5.13	22 36.3	5	21 43 24.58	0.873	14 46 48.1	4.03	20 46.8
6	21 31 20.55	1.114	15 42 32.1	5.11	22 32.8	6	21 43 45.41	0.863	14 45 12.0	3.98	20 43.2
7	21 31 47.23	1.109	15 40 29.7	5.09	22 29.3	7	21 44 5.99	0.852	14 43 37.1	3.93	20 39.6
8	21 32 13.77	1.103	15 38 27.8	5.07	22 25.8	8	21 44 26.31	0.841	14 42 3.4	3.88	20 36.0
9	21 32 40.17	1.097	15 36 26.5	5.04	22 22.3	9	21 44 46.36	0.830	14 40 30.9	3.82	20 32.4
10	21 33 6.42	1.090	15 34 25.9	5.01	22 18.8	10	21 45 6.15	0.819	14 38 59.7	3.77	20 28.8
11	21 33 32.51	1.084	15 32 25.9	4.99	22 15.3	11	21 45 25.67	0.808	14 37 29.9	3.71	20 25.2
12	21 33 58.45	1.077	15 30 26.5	4.96	22 11.8	12	21 45 44.92	0.796	14 36 1.4	3.66	20 21.6
13	21 34 24.23	1.071	15 28 27.7	4.94	22 8.3	13	21 46 3.89	0.785	14 34 34.3	3.60	20 17.9
14	21 34 49.84	1.064	15 26 29.6	4.91	22 4.8	14	21 46 22.58	0.773	14 33 8.6	3.54	20 14.3
15	21 35 15.29	1.057	15 24 32.1	4.88	22 1.3	15	21 46 40.99	0.761	14 31 44.4	3.48	20 10.7
16	21 35 40.57	1.050	15 22 35.4	4.85	21 57.8	16	21 46 59.12	0.749	14 30 21.7	3.42	20 7.0
17	21 36 5.68	1.043	15 20 39.5	4.81	21 54.3	17	21 47 16.96	0.737	14 29 0.4	3.36	20 3.4
18	21 36 30.62	1.035	15 18 44.4	4.78	21 50.7	18	21 47 34.51	0.725	14 27 40.5	3.30	19 59.7
19	21 36 55.37	1.027	15 16 50.0	4.75	21 47.2	19	21 47 51.76	0.713	14 26 22.1	3.24	19 56.1
20	21 37 19.93	1.019	15 14 56.4	4.71	21 43.7	20	21 48 8.72	0.701	14 25 5.2	3.17	19 52.4
21	21 37 44.29	1.011	15 13 3.7	4.68	21 40.2	21	21 48 25.39	0.688	14 23 49.8	3.11	19 48.8
22	21 38 8.45	1.003	15 11 11.8	4.64	21 36.6	22	21 48 41.76	0.676	14 22 35.9	3.05	19 45.1
23	21 38 32.42	0.995	15 9 20.8	4.61	21 33.1	23	21 48 57.82	0.663	14 21 23.6	2.99	19 41.4
24	21 38 56.20	0.987	15 7 30.7	4.57	21 29.5	24	21 49 13.57	0.650	14 20 12.9	2.91	19 37.8
25	21 39 19.78	0.978	15 5 41.5	4.53	21 26.0	25	21 49 29.00	0.636	14 19 3.8	2.84	19 34.1
26	21 39 43.15	0.969	15 3 53.3	4.49	21 22.5	26	21 49 44.12	0.624	14 17 56.4	2.78	19 30.4
27	21 40 6.31	0.960	15 2 6.1	4.45	21 18.9	27	21 49 58.93	0.610	14 16 50.6	2.71	19 26.7
28	21 40 29.25	0.951	15 0 19.9	4.40	21 15.3	28	21 50 13.42	0.597	14 15 46.5	2.64	19 23.0
29	21 40 51.97	0.942	14 58 34.7	4.36	21 11.8	29	21 50 27.59	0.584	14 14 44.0	2.57	19 19.3
30	21 41 14.47	0.933	14 56 50.5	4.32	21 8.2	30	21 50 41.43	0.570	14 13 43.2	2.50	19 15.6
31	21 41 36.75	0.924	14 55 7.3	4.28	21 4.7	31	21 50 54.93	0.556	14 12 44.1	2.42	19 11.9
32	21 41 58.80	+0.914	14 53 25.1	+4.24	21 1.1	32	21 51 8.10	+0.542	14 11 46.8	+2.35	19 8.2

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	7.2	7.3	7.4	7.4	Polar Semidiameter	7.4	7.5	7.6	7.8
Horizontal Parallax	0.8	0.8	0.8	0.8	Horizontal Parallax	0.8	0.9	0.9	0.9

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing: — indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.											
MAY.						JUNE.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.	
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	21 50 54.93	+0.556	-14 12 44.1	+2.42	19 11.9	1	21 54 58.02	+0.067	-13 57 40.7	-0.06	17 13.9
2	21 51 8.10	0.542	14 11 46.8	2.35	19 8.2	2	21 54 59.92	0.071	13 57 43.1	0.14	17 10.0
3	21 51 20.94	0.528	14 10 51.2	2.28	19 4.4	3	21 55 1.43	0.065	13 57 47.5	0.22	17 6.1
4	21 51 33.44	0.514	14 9 57.4	2.20	19 0.7	4	21 55 2.56	0.039	13 57 53.9	0.31	17 2.2
5	21 51 45.60	0.500	14 9 5.4	2.13	18 57.0	5	21 55 3.31	0.023	13 58 2.3	0.30	16 58.3
6	21 51 57.42	0.485	14 8 15.2	2.05	18 53.2	6	21 55 3.68	+0.007	13 58 12.8	0.48	16 54.3
7	21 52 8.89	0.471	14 7 26.8	1.98	18 49.5	7	21 55 3.66	-0.009	13 58 25.3	0.56	16 50.4
8	21 52 20.01	0.456	14 6 40.3	1.90	18 45.7	8	21 55 3.26	0.025	13 58 39.8	0.65	16 46.4
9	21 52 30.78	0.441	14 5 55.7	1.82	18 42.0	9	21 55 2.48	0.041	13 58 56.3	0.73	16 42.5
10	21 52 41.19	0.426	14 5 12.9	1.74	18 38.2	10	21 55 1.31	0.057	13*59 14.8	0.81	16 38.5
11	21 52 51.25	0.412	14 4 32.0	1.66	18 34.4	11	21 54 59.76	0.072	13 59 35.3	0.89	16 34.6
12	21 53 0.95	0.397	14 3 53.0	1.59	18 30.7	12	21 54 57.84	0.088	13 59 57.7	0.96	16 30.6
13	21 53 10.20	0.382	14 3 15.9	1.51	18 26.9	13	21 54 55.55	0.103	14 0 22.1	1.06	16 26.6
14	21 53 19.28	0.367	14 2 40.7	1.43	18 23.1	14	21 54 52.89	0.119	14 0 48.4	1.14	16 22.6
15	21 53 27.91	0.352	14 2 7.4	1.35	18 19.3	15	21 54 49.86	0.134	14 1 16.6	1.21	16 18.7
16	21 53 36.18	0.337	14 1 36.0	1.27	18 15.5	16	21 54 46.46	0.149	14 1 46.7	1.29	16 14.7
17	21 53 44.08	0.322	14 1 6.5	1.19	18 11.7	17	21 54 42.69	0.165	14 2 18.7	1.38	16 10.7
18	21 53 51.62	0.306	14 0 39.0	1.11	18 7.9	18	21 54 38.55	0.180	14 2 52.7	1.46	16 6.7
19	21 53 58.79	0.291	14 0 13.4	1.03	18 4.1	19	21 54 34.03	0.196	14 3 28.6	1.53	16 2.7
20	21 54 5.50	0.276	13 59 49.7	0.95	18 0.3	20	21 54 29.14	0.211	14 4 6.3	1.61	15 58.6
21	21 54 12.02	0.260	13 59 28.0	0.86	17 56.4	21	21 54 23.89	0.226	14 4 45.9	1.69	15 54.6
22	21 54 18.08	0.245	13 59 8.3	0.78	17 52.6	22	21 54 18.29	0.241	14 5 27.3	1.76	15 50.6
23	21 54 23.77	0.229	13 58 50.6	0.70	17 48.8	23	21 54 12.34	0.255	14 6 10.5	1.84	15 46.6
24	21 54 29.09	0.214	13 58 34.8	0.62	17 44.9	24	21 54 6.03	0.270	14 6 55.5	1.91	15 42.5
25	21 54 34.03	0.198	13 58 21.0	0.53	17 41.1	25	21 53 59.36	0.285	14 7 42.2	1.98	15 38.5
26	21 54 38.60	0.183	13 58 9.2	0.45	17 37.2	26	21 53 52.34	0.300	14 8 30.7	2.06	15 34.4
27	21 54 42.79	0.167	13 57 59.4	0.37	17 33.3	27	21 53 44.98	0.314	14 9 21.0	2.13	15 30.3
28	21 54 46.60	0.151	13 57 51.6	0.28	17 29.5	28	21 53 37.27	0.329	14 10 13.1	2.21	15 26.3
29	21 54 50.03	0.135	13 57 45.8	0.20	17 25.6	29	21 53 29.21	0.343	14 11 6.9	2.28	15 22.2
30	21 54 53.08	0.119	13 57 42.1	0.11	17 21.7	30	21 53 20.81	0.357	14 12 2.4	2.35	15 18.1
31	21 54 55.74	0.103	13 57 40.4	+0.03	17 17.8	31	21 53 12.08	0.371	14 12 59.5	2.41	15 14.1
32	21 54 58.02	+0.087	-13 57 40.7	-0.06	17 13.9	32	21 53 3.02	-0.384	-14 13 58.2	-2.48	15 10.0

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	7".8	7".9	8".0	8".2	Polar Semidiameter	8".2	8".3	8".4	8".6
Horizontal Parallax	0.9	0.9	0.9	0.9	Horizontal Parallax	0.9	0.9	1.0	1.0

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

JULY.						AUGUST.															
Day of Month.	Apparent Right Ascension.			Var. of R. A. for 1 Hour.	Apparent Declination.			Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.			Var. of R. A. for 1 Hour.	Apparent Declination.			Var. of Dec. for 1 Hour.	Meridian Passage.		
	Noon.			Noon.	Noon.			Noon.			Noon.			Noon.	Noon.			Noon.			
	h	m	s	"	°	'	"	"	h	m		h	m	s	"	°	'	"	"	h	m
1	21	53	12.08	-0.371	14	12	59.5	-2.41	15	14.1	1	21	46	22.96	-0.687	14	53	14.5	-3.82	13	5.3
2	21	53	3.02	0.304	14	13	58.2	2.48	15	10.0	2	21	46	6.40	0.693	14	54	46.5	3.84	13	1.1
3	21	52	53.63	0.308	14	14	58.6	2.55	15	5.9	3	21	45	49.71	0.698	14	56	18.9	3.86	12	56.9
4	21	52	43.91	0.412	14	16	0.6	2.62	15	1.8	4	21	45	32.89	0.703	14	57	51.6	3.87	12	52.7
5	21	52	33.86	0.425	14	17	4.2	2.68	14	57.7	5	21	45	15.96	0.707	14	59	24.6	3.88	12	48.5
6	21	52	23.50	0.438	14	18	9.3	2.74	14	53.6	6	21	44	58.94	0.711	15	0	57.9	3.89	12	44.3
7	21	52	12.83	0.451	14	19	15.9	2.80	14	49.5	7	21	44	41.83	0.715	15	2	31.5	3.90	12	40.1
8	21	52	1.86	0.463	14	20	23.9	2.86	14	45.4	8	21	44	24.63	0.718	15	4	5.2	3.91	12	35.8
9	21	51	50.60	0.475	14	21	33.2	2.92	14	41.3	9	21	44	7.35	0.721	15	5	39.0	3.91	12	31.6
10	21	51	39.06	0.487	14	22	43.9	2.97	14	37.1	10	21	43	50.00	0.724	15	7	12.8	3.91	12	27.4
11	21	51	27.24	0.499	14	23	55.9	3.03	14	33.0	11	21	43	32.59	0.728	15	8	46.6	3.91	12	23.2
12	21	51	15.13	0.510	14	25	9.2	3.08	14	28.9	12	21	43	15.14	0.728	15	10	20.4	3.91	12	18.9
13	21	51	2.74	0.522	14	26	23.8	3.14	14	24.7	13	21	42	57.66	0.729	15	11	54.2	3.91	12	14.7
14	21	50	50.07	0.534	14	27	39.8	3.19	14	20.6	14	21	42	40.15	0.730	15	13	27.9	3.90	12	10.5
15	21	50	37.12	0.545	14	28	57.0	3.24	14	16.4	15	21	42	22.62	0.731	15	15	1.4	3.89	12	6.3
16	21	50	23.91	0.555	14	30	15.3	3.29	14	12.3	16	21	42	5.08	0.731	15	16	34.7	3.88	12	2.1
17	21	50	10.46	0.565	14	31	34.7	3.33	14	8.1	17	21	41	47.53	0.731	15	18	7.7	3.87	11	57.8
18	21	49	56.77	0.575	14	32	55.2	3.38	14	4.0	18	21	41	29.97	0.731	15	19	40.3	3.85	11	53.6
19	21	49	42.85	0.585	14	34	16.7	3.42	13	59.8	19	21	41	12.42	0.731	15	21	12.5	3.84	11	49.4
20	21	49	28.70	0.594	14	35	39.2	3.46	13	55.6	20	21	40	54.89	0.730	15	22	44.4	3.82	11	45.2
21	21	49	14.32	0.604	14	37	2.7	3.50	13	51.5	21	21	40	37.40	0.728	15	24	15.9	3.80	11	41.0
22	21	48	59.72	0.613	14	38	27.2	3.54	13	47.3	22	21	40	19.95	0.726	15	25	46.9	3.78	11	36.7
23	21	48	44.90	0.622	14	39	52.6	3.58	13	43.1	23	21	40	2.56	0.723	15	27	17.4	3.76	11	32.5
24	21	48	29.86	0.631	14	41	18.8	3.61	13	38.9	24	21	39	45.23	0.721	15	28	47.3	3.73	11	28.3
25	21	48	14.62	0.639	14	42	45.8	3.64	13	34.7	25	21	39	27.96	0.718	15	30	16.6	3.71	11	24.1
26	21	47	59.19	0.647	14	44	13.5	3.67	13	30.5	26	21	39	10.77	0.715	15	31	45.2	3.68	11	19.9
27	21	47	43.58	0.654	14	45	42.0	3.70	13	26.3	27	21	38	53.66	0.711	15	33	13.2	3.65	11	15.7
28	21	47	27.79	0.662	14	47	11.3	3.74	13	22.1	28	21	38	36.64	0.707	15	34	40.5	3.62	11	11.4
29	21	47	11.82	0.669	14	48	41.3	3.76	13	17.9	29	21	38	19.72	0.703	15	36	7.0	3.59	11	7.2
30	21	46	55.68	0.676	14	50	11.9	3.79	13	13.7	30	21	38	2.91	0.698	15	37	32.7	3.55	11	3.0
31	21	46	39.39	0.682	14	51	43.0	3.80	13	9.5	31	21	37	46.22	0.692	15	38	57.5	3.51	10	58.8
32	21	46	22.96	-0.687	14	53	14.5	-3.89	13	5.3	32	21	37	29.67	-0.686	15	40	21.3	-3.47	10	54.6

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	8.6	8.7	8.8	8.8	Polar Semidiameter	8.8	8.8	8.8	8.8
Horizontal Parallax	1.0	1.0	1.0	1.0	Horizontal Parallax	1.0	1.0	1.0	1.0

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing; - indicates that north declinations are decreasing and south declinations increasing.

GREENWICH MEAN TIME.

SEPTEMBER.						OCTOBER.					
Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.	Day of Month.	Apparent Right Ascension.	Var. of R. A. for 1 Hour.	Apparent Declination.	Var. of Dec. for 1 Hour.	Meridian Passage.
	Noon.	Noon.	Noon.	Noon.			Noon.	Noon.	Noon.	Noon.		Noon.
	h m s	s	° ' "	"	h m		h m s	s	° ' "	"	h m
1	21 37 29.67	-0.686	-15 40 21.3	-3.47	10 54.6	1	21 30 54.22	-0.369	-16 12 14.7	-1.67	8 50.1
2	21 37 13.27	0.680	15 41 44.1	3.43	10 50.4	2	21 30 45.54	0.354	16 12 53.9	1.59	8 46.1
3	21 36 57.02	0.674	15 43 5.8	3.38	10 46.2	3	21 30 37.22	0.339	16 13 31.2	1.52	8 42.0
4	21 36 40.93	0.667	15 44 26.5	3.34	10 42.0	4	21 30 29.26	0.324	16 14 6.7	1.44	8 37.9
5	21 36 25.00	0.660	15 45 46.1	3.30	10 37.8	5	21 30 21.65	0.310	16 14 40.3	1.36	8 33.9
6	21 36 9.25	0.652	15 47 4.7	3.25	10 33.6	6	21 30 14.40	0.295	16 15 12.0	1.28	8 29.8
7	21 35 53.68	0.645	15 48 22.2	3.20	10 29.4	7	21 30 7.52	0.279	16 15 41.8	1.20	8 25.8
8	21 35 38.30	0.637	15 49 38.5	3.15	10 25.2	8	21 30 1.02	0.263	16 16 9.8	1.13	8 21.7
9	21 35 23.12	0.628	15 50 53.6	3.10	10 21.0	9	21 29 54.89	0.248	16 16 35.9	1.05	8 17.7
10	21 35 8.15	0.619	15 52 7.4	3.05	10 16.9	10	21 29 49.14	0.232	16 17 0.1	0.97	8 13.7
11	21 34 53.40	0.610	15 53 19.8	2.99	10 12.7	11	21 29 43.77	0.216	16 17 22.3	0.89	8 9.7
12	21 34 38.88	0.600	15 54 30.8	2.93	10 8.5	12	21 29 38.78	0.200	16 17 42.6	0.80	8 5.7
13	21 34 24.60	0.590	15 55 40.5	2.88	10 4.4	13	21 29 34.18	0.184	16 18 0.9	0.72	8 1.6
14	21 34 10.56	0.580	15 56 48.8	2.82	10 0.2	14	21 29 29.97	0.167	16 18 17.3	0.64	7 57.6
15	21 33 56.76	0.570	15 57 55.7	2.76	9 56.0	15	21 29 26.15	0.151	16 18 31.8	0.56	7 53.7
16	21 33 43.20	0.560	15 59 1.2	2.70	9 51.9	16	21 29 22.72	0.135	16 18 44.4	0.49	7 49.7
17	21 33 29.88	0.550	16 0 5.3	2.64	9 47.7	17	21 29 19.67	0.119	16 18 55.1	0.40	7 45.7
18	21 33 16.82	0.538	16 1 7.9	2.58	9 43.6	18	21 29 17.02	0.102	16 19 3.8	0.32	7 41.7
19	21 33 4.04	0.527	16 2 9.0	2.51	9 39.4	19	21 29 14.77	0.085	16 19 10.5	0.24	7 37.8
20	21 32 51.54	0.515	16 3 8.5	2.45	9 35.3	20	21 29 12.92	0.069	16 19 15.3	0.16	7 33.8
21	21 32 39.33	0.503	16 4 6.4	2.38	9 31.2	21	21 29 11.47	0.052	16 19 18.1	-0.08	7 29.9
22	21 32 27.42	0.490	16 5 2.8	2.32	9 27.0	22	21 29 10.42	0.035	16 19 18.9	+0.01	7 25.9
23	21 32 15.81	0.477	16 5 57.6	2.25	9 22.9	23	21 29 9.77	0.019	16 19 17.7	0.09	7 22.0
24	21 32 4.50	0.465	16 6 50.8	2.18	9 18.8	24	21 29 9.53	-0.001	16 19 14.5	0.17	7 18.0
25	21 31 53.50	0.452	16 7 42.3	2.11	9 14.7	25	21 29 9.70	+0.016	16 19 9.4	0.25	7 14.1
26	21 31 42.80	0.439	16 8 32.0	2.04	9 10.6	26	21 29 10.28	0.033	16 19 2.3	0.34	7 10.2
27	21 31 32.42	0.426	16 9 20.0	1.96	9 6.5	27	21 29 11.26	0.049	16 18 53.2	0.42	7 6.3
28	21 31 22.36	0.412	16 10 6.3	1.89	9 2.4	28	21 29 12.65	0.066	16 18 42.2	0.50	7 2.4
29	21 31 12.63	0.398	16 10 50.9	1.82	8 58.3	29	21 29 14.45	0.084	16 18 29.2	0.58	6 58.5
30	21 31 3.25	0.384	16 11 33.7	1.75	8 54.2	30	21 29 16.66	0.100	16 18 14.2	0.67	6 54.6
31	21 30 54.22	0.369	16 12 14.7	1.67	8 50.1	31	21 29 19.27	0.117	16 17 57.2	0.75	6 50.7
32	21 30 45.54	-0.354	-16 12 53.9	-1.59	8 46.1	32	21 29 22.29	+0.134	-16 17 38.2	+0.83	6 46.8

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	8".8	8".7	8".6	8".5	Polar Semidiameter	8".5	8".4	8".3	8".2
Horizontal Parallax	1.0	1.0	1.0	1.0	Horizontal Parallax	1.0	1.0	0.9	0.9

NOTE.—North declinations are marked +, south declinations —.

GREENWICH MEAN TIME.

NOVEMBER.						DECEMBER.									
Day of Month.	Apparent Light Ascension.			Var. of R. A. for 1 Hour.		Meridian Passage.	Day of Month.	Apparent Right Ascension.			Var. of Dec. for 1 Hour.		Meridian Passage.		
	h	m	s	''	'''			h	m	s	''	'''			
	Noon.			Noon.	Noon.		Noon.			Noon.	Noon.				
1	21	29	22.20	+0.134	-16 17 38.2	+0.83	6 46.8	1	21	33	55.57	+0.611	-15 53 28.3	+3.14	4 53.4
2	21	29	25.72	0.151	16 17 17.3	0.91	6 42.9	2	21	34	10.41	0.625	15 52 12.1	3.21	4 49.7
3	21	29	29.56	0.169	16 16 54.4	1.00	6 39.1	3	21	34	25.59	0.639	15 50 54.3	3.28	4 46.1
4	21	29	33.81	0.186	16 16 29.5	1.08	6 35.2	4	21	34	41.10	0.653	15 49 34.9	3.34	4 42.4
5	21	29	38.47	0.203	16 16 2.7	1.16	6 31.4	5	21	34	56.03	0.666	15 48 13.9	3.41	4 38.7
6	21	29	43.53	0.219	16 15 33.9	1.24	6 27.5	6	21	35	13.08	0.680	15 46 51.2	3.48	4 35.1
7	21	29	49.00	0.236	16 15 3.1	1.32	6 23.7	7	21	35	29.55	0.693	15 45 26.8	3.55	4 31.4
8	21	29	54.87	0.253	16 14 30.4	1.40	6 19.8	8	21	35	46.34	0.706	15 44 0.8	3.61	4 27.7
9	21	30	1.13	0.269	16 13 55.8	1.48	6 16.0	9	21	36	3.44	0.719	15 42 33.3	3.68	4 24.1
10	21	30	7.78	0.285	16 13 19.4	1.56	6 12.2	10	21	36	20.85	0.732	15 41 4.3	3.74	4 20.5
11	21	30	14.83	0.302	16 12 41.1	1.64	6 8.4	11	21	36	38.57	0.745	15 39 33.9	3.80	4 16.8
12	21	30	22.27	0.318	16 12 0.9	1.71	6 4.6	12	21	36	56.59	0.757	15 38 2.0	3.86	4 13.2
13	21	30	30.11	0.335	16 11 18.8	1.79	6 0.8	13	21	37	14.90	0.769	15 36 28.5	3.93	4 9.6
14	21	30	38.34	0.351	16 10 34.8	1.87	5 57.0	14	21	37	33.51	0.781	15 34 53.5	3.99	4 5.9
15	21	30	46.95	0.367	16 9 48.9	1.95	5 53.2	15	21	37	52.41	0.794	15 33 17.1	4.05	4 2.3
16	21	30	55.94	0.383	16 9 1.2	2.03	5 49.4	16	21	38	11.60	0.805	15 31 39.2	4.11	3 58.7
17	21	31	5.32	0.399	16 8 11.6	2.10	5 45.6	17	21	38	31.07	0.817	15 29 59.8	4.17	3 55.1
18	21	31	15.08	0.415	16 7 20.2	2.18	5 41.8	18	21	38	50.81	0.828	15 28 19.0	4.23	3 51.5
19	21	31	25.22	0.430	16 6 27.0	2.26	5 38.1	19	21	39	10.82	0.839	15 26 36.8	4.29	3 47.9
20	21	31	35.74	0.446	16 5 31.9	2.34	5 34.3	20	21	39	31.10	0.851	15 24 53.3	4.34	3 44.3
21	21	31	46.63	0.462	16 4 34.9	2.41	5 30.6	21	21	39	51.65	0.862	15 23 8.4	4.40	3 40.7
22	21	31	57.90	0.477	16 3 36.1	2.49	5 26.9	22	21	40	12.47	0.873	15 21 22.1	4.46	3 37.1
23	21	32	9.54	0.492	16 2 35.5	2.56	5 23.1	23	21	40	33.54	0.883	15 19 34.5	4.51	3 33.5
24	21	32	21.54	0.508	16 1 33.2	2.63	5 19.4	24	21	40	54.86	0.893	15 17 45.6	4.56	3 29.9
25	21	32	33.90	0.523	16 0 29.2	2.70	5 15.7	25	21	41	16.43	0.904	15 15 55.4	4.62	3 26.4
26	21	32	46.62	0.538	15 59 23.4	2.78	5 12.0	26	21	41	38.25	0.914	15 14 3.8	4.68	3 22.8
27	21	32	59.70	0.552	15 58 15.9	2.85	5 8.2	27	21	42	0.31	0.924	15 12 10.9	4.73	3 19.2
28	21	33	13.13	0.567	15 57 6.6	2.92	5 4.5	28	21	42	22.61	0.934	15 10 16.8	4.78	3 15.7
29	21	33	26.92	0.582	15 55 55.6	3.00	5 0.8	29	21	42	45.13	0.943	15 8 21.5	4.83	3 12.1
30	21	33	41.07	0.597	15 54 42.8	3.07	4 57.1	30	21	43	7.87	0.952	15 6 25.0	4.88	3 8.6
31	21	33	55.57	0.611	15 53 28.2	3.14	4 53.4	31	21	43	30.83	0.961	15 4 27.3	4.93	3 5.0
32	21	34	10.41	+0.625	-15 52 12.1	+3.21	4 49.7	32	21	43	54.01	+0.970	-15 2 28.5	+4.97	3 1.5

Day of the Month.	1st.	11th.	21st.	31st.	Day of the Month.	1st.	11th.	21st.	31st.
Polar Semidiameter	8'.1	8'.0	7'.9	7'.8	Polar Semidiameter	7'.9	7'.6	7'.5	7'.4
Horizontal Parallax	0.9	0.9	0.9	0.9	Horizontal Parallax	0.9	0.9	0.9	0.8

+ prefixed to the hourly change of declination, indicates that north declinations are increasing and south declinations are decreasing; - indicates that north declinations are decreasing and south declinations increasing.

242 MOON'S LONGITUDE, &c., 1875.

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	JANUARY.		FEBRUARY.		MARCH.	
	True Longitude.	Latitude.	True Longitude.	Latitude.	True Longitude.	Latitude.
1.0	211° 9' 56.0	-0° 40' 38.4	254° 45' 50.6	-4° 7' 37.0	262° 34' 39.0	-4° 41' 16.2
1.5	217 3 15.8	1 11 20.7	260 53 25.3	4 24 55.3	268 42 12.4	4 53 58.1
2.0	222 57 16.9	1 41 18.8	267 5 8.9	4 39 18.3	274 54 5.5	5 3 23.7
2.5	228 52 35.2	2 10 15.6	273 21 22.6	4 50 30.1	281 10 48.2	5 9 19.5
3.0	234 49 43.9	2 37 53.8	279 42 22.4	4 58 15.6	287 32 45.8	5 11 32.8
3.5	240 49 12.9	3 3 55.7	286 8 18.1	5 2 21.1	294 0 18.9	5 9 52.1
4.0	246 51 28.2	3 28 3.5	292 39 13.2	5 2 34.7	300 33 41.9	5 4 8.2
4.5	252 56 51.5	3 49 59.4	299 15 4.4	4 58 47.3	307 13 2.3	4 54 14.4
5.0	259 5 40.2	4 9 25.6	305 55 42.2	4 50 53.0	313 58 20.2	4 40 7.4
5.5	265 18 7.3	4 26 4.5	312 40 51.0	4 38 49.8	320 49 27.6	4 21 48.2
6.0	271 34 20.7	4 39 39.6	319 30 9.7	4 22 40.4	327 46 8.2	3 59 23.1
6.5	277 54 23.7	4 49 55.7	326 23 12.7	4 2 32.4	334 47 57.7	3 33 4.0
7.0	284 18 15.1	4 56 39.1	333 19 31.0	3 38 38.4	341 54 24.8	3 3 9.0
7.5	290 45 49.7	4 59 38.3	340 18 33.7	3 11 16.6	349 4 51.5	2 30 2.4
8.0	297 16 58.7	4 58 44.8	347 19 49.3	2 40 49.8	356 18 34.8	1 54 14.4
8.5	303 51 30.4	4 53 53.2	354 22 47.1	2 7 45.4	3 34 48.3	1 16 20.6
9.0	310 29 11.4	4 45 1.6	1 26 58.1	1 32 34.5	10 52 44.0	-0 37 0.7
9.5	317 9 46.9	4 32 12.0	8 31 56.2	0 55 50.9	18 11 33.8	+0 3 2.8
10.0	323 53 2.4	4 15 30.2	15 37 18.2	-0 18 10.8	25 30 31.4	0 43 5.8
10.5	330 38 44.1	3 55 6.1	22 42 44.8	+0 19 48.9	32 48 53.2	1 22 24.5
11.0	337 26 39.7	3 31 13.7	29 47 59.8	0 57 30.9	40 5 59.7	2 0 17.0
11.5	344 16 39.0	3 4 10.7	36 52 50.3	1 34 18.7	47 21 16.5	2 36 4.0
12.0	351 8 33.9	2 34 18.1	43 57 5.9	2 9 37.2	54 34 14.0	3 9 10.3
12.5	358 2 18.8	2 2 0.3	51 0 37.9	2 42 53.1	61 44 28.1	3 39 5.5
13.0	4 57 50.1	1 27 44.5	58 3 18.7	3 13 35.9	68 51 40.0	4 5 24.0
13.5	11 55 6.1	0 52 0.3	65 5 1.0	3 41 18.1	75 55 35.6	4 27 45.5
14.0	18 54 5.8	-0 15 19.5	72 5 37.1	4 5 35.5	82 56 4.8	4 45 55.1
14.5	25 54 48.2	+0 21 44.6	79 4 57.9	4 26 7.7	89 53 1.1	4 59 42.8
15.0	32 57 11.3	0 58 37.5	86 2 53.0	4 42 38.2	96 46 21.0	5 9 3.2
15.5	40 1 11.3	1 34 44.0	92 59 10.1	4 54 54.8	103 36 3.2	5 13 55.2
16.0	47 6 41.2	2 9 29.0	99 53 35.0	5 2 49.7	110 22 7.8	5 14 21.8
16.5	54 13 30.1	2 42 18.1	106 45 51.8	5 6 19.5	117 4 36.3	5 10 20.4
17.0	61 21 22.1	3 12 38.0	113 35 43.3	5 5 25.4	123 43 30.9	5 2 27.9
17.5	68 29 56.2	3 39 57.9	120 22 51.1	5 0 12.8	130 18 54.3	4 50 29.8
18.0	75 38 46.1	4 3 50.1	127 6 57.4	4 50 51.4	136 50 49.4	4 34 50.2
18.5	82 47 20.4	4 23 50.8	133 47 44.6	4 37 34.6	143 19 19.4	4 15 46.6
19.0	89 55 3.3	4 39 40.8	140 24 57.4	4 20 39.2	149 44 27.9	3 53 38.2
19.5	97 1 15.8	4 51 6.5	146 58 22.5	4 0 24.8	156 6 18.8	3 28 45.6
20.0	104 5 17.5	4 57 59.9	153 27 49.9	3 37 13.2	162 24 56.8	3 1 30.9
20.5	111 6 27.6	5 0 19.0	159 53 13.3	3 11 27.6	168 40 27.0	2 32 17.0
21.0	118 4 7.4	4 58 7.6	166 14 30.7	2 43 32.4	174 52 55.8	2 1 27.1
21.5	124 57 41.4	4 51 35.0	172 31 44.8	2 13 52.1	181 2 31.0	1 29 24.6
22.0	131 46 39.5	4 40 55.0	178 45 2.6	1 42 51.1	187 9 21.8	0 56 33.0
22.5	138 30 37.7	4 26 25.5	184 54 35.7	1 10 53.4	193 13 38.5	+0 23 15.1
23.0	145 9 19.3	4 8 27.3	191 0 40.3	0 38 21.8	199 15 33.8	-0 10 6.9
23.5	151 42 35.1	3 47 23.5	197 3 36.4	+0 5 38.3	205 15 23.0	0 43 11.7
24.0	158 10 23.9	3 23 38.2	203 3 48.0	-0 26 56.4	211 13 23.3	1 15 38.9
24.5	164 32 51.6	2 57 36.0	209 1 42.5	0 59 2.9	217 9 53.7	1 47 9.3
25.0	170 50 11.2	2 29 41.2	214 57 50.3	1 30 23.0	223 5 15.7	2 17 24.9
25.5	177 2 42.3	2 0 17.6	220 52 44.6	2 0 39.5	228 59 53.2	2 46 8.7
26.0	183 10 49.6	1 29 48.0	226 47 0.6	2 29 36.1	234 54 12.3	3 13 4.7
26.5	189 15 2.6	0 58 33.8	232 41 15.2	2 56 57.3	240 48 41.1	3 37 57.9
27.0	195 15 54.9	+0 26 55.3	238 36 6.8	3 22 28.1	246 43 49.2	4 0 34.3
27.5	201 14 3.1	-0 4 48.2	244 32 14.3	3 45 53.7	252 40 8.2	4 20 40.3
28.0	207 10 6.5	0 36 18.6	250 30 16.6	4 6 59.8	258 38 11.1	4 38 3.0
28.5	213 4 45.8	1 7 18.9	256 30 52.3	4 25 32.1	264 38 31.7	4 52 30.1
29.0	218 58 42.7	1 37 32.4	262 34 39.0	4 41 16.2	270 41 44.3	5 3 49.8
29.5	224 52 39.2	2 6 43.0	268 42 12.4	4 53 58.1	276 48 23.5	5 11 50.5
30.0	230 47 17.2	2 34 34.9	274 54 5.5	5 3 23.7	282 59 3.1	5 16 21.2
30.5	236 43 17.4	3 0 52.3	281 10 48.2	5 9 19.5	289 14 15.8	5 17 11.9
31.0	242 41 18.9	3 25 19.2	287 32 45.8	5 11 32.8	295 34 32.5	5 14 13.3
31.5	248 41 58.6	-3 47 39.5	294 0 18.9	-5 9 52.1	302 0 21.2	-5 7 17.6

MOON'S LONGITUDE, &c., 1875. 243

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	APRIL.		MAY.		JUNE.	
	True Longitude.	Latitude.	True Longitude.	Latitude.	True Longitude.	Latitude.
1.0	308 32 6.3	-4 56 18.9	344 0 26.6	-2 53 26.5	36 6 1.5	+1 44 53.7
1.5	315 10 7.2	4 41 14.0	351 0 59.1	2 19 59.4	43 34 54.2	2 21 33.5
2.0	321 54 37.0	4 22 2.9	358 8 9.0	1 43 51.7	51 7 20.4	2 55 59.8
2.5	328 45 41.8	3 58 49.9	5 21 42.0	1 5 33.6	58 42 16.0	3 27 28.6
3.0	335 43 19.7	3 31 44.2	12 41 13.0	-0 25 40.7	66 18 28.6	3 55 19.7
3.5	342 47 19.4	3 1 0.9	20 6 5.6	+0 15 5.6	73 54 40.7	4 18 58.6
4.0	349 57 20.2	2 27 1.3	27 35 32.8	0 55 59.6	81 29 32.3	4 37 58.0
4.5	357 12 51.4	1 50 13.5	35 8 37.2	1 36 12.4	89 1 45.1	4 51 59.1
5.0	4 33 13.2	1 11 11.9	42 44 12.6	2 14 54.3	96 30 6.1	5 0 52.3
5.5	11 57 37.3	-0 30 36.7	50 21 6.7	2 51 16.6	103 53 29.9	5 4 36.5
6.0	19 25 8.6	+0 10 47.0	57 58 3.1	3 24 34.3	111 11 2.0	5 3 18.9
6.5	26 54 46.3	0 52 11.2	65 33 44.8	3 54 7.7	118 22 0.3	4 57 13.4
7.0	34 25 26.6	1 32 46.7	73 6 57.4	4 19 24.2	125 25 55.3	4 46 39.5
7.5	41 56 4.8	2 11 45.2	80 36 31.6	4 39 59.8	132 22 30.8	4 32 0.5
8.0	49 25 37.4	2 48 21.2	88 1 26.9	4 55 39.0	139 11 42.6	4 13 42.1
8.5	56 53 4.8	3 21 54.0	95 20 52.3	5 6 14.8	145 53 37.2	3 52 11.5
9.0	64 17 32.5	3 51 49.1	102 34 8.5	5 11 48.2	152 23 30.8	3 27 56.0
9.5	71 38 13.3	4 17 38.5	109 40 48.1	5 12 26.7	158 56 46.5	3 1 22.6
10.0	78 54 28.1	4 39 1.9	116 40 35.4	5 8 23.6	165 18 53.7	2 32 57.1
10.5	86 5 46.7	4 55 46.3	123 33 25.6	4 50 56.1	171 35 25.9	2 3 4.2
11.0	93 11 47.5	5 7 45.2	130 19 23.3	4 47 24.4	177 46 59.6	1 32 7.1
11.5	100 12 17.2	5 14 58.0	136 58 41.5	4 31 10.7	183 54 12.9	1 0 27.9
12.0	107 7 10.3	5 17 29.5	143 31 39.5	4 11 38.0	189 57 44.5	+0 28 27.3
12.5	113 56 27.9	5 15 28.8	149 58 41.8	3 49 9.8	195 54 13.1	-0 3 35.2
13.0	120 40 16.9	5 9 8.3	156 20 16.5	3 24 9.6	201 56 16.3	0 35 20.9
13.5	127 18 48.7	4 58 43.2	162 36 54.1	2 57 0.5	207 52 30.2	1 6 31.9
14.0	133 52 17.8	4 44 30.7	168 49 6.5	2 28 5.0	213 47 28.8	1 36 50.9
14.5	140 21 1.6	4 26 49.4	174 57 26.0	1 57 14.9	219 41 44.0	2 6 1.3
15.0	146 45 19.2	4 5 59.2	181 2 24.7	1 26 21.6	225 35 44.7	2 33 46.8
15.5	153 5 30.7	3 42 20.8	187 4 33.6	0 54 15.9	231 29 57.0	2 59 51.5
16.0	159 21 56.3	3 16 15.3	193 4 22.5	+0 21 48.0	237 24 44.6	3 24 0.0
16.5	165 34 56.4	2 48 4.2	199 2 19.4	-0 10 42.4	243 20 28.0	3 45 57.5
17.0	171 44 51.1	2 18 9.2	204 58 50.3	0 42 56.0	249 17 24.8	4 5 29.9
17.5	177 51 59.5	1 46 52.3	210 54 19.0	1 14 33.7	255 15 49.8	4 22 23.7
18.0	183 56 40.0	1 14 35.2	216 49 7.3	1 45 17.1	261 15 55.8	4 36 26.5
18.5	189 59 10.1	0 41 39.7	222 43 34.9	2 14 48.3	267 17 53.3	4 47 27.2
19.0	195 59 46.4	+0 8 27.3	228 37 59.7	2 42 49.8	273 21 50.9	4 55 16.1
19.5	201 58 44.9	-0 24 40.9	234 32 38.2	3 9 4.9	279 27 55.8	4 59 44.9
20.0	207 56 21.3	0 57 24.5	240 27 45.3	3 33 17.7	285 36 14.6	5 0 47.2
20.5	213 52 50.7	1 29 23.4	246 23 35.0	3 55 13.1	291 46 53.4	4 58 18.6
21.0	219 48 28.3	2 0 18.5	252 20 20.3	4 14 37.1	297 59 58.2	4 52 16.8
21.5	225 43 29.8	2 29 51.6	258 18 14.1	4 31 16.9	304 15 35.9	4 42 41.8
22.0	231 38 11.2	2 57 45.3	264 17 29.2	4 45 0.8	310 33 54.5	4 29 35.7
22.5	237 32 49.3	3 23 43.3	270 18 18.7	4 55 38.4	316 55 3.1	4 13 3.1
23.0	243 27 42.0	3 47 30.4	276 20 56.5	5 3 0.8	323 19 12.7	3 53 11.3
23.5	249 23 8.4	4 8 52.5	282 25 37.5	5 7 0.6	329 46 35.8	3 30 9.9
24.0	255 19 29.0	4 27 36.4	288 32 37.8	5 7 31.9	335 17 26.4	3 4 11.2
24.5	261 17 5.7	4 43 30.0	294 42 15.0	5 4 30.2	342 51 59.5	2 35 30.2
25.0	267 16 22.0	4 56 22.3	300 54 48.2	4 57 52.7	349 39 31.1	2 4 24.7
25.5	273 17 42.7	5 6 3.2	307 10 37.9	4 47 38.5	356 13 17.0	1 31 15.4
26.0	279 21 34.2	5 12 23.4	313 30 6.0	4 33 48.5	3 0 32.3	0 56 25.9
26.5	285 28 24.2	5 15 14.9	319 53 35.2	4 16 25.6	9 52 30.3	-0 20 23.3
27.0	291 38 41.1	5 14 30.6	326 21 28.9	3 55 35.1	16 49 21.3	+0 16 22.6
27.5	297 52 53.9	5 10 4.4	332 54 10.4	3 31 24.8	23 51 10.8	0 53 19.0
28.0	304 11 31.8	5 1 51.6	339 32 2.0	3 4 5.6	30 57 58.0	1 29 50.4
28.5	310 35 3.4	4 49 49.4	346 15 24.9	2 33 51.8	38 9 35.0	2 5 19.2
29.0	317 3 56.1	4 33 56.8	353 4 36.6	2 1 1.2	45 25 45.0	2 39 6.6
29.5	323 38 35.1	4 14 15.5	359 59 50.4	1 25 56.4	52 46 1.5	3 10 33.5
30.0	330 19 22.6	3 50 50.3	7 1 14.1	0 49 3.8	60 9 47.6	3 39 1.6
30.5	337 6 35.9	3 23 49.6	14 8 47.5	-0 10 54.5	67 36 16.0	4 3 55.3
31.0	344 0 26.6	2 53 26.5	21 22 21.4	+0 27 55.5	75 4 30.7	4 24 43.3
31.5	351 0 59.1	-2 19 59.4	28 41 36.3	+1 6 45.9	82 33 28.1	+4 40 59.7

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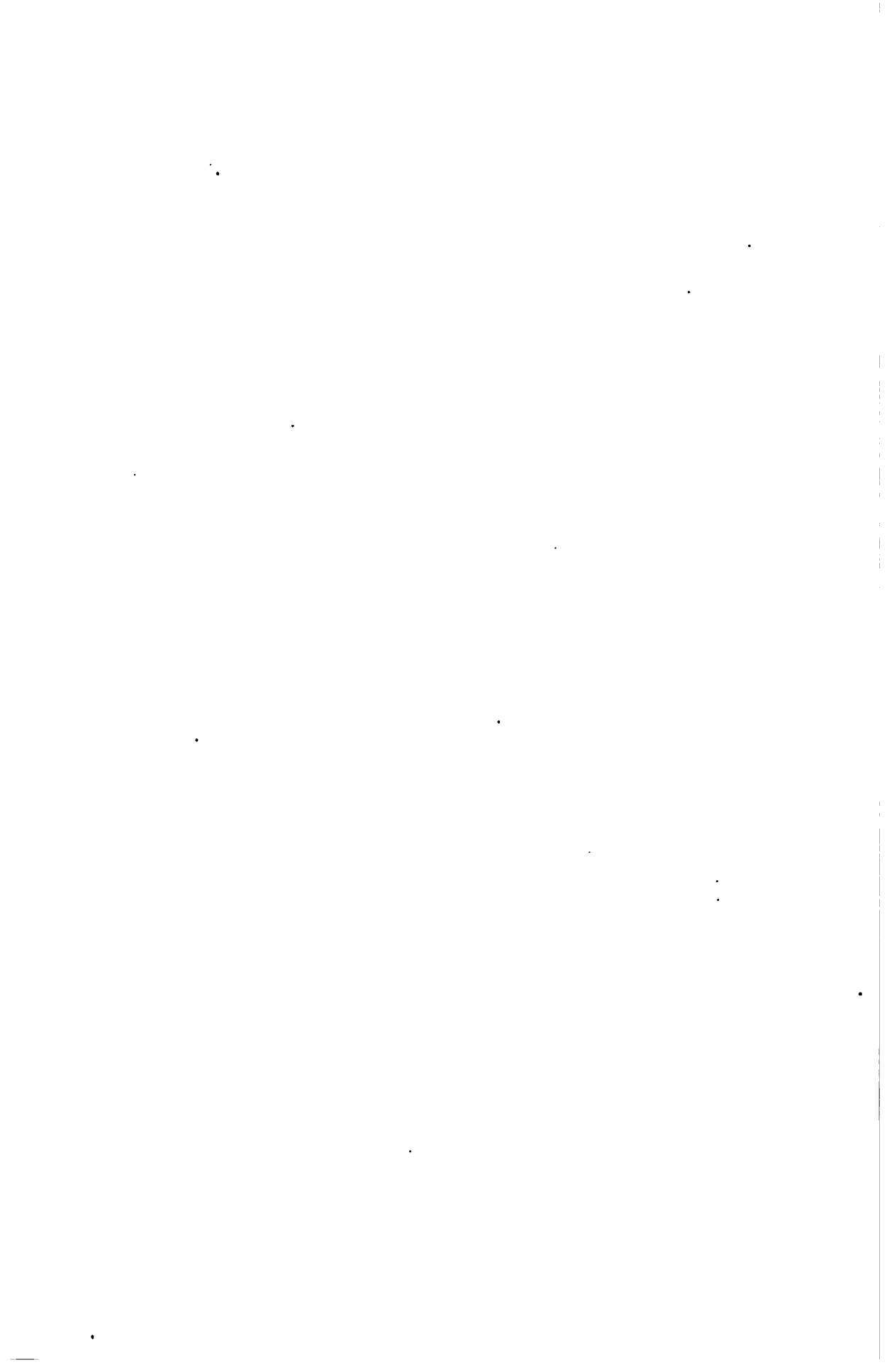
FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	JULY.		AUGUST.		SEPTEMBER.	
	True Longitude.	Latitude.	True Longitude.	Latitude.	True Longitude.	Latitude.
1.0	75° 4 30.7	+4° 24 43.3	127° 58 14.2	+4° 28 58.8	176° 57 27.9	+1° 3 9.4
1.5	82 33 28.1	4 40 59.7	135 0 33.1	4 9 41.9	183 21 9.4	+0 28 32.4
2.0	90 1 59.8	4 52 25.7	141 57 51.0	3 46 53.3	189 40 22.1	-0 6 3.7
2.5	97 28 55.2	4 58 50.2	148 49 40.8	3 21 2.1	195 55 18.5	0 40 13.9
3.0	104 53 4.8	5 0 10.3	155 35 44.1	2 52 38.9	202 6 15.5	1 13 35.4
3.5	112 13 23.3	4 56 31.3	162 15 51.5	2 22 15.0	208 13 34.1	1 45 47.4
4.0	119 28 52.5	4 48 5.7	168 50 2.2	1 50 21.0	214 17 39.0	2 16 31.4
4.5	126 38 44.0	4 35 12.3	175 18 23.3	1 17 26.2	220 18 58.2	2 45 30.7
5.0	133 42 19.7	4 18 14.9	181 41 9.1	0 43 58.3	226 18 2.1	3 12 30.5
5.5	140 30 13.4	3 57 40.8	187 58 40.5	+0 10 23.0	232 15 23.2	3 37 17.4
6.0	147 29 11.0	3 33 59.3	194 11 23.6	-0 22 56.2	238 11 35.9	3 59 39.2
6.5	154 12 9.8	3 7 40.3	200 19 48.7	0 55 37.8	244 7 15.9	4 19 24.9
7.0	160 48 16.9	2 39 13.8	206 24 29.4	1 27 22.7	250 2 59.4	4 36 24.3
7.5	167 17 48.6	2 9 8.5	212 26 1.9	1 57 53.3	255 59 22.7	4 50 27.8
8.0	173 41 8.1	1 37 51.8	218 25 3.9	2 26 53.6	261 57 2.3	5 1 26.5
8.5	179 58 44.8	1 5 49.2	224 22 14.3	2 54 8.8	267 56 33.7	5 9 12.0
9.0	186 11 12.4	0 33 24.3	230 18 12.2	3 19 25.4	273 58 31.0	5 13 36.5
9.5	192 19 7.8	+0 0 58.8	236 13 36.4	3 42 30.6	280 3 26.6	5 14 32.8
10.0	198 23 10.3	-0 31 7.2	242 9 5.0	4 3 12.2	286 11 50.5	5 11 54.6
10.5	204 24 0.4	1 2 35.3	248 5 14.4	4 21 18.5	292 24 9.9	5 5 36.9
11.0	210 22 18.5	1 33 8.1	254 2 39.4	4 36 38.4	298 40 48.3	4 55 36.3
11.5	216 18 44.6	2 2 29.5	260 1 52.5	4 49 1.3	305 2 5.0	4 41 51.5
12.0	222 13 57.6	2 30 24.3	266 3 23.2	4 58 16.8	311 28 14.6	4 24 23.6
12.5	228 8 35.0	2 56 37.9	272 7 37.6	5 4 15.4	317 59 26.7	4 3 17.0
13.0	234 3 11.7	3 20 55.9	278 14 58.3	5 6 48.7	324 35 45.3	3 38 39.7
13.5	239 58 29.4	3 43 4.6	284 25 44.1	5 5 49.4	331 17 8.7	3 10 43.8
14.0	245 54 30.7	4 2 50.8	290 40 9.8	5 1 11.9	338 3 29.2	2 39 46.2
14.5	251 52 9.1	4 20 1.6	296 58 25.8	4 52 52.5	344 54 33.6	2 6 8.4
15.0	257 51 33.7	4 34 24.9	303 20 37.9	4 40 50.2	351 50 2.9	1 30 16.6
15.5	263 53 19.2	4 45 49.0	309 46 47.8	4 25 6.9	358 49 32.9	0 52 41.7
16.0	269 57 26.6	4 54 3.6	316 16 53.1	4 5 47.8	5 52 35.1	-0 13 58.4
16.5	276 4 13.4	4 58 59.2	322 50 47.8	3 43 1.6	12 58 32.2	+0 25 15.6
17.0	282 13 48.9	5 0 28.2	329 28 22.6	3 17 1.2	20 7 8.5	1 4 20.3
17.5	288 26 19.2	4 58 24.8	336 9 25.6	2 48 3.4	27 17 31.1	1 42 34.9
18.0	294 41 47.4	4 52 45.3	342 53 43.1	2 16 28.8	34 29 10.7	2 19 19.1
18.5	301 0 14.3	4 43 28.6	349 41 0.5	1 42 41.8	41 41 32.8	2 53 54.3
19.0	307 21 39.0	4 30 36.2	356 31 2.6	1 7 10.2	48 54 4.2	3 25 44.3
19.5	313 45 59.3	4 14 12.6	3 23 34.6	-0 30 24.7	56 6 14.0	3 54 16.9
20.0	320 13 12.5	3 54 25.5	10 18 22.3	+0 7 2.1	63 17 33.8	4 19 4.6
20.5	326 43 16.0	3 31 25.6	17 15 12.3	0 44 35.6	70 27 38.1	4 39 44.6
21.0	333 16 7.9	3 5 26.8	24 13 52.5	1 21 40.6	77 36 4.5	4 55 59.3
21.5	339 51 47.4	2 36 46.2	31 14 11.7	1 57 41.8	84 42 33.5	5 7 36.7
22.0	346 30 14.8	2 5 43.6	38 15 59.3	2 32 4.4	91 46 42.8	5 14 30.2
22.5	353 11 32.3	1 32 41.7	45 19 4.7	3 4 14.9	98 48 36.5	5 16 38.1
23.0	359 53 43.2	0 58 5.7	52 23 17.4	3 33 41.7	105 47 44.5	5 14 3.6
23.5	6 42 52.0	-0 22 23.3	59 28 25.9	3 59 55.7	112 44 2.4	5 6 54.4
24.0	13 33 3.5	+0 13 55.9	66 34 17.3	4 22 31.1	119 37 21.5	4 55 22.2
24.5	20 26 22.6	0 50 20.7	73 40 37.1	4 41 5.7	126 27 34.7	4 39 42.6
25.0	27 22 53.0	1 26 18.2	80 47 8.5	4 55 21.4	133 14 36.0	4 20 14.3
25.5	34 22 36.5	2 1 14.6	87 53 32.2	5 5 4.4	139 58 20.3	3 57 18.7
26.0	41 25 31.8	2 34 35.9	94 59 26.4	5 10 6.1	146 38 43.4	3 31 19.8
26.5	48 31 33.3	3 5 48.0	102 4 26.9	5 10 23.1	153 15 41.9	3 2 43.1
27.0	55 40 30.2	3 34 17.6	109 8 7.7	5 5 57.2	159 49 13.3	2 31 55.6
27.5	62 52 5.9	3 59 33.6	116 10 1.3	4 56 55.4	166 19 16.2	1 59 25.0
28.0	70 5 56.6	4 21 7.0	123 9 39.6	4 43 29.9	172 45 50.1	1 25 39.4
28.5	77 21 31.9	4 38 32.8	130 6 34.5	4 25 57.6	179 8 56.1	0 51 6.7
29.0	84 38 14.8	4 51 30.4	137 0 19.2	4 4 39.5	185 28 36.7	+0 16 14.1
29.5	91 55 22.2	4 59 44.8	143 50 29.1	3 40 0.3	191 44 56.3	-0 18 32.2
30.0	99 12 6.4	5 3 7.4	150 36 42.5	3 12 27.2	197 58 1.2	0 52 47.4
30.5	106 27 36.7	5 1 36.2	157 18 41.9	2 42 29.4	204 8 0.1	1 26 8.3
31.0	113 41 1.4	4 55 15.8	163 56 13.9	2 10 37.1	210 15 4.2	1 58 13.7
31.5	120 51 29.7	+4 44 17.6	170 29 19.2	+1 37 20.5	216 19 26.8	-2 28 44.2

MOON'S LONGITUDE, &c., 1875. 245

FOR GREENWICH MEAN NOON AND MIDNIGHT.

Day of Month.	OCTOBER.		NOVEMBER.		DECEMBER.	
	True Longitude.	Latitude.	True Longitude.	Latitude.	True Longitude.	Latitude.
1.0	210° 15' 4.2	-1° 58' 13.7	254° 33' 14.1	-4° 45' 54.1	287° 4' 59.9	-4° 57' 12.5
1.5	216 19 26.8	2 28 44.2	260 28 20.7	4 57 8.2	293 4 21.7	4 49 34.3
2.0	222 21 24.0	2 57 22.2	266 23 34.6	5 5 11.4	299 5 17.9	4 38 41.2
2.5	228 21 14.6	3 23 52.3	272 19 18.6	5 9 58.8	305 8 11.2	4 24 36.8
3.0	234 19 19.7	3 48 0.7	278 15 57.7	5 11 26.9	311 13 26.6	4 7 26.2
3.5	240 16 2.9	4 9 35.3	284 13 50.1	5 9 33.1	317 21 31.7	3 47 16.0
4.0	246 11 50.0	4 28 25.5	290 13 52.2	5 4 15.7	323 32 56.2	3 24 14.3
4.5	252 7 8.9	4 44 22.0	296 16 8.2	4 55 34.3	329 48 11.5	2 58 31.0
5.0	258 2 29.5	4 57 16.6	302 21 19.7	4 43 29.5	336 7 50.3	2 30 17.9
5.5	263 58 23.4	5 7 2.0	308 30 0.7	4 28 3.1	342 32 25.6	1 59 49.2
6.0	269 55 23.4	5 13 31.7	314 42 45.6	4 9 18.3	349 2 30.0	1 27 21.4
6.5	275 54 3.5	5 16 39.9	321 0 8.9	3 47 20.1	355 38 34.4	0 53 14.1
7.0	281 54 58.3	5 16 21.8	327 22 43.9	3 22 15.6	2 21 6.4	-0 17 50.3
7.5	287 58 42.4	5 12 43.2	333 51 2.1	2 54 14.6	9 10 29.0	+0 18 23.5
8.0	294 5 50.3	5 5 10.8	340 25 32.0	2 23 30.0	16 6 58.5	0 54 56.9
8.5	300 16 55.2	4 54 12.5	347 6 37.6	1 50 18.4	23 10 42.5	1 31 15.8
9.0	306 32 29.1	4 39 37.6	353 54 37.1	1 15 0.5	30 21 38.4	2 6 42.6
9.5	312 53 1.1	4 21 27.4	0 49 41.4	-0 38 1.8	37 39 30.5	2 40 36.9
10.0	319 18 57.0	3 50 45.7	7 51 52.3	+0 0 7.3	45 3 49.6	3 12 16.6
10.5	325 50 38.5	3 34 33.0	15 1 1.4	0 38 51.6	52 33 52.4	3 40 59.6
11.0	332 28 22.0	3 6 17.7	22 16 48.7	1 17 31.4	60 8 41.2	4 6 5.7
11.5	339 12 17.9	2 34 56.2	29 38 41.7	1 55 23.6	67 47 5.7	4 26 58.3
12.0	346 2 29.4	2 0 53.6	37 5 55.7	2 31 42.5	75 27 45.2	4 43 6.7
12.5	352 58 51.8	1 24 34.2	44 37 34.2	3 5 42.1	83 9 11.5	4 54 8.6
13.0	0 1 12.0	0 46 27.5	52 12 30.3	3 36 38.0	90 49 53.8	4 59 49.9
13.5	7 9 7.7	-0 7 8.0	59 49 28.8	4 3 49.2	98 28 22.3	5 0 7.0
14.0	14 22 8.2	+0 32 45.2	67 27 9.4	4 26 40.8	106 3 12.7	4 55 5.9
14.5	21 39 34.4	1 12 29.7	75 4 10.2	4 44 45.2	113 33 10.1	4 45 1.1
15.0	29 0 39.6	1 51 20.7	82 30 11.1	4 57 43.4	120 57 11.7	4 30 14.8
15.5	36 24 30.6	2 28 32.9	90 10 57.5	5 5 25.7	128 14 28.9	4 11 14.9
16.0	43 50 10.3	3 3 22.2	97 38 23.5	5 7 51.3	135 24 27.9	3 48 33.1
16.5	51 16 38.7	3 35 7.6	105 0 34.0	5 5 7.7	142 26 50.2	3 22 43.4
17.0	58 42 55.5	4 3 12.8	112 16 46.6	4 57 29.5	149 21 39.4	2 54 19.9
17.5	66 8 2.6	4 27 7.4	119 26 31.6	4 45 16.7	156 8 35.4	2 23 56.4
18.0	73 31 5.7	4 46 27.9	126 29 32.0	4 28 53.5	162 48 22.0	1 52 5.1
18.5	80 51 16.6	5 0 58.4	133 25 42.4	4 8 47.0	169 21 14.8	1 19 15.9
19.0	88 7 54.1	5 10 30.3	140 15 8.0	3 45 25.5	175 47 44.5	0 45 56.6
19.5	95 20 25.0	5 15 1.6	146 58 1.9	3 19 17.8	182 8 26.1	+0 12 32.5
20.0	102 28 24.6	5 14 37.1	153 34 44.2	2 50 52.6	188 23 56.5	-0 20 33.2
20.5	109 31 36.2	5 9 26.7	160 5 39.8	2 20 37.7	194 34 54.0	0 52 59.4
21.0	116 29 59.5	4 59 44.8	166 31 16.3	1 49 0.0	200 41 56.8	1 24 27.0
21.5	123 23 4.9	4 45 49.3	172 52 3.7	1 16 25.2	206 45 42.4	1 54 38.5
22.0	130 11 22.5	4 28 1.1	179 8 32.4	0 43 17.9	212 46 46.5	2 23 17.6
22.5	136 54 31.0	4 6 43.0	185 21 12.8	+0 10 1.2	218 45 42.9	2 50 9.3
23.0	143 33 41.3	3 42 19.1	191 30 34.2	-0 23 2.9	224 43 2.9	3 14 59.7
23.5	150 8 7.0	3 15 14.6	197 37 4.4	0 55 33.3	230 39 14.5	3 37 36.0
24.0	156 38 23.1	2 45 55.1	203 41 9.3	1 27 10.3	236 34 43.0	3 57 46.1
24.5	163 4 45.4	2 14 46.5	209 43 12.5	1 57 35.0	242 29 50.8	4 15 19.0
25.0	169 27 30.2	1 42 14.7	215 43 35.1	2 26 29.7	248 24 57.1	4 30 4.9
25.5	175 46 53.4	1 8 45.3	221 42 35.9	2 53 37.7	254 20 18.3	4 41 55.0
26.0	182 3 10.4	0 34 43.4	227 40 31.5	3 18 43.6	260 16 8.2	4 50 41.7
26.5	188 16 35.5	+0 0 33.6	233 37 36.5	3 41 33.0	266 12 38.5	4 56 19.0
27.0	194 27 22.1	-0 33 20.6	239 34 3.5	4 1 53.0	272 9 59.1	4 58 42.2
27.5	200 35 42.9	1 6 36.4	245 30 4.0	4 19 32.0	278 8 18.8	4 57 48.5
28.0	206 41 49.5	1 38 52.0	251 25 48.8	4 34 20.1	284 7 45.2	4 53 36.6
28.5	212 45 53.1	2 9 47.3	257 21 28.4	4 46 8.6	290 8 26.0	4 46 7.2
29.0	218 48 4.7	2 39 3.7	263 17 13.0	4 54 50.7	296 10 29.0	4 35 22.9
29.5	224 48 35.5	3 6 23.7	269 13 13.6	5 0 21.0	302 14 2.9	4 21 28.2
30.0	230 47 36.8	3 31 31.9	275 9 42.3	5 2 35.9	308 19 17.7	4 4 29.4
30.5	236 45 21.0	3 54 14.4	281 6 52.6	5 1 33.3	314 26 25.6	3 44 34.7
31.0	242 42 1.7	4 11 19.0	287 4 59.9	4 57 12.5	320 35 40.8	3 21 54.3
31.5	248 37 53.9	-4 31 35.2	293 4 21.6	-4 49 34.3	326 47 19.7	-2 56 40.1



ASTRONOMICAL EPHEMERIS

FOR THE

MERIDIAN OF WASHINGTON.

248 OBLIQUITY OF THE ECLIPTIC, &c.

Mean Noon.	Apparent Obliquity.	Equation of Equinoxes.		Precession of Equinoxes in Longitude.	The Sun's		Mean Longitude of Moon's Ascending Node.
		In Longitude	In R. A.		Aberration.	Hor. Parallax.	
1875.							
	23° 27'						
Jan. 0	27.29	—6.07	—0.37	0.00	—20.80	9.00	22° 41.8
10	27.41	5.50	0.34	1.38	20.79	9.00	22 10.1
20	27.58	5.05	0.31	2.75	20.77	8.99	21 38.3
30	27.78	4.73	0.29	4.13	20.74	8.98	21 6.5
Feb 9	27.99	4.57	0.28	5.50	20.71	8.96	20 34.7
19	28.19	4.57	0.28	6.88	—20.67	8.94	20 3.0
Mar. 1	28.35	4.70	0.29	8.26	20.63	8.92	19 31.2
11	28.46	4.94	0.30	9.63	20.57	8.90	18 59.4
21	28.50	5.22	0.32	11.01	20.51	8.87	18 27.7
31	28.48	5.50	0.34	12.38	20.45	8.85	17 55.9
Apr. 10	28.40	5.72	0.35	13.76	—20.39	8.82	17 24.1
20	28.27	5.85	0.36	15.14	•20.34	8.80	16 52.3
30	28.10	5.86	0.36	16.51	20.29	8.78	16 20.6
May 10	27.93	5.73	0.35	17.89	20.24	8.76	15 48.8
20	27.77	5.46	0.33	19.26	20.19	8.74	15 17.0
30	27.63	5.07	0.31	20.64	—20.16	8.72	14 45.3
June 9	27.54	4.59	0.28	22.02	20.13	8.71	14 13.5
19	27.50	4.06	0.25	23.39	20.11	8.71	13 41.7
29	27.52	3.51	0.21	24.77	20.11	8.70	13 9.9
July 9	27.60	3.00	0.18	26.14	20.10	8.70	12 38.2
19	27.73	2.57	0.16	27.52	—20.12	8.71	12 6.4
29	27.90	2.25	0.14	28.90	20.14	8.72	11 34.6
Aug. 8	28.08	2.05	0.13	30.27	20.17	8.73	11 2.8
18	28.26	1.99	0.12	31.65	20.20	8.75	10 31.1
28	28.42	2.06	0.13	33.02	20.24	8.77	9 59.3
Sept. 7	28.54	2.24	0.14	34.40	—20.29	8.79	9 27.5
17	28.61	2.50	0.15	35.78	20.35	8.81	8 55.8
27	28.61	2.78	0.17	37.15	20.41	8.84	8 24.0
Oct. 7	28.55	3.04	0.19	38.53	20.47	8.87	7 52.2
17	28.43	3.23	0.20	39.90	20.53	8.88	7 20.4
27	28.27	3.30	0.20	41.28	—20.59	8.91	6 48.7
Nov. 6	28.08	3.23	0.20	42.46	20.64	8.93	6 16.9
16	27.88	3.00	0.18	44.03	20.69	8.95	5 45.1
26	27.71	2.62	0.16	45.41	20.73	8.97	5 13.4
Dec. 6	27.57	2.11	0.13	46.78	—20.76	8.98	4 41.6
16	27.49	1.51	0.09	48.16	20.78	8.99	4 9.8
26	27.47	0.88	0.05	49.54	20.79	9.00	3 38.0
36	27.54	— 0.27	—0.02	50.91	—20.79	9.00	3 6.3

Mean Obliquity, 1875.0, 23° 27' 19.39	Motion in 100 days,—0.1272	Daily Motion. —3.177
Precession for 1875.5, . . . 50".2582	Log. 1.70121	
Precession in a Solar Day, . . . 0".13760	Log. 9.13862	
Precession in a Sidereal Day, . . . 0".13722	Log. 9.13743	
Sun's Mean Hor. Parallax, . . . 8".848		

FOR WASHINGTON MEAN MIDNIGHT.

LOGARITHMS FOR REDUCTION OF MEAN PLACES, 1875.0, TO APPARENT PLACES.

Solar day. Sid. hour.	A.	B.	C.	D.	Solar day. Sid. hour.	A.	B.	C.	D.
Jan. 0	π 0.0735	π 0.8992	π 0.5314	1.3033					
1	9.0591	0.8998	0.5713	1.3019	Mar. 1	8.8553	π 0.9572	π 1.2495	0.8177
2	9.0441	0.9004	0.6078	1.3002	2	8.8692	0.9578	1.2520	0.7946
3	9.0286	0.9011	0.6413	1.2984	3	8.8826	0.9585	1.2543	0.7702
4	9.0125	0.9017	0.6723	1.2965	4	8.8956	0.9591	1.2565	0.7441
h (7.0) 5	8.9969	0.9025	0.7011	1.2944	h (11.0) 5	8.9081	0.9597	1.2586	0.7162
6	π 8.9789	π 0.9032	π 0.7280	1.2922	6	8.9200	π 0.9603	π 1.2605	0.6863
7	8.9611	0.9040	0.7532	1.2898	7	8.9315	0.9608	1.2623	0.6541
8	8.9428	0.9048	0.7768	1.2873	8	8.9429	0.9613	1.2640	0.6192
9	8.9236	0.9056	0.7991	1.2846	9	8.9539	0.9618	1.2655	0.5811
10	8.9037	0.9065	0.8202	1.2818	10	8.9645	0.9622	1.2668	0.5392
11	π 8.8829	π 0.9073	π 0.8402	1.2788	11	8.9748	π 0.9626	π 1.2680	0.4927
12	8.8613	0.9083	0.8591	1.2757	12	8.9849	0.9630	1.2691	0.4405
13	8.8387	0.9092	0.8772	1.2724	13	8.9947	0.9633	1.2701	0.3811
14	8.8149	0.9101	0.8943	1.2689	14	9.0042	0.9637	1.2709	0.3121
15	8.7900	0.9111	0.9107	1.2653	15	9.0135	0.9639	1.2716	0.2299
16	π 8.7638	π 0.9121	π 0.9264	1.2614	16	9.0226	π 0.9642	π 1.2722	0.1284
17	8.7361	0.9131	0.9414	1.2575	17	9.0315	0.9644	1.2726	9.9955
18	8.7067	0.9142	0.9557	1.2533	18	9.0402	0.9646	1.2729	9.8032
h (8.0) 19	8.6754	0.9152	0.9695	1.2490	19	9.0487	0.9648	1.2731	π 9.4495
20	8.6420	0.9163	0.9827	1.2445	20	9.0571	0.9649	1.2731	π 8.8603
21	π 8.6063	π 0.9173	π 0.9953	1.2398	h (12.0) 21	9.0652	π 0.9650	π 1.2730	9.6297
22	8.5675	0.9184	1.0075	1.2349	22	9.0733	0.9651	1.2728	9.8920
23	8.5253	0.9195	1.0192	1.2298	23	9.0812	0.9651	1.2725	0.0569
24	8.4789	0.9207	1.0305	1.2246	24	9.0890	0.9651	1.2720	0.1718
25	8.4277	0.9218	1.0413	1.2191	25	9.0967	0.9651	1.2714	0.2642
26	π 8.3701	π 0.9229	π 1.0517	1.2134	26	9.1042	π 0.9651	π 1.2706	π 0.3402
27	8.3043	0.9240	1.0618	1.2075	27	9.1117	0.9650	1.2698	0.4046
28	8.2274	0.9252	1.0715	1.2014	28	9.1190	0.9649	1.2688	0.4606
29	8.1355	0.9263	1.0808	1.1951	29	9.1262	0.9647	1.2676	0.5100
30	8.0187	0.9275	1.0899	1.1885	30	9.1334	0.9645	1.2664	0.5543
31	7.8615	0.9286	1.0986	1.1817	31	9.1405	0.9643	1.2650	0.5943
Feb. 1	π 7.6160	π 0.9297	π 1.1070	1.1747	Apr. 1	9.1475	π 0.9641	π 1.2634	π 0.6308
h (9.0) 2	π 7.0128	π 0.9309	π 1.1151	1.1674	2	9.1544	0.9639	1.2618	0.6644
3	π 7.3118	π 0.9320	π 1.1229	1.1598	3	9.1613	0.9636	1.2600	0.6954
4	7.7.76	0.9332	1.1304	1.1520	h (13.0) 4	9.1681	0.9633	1.2580	0.7242
5	7.9096	0.9343	1.1377	1.1439	5	9.1748	0.9629	1.2560	0.7510
6	8.0453	π 0.9354	π 1.1447	1.1355	6	9.1815	π 0.9626	π 1.2538	π 0.7762
7	8.1474	0.9366	1.1515	1.1268	7	9.1881	0.9622	1.2514	0.7999
8	8.2297	0.9377	1.1580	1.1178	8	9.1946	0.9617	1.2489	0.8222
9	8.2980	0.9388	1.1643	1.1084	9	9.2012	0.9613	1.2463	0.8432
10	8.3560	0.9399	1.1704	1.0988	10	9.2076	0.9608	1.2435	0.8632
11	8.4069	π 0.9409	π 1.1762	1.0887	11	9.2141	π 0.9604	π 1.2406	π 0.8822
12	8.4519	0.9420	1.1819	1.0783	12	9.2205	0.9599	1.2376	0.9002
13	8.4925	0.9430	1.1873	1.0675	13	9.2268	0.9593	1.2344	0.9174
14	8.5291	0.9441	1.1925	1.0563	14	9.2331	0.9588	1.2310	0.9338
15	8.5625	0.9451	1.1976	1.0447	15	9.2393	0.9582	1.2275	0.9495
16	8.5933	π 0.9451	π 1.2024	1.0326	16	9.2456	π 0.9576	π 1.2238	π 0.9644
17	8.6218	0.9471	1.2071	1.0200	17	9.2518	0.9570	1.2200	0.9788
h (10.0) 18	8.6482	0.9481	1.2115	1.0070	18	9.2579	0.9564	1.2161	0.9926
19	8.6727	0.9490	1.2158	0.9934	19	9.2641	0.9558	1.2119	1.0058
20	8.6958	0.9499	1.2199	0.9792	h (14.0) 20	9.2702	0.9551	1.2076	1.0185
21	8.7175	π 0.9508	π 1.2239	0.9644	21	9.2763	π 0.9544	π 1.2032	π 1.0307
22	8.7380	0.9517	1.2276	0.9490	22	9.2823	0.9537	1.1985	1.0424
23	8.7574	0.9525	1.2312	0.9328	23	9.2883	0.9530	1.1937	1.0537
24	8.7756	0.9534	1.2347	0.9159	24	9.2944	0.9523	1.1887	1.0646
25	8.7930	0.9542	1.2379	0.8982	25	9.3003	0.9516	1.1835	1.0751
26	8.8097	π 0.9550	π 1.2410	0.8796	26	9.3063	π 0.9509	π 1.1782	π 1.0853
27	8.8257	0.9557	1.2440	0.8601	27	9.3122	0.9501	1.1726	1.0950
28	8.8408	0.9565	1.2468	0.8395	28	9.3182	0.9494	1.1669	1.1045
29	8.8553	0.9572	1.2495	0.8177	29	9.3240	0.9486	1.1609	1.1136
30	8.8692	π 0.9578	π 1.2520	0.7946	30	9.3300	π 0.9479	π 1.1548	π 1.1223

FOR WASHINGTON MEAN MIDNIGHT.

LOGARITHMS FOR REDUCTION OF MEAN PLACES, 1875.0, TO APPARENT PLACES.

Solar day. Sid. hour.	A.	B.	C.	D.	Solar day. Sid. hour.	A.	B.	C.	D.
May 1	9.3358	m0.9471	n1.1484	n1.1308	July 1	9.6362	m0.9247	0.5073	n1.3041
2	9.3416	0.9463	1.1418	1.1390	2	9.6399	0.9251	0.5469	1.3028
3	9.3474	0.9455	1.1350	1.1469	3	9.6437	0.9256	0.5831	1.3014
4	9.3532	0.9447	1.1280	1.1546	4	9.6473	0.9261	0.6164	1.2998
h 5	9.3589	0.9439	1.1207	1.1620	h 5	9.6510	0.9266	0.6472	1.2981
(15.0) 6	9.3617	m0.9432	n1.1132	n1.1692	(19.0) 6	9.6546	m0.9271	0.6758	n1.2963
7	9.3704	0.9424	1.1054	1.1761	7	9.6581	0.9277	0.7026	1.2943
8	9.3761	0.9416	1.0973	1.1827	8	9.6616	0.9282	0.7277	1.2922
9	9.3817	0.9408	1.0890	1.1892	9	9.6651	0.9288	0.7513	1.2900
10	9.3873	0.9400	1.0804	1.1954	10	9.6685	0.9295	0.7736	1.2877
11	9.3930	m0.9392	n1.0715	n1.2014	11	9.6719	m0.9301	0.7947	n1.2852
12	9.3986	0.9385	1.0623	1.2072	12	9.6752	0.9308	0.8147	1.2826
13	9.4041	0.9377	1.0528	1.2128	13	9.6785	0.9315	0.8337	1.2798
14	9.4097	0.9370	1.0429	1.2182	14	9.6818	0.9322	0.8517	1.2769
15	9.4151	0.9362	1.0327	1.2235	15	9.6850	0.9329	0.8690	1.2739
16	9.4206	m0.9355	n1.0221	n1.2285	16	9.6882	m0.9337	0.8854	n1.2707
17	9.4261	0.9347	1.0112	1.2334	17	9.6913	0.9345	0.9012	1.2674
18	9.4315	0.9340	0.9998	1.2381	18	9.6944	0.9353	0.9163	1.2639
19	9.4369	0.9333	0.9880	1.2426	19	9.6974	0.9361	0.9308	1.2603
h 20	9.4423	0.9326	0.9758	1.2469	h 20	9.7005	0.9369	0.9447	1.2565
(16.0) 21	9.4476	m0.9319	n0.9631	n1.2511	(20.0) 21	9.7034	m0.9377	0.9580	n1.2526
22	9.4529	0.9313	0.9498	1.2551	22	9.7064	0.9386	0.9708	1.2485
23	9.4582	0.9306	0.9361	1.2589	23	9.7092	0.9394	0.9832	1.2443
24	9.4635	0.9300	0.9218	1.2626	24	9.7121	0.9403	0.9951	1.2399
25	9.4687	0.9294	0.9068	1.2662	25	9.7149	0.9412	1.0065	1.2353
26	9.4739	m0.9288	n0.8912	n1.2695	26	9.7177	m0.9421	1.0176	n1.2306
27	9.4790	0.9282	0.8749	1.2728	27	9.7204	0.9430	1.0282	1.2256
28	9.4841	0.9277	0.8579	1.2759	28	9.7231	0.9439	1.0385	1.2205
29	9.4892	0.9271	0.8400	1.2788	29	9.7258	0.9449	1.0485	1.2152
30	9.4943	0.9266	0.8212	1.2817	30	9.7284	0.9458	1.0581	1.2098
31	9.4993	0.9262	0.8015	1.2843	31	9.7310	0.9467	1.0673	1.2041
June 1	9.5043	m0.9257	n0.7807	n1.2869	Aug. 1	9.7336	m0.9477	1.0763	n1.1982
2	9.5093	0.9252	0.7587	1.2893	2	9.7361	0.9486	1.0850	1.1921
3	9.5142	0.9248	0.7355	1.2915	3	9.7386	0.9496	1.0934	1.1858
h 4	9.5191	0.9244	0.7108	1.2937	h 4	9.7410	0.9505	1.1015	1.1793
(17.0) 5	9.5239	0.9241	0.6844	1.2957	(21.0) 5	9.7434	0.9515	1.1093	1.1726
6	9.5288	m0.9237	n0.6563	n1.2975	6	9.7458	m0.9524	1.1169	n1.1656
7	9.5335	0.9234	0.6261	1.2993	7	9.7481	0.9534	1.1242	1.1584
8	9.5383	0.9231	0.5936	1.3009	8	9.7505	0.9543	1.1313	1.1510
9	9.5430	0.9229	0.5582	1.3024	9	9.7527	0.9552	1.1382	1.1433
10	9.5476	0.9226	0.5196	1.3037	10	9.7550	0.9562	1.1448	1.1353
11	9.5522	m0.9224	n0.4772	n1.3050	11	9.7572	m0.9571	1.1513	n1.1271
12	9.5568	0.9223	0.4300	1.3061	12	9.7593	0.9580	1.1575	1.1185
13	9.5614	0.9221	0.3769	1.3071	13	9.7615	0.9589	1.1635	1.1097
14	9.5659	0.9220	0.3162	1.3079	14	9.7636	0.9599	1.1693	1.1006
15	9.5703	0.9219	0.2456	1.3087	15	9.7657	0.9608	1.1749	1.0911
16	9.5748	m0.9219	n0.1611	n1.3093	16	9.7677	m0.9617	1.1803	n1.0813
17	9.5791	0.9219	0.0558	1.3098	17	9.7698	0.9625	1.1855	1.0711
18	9.5835	0.9219	0.9165	1.3102	18	9.7718	0.9634	1.1906	1.0606
19	9.5878	0.9219	0.7101	1.3104	19	9.7737	0.9643	1.1955	1.0497
h 20	9.5920	0.9220	m0.3032	1.3106	h 20	9.7757	0.9651	1.2002	1.0383
(18.0) 21	9.5963	m0.9221	p0.0453	n1.3106	(22.0) 21	9.7776	m0.9659	1.2047	n1.0266
22	9.6005	0.9222	9.6263	1.3105	22	9.7795	0.9668	1.2091	1.0143
23	9.6046	0.9224	9.8657	1.3103	23	9.7814	0.9676	1.2133	1.0016
24	9.6087	0.9225	0.0195	1.3099	24	9.7832	0.9683	1.2173	0.9884
25	9.6128	0.9228	0.1326	1.3095	25	9.7850	0.9691	1.2212	0.9746
26	9.6168	m0.9230	0.2222	n1.3089	26	9.7868	m0.9699	1.2249	n0.9602
27	9.6207	0.9233	0.2965	1.3082	27	9.7886	0.9706	1.2285	0.9452
28	9.6247	0.9236	0.3597	1.3073	28	9.7903	0.9713	1.2319	0.9295
29	9.6285	0.9239	0.4148	1.3064	29	9.7920	0.9720	1.2352	0.9131
30	9.6324	0.9243	0.4635	1.3053	30	9.7937	0.9727	1.2383	0.8959
31	9.6362	m0.9247	0.5073	n1.3041	31	9.7954	m0.9733	1.2413	n0.8779

FOR WASHINGTON MEAN MIDNIGHT.

LOGARITHMS FOR REDUCTION OF MEAN PLACES, 1875.0, TO APPARENT PLACES.

Solar day. Sid. hour.	A.	B.	C.	D.	Solar day. Sid. hour.	A.	B.	C.	D.
Sept. 1	9.7971	π 0.9740	1.2442	π 0.8589	Nov. 1	9.8872	π 0.9629	1.1612	1.1132
2	9.7987	0.9746	1.2469	0.8390	2	9.8889	0.9621	1.1548	1.1222
3	9.8003	0.9752	1.2494	0.8179	3	9.8905	0.9612	1.1482	1.1310
h 4	9.8020	0.9757	1.2519	0.7956	h 4	9.8922	0.9604	1.1414	1.1395
(23.0) 5	9.8036	0.9763	1.2542	0.7720	(3.0) 5	9.8939	0.9595	1.1343	1.1477
6	9.8051	π 0.9768	1.2563	π 0.7469	6	9.8955	π 0.9586	1.1270	1.1556
7	9.8067	0.9773	1.2583	0.7290	7	9.8972	0.9578	1.1194	1.1632
8	9.8082	0.9777	1.2602	0.6913	8	9.8989	0.9569	1.1116	1.1706
9	9.8098	0.9782	1.2620	0.6604	9	9.9007	0.9560	1.1034	1.1777
10	9.8113	0.9786	1.2636	0.6270	10	9.9024	0.9551	1.0950	1.1846
11	9.8128	π 0.9790	1.2651	π 0.5906	11	9.9041	π 0.9542	1.0862	1.1913
12	9.8143	0.9793	1.2665	0.5508	12	9.9059	0.9534	1.0771	1.1977
13	9.8157	0.9796	1.2677	0.5067	13	9.9076	0.9525	1.0677	1.2039
14	9.8172	0.9799	1.2688	0.4575	14	9.9094	0.9516	1.0579	1.2099
15	9.8187	0.9802	1.2698	0.4018	15	9.9112	0.9507	1.0478	1.2156
16	9.8201	π 0.9805	1.2707	π 0.3377	16	9.9129	π 0.9499	1.0373	1.2212
17	9.8216	0.9807	1.2714	0.2625	17	9.9147	0.9490	1.0264	1.2265
18	9.8230	0.9809	1.2720	0.1709	18	9.9165	0.9482	1.0150	1.2317
h 19	9.8244	0.9810	1.2725	0.0547	h 19	9.9183	0.9474	1.0032	1.2367
(0.0) 20	9.8259	0.9812	1.2728	9.8951	(4.0) 20	9.9201	0.9466	0.9910	1.2414
21	9.8273	π 0.9813	1.2730	π 9.6401	21	9.9220	π 0.9458	0.9782	1.2460
22	9.8287	0.9813	1.2731	π 8.9400	22	9.9238	0.9450	0.9649	1.2505
23	9.8301	0.9814	1.2731	π 8.4195	23	9.9256	0.9442	0.9511	1.2547
24	9.8315	0.9814	1.2729	9.7872	24	9.9275	0.9434	0.9366	1.2588
25	9.8329	0.9814	1.2727	9.9834	25	9.9293	0.9427	0.9215	1.2627
26	9.8343	π 0.9814	1.2722	0.1181	26	9.9312	π 0.9420	0.9057	1.2664
27	9.8357	0.9813	1.2717	0.2207	27	9.9330	0.9413	0.8891	1.2700
28	9.8370	0.9812	1.2710	0.3035	28	9.9349	0.9406	0.8718	1.2734
29	9.8384	0.9811	1.2702	0.3730	29	9.9368	0.9399	0.8535	1.2766
30	9.8398	0.9809	1.2693	0.4328	30	9.9387	0.9393	0.8344	1.2797
Oct. 1	9.8412	π 0.9807	1.2682	0.4853	Dec. 1	9.9405	π 0.9387	0.8142	1.2826
2	9.8426	0.9805	1.2670	0.5320	2	9.9424	0.9381	0.7928	1.2854
3	9.8440	0.9803	1.2657	0.5741	3	9.9443	0.9376	0.7702	1.2880
h 4	9.8454	0.9800	1.2642	0.6123	h 4	9.9462	0.9370	0.7462	1.2905
(1.0) 5	9.8468	0.9797	1.2626	0.6474	(5.0) 5	9.9481	0.9365	0.7207	1.2928
6	9.8482	π 0.9794	1.2609	0.6797	6	9.9499	π 0.9360	0.6934	1.2950
7	9.8496	0.9790	1.2590	0.7097	7	9.9518	0.9356	0.6642	1.2970
8	9.8510	0.9786	1.2570	0.7377	8	9.9537	0.9352	0.6327	1.2989
9	9.8524	0.9782	1.2549	0.7638	9	9.9556	0.9348	0.5985	1.3007
10	9.8538	0.9778	1.2526	0.7884	10	9.9575	0.9344	0.5613	1.3023
11	9.8553	π 0.9773	1.2502	0.8115	11	9.9593	π 0.9341	0.5204	1.3037
12	9.8567	0.9769	1.2476	0.8334	12	9.9612	0.9338	0.4751	1.3050
13	9.8581	0.9764	1.2449	0.8540	13	9.9631	0.9335	0.4244	1.3062
14	9.8596	0.9758	1.2420	0.8737	14	9.9649	0.9333	0.3668	1.3072
15	9.8610	0.9753	1.2389	0.8923	15	9.9668	0.9331	0.3002	1.3081
16	9.8625	π 0.9747	1.2358	0.9101	16	9.9687	π 0.9329	0.2212	1.3089
17	9.8640	0.9741	1.2324	0.9271	17	9.9705	0.9328	0.1246	1.3095
18	9.8655	0.9735	1.2289	0.9433	18	9.9724	0.9327	0.0381	1.3100
h 19	9.8669	0.9728	1.2252	0.9588	h 19	9.9742	0.9327	9.8239	1.3103
(2.0) 20	9.8684	0.9722	1.2214	0.9737	(6.0) 20	9.9761	0.9326	π 9.5228	1.3105
21	9.8700	π 0.9715	1.2174	0.9879	21	9.9779	π 0.9326	π 6.3000	1.3106
22	9.8715	0.9708	1.2133	1.0016	22	9.9797	0.9327	9.5234	1.3105
23	9.8730	0.9701	1.2089	1.0148	23	9.9815	0.9328	9.8243	1.3103
24	9.8745	0.9693	1.2044	1.0274	24	9.9833	0.9329	0.0003	1.3100
25	9.8761	0.9686	1.1997	1.0396	25	9.9851	0.9330	0.1251	1.3095
26	9.8777	0.9678	1.1948	1.0513	26	9.9869	0.9332	0.2218	1.3089
27	9.8792	π 0.9670	1.1897	1.0625	27	9.9887	π 0.9334	π 0.3007	1.3081
28	9.8808	0.9663	1.1844	1.0734	28	9.9904	0.9337	0.3673	1.3072
29	9.8824	0.9654	1.1789	1.0839	29	9.9922	0.9340	0.4250	1.3062
30	9.8840	0.9646	1.1732	1.0940	30	9.9939	0.9343	0.4758	1.3050
31	9.8856	0.9638	1.1673	1.1038	31	9.9957	0.9347	0.5211	1.3037
32	9.8872	π 0.9629	1.1612	1.1132	32	9.9974	π 0.9351	π 0.5621	1.3022

FOR WASHINGTON MEAN MIDNIGHT.

QUANTITIES FOR REDUCING MEAN PLACES, 1875.0, TO APPARENT PLACES.

Solar day. Sid. hour.	τ .	f .	Log g .	G.	Log h .	H.	Log i .	i .	f .	G.	H.
Jan. 0	$\overset{v}{0.0012}$	— 5.47	0.9179	253 19	1.3095	350 24	$\overset{o}{n} 0.1688$	—1.48	$\overset{s}{-0.365}$	$\overset{h}{16} \overset{m}{53.3}$	$\overset{h}{23} \overset{m}{21.6}$
1	.0040	5.29	0.9173	253 52	1.3092	349 28	0.2087	1.62	0.353	16 55.4	23 17.9
2	.0067	5.11	0.9167	254 24	1.3090	348 31	0.2453	1.76	0.341	16 57.6	23 14.1
3	.0095	4.93	0.9162	254 57	1.3087	347 35	0.2787	1.90	0.329	16 59.8	23 10.3
$\overset{h}{(7.0)}$ 4	.0122	4.75	0.9158	255 29	1.3084	346 38	0.3096	2.04	0.317	17 2.0	23 6.5
5	.0149	4.57	0.9155	256 2	1.3081	345 41	0.3385	2.18	0.305	17 4.1	23 2.8
6	.0177	— 4.41	0.9152	256 35	1.3078	344 45	$\overset{n}{n} 0.3655$	—2.32	—0.294	17 6.3	22 59.0
7	.0204	4.23	0.9150	257 7	1.3074	343 48	0.3906	2.46	0.282	17 8.4	22 55.2
8	.0231	4.05	0.9149	257 39	1.3071	342 51	0.4141	2.60	0.270	17 10.6	22 51.4
9	.0259	3.88	0.9149	258 12	1.3067	341 54	0.4365	2.73	0.259	17 12.7	22 47.6
10	.0286	3.70	0.9149	258 44	1.3063	340 57	0.4576	2.87	0.247	17 14.9	22 43.8
11	.0314	— 3.52	0.9150	259 16	1.3059	339 59	$\overset{n}{n} 0.4776$	—3.00	—0.235	17 17.1	22 39.9
12	.0341	3.36	0.9152	259 48	1.3054	339 2	0.4966	3.14	0.224	17 19.2	22 36.1
13	.0368	3.19	0.9154	260 20	1.3050	338 4	0.5148	3.27	0.213	17 21.3	22 32.3
14	.0396	3.03	0.9157	260 51	1.3045	337 7	0.5317	3.40	0.202	17 23.4	22 28.5
15	.0423	2.85	0.9160	261 22	1.3040	336 9	0.5481	3.53	0.190	17 25.5	22 24.6
16	.0451	— 2.69	0.9165	261 53	1.3035	335 11	$\overset{n}{n} 0.5637$	—3.66	—0.179	17 27.6	22 20.7
17	.0478	2.52	0.9169	262 24	1.3030	334 13	0.5787	3.79	0.168	17 29.6	22 16.9
18	.0505	2.36	0.9175	262 55	1.3025	333 15	0.5931	3.92	0.157	17 31.6	22 13.0
$\overset{h}{(8.0)}$ 19	.0533	2.19	0.9181	263 25	1.3019	332 17	0.6068	4.04	0.146	17 33.7	22 9.1
20	.0560	2.04	0.9187	263 55	1.3014	331 19	0.6200	4.17	0.136	17 35.7	22 5.2
21	.0587	— 1.88	0.9194	264 24	1.3008	330 20	$\overset{n}{n} 0.6329$	—4.29	—0.125	17 37.6	22 1.3
22	.0615	1.71	0.9202	264 54	1.3002	329 22	0.6449	4.42	0.114	17 39.6	21 57.4
23	.0642	1.56	0.9210	265 23	1.2996	328 23	0.6567	4.54	0.104	17 41.5	21 53.5
24	.0670	1.39	0.9218	265 51	1.2990	327 24	0.6679	4.66	0.093	17 43.4	21 49.6
25	.0697	1.25	0.9227	266 19	1.2984	326 25	0.6787	4.77	0.083	17 45.3	21 45.7
26	.0724	— 1.10	0.9236	266 47	1.2978	325 26	$\overset{n}{n} 0.6891$	—4.89	—0.073	17 47.1	21 41.7
27	.0752	0.94	0.9245	267 15	1.2972	324 26	0.6993	5.00	0.063	17 49.0	21 37.8
28	.0779	0.80	0.9255	267 42	1.2965	323 27	0.7088	5.12	0.053	17 50.8	21 33.8
29	.0806	0.65	0.9265	268 9	1.2959	322 27	0.7181	5.23	0.043	17 52.6	21 29.8
30	.0834	0.48	0.9276	268 35	1.2953	321 27	0.7274	5.34	0.033	17 54.3	21 25.8
31	.0861	0.34	0.9287	269 1	1.2946	320 27	0.7361	5.45	0.023	17 56.1	21 21.8
Feb. 1	.0889	— 0.20	0.9298	269 27	1.2940	319 27	$\overset{n}{n} 0.7444$	—5.55	—0.013	17 57.8	21 17.8
2	.0916	— 0.06	0.9309	269 52	1.2933	318 27	0.7525	5.66	—0.004	17 59.4	21 13.8
3	.0943	+ 0.08	0.9320	270 17	1.2926	317 26	0.7603	5.76	+0.005	18 1.1	21 9.7
$\overset{h}{(9.0)}$ 4	.0971	0.22	0.9332	270 41	1.2920	316 25	0.7678	5.86	0.015	18 2.7	21 5.7
5	.0998	0.36	0.9344	271 5	1.2913	315 25	0.7751	5.96	0.024	18 4.3	21 1.6
6	.1025	+ 0.49	0.9356	271 29	1.2907	314 24	$\overset{n}{n} 0.7821$	—6.06	+0.033	18 5.9	20 57.6
7	.1053	0.63	0.9368	271 52	1.2900	313 22	0.7889	6.15	0.042	18 7.4	20 53.5
8	.1080	0.77	0.9380	272 15	1.2893	312 21	0.7955	6.24	0.051	18 9.0	20 49.4
9	.1108	0.90	0.9392	272 38	1.2887	311 20	0.8016	6.34	0.060	18 10.5	20 45.3
10	.1135	1.03	0.9405	273 0	1.2880	310 18	0.8080	6.43	0.069	18 12.0	20 41.2
11	.1162	+ 1.17	0.9417	273 21	1.2874	309 16	$\overset{n}{n} 0.8136$	—6.51	+0.078	18 13.4	20 37.1
12	.1190	1.29	0.9429	273 43	1.2867	308 14	0.8193	6.60	0.086	18 14.8	20 32.9
13	.1217	1.43	0.9441	274 4	1.2861	307 12	0.8247	6.68	0.095	18 16.2	20 28.8
14	.1244	1.54	0.9454	274 25	1.2854	306 9	0.8300	6.76	0.103	18 17.6	20 24.6
15	.1272	1.66	0.9466	274 45	1.2848	305 7	0.8355	6.84	0.111	18 19.0	20 20.5
16	.1299	+ 1.80	0.9478	275 5	1.2842	304 4	$\overset{n}{n} 0.8398$	—6.92	+0.120	18 20.3	20 16.3
17	.1327	1.92	0.9490	275 25	1.2836	303 2	0.8445	6.99	0.128	18 21.7	20 12.1
18	.1354	2.04	0.9502	275 45	1.2830	301 59	0.8489	7.06	0.136	18 23.0	20 7.9
$\overset{h}{(10.0)}$ 19	.1381	2.16	0.9514	276 4	1.2824	300 56	0.8532	7.13	0.144	18 24.2	20 3.7
20	.1409	2.28	0.9526	276 22	1.2818	299 53	0.8573	7.20	0.152	18 25.4	19 59.5
21	.1436	+ 2.40	0.9538	276 41	1.2813	298 49	$\overset{n}{n} 0.8613$	—7.27	+0.160	18 26.7	19 55.3
22	.1464	2.51	0.9549	276 59	1.2807	297 46	0.8651	7.33	0.167	18 28.0	19 51.1
23	.1491	2.62	0.9561	277 18	1.2802	296 42	0.8686	7.39	0.175	18 29.2	19 46.8
24	.1518	2.74	0.9572	277 35	1.2797	295 39	0.8720	7.45	0.183	18 30.3	19 42.6
25	.1546	2.85	0.9583	277 53	1.2792	294 35	0.8753	7.51	0.190	18 31.5	19 38.3
26	.1573	+ 2.95	0.9594	278 10	1.2787	293 31	$\overset{n}{n} 0.8784$	—7.56	+0.197	18 32.7	19 34.1
27	.1600	3.07	0.9605	278 27	1.2782	292 27	0.8814	7.61	0.205	18 33.8	19 29.8
28	.1628	3.18	0.9615	278 44	1.2777	291 23	0.8842	7.66	0.212	18 34.9	19 25.5
29	0.1655	+ 3.28	0.9625	279 1	1.2774	290 18	$\overset{n}{n} 0.8869$	—7.71	+0.219	18 36.0	19 21.2

FOR WASHINGTON MEAN MIDNIGHT.

QUANTITIES FOR REDUCING MEAN PLACES, 1875.0, TO APPARENT PLACES.

Solar day. Sid. hour.	τ .	f .	Log g .	G.	Log h	H.	Log i .	i .	f .	G.	H.
Mar. 1	0.1655	+ 3.22	0.9625	279 1	1.2774	200 18	π 0.8869	-7.71	+0.219	18 36.0	19 21.2
2	.1683	3.40	0.9636	279 17	1.2769	289 14	0.8894	7.75	0.227	18 37.1	19 16.9
3	.1710	3.51	0.9646	279 34	1.2765	288 10	0.8918	7.79	0.234	18 38.2	19 12.6
4	.1737	3.61	0.9655	279 50	1.2761	287 5	0.8940	7.83	0.241	18 39.3	19 8.3
5	.1765	3.72	0.9665	280 6	1.2757	286 0	0.8960	7.87	0.248	18 40.4	19 4.0
(11.0) 6	.1792	+ 3.82	0.9674	280 21	1.2754	284 56	π 0.8977	-7.91	+0.255	18 41.4	18 59.7
7	.1819	3.91	0.9682	280 37	1.2751	283 51	0.8997	7.94	0.261	18 42.5	18 55.4
8	.1847	4.02	0.9692	280 53	1.2748	282 46	0.9014	7.97	0.268	18 43.5	18 51.1
9	.1874	4.12	0.9700	281 9	1.2745	281 41	0.9029	8.00	0.275	18 44.6	18 46.8
10	.1902	4.23	0.9709	281 24	1.2743	280 36	0.9042	8.02	0.282	18 45.6	18 42.4
11	.1929	+ 4.33	0.9717	281 39	1.2741	279 32	π 0.9055	-8.05	+0.289	18 46.6	18 38.1
12	.1956	4.44	0.9725	281 55	1.2739	278 27	0.9066	8.07	0.296	18 47.6	18 33.8
13	.1984	4.54	0.9732	282 10	1.2737	277 22	0.9076	8.08	0.303	18 48.7	18 29.4
14	.2011	4.63	0.9739	282 25	1.2735	276 16	0.9084	8.10	0.309	18 49.7	18 25.1
15	.2038	4.74	0.9746	282 40	1.2734	275 11	0.9091	8.11	0.316	18 50.7	18 20.8
16	.2066	+ 4.84	0.9753	282 55	1.2733	274 6	π 0.9097	-8.12	+0.323	18 51.7	18 16.4
17	.2093	4.93	0.9760	283 10	1.2732	273 1	0.9100	8.13	0.329	18 52.7	18 12.1
18	.2121	5.04	0.9767	283 25	1.2732	271 56	0.9103	8.13	0.336	18 53.7	18 7.8
19	.2148	5.14	0.9773	283 40	1.2731	270 52	0.9105	8.14	0.343	18 54.7	18 3.4
20	.2175	5.23	0.9779	283 56	1.2731	269 47	0.9106	8.14	0.349	18 55.7	17 59.1
(12.0) 21	.2203	+ 5.34	0.9784	284 11	1.2731	268 42	π 0.9105	-8.14	+0.356	18 56.7	17 54.8
22	.2230	5.44	0.9790	284 26	1.2732	267 37	0.9102	8.13	0.363	18 57.7	17 50.5
23	.2258	5.53	0.9795	284 41	1.2733	266 32	0.9099	8.13	0.369	18 58.7	17 46.1
24	.2285	5.64	0.9801	284 56	1.2733	265 28	0.9094	8.12	0.376	18 59.7	17 41.8
25	.2312	5.74	0.9805	285 11	1.2735	264 23	0.9089	8.11	0.383	19 0.7	17 37.5
26	.2340	+ 5.85	0.9810	285 27	1.2736	263 18	π 0.9081	-8.09	+0.390	19 1.8	17 33.1
27	.2367	5.94	0.9815	285 42	1.2738	262 14	0.9072	8.08	0.396	19 2.8	17 28.9
28	.2394	6.04	0.9819	285 58	1.2739	261 10	0.9062	8.06	0.403	19 3.8	17 24.6
29	.2422	6.15	0.9823	286 13	1.2742	260 5	0.9051	8.04	0.410	19 4.9	17 20.4
30	.2449	6.25	0.9828	286 29	1.2744	259 1	0.9038	8.01	0.417	19 5.9	17 16.1
31	.2477	6.36	0.9832	286 45	1.2746	257 57	0.9023	7.99	0.424	19 7.0	17 11.8
Apr. 1	.2504	+ 6.46	0.9835	287 0	1.2749	256 53	π 0.9008	-7.96	+0.431	19 8.0	17 7.5
2	.2531	6.56	0.9839	287 17	1.2752	255 49	0.8991	7.93	0.437	19 9.1	17 3.3
3	.2559	6.66	0.9843	287 33	1.2755	254 45	0.8974	7.90	0.444	19 10.2	16 59.0
4	.2586	6.76	0.9846	287 49	1.2759	253 42	0.8954	7.86	0.451	19 11.3	16 54.8
(13.0) 5	.2613	6.87	0.9849	288 5	1.2762	252 38	0.8934	7.83	0.458	19 12.4	16 50.5
6	.2641	+ 6.99	0.9853	288 22	1.2766	251 35	π 0.8911	-7.78	+0.466	19 13.5	16 46.3
7	.2668	7.09	0.9856	288 39	1.2770	250 32	0.8888	7.74	0.473	19 14.6	16 42.1
8	.2696	7.21	0.9859	288 55	1.2774	249 29	0.8864	7.70	0.481	19 15.7	16 37.9
9	.2723	7.32	0.9862	289 12	1.2778	248 26	0.8838	7.65	0.488	19 16.8	16 33.7
10	.2750	7.42	0.9865	289 30	1.2783	247 23	0.8809	7.60	0.495	19 18.0	16 29.5
11	.2778	+ 7.53	0.9868	289 47	1.2787	246 21	π 0.8789	-7.55	+0.502	19 19.1	16 25.4
12	.2805	7.63	0.9871	290 4	1.2792	245 18	0.8751	7.50	0.509	19 20.3	16 21.2
13	.2832	7.75	0.9874	290 22	1.2797	244 16	0.8718	7.44	0.517	19 21.5	16 17.1
14	.2860	7.86	0.9876	290 40	1.2802	243 14	0.8684	7.38	0.524	19 22.6	16 12.9
15	.2887	7.98	0.9879	290 58	1.2807	242 12	0.8649	7.33	0.532	19 23.8	16 8.8
16	.2915	+ 8.10	0.9882	291 16	1.2813	241 11	π 0.8612	-7.27	+0.540	19 25.1	16 4.7
17	.2942	8.22	0.9885	291 34	1.2818	240 9	0.8574	7.20	0.548	19 26.3	16 0.6
18	.2969	8.34	0.9889	291 53	1.2824	239 8	0.8535	7.14	0.555	19 27.5	15 56.5
19	.2997	8.46	0.9892	292 11	1.2829	238 7	0.8494	7.07	0.564	19 28.8	15 52.5
20	.3024	8.58	0.9895	292 30	1.2835	237 6	0.8450	7.00	0.572	19 30.0	15 48.4
(14.0) 21	.3052	+ 8.70	0.9898	292 49	1.2841	236 5	π 0.8405	-6.93	+0.580	19 31.3	15 44.4
22	.3079	8.82	0.9902	293 8	1.2847	235 5	0.8359	6.85	0.588	19 32.6	15 40.3
23	.3106	8.94	0.9905	293 28	1.2853	234 5	0.8312	6.78	0.596	19 33.8	15 36.3
24	.3134	9.07	0.9909	293 47	1.2859	233 4	0.8261	6.70	0.605	19 35.1	15 32.3
25	.3161	9.19	0.9913	294 7	1.2865	232 5	0.8219	6.62	0.613	19 36.5	15 28.3
26	.3188	+ 9.33	0.9917	294 27	1.2872	231 5	π 0.8156	-6.54	+0.622	19 37.8	15 24.3
27	.3216	9.45	0.9921	294 47	1.2878	230 5	0.8100	6.46	0.630	19 39.1	15 20.4
28	.3243	9.58	0.9925	295 7	1.2884	229 6	0.8043	6.37	0.639	19 40.5	15 16.4
29	.3271	9.70	0.9930	295 27	1.2890	228 7	0.7984	6.29	0.647	19 41.8	15 12.5
30	.3298	9.84	0.9934	295 48	1.2897	227 8	0.7922	6.20	0.656	19 43.2	15 8.5
31	0.3325	+ 9.97	0.9939	296 8	1.2903	226 9	π 0.7858	-6.11	+0.665	19 44.6	15 4.6

FOR WASHINGTON MEAN MIDNIGHT.

QUANTITIES FOR REDUCING MEAN PLACES, 1875.0, TO APPARENT PLACES.

Solar day. Sid. hour.	τ .	f .	Log g .	G.	Log h .	H.	Log i .	i .	f .	G.	H.
May 1	^y 0.3325	+ 0.97	0.9939	296 ^o 8'	1.2003	226 ^o 0'	n 0.7658	-6.11	^a +0.665	^h 19 44.6	^m 15 4.6
2	.3353	10.11	0.9945	296 29	1.2009	225 11	0.7792	6.02	0.674	19 45.9	15 0.7
3	.3380	10.24	0.9950	296 50	1.2016	224 13	0.7725	5.92	0.683	19 47.3	14 56.8
4	.3407	10.38	0.9956	297 11	1.2022	223 15	0.7654	5.83	0.692	19 48.7	14 53.0
5	^b .3435	10.51	0.9962	297 32	1.2028	222 17	0.7581	5.73	0.701	19 50.1	14 49.1
(15.0) 6	.3462	+10.65	0.9968	297 54	1.2035	221 19	n 0.7506	-5.63	+0.710	19 51.6	14 45.3
7	.3490	10.80	0.9975	298 15	1.2041	220 22	0.7428	5.53	0.720	19 53.0	14 41.4
8	.3517	10.93	0.9981	298 36	1.2047	219 24	0.7348	5.43	0.729	19 54.4	14 37.6
9	.3544	11.08	0.9988	298 58	1.2053	218 27	0.7265	5.33	0.739	19 55.9	14 33.8
10	.3572	11.23	0.9996	299 20	1.2059	217 30	0.7178	5.22	0.749	19 57.3	14 30.0
11	.3599	+11.37	1.0003	299 41	1.2066	216 33	n 0.7089	-5.12	+0.758	19 58.7	14 26.2
12	.3626	11.52	1.0012	300 3	1.2072	215 37	0.6997	5.01	0.768	20 0.2	14 22.4
13	.3654	11.67	1.0020	300 25	1.2077	214 40	0.6902	4.90	0.778	20 1.6	14 18.7
14	.3681	11.82	1.0029	300 46	1.2083	213 44	0.6803	4.79	0.788	20 3.1	14 14.9
15	.3709	11.97	1.0038	301 8	1.2089	212 48	0.6701	4.68	0.798	20 4.6	14 11.2
16	.3736	+12.12	1.0047	301 30	1.2095	211 52	n 0.6595	-4.57	+0.808	20 6.0	14 7.5
17	.3763	12.28	1.0057	301 52	1.3000	210 57	0.6486	4.45	0.819	20 7.5	14 3.8
18	.3791	12.43	1.0067	302 14	1.3006	210 1	0.6373	4.34	0.829	20 8.9	14 0.1
19	.3818	12.58	1.0077	302 36	1.3011	209 6	0.6254	4.22	0.839	20 10.4	13 56.4
20	^b .3846	12.75	1.0088	302 58	1.3017	208 11	0.6131	4.10	0.850	20 11.8	13 52.7
(16.0) 21	.3873	+12.90	1.0100	303 19	1.3022	207 16	n 0.6004	-3.99	+0.860	20 13.3	13 49.1
22	.3900	13.06	1.0111	303 41	1.3027	206 21	0.5873	3.87	0.871	20 14.7	13 45.4
23	.3928	13.23	1.0123	304 3	1.3032	205 26	0.5736	3.75	0.882	20 16.2	13 41.7
24	.3955	13.38	1.0135	304 25	1.3037	204 31	0.5592	3.62	0.892	20 17.6	13 38.1
25	.3982	13.54	1.0148	304 46	1.3041	203 37	0.5442	3.50	0.903	20 19.1	13 34.4
26	.4010	+13.71	1.0161	305 8	1.3046	202 43	n 0.5287	-3.38	+0.914	20 20.5	13 30.8
27	.4037	13.87	1.0174	305 29	1.3050	201 48	0.5124	3.25	0.925	20 21.9	13 27.2
28	.4065	14.04	1.0188	305 50	1.3054	200 54	0.4953	3.13	0.936	20 23.4	13 23.6
29	.4092	14.20	1.0203	306 12	1.3059	200 0	0.4773	3.00	0.947	20 24.8	13 20.0
30	.4119	14.37	1.0217	306 33	1.3062	199 6	0.4585	2.87	0.958	20 26.2	13 16.4
31	.4147	14.53	1.0232	306 53	1.3066	198 13	0.4389	2.75	0.969	20 27.6	13 12.8
June 1	.4174	+14.70	1.0247	307 14	1.3070	197 19	n 0.4181	-2.62	+0.980	20 28.9	13 9.2
2	.4201	14.88	1.0262	307 35	1.3073	196 25	0.3962	2.49	0.992	20 30.3	13 5.7
3	.4229	15.04	1.0278	307 55	1.3077	195 32	0.3729	2.36	1.003	20 31.7	13 2.1
4	^b .4256	15.21	1.0294	308 16	1.3080	194 39	0.3483	2.23	1.014	20 33.0	12 58.6
(17.0) 5	.4284	15.39	1.0311	308 36	1.3083	193 45	0.3220	2.10	1.026	20 34.4	12 55.0
6	.4311	+15.55	1.0328	308 56	1.3086	192 52	n 0.2938	-1.97	+1.037	20 35.7	12 51.5
7	.4338	15.73	1.0345	309 15	1.3088	191 59	0.2636	1.84	1.049	20 37.0	12 47.9
8	.4366	15.90	1.0362	309 35	1.3091	191 6	0.2310	1.70	1.060	20 38.3	12 44.4
9	.4393	16.08	1.0380	309 54	1.3093	190 13	0.1956	1.57	1.072	20 39.6	12 40.9
10	.4420	16.24	1.0398	310 13	1.3095	189 20	0.1568	1.44	1.083	20 40.9	12 37.3
11	.4448	+16.42	1.0416	310 32	1.3097	188 27	n 0.1146	-1.30	+1.095	20 42.1	12 33.8
12	.4475	16.60	1.0435	310 51	1.3099	187 35	0.0674	1.17	1.107	20 43.4	12 30.3
13	.4503	16.77	1.0453	311 9	1.3100	186 42	0.0141	1.03	1.118	20 44.6	12 26.8
14	.4530	16.95	1.0472	311 27	1.3102	185 49	0.9538	0.90	1.130	20 45.8	12 23.3
15	.4557	17.13	1.0492	311 45	1.3103	184 57	0.8831	0.76	1.142	20 47.0	12 19.8
16	.4585	+17.29	1.0511	312 3	1.3104	184 4	n 0.8627	-0.63	+1.153	20 48.2	12 16.3
17	.4612	17.47	1.0531	312 20	1.3105	183 11	0.8337	0.49	1.165	20 49.3	12 12.8
18	.4640	17.65	1.0550	312 37	1.3105	182 19	0.8539	0.36	1.177	20 50.5	12 9.3
19	.4667	17.82	1.0570	312 54	1.3106	181 26	0.8383	0.22	1.188	20 51.6	12 5.8
20	^b .4694	18.00	1.0591	313 10	1.3106	180 34	n 0.8395	-0.09	+1.200	20 52.7	12 2.2
(18.0) 21	.4722	+18.18	1.0611	313 27	1.3106	179 41	p 0.8612	+0.05	+1.212	20 53.8	11 58.7
22	.4749	18.36	1.0632	313 43	1.3106	178 49	0.8648	0.18	1.224	20 54.8	11 55.3
23	.4776	18.52	1.0652	313 58	1.3106	177 56	0.9038	0.32	1.235	20 55.9	11 51.8
24	.4804	18.70	1.0673	314 14	1.3105	177 4	0.9571	0.45	1.247	20 56.8	11 48.3
25	.4831	18.88	1.0694	314 29	1.3104	176 11	0.9708	0.59	1.259	20 57.9	11 44.8
26	.4859	+19.06	1.0715	314 44	1.3103	175 19	0.9803	+0.73	+1.271	20 58.9	11 41.3
27	.4886	19.23	1.0736	314 59	1.3102	174 26	0.9340	0.86	1.282	20 59.9	11 37.8
28	.4913	19.41	1.0758	315 13	1.3101	173 34	0.9974	0.99	1.294	21 0.9	11 34.2
29	.4941	19.59	1.0779	315 27	1.3099	172 41	0.9523	1.13	1.306	21 1.8	11 30.7
30	.4968	19.75	1.0800	315 41	1.3098	171 48	0.1011	1.26	1.317	21 2.7	11 27.2
31	0.4995	+19.93	1.0822	315 54	1.3096	170 56	0.1449	+1.40	+1.329	21 3.6	11 23.7

FOR WASHINGTON-MEAN MIDNIGHT.

QUANTITIES FOR REDUCING MEAN PLACES, 875.0, TO APPARENT PLACES.

Solar day. Sid. hour.	τ .	f .	Log g .	G .	Log h .	H .	Log i .	i .	f .	G .	H .
July 1	0.4995	+19.93	1.0822	315 54	1.3096	170 56	0.1449	+1.40	+1.329	21 3.6	11 23.7
2	.5023	20.10	1.0843	316 7	1.3094	170 3	0.1844	1.53	1.340	21 4.5	11 20.2
3	.5050	20.28	1.0865	316 20	1.3092	169 10	0.2206	1.66	1.352	21 5.4	11 16.7
4	.5078	20.44	1.0886	316 33	1.3089	168 18	0.2538	1.79	1.363	21 6.2	11 13.2
5	.5105	20.62	1.0908	316 45	1.3086	167 25	0.2847	1.93	1.375	21 7.0	11 9.6
(19.0) 6	.5132	+20.79	1.0930	316 57	1.3084	166 32	0.3134	+2.06	+1.386	21 7.8	11 6.1
7	.5160	20.97	1.0951	317 9	1.3081	165 38	0.3400	2.19	1.398	21 8.6	11 2.6
8	.5187	21.13	1.0973	317 21	1.3078	164 45	0.3651	2.32	1.409	21 9.4	10 59.0
9	.5214	21.30	1.0994	317 32	1.3075	163 52	0.3886	2.45	1.420	21 10.1	10 55.5
10	.5242	21.48	1.1016	317 43	1.3071	162 59	0.4109	2.58	1.432	21 10.9	10 51.9
11	.5269	+21.64	1.1037	317 54	1.3068	162 5	0.4320	+2.70	+1.443	21 11.6	10 48.3
12	.5297	21.81	1.1059	318 4	1.3064	161 12	0.4521	2.83	1.454	21 12.3	10 44.8
13	.5324	21.97	1.1080	318 15	1.3060	160 18	0.4711	2.96	1.465	21 13.0	10 41.1
14	.5351	22.14	1.1102	318 24	1.3056	159 25	0.4893	3.09	1.476	21 13.6	10 37.6
15	.5379	22.30	1.1123	318 34	1.3052	158 31	0.5065	3.21	1.487	21 14.3	10 34.1
16	.5406	+22.47	1.1144	318 44	1.3047	157 37	0.5230	+3.33	+1.498	21 14.9	10 30.5
17	.5434	22.63	1.1165	318 53	1.3043	156 43	0.5386	3.46	1.509	21 15.5	10 26.9
18	.5461	22.80	1.1186	319 2	1.3038	155 49	0.5536	3.58	1.520	21 16.1	10 23.3
19	.5488	22.95	1.1207	319 11	1.3034	154 55	0.5681	3.76	1.530	21 16.7	10 19.7
20	.5516	23.11	1.1228	319 19	1.3029	154 0	0.5821	3.82	1.541	21 17.3	10 16.0
(20.0) 21	.5543	+23.28	1.1248	319 28	1.3024	153 6	0.5954	+3.94	+1.552	21 17.8	10 12.4
22	.5570	23.43	1.1269	319 36	1.3019	152 11	0.6083	4.06	1.562	21 18.4	10 8.7
23	.5598	23.59	1.1289	319 44	1.3014	151 16	0.6207	4.18	1.573	21 18.9	10 5.1
24	.5625	23.74	1.1310	319 51	1.3008	150 21	0.6325	4.29	1.583	21 19.4	10 1.4
25	.5653	23.89	1.1330	319 59	1.3003	149 26	0.6438	4.40	1.593	21 19.9	9 57.7
26	.5680	+24.04	1.1350	320 6	1.2997	148 31	0.6549	+4.52	+1.603	21 20.4	9 54.1
27	.5707	24.21	1.1370	320 13	1.2992	147 36	0.6657	4.63	1.614	21 20.9	9 50.4
28	.5735	24.36	1.1389	320 20	1.2986	146 40	0.6760	4.74	1.624	21 21.4	9 46.7
29	.5762	24.51	1.1409	320 27	1.2980	145 45	0.6860	4.85	1.634	21 21.8	9 43.0
30	.5789	24.66	1.1428	320 34	1.2974	144 49	0.6956	4.96	1.644	21 22.2	9 39.2
31	.5817	24.81	1.1448	320 40	1.2968	143 53	0.7048	5.07	1.654	21 22.7	9 35.5
Aug. 1	.5844	+24.94	1.1467	320 46	1.2962	142 56	0.7138	+5.17	+1.663	21 23.1	9 31.8
2	.5872	25.09	1.1486	320 52	1.2956	142 0	0.7225	5.28	1.673	21 23.5	9 28.0
3	.5899	25.24	1.1504	320 58	1.2950	141 3	0.7308	5.38	1.683	21 23.9	9 24.2
4	.5926	25.38	1.1523	321 4	1.2944	140 7	0.7389	5.48	1.692	21 24.3	9 20.4
(21.0) 5	.5954	+25.53	1.1541	321 10	1.2938	139 10	0.7468	5.58	1.702	21 24.6	9 16.6
6	.5981	25.66	1.1559	321 15	1.2932	138 13	0.7543	+5.68	+1.711	21 25.0	9 12.8
7	.6008	25.80	1.1577	321 21	1.2925	137 15	0.7616	5.78	1.720	21 25.4	9 9.0
8	.6036	25.93	1.1595	321 26	1.2919	136 18	0.7687	5.87	1.729	21 25.7	9 5.2
9	.6063	26.07	1.1613	321 31	1.2913	135 20	0.7755	5.96	1.738	21 26.1	9 1.4
10	.6091	26.20	1.1630	321 36	1.2907	134 23	0.7823	6.06	1.747	21 26.4	8 57.5
11	.6118	+26.34	1.1647	321 41	1.2900	133 24	0.7887	+6.15	+1.756	21 26.7	8 53.6
12	.6145	26.47	1.1664	321 46	1.2894	132 26	0.7949	6.24	1.765	21 27.1	8 49.7
13	.6173	26.61	1.1681	321 51	1.2888	131 28	0.8008	6.32	1.774	21 27.4	8 45.9
14	.6200	26.73	1.1697	321 55	1.2881	130 29	0.8066	6.41	1.782	21 27.7	8 41.9
15	.6227	26.86	1.1714	322 0	1.2875	129 30	0.8123	6.49	1.791	21 28.0	8 38.0
16	.6255	+26.98	1.1730	322 4	1.2869	128 32	0.8177	+6.57	+1.799	21 28.3	8 34.1
17	.6282	27.12	1.1746	322 9	1.2863	127 32	0.8229	6.65	1.808	21 28.6	8 30.2
18	.6310	27.24	1.1762	322 13	1.2857	126 33	0.8279	6.73	1.816	21 28.9	8 26.2
19	.6337	27.36	1.1777	322 17	1.2851	125 34	0.8328	6.81	1.824	21 29.1	8 22.2
(22.0) 20	.6364	+27.49	1.1793	322 21	1.2845	124 34	0.8375	6.88	1.833	21 29.4	8 18.3
21	.6392	27.61	1.1807	322 25	1.2839	123 34	0.8421	+6.95	+1.841	21 29.7	8 14.3
22	.6419	27.73	1.1822	322 30	1.2833	122 34	0.8465	7.02	1.849	21 30.0	8 10.3
23	.6447	27.85	1.1837	322 34	1.2828	121 34	0.8506	7.09	1.857	21 30.2	8 6.2
24	.6474	27.97	1.1852	322 38	1.2822	120 33	0.8547	7.16	1.865	21 30.5	8 2.2
25	.6501	28.09	1.1866	322 42	1.2817	119 33	0.8587	7.22	1.873	21 30.8	7 58.2
26	.6529	+28.20	1.1880	322 46	1.2811	118 32	0.8624	+7.28	+1.880	21 31.0	7 54.1
27	.6556	28.32	1.1894	322 50	1.2806	117 31	0.8659	7.34	1.888	21 31.3	7 50.1
28	.6583	28.42	1.1908	322 54	1.2801	116 30	0.8693	7.40	1.895	21 31.6	7 46.0
29	.6611	28.54	1.1921	322 57	1.2796	115 28	0.8726	7.46	1.903	21 31.8	7 41.9
30	.6638	28.66	1.1934	323 1	1.2791	114 27	0.8758	7.51	1.911	21 32.1	7 37.8
31	.6666	+28.77	1.1948	323 5	1.2786	113 25	0.8788	+7.57	+1.918	21 32.4	7 33.7

FOR WASHINGTON MEAN MIDNIGHT.

QUANTITIES FOR REDUCING MEAN PLACES, 1875.0, TO APPARENT PLACES.

Solar day. Sid. hour.	τ .	f .	Log g .	G.	Log h .	H.	Log i .	i .	f .	G.	H.
Sept. 1	0.6693	+28.87	1.1960	323 9	1.2782	112 23	0.8816	+7.61	+1.925	21 32.6	h m 7 29.5
2	.6720	28.98	1.1973	323 13	1.2777	111 21	0.8842	7.66	1.932	21 32.9	7 25.4
3	.6748	29.10	1.1986	323 17	1.2773	110 19	0.8868	7.71	1.940	21 33.1	7 21.3
4	.6775	29.20	1.1998	323 21	1.2769	109 17	0.8893	7.75	1.947	21 33.4	7 17.1
(23.0) 5	.6802	29.31	1.2010	323 25	1.2765	108 14	0.8916	7.79	1.954	21 33.7	7 12.9
6	.6830	+29.41	1.2022	323 29	1.2762	107 12	0.8937	+7.83	+1.961	21 33.9	7 8.8
7	.6857	29.52	1.2034	323 33	1.2758	106 9	0.8957	7.87	1.968	21 34.2	7 4.6
8	.6885	29.62	1.2046	323 37	1.2755	105 6	0.8977	7.90	1.975	21 34.5	7 0.4
9	.6912	29.7	1.2057	323 41	1.2752	104 3	0.8994	7.93	1.982	21 34.8	6 56.2
10	.6939	29.83	1.2069	323 46	1.2749	103 0	0.9010	7.96	1.989	21 35.0	6 52.0
11	.6967	+29.94	1.2080	323 50	1.2746	101 57	0.9025	+7.99	+1.996	21 35.3	6 47.8
12	.6994	30.04	1.2091	323 54	1.2744	100 54	0.9039	8.02	2.003	21 35.6	6 43.6
13	.7021	30.15	1.2101	323 58	1.2741	99 50	0.9051	8.04	2.010	21 35.9	6 39.3
14	.7049	30.25	1.2112	324 3	1.2739	98 47	0.9063	8.06	2.017	21 36.2	6 35.1
15	.7076	30.34	1.2123	324 7	1.2738	97 43	0.9072	8.08	2.023	21 36.5	6 30.9
16	.7104	+30.45	1.2133	324 12	1.2736	96 40	0.9081	+8.09	+2.030	21 36.8	6 26.6
17	.7131	30.55	1.2143	324 16	1.2735	95 36	0.9088	8.11	2.037	21 37.1	6 22.4
18	.7158	30.66	1.2154	324 21	1.2733	94 32	0.9094	8.12	2.044	21 37.4	6 18.1
19	.7186	30.75	1.2163	324 26	1.2733	93 28	0.9099	8.13	2.050	21 37.7	6 13.9
(0.0) 20	.7213	30.85	1.2173	324 31	1.2732	92 24	0.9102	8.13	2.057	21 38.0	6 9.6
21	.7241	+30.96	1.2183	324 36	1.2732	91 20	0.9105	+8.14	+2.064	21 38.4	6 5.3
22	.7268	31.05	1.2192	324 40	1.2731	90 16	0.9106	8.14	2.070	21 38.7	6 1.1
23	.7295	31.15	1.2202	324 45	1.2731	89 12	0.9105	8.14	2.077	21 39.0	5 56.8
24	.7323	31.26	1.2211	324 51	1.2732	88 8	0.9103	8.13	2.084	21 39.4	5 52.5
25	.7350	31.36	1.2221	324 56	1.2732	87 4	0.9100	8.13	2.091	21 39.7	5 48.2
26	.7377	+31.45	1.2230	325 1	1.2733	85 59	0.9096	+8.12	+2.097	21 40.1	5 44.0
27	.7405	31.56	1.2239	325 7	1.2734	84 55	0.9091	8.11	2.104	21 40.4	5 39.7
28	.7432	31.66	1.2248	325 12	1.2735	83 51	0.9084	8.10	2.111	21 40.8	5 35.4
29	.7460	31.75	1.2257	325 18	1.2737	82 47	0.9077	8.09	2.117	21 41.2	5 31.1
30	.7487	31.86	1.2266	325 24	1.2738	81 43	0.9068	8.07	2.124	21 41.6	5 26.8
Oct. 1	.7514	+31.96	1.2275	325 29	1.2740	80 38	0.9057	+8.05	+2.131	21 42.0	5 22.6
2	.7542	32.07	1.2283	325 35	1.2743	79 34	0.9045	8.03	2.138	21 42.4	5 18.3
3	.7569	32.17	1.2292	325 41	1.2745	78 30	0.9031	8.00	2.145	21 42.8	5 14.0
(1.0) 4	.7596	32.28	1.2301	325 47	1.2748	77 26	0.9016	7.97	2.152	21 43.2	5 9.7
5	.7624	32.38	1.2311	325 54	1.2751	76 22	0.9000	7.94	2.159	21 43.6	5 5.5
6	.7651	+32.49	1.2318	326 0	1.2754	75 18	0.8983	+7.91	+2.166	21 44.0	5 1.2
7	.7678	32.59	1.2327	326 6	1.2757	74 14	0.8964	7.88	2.173	21 44.4	4 56.9
8	.7706	32.70	1.2335	326 13	1.2760	73 10	0.8944	7.84	2.180	21 44.9	4 52.7
9	.7733	32.80	1.2344	326 20	1.2764	72 7	0.8923	7.80	2.187	21 45.3	4 48.4
10	.7761	32.91	1.2352	326 26	1.2768	71 3	0.8900	7.76	2.194	21 45.8	4 44.2
11	.7788	+33.01	1.2361	326 33	1.2772	69 59	0.8876	+7.72	+2.201	21 46.2	4 40.0
12	.7815	33.12	1.2369	326 40	1.2776	68 56	0.8850	7.67	2.208	21 46.7	4 35.7
13	.7843	33.24	1.2378	326 47	1.2781	67 52	0.8823	7.63	2.216	21 47.1	4 31.5
14	.7870	33.34	1.2387	326 55	1.2785	66 49	0.8794	7.58	2.223	21 47.6	4 27.3
15	.7898	33.46	1.2395	327 2	1.2790	65 46	0.8763	7.52	2.231	21 48.1	4 23.1
16	.7925	+33.57	1.2404	327 9	1.2795	64 43	0.8732	+7.47	+2.238	21 48.6	4 18.8
17	.7952	33.69	1.2412	327 17	1.2800	63 40	0.8698	7.41	2.246	21 49.1	4 14.6
18	.7980	33.79	1.2421	327 24	1.2805	62 37	0.8663	7.35	2.253	21 49.6	4 10.5
19	.8007	33.91	1.2430	327 32	1.2811	61 34	0.8627	7.29	2.261	21 50.1	4 6.3
(2.0) 20	.8035	34.03	1.2439	327 40	1.2816	60 31	0.8588	7.23	2.269	21 50.6	4 2.1
21	.8062	+34.15	1.2447	327 47	1.2822	59 29	0.8548	+7.16	+2.277	21 51.2	3 57.9
22	.8089	34.27	1.2456	327 55	1.2828	58 26	0.8506	7.09	2.285	21 51.7	3 53.8
23	.8117	34.39	1.2465	328 3	1.2833	57 24	0.8463	7.02	2.293	21 52.2	3 49.6
24	.8144	34.51	1.2474	328 11	1.2839	56 22	0.8418	6.95	2.301	21 52.8	3 45.5
25	.8171	34.63	1.2483	328 19	1.2846	55 20	0.8371	6.87	2.309	21 53.3	3 41.3
26	.8199	34.77	1.2493	328 28	1.2852	54 18	0.8322	6.79	2.318	21 53.8	3 37.2
27	.8226	+34.89	1.2502	328 36	1.2858	53 16	0.8271	+6.72	+2.326	21 54.4	3 33.1
28	.8254	35.01	1.2511	328 44	1.2864	52 15	0.8218	6.64	2.334	21 55.0	3 29.0
29	.8281	35.14	1.2521	328 53	1.2871	51 13	0.8163	6.55	2.343	21 55.5	3 24.9
30	.8308	35.28	1.2530	329 1	1.2877	50 12	0.8106	6.47	2.352	21 56.1	3 20.8
31	.8336	35.40	1.2540	329 10	1.2883	49 11	0.8047	6.38	2.360	21 56.7	3 16.7
32	0.8363	+35.53	1.2550	329 18	1.2890	48 10	0.7986	+6.29	+2.369	21 57.2	3 12.6

FIXED STARS, 1875.

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FOR WASHINGTON MEAN MIDNIGHT.

QUANTITIES FOR REDUCING MEAN PLACES, 1875.0, TO APPARENT PLACES.

Solar day. Std. hour.	τ .	f .	Log g .	G.	Log h .	H.	Log i .	i .	f .	G.	H.
Nov. 1	0.8363	+35.53	1.2550	329 18	1.2890	48 10	0.7986	+6.29	+2.369	21 57.2	3 12.6
2	.8390	35.67	1.2560	329 27	1.2896	47 9	0.7922	6.20	2.378	21 57.8	3 8.6
3	.8418	35.80	1.2570	329 36	1.2903	46 8	0.7856	6.10	2.387	21 58.4	3 4.5
(3.0) 4	.8445	35.95	1.2580	329 44	1.2910	45 8	0.7788	6.01	2.397	21 59.0	3 0.5
5	.8473	36.09	1.2590	329 53	1.2916	44 7	0.7717	5.91	2.406	21 59.5	2 56.5
6	.8500	+36.22	1.2601	330 2	1.2923	43 7	0.7644	+5.81	+2.415	22 0.1	2 52.5
7	.8527	36.37	1.2611	330 11	1.2929	42 7	0.7569	5.71	2.425	22 0.7	2 48.5
8	.8555	36.51	1.2622	330 20	1.2936	41 7	0.7490	5.61	2.434	22 1.3	2 44.5
9	.8582	36.66	1.2633	330 29	1.2942	40 7	0.7408	5.51	2.444	22 1.9	2 40.5
10	.8609	36.79	1.2644	330 37	1.2949	39 8	0.7324	5.40	2.453	22 2.5	2 36.5
11	.8637	+36.94	1.2655	330 46	1.2955	38 8	0.7238	+5.29	+2.463	22 3.1	2 32.5
12	.8664	37.09	1.2666	330 55	1.2962	37 9	0.7147	5.18	2.473	22 3.7	2 28.6
13	.8692	37.24	1.2677	331 4	1.2968	36 10	0.7051	5.07	2.483	22 4.2	2 24.6
14	.8719	37.39	1.2689	331 13	1.2964	35 11	0.6954	4.96	2.493	22 4.8	2 20.7
15	.8746	37.56	1.2701	331 21	1.2981	34 12	0.6853	4.85	2.504	22 5.4	2 16.8
16	.8774	+37.71	1.2712	331 30	1.2987	33 13	0.6748	+4.73	+2.514	22 6.0	2 12.9
17	.8801	37.86	1.2724	331 39	1.2993	32 14	0.6638	4.61	2.524	22 6.6	2 9.0
18	.8829	38.02	1.2736	331 48	1.2998	31 16	0.6524	4.49	2.535	22 7.2	2 5.1
19	.8856	38.17	1.2748	331 56	1.3004	30 18	0.6407	4.37	2.545	22 7.7	2 1.2
(4.0) 20	.8883	38.34	1.2761	332 5	1.3010	29 19	0.6284	4.25	2.556	22 8.3	1 57.3
21	.8911	+38.50	1.2773	332 13	1.3016	28 21	0.6156	+4.13	+2.567	22 8.9	1 53.4
22	.8938	38.67	1.2786	332 22	1.3021	27 23	0.6023	4.00	2.578	22 9.5	1 49.6
23	.8965	38.82	1.2799	332 30	1.3027	26 26	0.5885	3.88	2.588	22 10.0	1 45.7
24	.8993	39.00	1.2812	332 39	1.3032	25 28	0.5740	3.75	2.600	22 10.6	1 41.9
25	.9020	39.16	1.2825	332 47	1.3037	24 30	0.5588	3.62	2.611	22 11.1	1 38.0
26	.9048	+39.33	1.2838	332 55	1.3042	23 33	0.5431	+3.49	+2.622	22 11.7	1 34.2
27	.9075	39.49	1.2851	333 4	1.3046	22 35	0.5265	3.36	2.633	22 12.2	1 30.4
28	.9102	39.66	1.2865	333 12	1.3051	21 38	0.5092	3.23	2.644	22 12.8	1 26.5
29	.9130	39.84	1.2878	333 21	1.3056	20 41	0.4909	3.10	2.656	22 13.3	1 22.7
30	.9157	40.00	1.2892	333 28	1.3060	19 44	0.4719	2.96	2.667	22 13.8	1 18.9
Dec. 1	.9184	+40.18	1.2906	333 36	1.3064	18 47	0.4516	+2.83	+2.679	22 14.4	1 15.1
2	.9212	40.36	1.2920	333 43	1.3068	17 50	0.4302	2.69	2.691	22 14.9	1 11.3
3	.9239	40.53	1.2934	333 51	1.3072	16 53	0.4077	2.56	2.702	22 15.4	1 7.5
4	.9267	40.71	1.2948	333 59	1.3075	15 56	0.3838	2.42	2.714	22 15.9	1 3.8
(5.0) 5	.9294	40.89	1.2962	334 6	1.3079	15 0	0.3581	2.28	2.726	22 16.4	1 0.0
6	.9321	+41.07	1.2977	334 13	1.3082	14 3	0.3310	+2.14	+2.738	22 16.9	0 56.2
7	.9349	41.25	1.2991	334 21	1.3085	13 7	0.3015	2.00	2.750	22 17.4	0 52.4
8	.9376	41.41	1.3005	334 28	1.3088	12 10	0.2700	1.86	2.761	22 17.8	0 48.7
9	.9403	41.59	1.3020	334 35	1.3090	11 14	0.2358	1.72	2.773	22 18.3	0 44.9
10	.9431	41.77	1.3035	334 42	1.3093	10 17	0.1987	1.58	2.785	22 18.8	0 41.1
11	.9458	+41.97	1.3050	334 48	1.3095	9 21	0.1578	+1.44	+2.798	22 19.2	0 37.4
12	.9486	42.15	1.3064	334 55	1.3097	8 25	0.1123	1.30	2.810	22 19.7	0 33.7
13	.9513	42.33	1.3079	335 1	1.3099	7 29	0.0614	1.15	2.822	22 20.1	0 29.9
14	.9540	42.51	1.3094	335 8	1.3101	6 33	0.0043	1.01	2.834	22 20.5	0 26.1
15	.9568	42.69	1.3109	335 14	1.3102	5 36	0.9380	0.87	2.846	22 20.9	0 22.4
16	.9595	+42.87	1.3124	335 20	1.3103	4 40	0.8501	+0.72	+2.858	22 21.3	0 18.7
17	.9623	43.06	1.3140	335 26	1.3104	3 44	0.7627	0.58	2.871	22 21.7	0 14.9
18	.9650	43.24	1.3155	335 32	1.3105	2 48	0.6375	0.43	2.883	22 22.1	0 11.2
19	.9677	43.42	1.3170	335 37	1.3105	1 52	0.4624	0.29	2.895	22 22.5	0 7.5
(6.0) 20	.9705	43.61	1.3185	335 43	1.3106	0 56	0.1614	+0.15	+2.907	22 22.9	0 3.7
21	.9732	+43.80	1.3200	335 48	1.3106	0 0		0.00	+2.920	22 23.2	0 0.0
22	.9759	43.98	1.3215	335 54	1.3106	359 4	0.1584	-0.14	2.932	22 23.6	23 56.3
23	.9787	44.16	1.3231	335 59	1.3105	358 8	0.4609	0.29	2.944	22 23.9	23 52.5
24	.9814	44.34	1.3246	336 4	1.3105	357 12	0.6375	0.43	2.956	22 24.2	23 48.8
25	.9842	44.53	1.3261	336 8	1.3104	356 16	0.7619	0.58	2.968	22 24.6	23 45.0
26	.9869	44.71	1.3276	336 13	1.3103	355 19	0.8585	0.72	2.981	22 24.9	23 41.3
27	.9896	+44.89	1.3292	336 18	1.3102	354 23	0.9375	-0.87	+2.993	22 25.2	23 37.5
28	.9924	45.09	1.3307	336 22	1.3101	353 27	0.0043	1.01	3.006	22 25.5	23 33.8
29	.9951	45.27	1.3322	336 26	1.3099	352 31	0.0622	1.16	3.018	22 25.7	23 30.0
30	.9978	45.45	1.3337	336 30	1.3097	351 34	0.1133	1.30	3.030	22 26.0	23 26.3
31	1.0006	45.63	1.3353	336 34	1.3095	350 38	0.1587	1.44	3.042	22 26.3	23 22.5
32	1.0033	+45.81	1.3367	336 38	1.3093	349 42	0.1995	-1.58	+3.054	22 26.5	23 18.8

BESSEL'S FORMULÆ OF REDUCTION FOR THE FIXED STARS,

WITH DR. PETERS'S COEFFICIENTS, AND BESSEL'S NOTATION.

$$\begin{aligned}
 A &= \tau - .34244 \sin \Omega + .00410 \sin 2 \Omega - .02519 \sin 2 \odot + .00294 \sin (\odot + 82^\circ 15'). \\
 B &= -9''.2238 \cos \Omega + 0''.0896 \cos 2 \Omega - 0''.5507 \cos 2 \odot - 0''.0092 \cos (\odot + 230^\circ 47'). \\
 C &= -20''.4451 \cos \omega \cos \odot. \\
 D &= -20''.4451 \sin \odot. \\
 E &= -0''.0466 \sin \Omega + 0''.0014 \sin 2 \Omega - 0''.0034 \sin 2 \odot.
 \end{aligned}$$

$$\begin{aligned}
 a &= 3''.07226 + 1''.33695 \sin \alpha \tan \delta. \\
 b &= \frac{1}{15} \cos \alpha \tan \delta. \\
 c &= \frac{1}{15} \cos \alpha \sec \delta. \\
 d &= \frac{1}{15} \sin \alpha \sec \delta.
 \end{aligned}$$

$$\begin{aligned}
 a' &= 20''.0542 \cos \alpha. \\
 b' &= -\sin \alpha. \\
 c' &= \tan \omega \cos \delta - \sin \alpha \sin \delta. \\
 d' &= \cos \alpha \sin \delta.
 \end{aligned}$$

μ = the annual proper motion in right ascension.
 μ' = the annual proper motion in declination.

τ = the time reckoned from Jan. 0 047, (when the sun's mean longitude is 280° .) and expressed in fractional parts of a tropical year.

\odot = the sun's true longitude.

Ω = the longitude of the moon's ascending node.

ω = the obliquity of the ecliptic.

α = the star's mean right ascension for the beginning of the year.
 δ = the star's mean declination for the beginning of the year.

α' = the star's apparent right ascension at the time τ .
 δ' = the star's apparent declination at the time τ .

$$\begin{aligned}
 \alpha' - \alpha &= A a + B b + C c + D d + E + \tau \mu. && \text{(in time)} \\
 \delta' - \delta &= A a' + B b' + C c' + D d' + \tau \mu'. && \text{(in arc)}
 \end{aligned}$$

The following formulæ may also be used by putting

$$\begin{aligned}
 f &= 46''.0838 A + E = 3''.07226 A + \frac{1}{15} E. && i = C \tan \omega. \\
 g \cos G &= 20''.0543 A. && h \sin H = C. \\
 g \sin G &= B. && h \cos H = D. \\
 \alpha' - \alpha &= f + \tau \mu + g \sin (G + \alpha) \frac{\tan \delta}{15} + h \sin (H + \alpha) \frac{\sec \delta}{15}. && \text{(in time)} \\
 \delta' - \delta &= \tau \mu' + g \cos (G + \alpha) + h \cos (H + \alpha) \sin \delta + i \cos \delta. && \text{(in arc)}
 \end{aligned}$$

A and B include also the following small terms of nutation:

$$\begin{aligned}
 \Delta A &= +.00025 \sin (2 \odot - \Omega) + .00009 \sin (2 \Gamma' - \Omega). && \Delta B = +0.0067 \cos (2 \odot - \Omega). \\
 &+ .00010 \sin 2 (\odot - \Gamma') + .00005 \cos \Gamma'. && -0.0027 \cos (3 \odot - \Gamma). \\
 &- .00005 \sin 2 (\odot - \Omega) + .00004 \sin 2 \Gamma'. && +0.0024 \cos (2 \Gamma' - \Omega). \\
 &- .00011 \sin (3 \odot - \Gamma). && -0.0023 \sin \Gamma'. \\
 & && +0.0008 \cos 2 \Gamma'.
 \end{aligned}$$

Table IV. of the Appendix contains the following terms:

$$\begin{aligned}
 \Delta A &= -.00405 \sin 2 \zeta. && \Delta B = -0''.0885 \cos 2 \zeta. \\
 &+ .00135 \sin (\zeta - \Gamma').
 \end{aligned}$$

Tables VI. and VII. facilitate finding the corresponding reductions of Right Ascension and Declination.

MEAN PLACES FOR 1875.0. (Jan. 0.047, Washington.)

Star's Name.	Magnitude.	Right Ascension.	An. Variation.	Declination.	An. Variation.
α Andromedæ	2	^h 0 ^m 1 ^s 55.734	+ 3.088	+28° 24' 1.68"	+ 19.91
γ Pegasi (<i>Algenib</i>)	3.2	0 6 48.032	3.083	+14 29 19.55	20.05
* β Hydri	3	0 19 8.890	3.251	-77 57 33.20	20.24
α Cassiopeæ	var.	0 33 25.506	3.366	+55 51 5.05	19.80
β Ceti	2	0 37 18.807	3.013	-18 40 22.56	19.82
* 21 Cassiopeæ	6	0 37 25.527	+ 3.834	+74 18 13.76	+ 19.73
ϵ Piscium	4	0 56 27.423	3.109	+ 7 13 0.47	19.47
* α Ursæ Min. (<i>Polaris</i>)	2	1 13 0.165	20.868	+88 38 33.81	19.04
θ^1 Ceti	3	1 17 46.533	2.998	- 8 49 42.96	18.71
* 38 Cassiopeæ	6	1 21 57.413	4.357	+69 37 12.89	18.70
η Piscium	4.3	1 24 47.722	+ 3.200	+14 42 3.80	+ 18.71
α Eridani (<i>Achernar</i>)	1	1 33 3.196	2.235	-57 52 19.42	18.41
\circ Piscium	4	1 38 47.721	3.162	+ 8 31 40.38	18.26
β Arietis	3.2	1 47 44.238	3.301	+20 11 47.02	17.78
* 50 Cassiopeæ	4	1 52 47.871	4.984	+71 48 52.78	17.67
α Arietis	2	2 0 7.793	+ 3.368	+22 52 13.99	+ 17.23
ξ^1 Ceti	4.5	2 6 22.511	3.169	+ 8 15 33.75	17.07
* ι Cassiopeæ	4	2 18 47.354	4.844	+66 50 18.19	16.47
γ Ceti	3.4	2 36 49.498	3.102	+ 2 42 28.72	15.38
α Ceti	2.3	2 55 44.782	3.129	+ 3 35 52.93	14.35
* 48 Cephei (H.)	6	3 4 31.964	+ 7.356	+77 16 18.21	+ 13.83
ζ Arietis	4.5	3 7 43.144	3.437	+20 34 48.17	13.64
α Persei	2	3 15 24.368	4.250	+49 24 50.94	13.16
δ Persei	3	3 34 1.771	4.241	+47 23 8.01	11.87
η Tauri	3	3 40 3.364	3.554	+23 43 0.94	11.45
ζ Persei	3	3 46 16.654	+ 3.757	+31 30 37.85	+ 11.02
γ^1 Eridani	3	3 52 11.863	2.797	-13 51 54.66	10.52
γ Tauri	4	4 12 40.870	3.407	+15 19 27.11	9.05
ϵ Tauri	4.3	4 21 19.132	3.496	+18 54 5.69	8.36
α Tauri (<i>Aldebaran</i>)	1	4 28 44.971	3.436	+16 15 22.95	7.61
* 9 Camelopardalis	4	4 41 38.012	+ 5.916	+66 7 37.30	+ 6.73
ι Aurigæ	3	4 48 51.303	3.897	+32 57 58.09	6.11
11 Orionis	5	4 57 25.698	3.425	+15 13 41.77	5.39
α Aurigæ (<i>Capella</i>)	1	5 7 27.443	4.423	+45 52 5.76	4.13
β Orionis (<i>Rigel</i>)	1	5 8 31.860	2.881	- 8 20 51.52	4.46
β Tauri	2	5 18 23.452	+ 3.788	+28 29 58.76	+ 3.44
* Groombridge 966	6.7	5 23 1.622	7.990	+74 57 21.58	3.22
δ Orionis	2	5 25 37.294	3.064	- 0 23 36.65	2.99
α Leporis	3	5 27 13.114	2.646	-17 54 47.16	2.89
ϵ Orionis	2	5 29 52.264	3.042	- 1 17 0.48	2.63
α Columbæ	2	5 35 7.440	+ 2.173	-34 8 30.20	+ 2.15
α Orionis	var.	5 48 24.303	3.247	+ 7 22 54.94	+ 1.03
* 22 Camelopardalis (H.)	5.4	6 5 3.933	6.619	+69 21 35.58	- 0.55
μ Geminorum	3	6 15 23.926	3.633	+22 34 32.79	1.45
α Argus (<i>Canopus</i>)	1	6 21 10.731	1.331	-52 37 41.27	1.85
γ Geminorum	2.3	6 30 29.460	+ 3.469	+16 30 15.07	- 2.69
α Canis Maj. (<i>Sirius</i>)	1	6 39 38.354	2.645	-16 32 45.63	4.66
* 51 Cephei (H.)	5	6 41 14.430	30.236	+87 14 4.43	3.64
ϵ Canis Majoris	2.1	6 53 42.878	2.358	-28 48 11.65	4.65
δ Canis Majoris	2	7 3 18.593	+ 2.439	-26 11 44.23	- 5.44

* Circumpolar Stars.

MEAN PLACES FOR 1875.0. (Jan. 0.047, Washington.) ^d					
Star's Name.	Magnitude.	Right Ascension.	An. Variation.	Declination.	An. Variation.
δ Geminorum . . .	3.4	^h 7 ^m 12 ^s 39.435	+3.590	+22° 12' 38".56	- 6".25
* π Piazzi vii. 67. . .	6	7 17 51.422	6.310	+68 43 1.72	6.76
α Geminor. (<i>Castor</i>). . .	2.1	7 26 37.046	3.839	+32 9 37.87	7.48
α Can. Min. (<i>Procyon</i>) . . .	1	7 32 45.560	3.145	+ 5 32 36.92	8.94
β Geminor. (<i>Pollux</i>). . .	1.2	7 37 39.913	3.681	+28 19 35.00	8.33
φ Geminorum . . .	5	7 45 50.776	+3.684	+27 5 15.07	- 8.95
* 3 Ursæ Majoris (H.). . .	6	8 0 20.973	6.066	+68 50 19.63	10.06
15 Argus (ι). . .	3	8 2 13.325	2.557	-23 56 41.82	10.12
ϵ Hydræ . . .	3.4	8 40 9.383	3.184	+ 6 52 34.76	12.92
ι Ursæ Majoris . . .	3	8 50 38.428	4.139	+48 31 50.33	13.85
* σ^2 Ursæ Majoris . . .	5	8 59 22.051	+5.374	+67 38 21.38	-14.24
κ Cancri . . .	5	9 0 58.511	3.255	+11 10 12.79	14.22
ι Argus . . .	2	9 13 44.555	1.602	-58 45 1.68	14.93
* 1 Draconis (H.). . .	4.5	9 19 5.961	9.113	+81 52 33.89	15.31
α Hydræ . . .	2	9 21 26.703	2.949	- 8 7 3.48	15.40
* δ Ursæ Majoris . . .	5.4	9 23 23.535	+5.425	+70 22 39.56	-15.50
θ Ursæ Majoris . . .	3	9 24 29.091	4.049	+52 14 44.29	16.17
ϵ Leonis . . .	3	9 38 45.220	3.419	+24 20 56.16	16.37
μ Leonis . . .	4	9 45 39.048	3.424	+26 35 41.15	16.75
α Leonis (<i>Regulus</i>) . . .	1.2	10 1 42.850	3.203	+12 34 39.40	17.42
* β^2 Ursæ Majoris . . .	6	10 8 56.016	+4.437	+65 43 49.99	-17.78
γ^1 Leonis . . .	2	10 13 4.711	3.317	+20 28 24.09	18.03
* 9 Draconis (H.). . .	5.4	10 24 25.033	5.303	+76 21 20.01	18.37
ρ Leonis . . .	4	10 26 13.756	3.166	+ 9 56 57.41	18.40
η Argus . . .	2	10 40 12.911	2.311	-59 1 36.53	18.76
ι Leonis . . .	5	10 42 41.132	+3.159	+11 12 22.98	-18.93
α Ursæ Majoris . . .	2	10 55 59.832	3.758	+62 25 30.63	19.36
δ Leonis . . .	2.3	11 7 27.563	3.202	+21 12 30.49	19.65
δ Crateris . . .	3.4	11 13 5.561	2.996	-14 6 7.72	19.44
τ Leonis . . .	5	11 21 30.554	3.088	+ 3 32 40.52	19.78
* λ Draconis . . .	3.4	11 23 57.561	+3.637	+70 1 13.04	-19.87
ν Leonis . . .	5.4	11 30 32.966	3.072	- 0 8 0.87	19.84
β Leonis . . .	2	11 42 40.973	3.065	+15 16 15.86	20.09
γ Ursæ Majoris . . .	2.3	11 47 14.850	3.187	+54 23 22.99	20.02
ν Virginis . . .	4	11 58 50.516	3.059	+ 9 25 39.13	20.01
* 4 Draconis (H.). . .	5.4	12 6 19.373	+2.904	+78 18 37.67	-20.05
* β Chamæleontis . . .	5	12 11 2.617	3.347	-78 37 6.17	20.04
γ Virginis . . .	3.4	12 13 30.685	3.068	+ 0 1 41.62	20.03
α^1 Crucis . . .	1	12 19 39.029	3.268	-62 24 17.83	19.93
β Corvi . . .	2.3	12 27 49.433	3.139	-22 42 17.08	19.95
* κ Draconis . . .	3.4	12 28 8.291	+2.600	+70 28 37.44	-19.92
* β^2 Camelop. (H.) (<i>fol.</i>) . . .	5.4	12 48 13.792	0.362	+84 5 31.01	19.64
12 Canum Venaticorum . . .	3	12 50 10.685	2.817	+38 59 38.36	19.51
θ Virginis . . .	4.5	13 3 28.784	3.101	- 4 52 15.24	19.31
α Virginis (<i>Spica</i>) . . .	1	13 18 36.602	3.153	-10 30 28.60	18.90
ζ Virginis . . .	3.4	13 28 19.496	+3.053	+ 0 2 39.25	-18.52
γ Ursæ Majoris . . .	2	13 42 36.856	2.373	+49 56 15.95	18.09
γ Bootis . . .	3	13 48 44.022	2.858	+19 1 31.57	18.17
β Centauri . . .	1	13 55 1.074	4.166	-59 46 7.89	17.65
* α Draconis . . .	3.4	14 1 0.380	+1.623	+64 58 23.60	-17.36

* Circumpolar Stars.

MEAN PLACES FOR 1875.0. (Jan. 0.047, Washington.)

Star's Name.	Magnitude.	Right Ascension.			An. Variation.	Declination.			An. Variation.
		h	m	s		°	'	"	
α Bootis (<i>Arcturus</i>)	1	14	9	57.614	+ 2.734	+ 19	50	4.10	- 18.88
θ Bootis	4.3	14	20	56.444	+ 2.043	+ 52	25	45.67	16.78
\bullet 5 Ursæ Minoris	5.4	14	27	48.777	- 0.207	+ 76	15	4.40	16.05
α^2 Centauri	1	14	31	8.430	+ 4.036	- 60	18	54.66	15.02
ϵ Bootis	2.3	14	39	31.710	+ 2.622	+ 27	36	8.74	15.36
α^3 Libræ	2.3	14	43	57.935	+ 3.307	- 15	31	14.49	- 15.19
\bullet β Ursæ Minoris	2	14	51	5.397	- 0.245	+ 74	39	57.34	14.75
β Bootis	3	14	57	14.248	+ 2.260	+ 40	53	4.61	14.39
β Libræ	2	15	10	16.935	+ 3.221	- 8	55	11.51	13.53
μ^1 Bootis	4.3	15	19	46.163	+ 2.268	+ 37	49	0.29	12.81
\bullet γ^2 Ursæ Minoris	3	15	20	56.493	- 0.144	+ 72	16	44.13	- 12.80
α Coronæ Borealis	2	15	29	23.754	+ 2.539	+ 27	8	12.69	12.32
α Serpentis	2.3	15	38	6.688	+ 2.951	+ 6	49	14.15	11.58
ϵ Serpentis	3.4	15	44	35.177	+ 2.987	+ 4	51	20.28	11.08
\bullet ζ Ursæ Minoris	4.5	15	48	33.922	- 2.280	+ 78	10	40.88	10.89
ϵ Coronæ Borealis	4	15	52	24.869	+ 2.485	+ 27	14	29.34	- 10.63
δ Scorpii	2.3	15	52	56.672	3.537	- 22	15	48.68	10.55
β^1 Scorpii	2	15	58	10.219	3.478	- 19	27	40.91	10.18
\bullet Groombridge 2320	6.5	16	5	59.128	0.134	+ 68	8	22.45	9.50
δ Ophiuchi	3	16	7	47.754	3.138	- 3	22	13.56	9.56
τ Herculis	3.4	16	15	58.913	+ 1.798	+ 46	36	43.14	- 8.77
α Scorpii (<i>Antares</i>)	1.2	16	21	44.755	3.669	- 26	9	8.54	8.36
γ Draconis	3.2	16	22	18.184	+ 0.804	+ 61	47	51.10	8.22
\bullet Λ Draconis	5	16	28	14.242	- 0.141	+ 69	2	18.68	7.79
ζ Ophiuchi	3.2	16	30	16.621	+ 3.298	- 10	18	41.91	7.60
\bullet α Trianguli Australis	2	16	35	26.975	+ 6.286	- 68	47	40.74	- 7.31
γ Herculis	3	16	38	36.662	2.055	+ 39	9	41.35	7.04
κ Ophiuchi	3.4	16	51	45.078	2.834	+ 9	34	16.89	5.86
d Herculis	5	16	56	59.326	+ 2.209	+ 33	45	3.24	5.41
\bullet ϵ Ursæ Minoris	4.5	16	58	50.907	- 6.376	+ 82	14	22.77	5.30
α^1 Herculis	var.	17	8	56.881	+ 2.733	+ 14	32	4.82	- 4.38
44 Ophiuchi	5	17	18	44.237	3.659	- 24	3	26.81	3.68
β Draconis	3.2	17	27	36.478	1.351	+ 52	23	40.32	2.82
α Ophiuchi	2	17	29	7.918	+ 2.782	+ 12	39	10.51	2.90
\bullet ω Draconis	5	17	37	41.121	- 0.356	+ 68	48	53.95	1.66
μ Herculis	3.4	17	41	34.012	+ 2.345	+ 27	47	43.67	- 2.33
\bullet ν^1 Draconis (<i>pr.</i>)	4.5	17	44	9.884	- 1.081	+ 72	12	34.80	1.64
γ Draconis	2.3	17	53	42.370	+ 1.394	+ 51	30	15.44	0.59
γ^2 Sagittarii	3.4	17	57	46.724	3.853	- 30	25	23.71	- 0.40
μ^1 Sagittarii	4	18	6	17.271	3.586	- 21	5	20.98	+ 0.55
\bullet σ Octantis	6	18	15	24.004	+ 108.809	- 89	16	38.12	+ 1.35
\bullet δ Ursæ Minoris	4.5	18	12	39.317	- 19.420	+ 86	36	27.41	1.14
η Serpentis	3	18	14	50.445	+ 3.100	- 2	55	44.58	0.63
1 Aquilæ (β H. Scuti)	4.5	18	28	24.226	3.264	- 8	19	45.28	2.17
α Lyræ (<i>Vega</i>)	1	18	32	42.370	+ 2.031	+ 38	40	6.64	3.14
β Lyræ	var.	18	45	27.883	+ 2.214	+ 33	13	7.75	+ 3.94
σ Sagittarii	2.3	18	47	30.839	+ 3.723	- 26	26	57.87	4.07
\bullet 50 Draconis	6	18	50	23.620	- 1.900	+ 75	17	6.49	4.43
ζ Aquilæ	3	18	59	39.805	+ 2.755	+ 13	40	46.14	5.07
d Sagittarii	5	19	10	19.206	+ 3.513	- 19	10	20.60	+ 6.10

* Circumpolar Stars.

MEAN PLACES FOR 1875.0. (Jan. 0.047, Washington.) ^d					
Star's Name.	Magnitude.	Right Ascension.	An. Variation.	Declination.	An. Variation.
• δ Draconis	3	^h 19 ^m 12 ^s 31.273	+ 0.032	+67° 26' 29.37"	+ 6.31
• τ Draconis	5	19 17 56.715	- 1.108	+73 7 21.36	6.79
δ Aquilæ	3.4	19 19 11.682	+ 3.024	+ 2 52 2.96	6.89
κ Aquilæ	5	19 30 9.923	3.230	- 7 18 11.16	7.71
γ Aquilæ	3	19 40 18.997	+ 2.853	+10 18 37.05	+ 8.51
α Aquilæ (<i>Altair</i>)	1.2	19 44 41.029	+ 2.928	+ 8 32 23.46	9.23
• ε Draconis	4	19 48 35.098	- 0.173	+69 56 56.98	9.14
β Aquilæ	4	19 49 10.350	+ 2.947	+ 6 5 46.49	8.73
• λ Ursæ Minoris	6.7	19 49 17.739	-60.654	+88 55 50.90	+ 9.20
τ Aquilæ	6.5	19 58 2.000	+ 2.933	+ 6 55 36.90	9.90
α ² Capricorni	3.4	20 11 7.035	+ 3.333	-12 55 49.71	10.87
• κ Cephei	4.5	20 13 3.633	- 1.900	+77 20 1.15	11.00
α Pavonis	2	20 15 45.156	+ 4.792	-57 7 57.84	+11.17
π Capricorni	5	20 20 9.864	3.441	-18 37 10.43	11.49
ε Delphini	4	20 27 14.421	+ 2.866	+10 52 47.60	12.00
• Groombridge 3241	6.7	20 30 31.889	- 0.210	+72 6 29.32	12.22
α Cygni	2.1	20 37 10.236	+ 2.044	+44 50 4.18	+12.69
μ Aquarii	5.4	20 45 54.576	3.240	- 9 27 2.08	13.26
ν Cygni	4	20 52 30.782	+ 2.234	+40 41 13.83	13.72
• 12 Year Cat. 1879	6	20 53 11.561	- 2.505	+80 4 55.52	13.70
61 Cygni (<i>pr.</i>)	5.6	21 1 17.733	+ 2.688	+38 8 9.26	+17.51
ζ Cygni	3	21 7 36.978	2.550	+29 42 54.99	14.59
α Cephei	3.2	21 15 35.703	1.437	+62 3 21.55	15.11
1 Pegasi	4.5	21 16 18.409	2.774	+19 16 15.99	15.24
β Aquarii	3	21 24 58.654	+ 3.164	- 6 7 10.69	+15.65
• β Cephei	3	21 27 2.358	0.799	+70 0 42.63	15.71
ξ Aquarii	5.4	21 31 5.758	3.198	- 8 24 48.47	15.95
ε Pegasi	2.3	21 38 2.819	2.948	+ 9 18 11.03	16.34
• 11 Cephei	5	21 40 5.081	+ 0.906	+70 44 9.04	+16.51
μ Capricorni	5	21 46 28.773	3.279	-14 8 19.13	16.78
• 79 Draconis	6.7	21 51 18.650	0.736	+73 6 39.22	16.96
α Aquarii	3	21 59 21.780	3.084	- 0 55 33.99	17.33
α Gruis	2	22 0 20.812	+ 3.812	-47 33 54.00	+17.20
θ Aquarii	4.5	22 10 14.191	3.170	- 8 24 17.06	17.78
π Aquarii	5.4	22 18 53.570	3.065	+ 0 44 38.11	18.13
γ Aquarii	4.3	22 28 55.937	3.083	- 0 45 39.52	18.45
• 226 Cephei (B.)	5.6	22 30 4.342	+ 1.082	+75 34 55.90	+18.52
ζ Pegasi	3.4	22 35 13.614	2.988	+10 10 46.96	18.71
• ι Cephei	4.3	22 45 13.997	2.119	+65 32 35.33	18.85
λ Aquarii	4	22 46 5.477	3.132	- 8 14 38.11	19.07
α Pis.Aus. (<i>Fomalhaut</i>)	1.2	22 50 44.377	+ 3.329	-30 17 2.22	+18.99
α Pegasi (<i>Markab</i>)	2	22 58 32.103	2.985	+14 32 0.30	19.32
• ο Cephei	6.5	23 13 30.049	2.438	+67 25 38.65	19.62
θ Piscium	4.5	23 21 37.621	3.041	+ 5 41 34.67	19.75
ι Piscium	4.5	23 33 31.328	+ 3.085	+ 4 56 56.88	+19.48
• γ Cephei	3.4	23 34 13.811	2.405	+76 56 5.15	20.07
• Groombridge 4163	7	23 48 46.327	2.852	+73 42 52.28	20.00
ω Piscium	4	23 52 53.596	+ 3.079	+ 6 10 17.34	+19.94

* Circumpolar Stars.

APPARENT PLACES OF α URSÆ MINORIS, (*Polaris*), FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	JANUARY.		Mean Solar Date.	FEBRUARY.		Mean Solar Date.	MARCH.		Mean Solar Date.	APRIL.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m 1 12	+88° 38'		h m 1 11	+88° 38'		h m 1 11	+88° 38'		h m 1 11	+88° 38'
0.3	45.03	54.1	1.2	76.61	54.4	1.1	56.03	49.7	1.0	45.65	41.0
1.3	44.21	54.2	2.2	75.79	54.4	2.1	55.47	49.5	2.0	45.47	40.7
2.3	43.42	54.3	3.2	74.91	54.3	3.1	54.87	49.3	3.0	45.35	40.4
3.3	42.63	54.4	4.2	74.00	54.2	4.1	54.24	49.0	4.0	45.26	40.1
4.3	41.83	54.5	5.2	73.06	54.1	5.1	53.61	48.8	5.0	45.25	39.7
5.3	40.99	54.6	6.2	72.12	54.0	6.1	52.99	48.5	6.0	45.30	39.4
6.3	40.10	54.7	7.2	71.20	53.9	7.1	52.42	48.2	7.0	45.41	39.1
7.2	39.15	54.8	8.2	70.31	53.7	8.1	51.90	48.0	8.0	45.57	38.7
8.2	38.17	54.9	9.2	69.48	53.6	9.1	51.45	47.7	9.0	45.76	38.5
9.2	37.15	55.0	10.2	68.71	53.4	10.1	51.05	47.4	10.0	45.95	38.2
10.2	36.14	55.1	11.2	68.00	53.2	11.1	50.73	47.1	11.0	46.11	37.9
11.2	35.14	55.1	12.2	67.32	53.1	12.1	50.44	46.8	12.0	46.24	37.7
12.2	34.16	55.1	13.1	66.67	52.9	13.1	50.14	46.5	13.0	46.34	37.4
13.2	33.24	55.1	14.1	66.02	52.8	14.1	49.85	46.3	14.0	46.41	37.1
14.2	32.37	55.1	15.1	65.34	52.6	15.1	49.52	46.0	15.0	46.47	36.8
15.2	31.56	55.1	16.1	64.62	52.5	16.1	49.17	45.8	16.0	46.54	36.5
16.2	30.76	55.1	17.1	63.86	52.3	17.1	48.78	45.5	17.0	46.64	36.2
17.2	29.95	55.1	18.1	63.07	52.2	18.1	48.37	45.3	18.0	46.81	35.9
18.2	29.14	55.1	19.1	62.25	52.0	19.1	47.96	45.0	19.0	47.03	35.6
19.2	28.28	55.2	20.1	61.45	51.8	20.1	47.56	44.7	20.0	47.32	35.2
20.2	27.38	55.2	21.1	60.67	51.6	21.1	47.22	44.3	21.0	47.67	34.9
21.2	26.42	55.2	22.1	59.94	51.3	22.0	46.92	44.0	22.0	48.05	34.6
22.2	25.42	55.2	23.1	59.26	51.1	23.0	46.71	43.7	23.0	48.45	34.3
23.2	24.41	55.2	24.1	58.64	50.8	24.0	46.56	43.3	24.0	48.85	34.1
24.2	23.39	55.1	25.1	58.09	50.6	25.0	46.46	43.0	25.0	49.21	33.8
25.2	22.41	55.1	26.1	57.57	50.3	26.0	46.37	42.7	25.9	49.55	33.6
26.2	21.46	55.0	27.1	57.06	50.1	27.0	46.31	42.4	26.9	49.84	33.4
27.2	20.57	54.9	28.1	56.56	49.9	28.0	46.23	42.1	27.9	50.13	33.1
28.2	19.74	54.8	29.1	56.03	49.7	29.0	46.14	41.9	28.9	50.41	32.8
29.2	18.95	54.7	30.1	55.47	49.5	30.0	45.99	41.6	29.9	50.71	32.6
30.2	18.18	54.6	31.1	54.87	49.3	31.0	45.83	41.3	30.9	51.06	32.3
31.2	17.41	54.5	32.1	54.24	49.0	32.0	45.65	41.0	31.9	51.46	32.0

APPARENT PLACES OF α URSÆ MINORIS, (*Polaris*), FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	MAY.		Mean Solar Date.	JUNE.		Mean Solar Date.	JULY.		Mean Solar Date.	AUGUST.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m 1 11	+88° 38'		h m 1 12	+88° 38'		h m 1 12	+88° 38'		h m 1 13	+88° 38'
	^s	"		^s	"		^s	"		^s	"
1.9	51.46	32.0	1.9	11.49	25.9	1.8	38.09	24.6	1.7	5.98	28.5
2.9	51.94	31.7	2.8	12.41	25.8	2.8	39.05	24.7	2.7	6.72	28.7
3.9	52.46	31.4	3.8	13.31	25.7	3.8	39.94	24.8	3.7	7.44	28.9
4.9	53.04	31.2	4.8	14.19	25.6	4.8	40.81	24.9	4.7	8.20	29.1
5.9	53.64	30.9	5.8	15.01	25.5	5.8	41.63	24.9	5.7	8.99	29.2
6.9	54.26	30.7	6.8	15.80	25.4	6.8	42.44	25.0	6.7	9.82	29.4
7.9	54.87	30.5	7.8	16.55	25.4	7.8	43.28	25.0	7.7	10.71	29.6
8.9	55.44	30.3	8.8	17.28	25.3	8.7	44.14	25.1	8.7	11.61	29.8
9.9	55.96	30.1	9.8	18.02	25.2	9.7	45.06	25.1	9.7	12.52	30.0
10.9	56.47	29.9	10.8	18.78	25.1	10.7	46.01	25.2	10.7	13.40	30.3
11.9	56.94	29.7	11.8	19.60	25.0	11.7	47.02	25.2	11.7	14.25	30.6
12.9	57.42	29.5	12.8	20.46	24.9	12.7	48.03	25.3	12.7	15.06	30.8
13.9	57.91	29.3	13.8	21.39	24.8	13.7	49.06	25.4	13.7	15.80	31.1
14.9	58.45	29.0	14.8	22.36	24.7	14.7	50.06	25.5	14.6	16.49	31.4
15.9	59.04	28.8	15.8	23.34	24.6	15.7	51.04	25.7	15.6	17.15	31.7
16.9	59.70	28.5	16.8	24.32	24.6	16.7	51.94	25.8	16.6	17.79	31.9
17.9	60.43	28.3	17.8	25.29	24.6	17.7	52.81	26.0	17.6	18.43	31.2
18.9	61.18	28.1	18.8	26.21	24.6	18.7	53.62	26.1	18.6	19.10	32.4
19.9	61.95	27.9	19.8	27.09	24.6	19.7	54.41	26.2	19.6	19.80	32.7
20.9	62.73	27.7	20.8	27.92	24.6	20.7	55.20	26.4	20.6	20.57	32.9
21.9	63.47	27.6	21.8	28.72	24.6	21.7	56.01	26.5	21.6	21.35	33.2
22.9	64.20	27.4	22.8	29.52	24.6	22.7	56.88	26.6	22.6	22.16	33.4
23.9	64.87	27.3	23.8	30.32	24.5	23.7	57.77	26.7	23.6	22.96	33.7
24.9	65.50	27.2	24.8	31.17	24.5	24.7	58.72	26.9	24.6	23.75	34.1
25.9	66.12	27.0	25.8	32.05	24.5	25.7	59.70	27.0	25.6	24.46	34.4
26.9	66.75	26.9	26.8	33.01	24.5	26.7	60.70	27.2	26.6	25.15	34.7
27.9	67.41	26.7	27.8	34.00	24.4	27.7	61.68	27.4	27.6	25.76	35.1
28.9	68.12	26.5	28.8	35.02	24.5	28.7	62.64	27.6	28.6	26.33	35.4
29.9	68.80	26.3	29.8	36.06	24.5	29.7	63.56	27.8	29.6	26.86	35.7
30.9	69.71	26.1	30.8	37.09	24.5	30.7	64.41	28.0	30.6	27.38	36.0
31.9	70.59	26.0	31.8	38.09	24.6	31.7	65.22	28.3	31.6	27.90	36.3
32.9	71.49	25.9	32.8	39.05	24.7	32.7	65.98	28.5	32.6	28.45	36.6

APPARENT PLACES OF α URSAE MINORIS, (*Polaris*), FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	SEPTEMBER.		Mean Solar Date.	OCTOBER.		Mean Solar Date.	NOVEMBER.		Mean Solar Date.	DECEMBER.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m	° ' "		h m	° ' "		h m	° ' "		h m	° ' "
	1 13	+88 38		1 13	+88 38		1 13	+88 38		1 13	+88 38
1.6	28.45	36.6	1.5	41.30	47.3	1.4	42.30	59.2	1.3	29.93	9.4
2.6	29.04	36.9	2.5	41.63	47.6	2.4	42.12	59.6	2.3	29.22	9.7
3.6	29.65	37.2	3.5	41.95	48.0	3.4	41.87	60.0	3.3	28.47	10.0
4.6	30.32	37.5	4.5	42.25	48.4	4.4	41.57	60.4	4.3	27.72	10.2
5.6	30.97	37.8	5.5	42.49	48.8	5.4	41.21	60.8	5.3	27.98	10.5
6.6	31.63	38.2	6.5	42.68	49.3	6.4	40.83	61.2	6.3	26.28	10.7
7.6	32.25	38.5	7.5	42.80	49.7	7.4	40.44	61.5	7.3	25.62	10.9
8.6	32.82	38.9	8.5	42.87	50.1	8.4	40.08	61.9	8.3	25.00	11.2
9.6	33.33	39.2	9.5	42.89	50.5	9.4	39.75	62.2	9.3	24.39	11.4
10.6	33.77	39.6	10.5	42.90	50.9	10.4	39.46	62.5	10.3	23.79	11.6
11.6	34.16	40.0	11.5	42.92	51.2	11.4	39.19	62.8	11.3	23.18	11.9
12.6	34.53	40.3	12.5	42.96	51.6	12.4	38.95	63.2	12.3	22.53	12.1
13.6	34.89	40.7	13.5	43.03	52.0	13.4	38.69	63.5	13.3	21.85	12.4
14.6	35.27	41.0	14.5	43.14	52.3	14.4	38.42	63.9	14.3	21.10	12.6
15.6	35.69	41.3	15.5	43.29	52.7	15.4	38.11	64.3	15.3	20.29	12.9
16.6	36.14	41.7	16.5	43.44	53.1	16.4	37.72	64.7	16.3	19.43	13.1
17.6	36.63	42.0	17.5	43.68	53.5	17.4	37.27	65.1	17.3	18.55	13.3
18.6	37.14	42.3	18.5	43.68	53.9	18.4	36.76	65.4	18.3	17.65	13.5
19.6	37.66	42.7	19.5	43.73	54.3	19.4	36.21	65.8	19.3	16.80	13.7
20.5	38.15	43.1	20.5	43.72	54.8	20.4	35.64	66.1	20.3	15.96	13.8
21.5	38.62	43.5	21.5	43.63	55.2	21.4	35.07	66.4	21.3	15.16	14.0
22.5	39.01	43.9	22.5	43.50	55.6	22.4	34.52	66.7	22.3	14.41	14.1
23.5	39.34	44.3	23.5	43.33	56.0	23.4	34.00	67.0	23.3	13.68	14.3
24.5	39.62	44.7	24.5	43.14	56.4	24.4	33.52	67.2	24.3	12.96	14.4
25.5	39.85	45.1	25.5	42.97	56.7	25.4	33.07	67.5	25.3	12.21	14.6
26.5	40.05	45.5	26.4	42.81	57.1	26.4	32.63	67.8	26.3	11.43	14.8
27.5	40.24	45.9	27.4	42.60	57.4	27.4	32.18	68.1	27.3	10.61	15.0
28.5	40.46	46.2	28.4	42.61	57.7	28.4	31.70	68.4	28.3	9.73	15.1
29.5	40.69	46.6	29.4	42.55	58.1	29.4	31.17	68.7	29.3	8.79	15.3
30.5	40.98	46.9	30.4	42.50	58.5	30.4	30.58	69.1	30.3	7.82	15.4
31.5	41.30	47.3	31.4	42.41	58.8	31.3	29.93	69.4	31.3	6.83	15.5
32.5	41.63	47.6	32.4	42.30	59.2	32.3	29.22	69.7	32.3	5.86	15.6

APPARENT PLACES OF 51 CEPHEI, (*Hec.*) FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	JANUARY.		Mean Solar Date.	FEBRUARY.		Mean Solar Date.	MARCH.		Mean Solar Date.	APRIL.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m 6 41	+87° 14'		h m 6 41	+87° 14'		h m 6 41	+87° 14'		h m 6 41	+87° 14'
0.5	40.80	12.4	1.4	39.87	22.3	1.3	32.21	28.9	1.2	19.89	31.4
1.5	40.97	12.7	2.4	39.73	22.6	2.3	31.89	29.0	2.2	19.46	31.4
2.5	41.06	13.0	3.4	39.59	22.9	3.3	31.57	29.2	3.2	19.00	31.4
3.5	41.16	13.2	4.4	39.44	23.2	4.3	31.22	29.4	4.2	18.53	31.4
4.5	41.26	13.5	5.4	39.27	23.5	5.3	30.85	29.6	5.2	18.08	31.4
5.5	41.38	13.8	6.4	39.04	23.8	6.3	30.46	29.8	6.2	17.64	31.3
6.5	41.50	14.2	7.4	38.80	24.1	7.3	30.04	30.0	7.2	17.20	31.2
7.5	41.60	14.5	8.4	38.53	24.4	8.3	29.61	30.1	8.2	16.79	31.1
8.5	41.67	14.9	9.4	38.24	24.7	9.3	29.17	30.2	9.2	16.41	31.0
9.5	41.71	15.3	10.4	37.95	24.9	10.3	28.76	30.3	10.2	16.06	30.9
10.5	41.72	15.6	11.4	37.66	25.1	11.3	28.36	30.4	11.2	15.71	30.9
11.5	41.70	16.0	12.4	37.40	25.4	12.3	27.97	30.5	12.2	15.38	30.8
12.5	41.66	16.3	13.4	37.18	25.6	13.3	27.61	30.5	13.2	15.03	30.7
13.5	41.62	16.6	14.4	36.96	25.8	14.3	27.26	30.6	14.2	14.66	30.7
14.5	41.57	16.9	15.4	36.73	26.0	15.3	26.93	30.7	15.2	14.26	30.6
15.5	41.53	17.2	16.4	36.51	26.2	16.3	26.58	30.8	16.2	13.86	30.6
16.5	41.52	17.5	17.4	36.28	26.5	17.3	26.20	30.9	17.2	13.43	30.5
17.4	41.52	17.8	18.4	36.02	26.8	18.3	25.81	31.0	18.2	12.96	30.4
18.4	41.52	18.1	19.4	35.72	27.0	19.3	25.38	31.1	19.2	12.55	30.3
19.4	41.52	18.4	20.4	35.39	27.3	20.3	24.92	31.2	20.2	12.12	30.1
20.4	41.50	18.7	21.4	35.03	27.5	21.3	24.44	31.3	21.2	11.72	29.9
21.4	41.46	19.0	22.4	34.65	27.7	22.3	23.97	31.3	22.2	11.34	29.8
22.4	41.37	19.4	23.3	34.27	27.9	23.3	23.50	31.3	23.2	11.00	29.6
23.4	41.27	19.7	24.3	33.88	28.1	24.3	23.04	31.4	24.2	10.68	29.4
24.4	41.17	20.1	25.3	33.51	28.3	25.3	22.59	31.3	25.2	10.39	29.3
25.4	41.00	20.4	26.3	33.15	28.4	26.3	22.17	31.3	26.2	10.09	29.1
26.4	40.62	20.7	27.3	32.82	28.6	27.3	21.78	31.3	27.2	9.78	29.0
27.4	40.63	21.0	28.3	32.51	28.7	28.3	21.42	31.3	28.2	9.46	28.9
28.4	40.46	21.3	29.3	32.21	28.9	29.3	21.04	31.3	29.2	9.11	28.7
29.4	40.29	21.5	30.3	31.89	29.0	30.3	20.67	31.3	30.2	8.76	28.6
30.4	40.13	21.8	31.3	31.57	29.2	31.2	20.29	31.4	31.2	8.39	28.5
31.4	40.00	22.0	32.3	31.22	29.4	32.2	19.89	31.4	32.2	8.02	28.3

APPARENT PLACES OF 51 CEPHEI, (*Hev.*), FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	MAY.		Mean Solar Date.	JUNE.		Mean Solar Date.	JULY.		Mean Solar Date.	AUGUST.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m 6 41	° ' " +87 14		h m 6 41	° ' " +87 14		h m 6 41	° ' " +87 14		h m 6 41	° ' " +87 13
1.9	^a 8.39	28.5	1.1	^a 1.24	21.0	1.0	^a 1.27	11.7	1.9	^a 8.89	62.4
2.2	8.02	28.3	2.1	1.13	20.6	2.0	1.45	11.4	2.9	9.22	62.2
3.2	7.67	28.1	3.1	1.06	20.3	3.0	1.66	11.1	3.9	9.53	62.0
4.2	7.33	27.9	4.1	1.02	20.0	4.0	1.84	10.8	4.9	9.81	61.7
5.2	7.00	27.6	5.1	0.99	19.7	5.0	2.00	10.5	5.9	10.10	61.5
6.2	6.73	27.4	6.1	0.97	19.4	6.0	2.15	10.3	6.9	10.41	61.2
7.1	6.49	27.2	7.1	0.93	19.1	7.0	2.29	10.0	7.9	10.74	61.0
8.1	6.27	26.9	8.1	0.88	18.9	8.0	2.40	9.7	8.9	11.09	60.7
9.1	6.03	26.7	9.1	0.82	18.6	9.0	2.51	9.4	9.9	11.47	60.4
10.1	5.81	26.5	10.1	0.73	18.3	10.0	2.64	9.1	10.9	11.88	60.1
11.1	5.58	26.3	11.1	0.64	18.1	11.0	2.78	8.8	11.9	12.31	59.9
12.1	5.34	26.1	12.1	0.55	17.8	12.0	2.93	8.4	12.9	12.76	59.6
13.1	5.07	25.9	13.0	0.45	17.5	13.0	3.11	8.1	13.9	13.19	59.4
14.1	4.78	25.7	14.0	0.38	17.1	14.0	3.34	7.8	14.9	13.63	59.2
15.1	4.47	25.5	15.0	0.34	16.8	15.0	3.58	7.4	15.9	14.06	59.0
16.1	4.17	25.3	16.0	0.33	16.4	16.0	3.86	7.1	16.9	14.46	58.9
17.1	3.88	25.0	17.0	0.37	16.1	17.0	4.15	6.8	17.9	14.85	58.7
18.1	3.62	24.7	18.0	0.43	15.8	18.0	4.43	6.6	18.9	15.22	58.5
19.1	3.39	24.4	19.0	0.49	15.4	18.9	4.70	6.3	19.9	15.61	58.3
20.1	3.19	24.1	20.0	0.56	15.1	19.9	4.95	6.1	20.9	16.01	58.0
21.1	3.02	23.9	21.0	0.64	14.9	20.9	5.19	5.8	21.9	16.44	57.8
22.1	2.87	23.6	22.0	0.71	14.6	21.9	5.41	5.5	22.9	16.87	57.6
23.1	2.73	23.3	23.0	0.74	14.3	22.9	5.63	5.3	23.9	17.35	57.3
24.1	2.59	23.1	24.0	0.78	14.0	23.9	5.86	5.0	24.8	17.85	57.1
25.1	2.46	22.9	25.0	0.80	13.8	24.9	6.12	4.6	25.8	18.37	56.9
26.1	2.29	22.6	26.0	0.81	13.5	25.9	6.39	4.3	26.8	18.90	56.7
27.1	2.11	22.4	27.0	0.86	13.1	26.9	6.70	4.0	27.8	19.43	56.6
28.1	1.93	22.1	28.0	0.91	12.8	27.9	7.04	3.7	28.8	19.92	56.4
29.1	1.73	21.9	29.0	1.00	12.4	28.9	7.40	3.4	29.8	20.40	56.3
30.1	1.55	21.6	30.0	1.12	12.1	29.9	7.77	3.1	30.8	20.86	56.2
31.1	1.38	21.3	31.0	1.27	11.7	30.9	8.16	2.9	31.8	21.30	56.0
32.1	1.24	21.0	32.0	1.45	11.4	31.9	8.53	2.6	32.8	21.73	55.9

APPARENT PLACES OF 51 CEPHEI, (*Hev.*) FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	SEPTEMBER.		Mean Solar Date.	OCTOBER.		Mean Solar Date.	NOVEMBER.		Mean Solar Date.	DECEMBER.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m 6 41	+87° 13'		h m 6 41	+87° 13'		h m 6 41	+87° 13'		h m 6 42	+87° 14'
1.8	^s 21.73	55.9	1.7	^s 37.34	53.0	1.7	^s 54.09	54.3	1.6	^s 7.46	0.0
2.8	22.14	55.7	2.7	37.88	52.9	2.7	54.64	54.4	2.6	7.84	0.3
3.8	22.59	55.5	3.7	38.43	52.8	3.7	55.19	54.6	3.6	8.19	0.6
4.8	23.05	55.3	4.7	39.01	52.8	4.7	55.71	54.7	4.6	8.50	0.9
5.8	23.54	55.2	5.7	39.61	52.8	5.6	56.22	54.9	5.6	8.79	1.2
6.8	24.07	55.0	6.7	40.21	52.8	6.6	56.70	55.1	6.6	9.06	1.4
7.8	24.61	54.8	7.7	40.81	52.8	7.6	57.16	55.3	7.6	9.34	1.7
8.8	25.16	54.7	8.7	41.38	52.8	8.6	57.61	55.4	8.6	9.63	1.9
9.8	25.71	54.6	9.7	41.94	52.9	9.6	58.04	55.6	9.6	9.92	2.2
10.8	26.26	54.5	10.7	42.47	52.9	10.6	58.47	55.7	10.6	10.22	2.4
11.8	26.80	54.4	11.7	42.98	53.0	11.6	58.91	55.9	11.6	10.55	2.7
12.8	27.32	54.3	12.7	43.48	53.0	12.6	59.38	56.0	12.5	10.90	2.9
13.8	27.80	54.2	13.7	43.97	53.0	13.6	59.87	56.1	13.5	11.24	3.2
14.8	28.28	54.1	14.7	44.48	53.0	14.6	60.37	56.3	14.5	11.56	3.5
15.8	28.75	54.0	15.7	45.01	53.0	15.6	60.88	56.4	15.5	11.87	3.8
16.8	29.23	53.9	16.7	45.56	53.0	16.6	61.39	56.6	16.5	12.14	4.2
17.8	29.73	53.8	17.7	46.13	53.0	17.6	61.89	56.9	17.5	12.37	4.5
18.8	30.25	53.7	18.7	46.73	53.1	18.6	62.36	57.1	18.5	12.57	4.8
19.8	30.81	53.6	19.7	47.34	53.1	19.6	62.80	57.3	19.5	12.74	5.2
20.8	31.39	53.5	20.7	47.93	53.2	20.6	63.21	57.6	20.5	12.90	5.5
21.8	31.98	53.4	21.7	48.52	53.3	21.6	63.59	57.8	21.5	13.05	5.7
22.8	32.58	53.3	22.7	49.08	53.4	22.6	63.94	58.0	22.5	13.20	6.0
23.8	33.15	53.2	23.7	49.61	53.5	23.6	64.28	58.2	23.5	13.37	6.3
24.8	33.75	53.2	24.7	50.11	53.6	24.6	64.64	58.4	24.5	13.55	6.6
25.8	34.31	53.2	25.7	50.59	53.7	25.6	65.01	58.6	25.5	13.75	6.8
26.8	34.85	53.2	26.7	51.05	53.8	26.6	65.40	58.8	26.5	13.95	7.1
27.8	35.36	53.1	27.7	51.50	53.9	27.6	65.80	59.0	27.5	14.15	7.4
28.8	35.85	53.1	28.7	51.98	54.0	28.6	66.21	59.2	28.5	14.34	7.8
29.8	36.33	53.1	29.7	52.47	54.0	29.6	66.63	59.5	29.5	14.51	8.1
30.7	36.82	53.0	30.7	52.99	54.1	30.6	67.06	59.7	30.5	14.64	8.5
31.7	37.34	53.0	31.7	53.53	54.2	31.6	67.46	60.0	31.5	14.75	8.9
32.7	37.88	52.9	32.7	54.09	54.3	32.6	67.84	60.3	32.5	14.82	9.2

APPARENT PLACES OF δ URSÆ MINORIS, FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	JANUARY.		Mean Solar Date.	FEBRUARY.		Mean Solar Date.	MARCH.		Mean Solar Date.	APRIL.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m	° ′		h m	° ′		h m	° ′		h m	° ′
	18 12	+86° 36′		18 12	+86° 36′		18 12	+86° 35′		18 12	+86° 35′
1.0	18.38	16.8	1.9	21.37	6.6	1.6	29.01	60.7	1.7	39.72	59.4
2.0	18.37	16.5	2.9	21.55	6.3	2.8	29.31	60.5	2.7	40.09	59.4
3.0	18.36	16.2	3.9	21.74	6.0	3.8	29.63	60.4	3.7	40.46	59.4
4.0	18.35	15.9	4.9	21.95	5.7	4.8	29.95	60.2	4.7	40.84	59.5
5.0	18.33	15.5	5.9	22.17	5.4	5.8	30.29	60.1	5.7	41.20	59.6
6.0	18.31	15.2	6.9	22.40	5.1	6.8	30.65	59.9	6.7	41.55	59.7
7.0	18.30	14.8	7.9	22.67	4.9	7.8	31.01	59.8	7.7	41.90	59.9
8.0	18.32	14.5	8.9	22.94	4.6	8.8	31.39	59.7	8.7	42.22	60.0
9.0	18.35	14.1	9.9	23.22	4.4	9.8	31.75	59.6	9.7	42.53	60.1
10.0	18.39	13.7	10.9	23.49	4.2	10.8	32.10	59.6	10.7	42.82	60.3
11.0	18.46	13.3	11.9	23.74	4.0	11.8	32.44	59.6	11.7	43.10	60.4
11.9	18.54	13.0	12.9	23.98	3.8	12.8	32.77	59.5	12.7	43.39	60.5
12.9	18.64	12.6	13.9	24.23	3.6	13.8	33.08	59.5	13.7	43.69	60.6
13.9	18.73	12.3	14.9	24.46	3.4	14.8	33.39	59.4	14.7	43.99	60.7
14.9	18.82	12.0	15.9	24.69	3.2	15.8	33.71	59.4	15.7	44.32	60.8
15.9	18.92	11.7	16.9	24.94	2.9	16.8	34.04	59.3	16.7	44.66	60.9
16.9	19.00	11.5	17.8	25.20	2.7	17.8	34.36	59.2	17.7	45.00	61.0
17.9	19.08	11.2	18.8	25.47	2.5	18.8	34.71	59.2	18.7	45.35	61.2
18.9	19.14	10.9	19.8	25.77	2.2	19.8	35.10	59.1	19.7	45.69	61.4
19.9	19.20	10.5	20.8	26.10	2.0	20.8	35.48	59.1	20.7	46.02	61.6
20.9	19.29	10.2	21.8	26.43	1.8	21.8	35.88	59.0	21.7	46.32	61.8
21.9	19.40	9.8	22.8	26.78	1.6	22.8	36.27	59.0	22.7	46.61	62.0
22.9	19.52	9.5	23.8	27.12	1.5	23.8	36.66	59.1	23.7	46.88	62.2
23.9	19.68	9.1	24.8	27.46	1.3	24.8	37.03	59.1	24.7	47.12	62.4
24.9	19.87	8.8	25.8	27.79	1.2	25.7	37.39	59.2	25.7	47.37	62.6
25.9	20.06	8.5	26.8	28.10	1.1	26.7	37.74	59.2	26.7	47.61	62.8
26.9	20.27	8.2	27.8	28.41	1.0	27.7	38.06	59.3	27.7	47.87	62.9
27.9	20.46	7.9	28.8	28.70	0.8	28.7	38.39	59.3	28.7	48.14	63.0
28.9	20.66	7.7	29.8	29.01	0.7	29.7	38.71	59.3	29.7	48.41	63.2
29.9	20.85	7.4	30.8	29.31	0.5	30.7	39.04	59.3	30.7	48.69	63.4
30.9	21.03	7.2	31.8	29.63	0.4	31.7	39.38	59.3	31.6	48.96	63.6
31.9	21.20	6.9	32.8	29.95	0.2	32.7	39.72	59.4	32.6	49.24	63.9

APPARENT PLACES OF δ URSÆ MINORIS, FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	MAY.		Mean Solar Date.	JUNE.		Mean Solar Date.	JULY.		Mean Solar Date.	AUGUST.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m 18 12	° ' " / +86° 36'		h m 18 12	° ' " / +86° 36'		h m 18 12	° ' " / +86° 36'		h m 18 12	° ' " / +86° 36'
1.6	48.96	3.6	1.6	54.08	12.2	1.5	53.28	21.8	1.4	46.68	30.5
2.6	49.24	3.9	2.6	54.13	12.5	2.5	53.12	22.1	2.4	46.38	30.7
3.6	49.50	4.1	3.6	54.16	12.9	3.5	52.95	22.4	3.4	46.10	30.9
4.6	49.74	4.4	4.6	54.17	13.2	4.5	52.79	22.7	4.4	45.84	31.1
5.6	49.97	4.7	5.6	54.17	13.5	5.5	52.64	23.0	5.4	45.57	31.3
6.6	50.17	4.9	6.6	54.19	13.8	6.5	52.49	23.2	6.4	45.30	31.6
7.6	50.36	5.2	7.5	54.21	14.1	7.5	52.36	23.5	7.4	45.01	31.8
8.6	50.52	5.5	8.5	54.23	14.4	8.5	52.25	23.8	8.4	44.71	32.1
9.6	50.68	5.7	9.5	54.27	14.6	9.5	52.12	24.1	9.4	44.40	32.3
10.6	50.86	5.9	10.5	54.32	14.9	10.5	51.99	24.4	10.4	44.07	32.6
11.6	51.05	6.1	11.5	54.36	15.2	11.5	51.83	24.7	11.4	43.72	32.8
12.6	51.24	6.4	12.5	54.41	15.6	12.5	51.67	25.1	12.4	43.35	33.0
13.6	51.46	6.6	13.5	54.44	15.9	13.4	51.48	25.4	13.4	42.98	33.2
14.6	51.68	6.8	14.5	54.46	16.3	14.4	51.27	25.7	14.4	42.61	33.4
15.6	51.89	7.1	15.5	54.46	16.6	15.4	51.05	26.0	15.4	42.26	33.5
16.6	52.10	7.4	16.5	54.43	17.0	16.4	50.81	26.3	16.4	41.92	33.7
17.6	52.28	7.7	17.5	54.38	17.3	17.4	50.58	26.6	17.4	41.58	33.8
18.6	52.46	8.0	18.5	54.32	17.7	18.4	50.34	26.8	18.4	41.25	34.0
19.6	52.62	8.3	19.5	54.24	18.0	19.4	50.12	27.1	19.3	40.91	34.2
20.6	52.76	8.7	20.5	54.17	18.3	20.4	49.90	27.3	20.3	40.57	34.4
21.6	52.88	9.0	21.5	54.10	18.5	21.4	49.68	27.6	21.3	40.21	34.6
22.6	52.97	9.3	22.5	54.03	18.8	22.4	49.48	27.8	22.3	39.84	34.8
23.6	53.08	9.5	23.5	53.99	19.1	23.4	49.26	28.1	23.3	39.46	35.0
24.6	53.19	9.8	24.5	53.94	19.4	24.4	49.04	28.4	24.3	39.05	35.2
25.6	53.31	10.0	25.5	53.90	19.7	25.4	48.80	28.7	25.3	38.63	35.4
26.6	53.43	10.3	26.5	53.84	20.1	26.4	48.53	29.0	26.3	38.20	35.5
27.6	53.55	10.6	27.5	53.77	20.4	27.4	48.25	29.3	27.3	37.77	35.6
28.6	53.68	10.9	28.5	53.68	20.8	28.4	47.94	29.6	28.3	37.36	35.7
29.6	53.80	11.2	29.5	53.57	21.1	29.4	47.66	29.8	29.3	36.90	35.8
30.6	53.92	11.5	30.5	53.43	21.5	30.4	47.30	30.1	30.3	36.56	35.9
31.6	54.01	11.8	31.5	53.28	21.8	31.4	46.99	30.3	31.3	36.18	36.0
32.6	54.08	12.2	32.5	53.12	22.1	32.4	46.68	30.5	32.3	35.83	36.2

APPARENT PLACES OF δ URSÆ MINORIS, FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	SEPTEMBER.		Mean Solar Date.	OCTOBER.		Mean Solar Date.	NOVEMBER.		Mean Solar Date.	DECEMBER.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m	° ' "		h m	° ' "		h m	° ' "		h m	° ' "
	18 12	+86 36		18 12	+86 36		18 12	+86 36		18 11	+86 36
1.3	35.83	36.2	1.2	23.13	37.8	1.1	10.22	34.8	1.1	60.74	27.6
2.3	35.47	36.3	2.2	22.71	37.8	2.1	9.81	34.6	2.1	60.50	27.3
3.3	35.10	36.4	3.2	22.28	37.8	3.1	9.41	34.4	3.1	60.26	27.0
4.3	34.71	36.6	4.2	21.83	37.8	4.1	9.02	34.2	4.1	60.06	26.6
5.3	34.31	36.7	5.2	21.37	37.7	5.1	8.65	34.0	5.1	59.87	26.3
6.3	33.90	36.9	6.2	20.89	37.7	6.1	8.29	33.7	6.1	59.69	26.0
7.3	33.47	37.0	7.2	20.43	37.6	7.1	7.96	33.5	7.0	59.53	25.7
8.3	33.03	37.1	8.2	19.98	37.5	8.1	7.64	33.3	8.0	59.36	25.4
9.3	32.57	37.2	9.2	19.55	37.4	9.1	7.31	33.1	9.0	59.19	25.1
10.3	32.13	37.2	10.2	19.13	37.3	10.1	7.00	32.9	10.0	59.00	24.8
11.3	31.69	37.3	11.2	18.71	37.2	11.1	6.67	32.7	11.0	58.80	24.5
12.3	31.28	37.3	12.2	18.32	37.1	12.1	6.34	32.5	12.0	58.60	24.2
13.3	30.87	37.3	13.2	17.92	37.1	13.1	5.99	32.3	13.0	58.41	23.9
14.3	30.46	37.4	14.2	17.53	37.0	14.1	5.63	32.1	14.0	58.21	23.6
15.3	30.06	37.4	15.2	17.12	36.9	15.1	5.27	31.9	15.0	58.02	23.2
16.3	29.65	37.5	16.2	16.69	36.9	16.1	4.91	31.7	16.0	57.86	22.9
17.3	29.24	37.6	17.2	16.26	36.8	17.1	4.55	31.4	17.0	57.73	22.5
18.3	28.82	37.6	18.2	15.81	36.8	18.1	4.21	31.1	18.0	57.61	22.1
19.3	28.38	37.7	19.2	15.36	36.7	19.1	3.90	30.8	19.0	57.53	21.8
20.3	27.92	37.8	20.2	14.90	36.5	20.1	3.61	30.5	20.0	57.47	21.4
21.3	27.46	37.8	21.2	14.45	36.4	21.1	3.32	30.2	21.0	57.40	21.1
22.3	26.98	37.9	22.2	14.03	36.2	22.1	3.06	30.0	22.0	57.33	20.8
23.3	26.50	37.9	23.2	13.62	36.1	23.1	2.82	29.7	23.0	57.25	20.5
24.3	26.03	37.9	24.2	13.22	35.9	24.1	2.57	29.5	24.0	57.18	20.2
25.2	25.58	37.8	25.2	12.84	35.7	25.1	2.33	29.2	25.0	57.10	19.9
26.2	25.14	37.8	26.2	12.48	35.6	26.1	2.07	29.0	26.0	57.02	19.6
27.2	24.72	37.8	27.2	12.13	35.4	27.1	1.81	28.7	27.0	56.93	19.3
28.2	24.32	37.7	28.2	11.76	35.3	28.1	1.54	28.5	28.0	56.84	18.9
29.2	23.93	37.7	29.2	11.39	35.2	29.1	1.27	28.2	29.0	56.78	18.5
30.2	23.54	37.7	30.2	11.01	35.0	30.1	1.01	27.9	30.0	56.74	18.1
31.2	23.13	37.8	31.2	10.62	34.9	31.1	0.74	27.6	31.0	56.73	17.8
32.2	22.71	37.8	32.1	10.22	34.8	32.1	0.50	27.3	32.0	56.72	17.4

APPARENT PLACES OF λ URSÆ MINORIS, FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	JANUARY.		Mean Solar Date.	FEBRUARY.		Mean Solar Date.	MARCH.		Mean Solar Date.	APRIL.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m 19 47	+88° 55'		h m 19 47	+88° 55'		h m 19 48	+88° 55'		h m 19 48	+88° 55'
1.1	62.41	48.7	1.0	56.03	38.9	1.9	9.26	30.6	1.8	37.99	25.6
2.1	61.95	48.4	2.0	56.11	38.6	2.9	9.91	30.3	2.8	39.07	25.5
3.1	61.47	48.2	3.0	56.18	38.3	3.9	10.57	30.1	3.8	40.20	25.4
4.1	60.96	47.9	4.0	56.26	38.0	4.9	11.28	29.8	4.8	41.38	25.3
5.0	60.41	47.6	5.0	56.40	37.6	5.9	12.06	29.5	5.8	42.57	25.3
6.0	59.84	47.3	6.0	56.61	37.3	6.9	12.90	29.3	6.8	43.75	25.2
7.0	59.28	47.0	7.0	56.89	36.9	7.9	13.81	29.0	7.8	44.89	25.2
8.0	58.74	46.7	8.0	57.24	36.6	8.9	14.76	28.8	8.8	45.98	25.3
9.0	58.26	46.3	8.9	57.66	36.2	9.9	15.71	28.6	9.8	47.03	25.3
10.0	57.86	46.0	9.9	58.11	35.9	10.9	16.67	28.5	10.8	48.02	25.3
11.0	57.53	45.6	10.9	58.57	35.6	11.9	17.60	28.3	11.8	48.98	25.3
12.0	57.28	45.3	11.9	59.03	35.3	12.9	18.48	28.2	12.8	49.93	25.3
13.0	57.07	44.9	12.9	59.46	35.1	13.9	19.31	28.0	13.8	50.90	25.3
14.0	56.89	44.6	13.9	59.85	34.8	14.9	20.12	27.9	14.8	51.90	25.2
15.0	56.72	44.3	14.9	60.21	34.6	15.9	20.91	27.7	15.8	52.97	25.2
16.0	56.54	44.0	15.9	60.56	34.3	16.8	21.73	27.5	16.8	54.09	25.2
17.0	56.33	43.7	16.9	60.92	34.0	17.8	22.57	27.3	17.8	55.28	25.2
18.0	56.08	43.4	17.9	61.32	33.7	18.8	23.48	27.2	18.8	56.50	25.2
19.0	55.82	43.1	18.9	61.76	33.4	19.8	24.46	27.0	19.8	57.72	25.3
20.0	55.55	42.8	19.9	62.28	33.1	20.8	25.52	26.8	20.8	58.92	25.3
21.0	55.30	42.5	20.9	62.87	32.8	21.8	26.64	26.6	21.7	60.08	25.4
22.0	55.09	42.1	21.9	63.55	32.5	22.8	27.78	26.5	22.7	61.16	25.5
23.0	55.97	41.8	22.9	64.30	32.2	23.8	28.93	26.4	23.7	62.19	25.6
24.0	54.91	41.4	23.9	65.07	31.9	24.8	30.07	26.3	24.7	63.17	25.7
25.0	54.95	41.1	24.9	65.85	31.7	25.8	31.15	26.2	25.7	64.11	25.8
26.0	55.07	40.7	25.9	66.62	31.5	26.8	32.18	26.1	26.7	65.04	25.9
27.0	55.24	40.4	26.9	67.33	31.2	27.8	33.16	26.1	27.7	65.97	25.9
28.0	55.43	40.1	27.9	68.01	31.0	28.8	34.11	26.0	28.7	66.94	26.0
29.0	55.63	39.8	28.9	68.66	30.8	29.8	35.04	25.9	29.7	67.97	26.0
30.0	55.79	39.5	29.9	69.28	30.6	30.8	35.98	25.8	30.7	69.04	26.1
31.0	55.93	39.2	30.9	69.91	30.3	31.8	36.96	25.7	31.7	70.14	26.2
32.0	56.03	38.9	31.9	70.57	30.1	32.8	37.99	25.6	32.7	71.25	26.3

APPARENT PLACES OF λ URSÆ MINORIS, FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	MAY.		Mean Solar Date.	JUNE.		Mean Solar Date.	JULY.		Mean Solar Date.	AUGUST.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m	° ' "		h m	° ' "		h m	° ' "		h m	° ' "
	19 49	+88 55		19 49	+88 55		19 49	+88 55		19 49	+88 55
1.7	10.14	26.2	1.6	36.37	32.1	1.6	46.98	41.2	1.5	39.71	51.5
2.7	11.25	26.3	2.6	36.99	32.4	2.6	46.93	41.5	2.5	39.14	51.8
3.7	12.35	26.4	3.6	37.53	32.7	3.6	46.85	41.8	3.5	38.61	52.1
4.7	13.42	26.6	4.6	38.00	33.0	4.6	46.75	42.2	4.5	38.12	52.4
5.7	14.42	26.7	5.6	38.43	33.3	5.5	46.67	42.5	5.5	37.67	52.7
6.7	15.36	26.9	6.6	38.83	33.6	6.5	46.61	42.8	6.5	37.22	53.0
7.7	16.24	27.1	7.6	39.25	33.8	7.5	46.62	43.1	7.5	36.76	53.3
8.7	17.06	27.3	8.6	39.70	34.1	8.5	46.65	43.4	8.5	36.26	53.7
9.7	17.86	27.4	9.6	40.20	34.3	9.5	46.71	43.7	9.4	35.67	54.0
10.7	18.67	27.6	10.6	40.73	34.5	10.5	46.77	44.0	10.4	35.01	54.4
11.7	19.49	27.7	11.6	41.30	34.8	11.5	46.80	44.4	11.4	34.28	54.7
12.7	20.37	27.8	12.6	41.88	35.1	12.5	46.78	44.8	12.4	33.48	55.1
13.7	21.28	27.9	13.6	42.45	35.4	13.5	46.68	45.1	13.4	32.65	55.4
14.7	22.24	28.1	14.6	42.99	35.7	14.5	46.48	45.5	14.4	31.81	55.7
15.7	23.24	28.2	15.6	43.46	36.0	15.5	46.22	45.9	15.4	30.98	56.0
16.7	24.25	28.4	16.6	43.83	36.4	16.5	45.92	46.2	16.4	30.18	56.2
17.7	25.23	28.6	17.6	44.14	36.7	17.5	45.58	46.5	17.4	29.41	56.5
18.7	26.17	28.9	18.6	44.40	37.1	18.5	45.24	46.9	18.4	28.68	56.8
19.7	27.04	29.1	19.6	44.60	37.4	19.5	44.91	47.2	19.4	27.97	57.0
20.7	27.85	29.4	20.6	44.78	37.7	20.5	44.62	47.5	20.4	27.25	57.3
21.7	28.59	29.6	21.6	44.96	37.9	21.5	44.37	47.8	21.4	26.50	57.6
22.7	29.26	29.8	22.6	45.17	38.2	22.5	44.13	48.1	22.4	25.71	58.0
23.7	29.91	30.1	23.6	45.42	38.5	23.5	43.90	48.4	23.4	24.85	58.3
24.7	30.54	30.3	24.6	45.70	38.8	24.5	43.66	48.7	24.4	23.91	58.6
25.7	31.19	30.5	25.6	46.00	39.1	25.5	43.38	49.1	25.4	22.92	58.9
26.7	31.89	30.7	26.6	46.30	39.4	26.5	43.03	49.5	26.4	21.88	59.2
27.7	32.63	30.9	27.6	46.57	39.7	27.5	42.60	49.8	27.4	20.81	59.5
28.6	33.40	31.1	28.6	46.79	40.1	28.5	42.10	50.2	28.4	19.75	59.7
29.6	34.18	31.3	29.6	46.93	40.5	29.5	41.53	50.5	29.4	18.70	60.0
30.6	34.95	31.5	30.6	46.99	40.8	30.5	40.93	50.9	30.4	17.72	60.2
31.6	35.69	31.8	31.6	46.98	41.2	31.5	40.32	51.2	31.4	16.78	60.4
32.6	36.37	32.1	32.6	46.93	41.5	32.5	39.72	51.5	32.4	15.89	60.6

APPARENT PLACES OF λ URSÆ MINORIS, FOR THE UPPER TRANSIT
AT WASHINGTON.

Mean Solar Date.	SEPTEMBER.		Mean Solar Date.	OCTOBER.		Mean Solar Date.	NOVEMBER.		Mean Solar Date.	DECEMBER.	
	Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.		Right Ascension.	Declination North.
	h m	° ' "		h m	° ' "		h m	° ' "		h m	° ' "
	19 48	+88 56		19 48	+88 56		19 47	+88 56		19 46	+88 55
1.4	^s 75.89	"0.6	1.3	^s 40.96	"6.7	1.2	^s 58.73	"8.8	1.1	^s 80.37	"65.9
2.4	75.01	0.9	2.3	39.75	6.9	2.2	57.28	8.8	2.1	79.15	65.7
3.4	74.12	1.2	3.3	38.48	7.1	3.2	55.81	8.8	3.1	77.98	65.5
4.4	73.20	1.4	4.3	37.15	7.3	4.2	54.34	8.7	4.1	76.88	65.3
5.4	72.23	1.7	5.3	35.75	7.4	5.2	52.90	8.7	5.1	75.85	65.0
6.4	71.20	2.0	6.3	34.31	7.5	6.2	51.49	8.6	6.1	74.88	64.8
7.4	70.10	2.3	7.3	32.84	7.6	7.2	50.15	8.5	7.1	73.95	64.6
8.4	68.93	2.5	8.3	31.37	7.7	8.2	48.88	8.4	8.1	73.03	64.4
9.4	67.71	2.8	9.3	29.94	7.8	9.2	47.64	8.4	9.1	72.11	64.2
10.4	66.48	3.0	10.3	28.55	7.9	10.2	46.43	8.3	10.1	71.16	64.0
11.4	65.24	3.2	11.3	27.21	7.9	11.2	45.22	8.2	11.1	70.18	63.8
12.4	64.03	3.4	12.3	25.92	8.0	12.2	43.97	8.2	12.1	69.18	63.6
13.4	62.88	3.5	13.3	24.65	8.1	13.2	42.68	8.2	13.1	68.11	63.4
14.3	61.78	3.7	14.3	23.39	8.2	14.2	41.34	8.1	14.1	67.03	63.2
15.3	60.70	3.9	15.3	22.12	8.3	15.2	39.94	8.1	15.1	65.98	63.0
16.3	59.62	4.1	16.3	20.81	8.4	16.2	38.52	8.0	16.1	64.98	62.7
17.3	58.54	4.3	17.3	19.44	8.5	17.2	37.11	7.9	17.1	64.04	62.4
18.3	57.41	4.5	18.3	18.01	8.6	18.2	35.71	7.8	18.1	63.19	62.1
19.3	56.21	4.8	19.3	16.52	8.6	19.2	34.37	7.6	19.1	62.40	61.8
20.3	54.96	5.0	20.3	15.00	8.7	20.2	33.08	7.4	20.1	61.69	61.5
21.3	53.66	5.2	21.2	13.48	8.7	21.2	31.87	7.3	21.1	61.02	61.3
22.3	52.32	5.4	22.2	11.98	8.7	22.2	30.71	7.1	22.1	60.37	61.0
23.3	50.95	5.6	23.2	10.53	8.7	23.2	29.62	7.0	23.1	59.73	60.8
24.3	49.56	5.8	24.2	9.13	8.7	24.2	28.56	6.9	24.1	59.06	60.6
25.3	48.21	5.9	25.2	7.81	8.7	25.2	27.49	6.7	25.1	58.34	60.3
26.3	46.90	6.1	26.2	6.53	8.7	26.1	26.39	6.6	26.1	57.59	60.1
27.3	45.64	6.2	27.2	5.28	8.7	27.1	25.25	6.5	27.1	56.81	59.8
28.3	44.44	6.3	28.2	4.05	8.7	28.1	24.06	6.4	28.1	56.04	59.5
29.3	43.28	6.4	29.2	2.79	8.7	29.1	22.84	6.3	29.1	55.30	59.2
30.3	42.13	6.6	30.2	1.50	8.8	30.1	21.61	6.1	30.1	54.61	58.9
31.3	40.96	6.7	31.2	0.14	8.8	31.1	20.37	5.9	31.1	54.00	58.6
32.3	39.75	6.9	32.2	58.73	8.8	32.1	19.16	5.7	32.1	53.45	58.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Andromedæ.		γ Pegasi. (Algenib.)		*β Hydr.		α Cassiopem.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.
	h m 0 1	+28° 23'	h m 0 6	+14° 29'	h m 0 19	-77° 57'	h m 0 33	+55° 50'
(Dec. 30.3)	54.86 -13	67.7 -0.7	47.35 -11	21.1 -0.7	10.62 -92	55.2 +0.8	24.32 -27	79.9 -0.1
Jan. 9.2	54.72 .13	66.9 1.0	47.24 .11	20.3 0.5	9.73 .87	54.1 1.4	24.04 .28	79.6 0.6
19.2	54.60 .12	65.8 1.2	47.14 .10	19.5 0.9	8.90 .80	52.4 2.0	23.76 .28	78.7 1.1
29.2	54.49 .10	64.4 1.4	47.05 .08	18.5 1.0	8.14 .70	50.2 2.5	23.50 .25	77.4 1.5
Feb. 8.1	54.40 .08	62.9 1.5	46.96 .07	17.5 1.0	7.49 .59	47.5 2.9	23.26 .22	75.7 1.9
18.1	54.33 .05	61.4 1.6	46.92 .04	16.6 0.9	6.97 .46	44.4 3.3	23.06 .18	73.6 2.2
28.1	54.29 -0.2	59.8 1.6	46.89 -0.1	15.7 0.8	6.58 .32	41.0 3.6	22.91 .13	71.3 2.4
Mar. 10.0	54.29 +0.2	58.3 1.4	46.89 +0.2	14.9 0.7	6.33 .17	37.3 3.8	22.81 -0.6	68.9 2.5
20.0	54.33 .06	57.0 1.3	46.93 .06	14.4 0.5	6.23 -0.2	33.4 3.9	22.79 +0.1	66.4 2.5
30.0	54.42 .11	55.8 1.0	47.01 .10	14.0 -0.2	6.30 +1.4	29.5 3.9	22.83 .08	64.0 2.3
Apr. 9.0	54.55 .15	55.0 0.7	47.13 .14	14.0 +0.1	6.52 .30	25.6 3.9	22.95 .16	61.8 2.1
19.0	54.72 .20	54.4 -0.4	47.29 .18	14.2 0.4	6.90 .46	21.8 3.7	23.14 .23	59.8 1.8
28.9	54.94 .24	54.3 0.0	47.49 .22	14.8 0.7	7.43 .60	18.2 3.5	23.40 .30	58.2 1.4
May 8.9	55.20 .28	54.5 +0.4	47.73 .26	15.6 1.0	8.10 .74	14.8 3.2	23.73 .36	57.0 1.0
18.9	55.50 .31	55.1 0.8	48.00 .29	16.8 1.3	8.90 .86	11.8 2.9	24.12 .41	56.2 -0.5
28.8	55.82 .33	56.1 1.2	48.30 .31	18.3 1.6	9.82 .96	9.1 2.5	24.55 .45	56.0 0.0
June 7.8	56.16 .35	57.5 1.5	48.62 .32	20.0 1.8	10.82 1.04	6.8 2.0	25.01 .48	56.2 +0.5
17.8	56.51 .35	59.2 1.8	48.95 .33	21.9 2.0	11.90 1.10	5.1 1.5	25.50 .49	56.9 1.0
27.7	56.87 .35	61.2 2.1	49.28 .33	23.9 2.1	13.02 1.13	3.9 0.9	25.99 .49	58.2 1.5
July 7.7	57.21 .34	63.4 2.3	49.60 .32	26.1 2.2	14.15 1.13	3.2 +0.4	26.48 .48	59.8 1.9
17.7	57.54 .32	65.8 2.5	49.92 .30	28.3 2.2	15.26 1.09	3.1 -0.2	26.95 .46	61.9 2.3
27.7	57.84 .29	68.3 2.6	50.21 .28	30.6 2.2	16.32 1.03	3.6 0.8	27.39 .43	64.3 2.6
Aug. 6.6	58.12 .26	70.9 2.6	50.47 .25	32.7 2.1	17.31 .93	4.7 1.3	27.80 .39	67.1 2.9
16.6	58.36 .22	73.4 2.6	50.70 .21	34.8 2.0	18.18 .81	6.2 1.8	28.16 .34	70.0 3.1
26.6	58.56 .18	76.0 2.5	50.90 .18	36.8 1.9	18.92 .66	8.3 2.2	28.47 .29	73.2 3.2
Sept. 5.6	58.71 .14	78.4 2.4	51.05 .14	38.5 1.7	19.50 .49	10.7 2.6	28.73 .23	76.4 3.3
15.5	58.83 .10	80.7 2.2	51.17 .10	40.1 1.5	19.90 .31	13.4 2.9	28.94 .17	79.7 3.3
25.5	58.91 .06	82.8 2.0	51.26 .06	41.4 1.3	20.11 +1.2	16.3 3.0	29.08 .12	83.0 3.3
Oct. 5.5	58.95 +0.2	84.7 1.8	51.30 +0.3	42.6 1.0	20.13 -0.6	19.3 3.0	29.17 +0.6	86.2 3.2
15.4	58.95 -0.1	86.4 1.6	51.32 .00	43.5 0.8	19.96 .26	22.3 2.9	29.20 .00	89.3 3.0
25.4	58.93 .04	87.9 1.3	51.30 -0.3	44.2 0.6	19.61 .44	25.1 2.7	29.18 -0.5	92.2 2.8
Nov. 4.4	58.87 .07	89.1 1.0	51.26 .05	44.6 0.3	19.09 .59	27.7 2.4	29.11 .10	94.8 2.5
14.4	58.79 .09	89.9 0.7	51.20 .07	44.8 +0.1	18.43 .72	29.8 1.9	28.99 .14	97.1 2.1
24.3	58.70 .10	90.5 0.4	51.12 .08	44.9 -0.1	17.66 .82	31.5 1.4	28.83 .18	99.0 1.7
Dec. 4.3	58.59 .12	90.7 +0.1	51.03 .09	44.7 0.3	16.79 .89	32.6 0.9	28.63 .21	100.5 1.2
14.3	58.47 .13	90.6 -0.2	50.93 .10	44.3 0.5	15.88 .93	33.2 -0.2	28.40 .24	101.5 0.8
24.3	58.34 .13	90.2 0.6	50.83 .11	43.8 0.6	14.94 .93	33.1 +0.4	28.15 .26	102.0 +0.2
34.2	58.20 -1.4	89.6 -0.8	50.72 -1.1	43.1 -0.8	14.02 -91	32.4 +1.0	27.88 -27	101.9 -0.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Ceti.		*21 Cassiopeæ.		ε Piscium.		θ Ceti.		
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	
	h m 0 37	-18° 39'	h m 0 37	+74° 16'	h m 0 56	+7° 12'	h m 1 17	-8° 49'	
(Dec. 30.3)	18.63 -.11	91.5 -0.5	23.28 -.72	31.9 +0.4	27.11 -.10	61.3 -0.6	46.50 -.10	47.0 -0.7	
Jan. 9.2	18.52 .11	91.9 -0.3	22.58 .70	31.9 -0.3	27.00 .11	60.6 0.6	46.39 .11	47.7 0.6	
19.2	18.41 .11	92.1 0.0	21.88 .69	31.4 0.9	26.89 .11	60.0 0.6	46.28 .12	48.2 0.4	
29.2	18.30 .10	92.0 +0.2	21.22 .64	30.3 1.4	26.79 .11	59.4 0.6	46.16 .12	48.5 -0.2	
Feb. 8.1	18.21 .09	91.6 0.5	20.61 .57	28.6 1.9	26.68 .10	58.8 0.6	46.05 .11	48.6 0.0	
	18.1	18.13 .07	91.0 0.8	20.09 .47	26.5 2.3	26.60 .08	58.2 0.5	45.95 .09	48.5 +0.2
	28.1	18.07 .04	90.1 1.0	19.67 .35	24.0 2.6	26.53 .06	57.8 0.4	45.86 .07	48.2 0.5
Mar. 10.1	18.05 -.01	88.9 1.3	19.39 .32	21.2 2.8	26.49 -.03	57.5 -0.2	45.80 .05	47.6 0.7	
20.0	18.05 +0.03	87.5 1.5	19.24 -.07	18.3 2.9	26.48 +0.01	57.4 0.0	45.77 -.01	46.8 0.9	
30.0	18.10 .06	85.9 1.8	19.25 +0.08	15.4 2.9	26.51 .05	57.6 +0.2	45.77 +0.02	45.8 1.2	
Apr. 9.0	18.18 .11	84.0 2.0	19.41 .34	12.6 2.7	26.57 .09	57.9 0.5	45.82 .06	44.5 1.4	
19.0	18.31 .15	81.9 2.2	19.72 .39	10.0 2.5	26.68 .13	58.5 0.7	45.90 .11	43.0 1.6	
28.9	18.48 .19	79.7 2.3	20.18 .52	7.7 2.1	26.84 .17	59.3 1.0	46.03 .15	41.3 1.8	
May 8.9	18.68 .23	77.3 2.4	20.76 .64	5.8 1.7	27.03 .22	60.4 1.2	46.20 .19	39.3 2.0	
18.9	18.93 .26	74.9 2.5	21.45 .74	4.4 1.2	27.27 .25	61.8 1.5	46.41 .23	37.3 2.1	
	28.8	19.21 .29	72.4 2.4	22.23 .82	3.5 0.7	27.53 .28	63.3 1.7	46.65 .26	35.1 2.2
June 7.8	19.51 .31	70.0 2.4	23.07 .87	3.1 -0.1	27.82 .30	65.1 1.8	46.93 .29	32.9 2.3	
17.8	19.83 .33	67.7 2.3	23.96 .90	3.3 +0.5	28.14 .32	67.0 2.0	47.23 .31	30.6 2.2	
27.8	20.17 .33	65.5 2.1	24.86 .90	4.0 1.0	28.46 .33	69.0 2.0	47.54 .32	28.4 2.2	
July 7.7	20.50 .33	63.6 1.9	25.75 .82	5.2 1.5	28.78 .32	71.1 2.1	47.87 .32	26.3 2.0	
	17.7	20.83 .32	61.9 1.6	26.61 .84	7.0 2.0	29.10 .31	73.1 2.0	48.19 .32	24.4 1.9
27.7	21.14 .30	60.4 1.3	27.42 .78	9.2 2.4	29.41 .30	75.1 2.0	48.50 .31	22.6 1.6	
Aug. 6.7	21.43 .28	59.4 0.9	28.17 .71	11.8 2.8	29.70 .28	77.0 1.8	48.80 .29	21.1 1.4	
16.6	21.69 .25	58.6 0.6	28.84 .62	14.8 3.1	29.96 .25	78.7 1.7	49.08 .26	19.9 1.1	
26.6	21.92 .22	58.2 +0.2	29.41 .52	18.1 3.4	30.20 .22	80.3 1.5	49.33 .23	19.0 0.8	
Sept. 5.6	22.12 .17	58.2 -0.2	29.88 .42	21.5 3.6	30.40 .18	81.6 1.2	49.54 .20	18.4 0.3	
15.5	22.27 .14	58.6 0.5	30.24 .31	25.2 3.7	30.57 .15	82.8 1.0	49.73 .17	18.2 +0.1	
25.5	22.39 .10	59.2 0.7	30.49 .19	28.9 3.8	30.70 .12	83.7 0.8	49.88 .13	18.2 -0.3	
Oct. 5.5	22.46 .06	60.0 1.0	30.62 +0.07	32.7 3.7	30.80 .08	84.4 0.6	50.00 .10	18.5 0.4	
15.5	22.50 +0.02	61.1 1.1	30.63 -0.05	36.3 3.6	30.86 .05	84.8 0.4	50.08 .07	19.0 0.7	
	25.4	22.50 -.01	62.3 1.3	30.52 .16	39.0 3.4	30.90 +0.02	85.1 +0.2	50.13 .04	19.8 0.8
Nov. 4.4	22.48 .04	63.5 1.3	30.30 .27	43.2 3.2	30.90 -.01	85.1 0.0	50.15 +0.01	20.7 0.9	
14.4	22.43 .06	64.8 1.3	29.98 .38	46.1 2.8	30.88 .03	85.0 -0.2	50.14 -0.02	21.7 1.0	
24.3	22.36 .08	66.1 1.2	29.55 .47	48.7 2.4	30.84 .05	84.8 0.3	50.11 .04	22.7 1.0	
Dec. 4.3	22.27 .10	67.2 1.1	29.04 .56	50.9 1.9	30.78 .07	84.4 0.4	50.06 .06	23.7 1.0	
14.3	22.17 .10	68.2 0.9	28.45 .62	52.5 1.3	30.71 .08	83.9 0.5	49.99 .08	24.7 0.9	
24.3	22.07 .11	69.0 0.7	27.80 .67	53.6 0.8	30.62 .10	83.4 0.6	49.90 .10	25.5 0.8	
34.2	21.95 -.12	69.6 -0.4	27.12 -.69	54.0 +0.1	30.52 -.10	82.8 -0.6	49.80 -.11	26.3 -0.7	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*38 Cassiopeæ.		η Piscium.		α Eridani. (Achernar.)		ο Piscium.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.
	h m 1 21	+69° 37'	h m 1 24	+14° 42'	h m 1 33	-57° 51'	h m 1 38	+8° 31'
(Dec. 30.3)	^s 56.36 -.47	31.6 +0.8	^s 47.51 -.10	" -0.4	^s 4.35 -.31	96.0 -0.7	^s 47.64 -.09	43.1 -0.5
Jan. 9.3	55.87 .51	32.2 +0.3	47.40 .11	7.6 0.6	4.03 .32	96.3 -0.1	47.54 .11	42.5 0.6
19.2	55.36 .52	32.1 -0.3	47.28 .12	7.0 0.6	3.71 .32	96.1 +0.5	47.43 .12	41.9 0.6
29.2	54.84 .51	31.5 0.9	47.16 .12	6.4 0.7	3.30 .32	95.4 1.0	47.31 .12	41.4 0.6
Feb. 8.2	54.35 .48	30.3 1.4	47.04 .12	5.7 0.7	3.08 .30	94.1 1.6	47.19 .12	40.8 0.5
18.1	53.90 .48	28.7 1.9	46.93 .10	4.9 0.7	2.80 .27	92.3 2.0	47.08 .11	40.3 0.5
28.1	53.51 .35	26.6 2.2	46.84 .08	4.2 0.7	2.55 .23	90.0 2.5	46.98 .09	39.9 0.4
Mar. 10.1	53.20 .28	24.2 2.5	46.77 .05	3.6 0.6	2.35 .18	87.3 2.8	46.90 .06	39.6 0.2
20.1	53.00 .15	21.6 2.7	46.73 -.02	3.1 0.4	2.19 .13	84.3 3.1	46.85 -.03	39.4 -0.1
30.0	52.91 -.03	18.9 2.7	46.73 +0.02	2.8 -0.3	2.10 -.06	81.1 3.4	46.84 +0.01	39.5 +0.1
Apr. 9.0	52.93 +0.09	16.2 2.7	46.77 .06	2.7 0.0	2.07 .00	77.6 3.6	46.86 .05	39.7 0.3
19.0	53.08 .21	13.6 2.5	46.86 .11	2.8 +0.2	2.11 +0.07	74.0 3.7	46.93 .09	40.1 0.6
29.0	53.35 .33	11.2 2.2	46.99 .15	3.1 0.5	2.21 .14	70.3 3.7	47.05 .14	40.8 0.8
May 8.9	53.73 .43	9.1 1.9	47.16 .20	3.7 0.8	2.39 .21	66.7 3.6	47.21 .18	41.8 1.1
18.9	54.21 .53	7.5 1.5	47.38 .24	4.6 1.0	2.64 .28	63.1 3.5	47.41 .22	43.0 1.3
28.9	54.78 .61	6.2 1.0	47.63 .27	5.8 1.3	2.95 .34	59.7 3.3	47.64 .25	44.4 1.5
June 7.8	55.42 .67	5.4 -0.5	47.92 .30	7.2 1.5	3.22 .39	56.6 3.0	47.91 .28	45.9 1.7
17.8	56.12 .71	5.2 0.0	48.23 .32	8.8 1.7	3.73 .43	53.8 2.6	48.21 .31	47.7 1.8
27.8	56.84 .74	5.4 +0.5	48.55 .33	10.5 1.8	4.18 .47	51.4 2.2	48.52 .32	49.6 1.9
July 7.8	57.58 .74	6.2 1.0	48.88 .33	12.4 1.9	4.66 .48	49.5 1.7	48.85 .32	51.5 2.0
17.7	58.32 .73	7.5 1.5	49.21 .33	14.4 2.0	5.15 .49	48.0 1.2	49.17 .32	53.4 1.9
27.7	59.03 .70	9.2 1.9	49.54 .32	16.4 2.0	5.63 .48	47.2 +0.6	49.49 .31	55.3 1.9
Aug. 6.7	59.71 .66	11.3 2.3	49.84 .30	18.3 1.9	6.11 .46	46.8 0.0	49.80 .30	57.2 1.8
16.6	60.34 .61	13.8 2.7	50.13 .27	20.2 1.8	6.55 .43	47.1 -0.5	50.08 .28	58.9 1.6
26.6	60.92 .54	16.7 3.0	50.38 .24	22.0 1.7	6.96 .39	47.9 1.1	50.35 .25	60.4 1.5
Sept. 5.6	61.42 .47	19.8 3.2	50.61 .21	23.6 1.6	7.32 .33	49.2 1.6	50.58 .22	61.8 1.3
15.6	61.85 .39	23.1 3.4	50.81 .18	25.1 1.4	7.62 .27	51.0 2.0	50.79 .19	62.9 1.0
25.5	62.19 .30	26.5 3.5	50.97 .15	26.4 1.2	7.86 .20	53.3 2.4	50.96 .16	63.8 0.8
Oct. 5.5	62.45 .21	30.0 3.5	51.10 .11	27.5 1.0	8.03 .13	55.8 2.7	51.10 .13	64.5 0.6
15.5	62.62 .12	33.5 3.5	51.20 .08	28.3 0.8	8.12 +0.06	58.6 2.8	51.21 .10	65.0 0.4
25.5	62.70 +0.03	37.0 3.4	51.27 .05	29.0 0.6	8.15 -0.01	61.5 2.9	51.29 .07	65.3 +0.2
Nov. 4.4	62.69 -0.06	40.3 3.2	51.30 +0.02	29.5 0.4	8.11 .06	64.3 2.8	51.34 .04	65.4 0.0
14.4	62.59 .15	43.4 2.9	51.31 .00	29.8 0.2	8.00 .14	67.1 2.6	51.36 +0.01	65.3 -0.1
24.4	62.40 .23	46.2 2.6	51.29 -.03	29.9 +0.1	7.84 .19	69.6 2.4	51.36 -.02	65.1 0.3
Dec. 4.3	62.12 .31	48.6 2.2	51.25 .05	29.9 -0.1	7.63 .24	71.8 2.0	51.33 .04	64.8 0.4
14.3	61.78 .38	50.5 1.7	51.19 .07	29.7 0.3	7.37 .27	73.5 1.5	51.28 .06	64.4 0.4
24.3	61.37 .43	52.0 1.2	51.11 .09	29.4 0.4	7.08 .30	74.8 1.0	51.20 .06	63.9 0.5
34.3	60.90 -.47	52.9 +0.7	51.01 -1.0	29.0 -0.5	6.77 -.32	75.5 -0.4	51.11 -1.0	63.4 -0.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Arietis.		*50 Cassiopeæ.		α Arietis.		γ Ceti.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 1 47	° ' " +20 11	h m 1 52	° ' " +71 48	h m 2 0	° ' " +22 52	h m 2 6	° ' " +8 15
(Dec. 30.3)	44.12 -10	53.9 -0.3	47.31 -49	72.2 +1.4	7.73 -10	22.0 -0.1	22.59 -08	37.2 -0.8
Jan. 9.3	44.01 .12	53.5 0.4	46.78 .55	73.2 0.7	7.62 .12	21.7 0.3	22.50 .10	36.7 0.5
19.2	43.88 .13	53.0 0.5	46.21 .58	73.6 +0.1	7.50 .13	21.3 0.5	22.39 .19	36.1 0.5
29.2	43.75 .13	52.4 0.7	45.02 .59	73.4 -0.5	7.36 .14	20.8 0.6	22.26 .13	35.6 0.5
Feb. 8.2	43.62 .13	51.7 0.8	45.04 .57	72.7 1.0	7.22 .14	20.1 0.8	22.13 .13	35.1 0.5
18.2	43.49 .12	50.9 0.8	44.48 .53	71.4 1.5	7.08 .13	19.3 0.8	22.01 .12	34.7 0.4
28.2	43.38 .10	50.1 0.8	43.99 .46	69.7 2.0	6.96 .12	18.4 0.9	21.89 .11	34.3 0.3
Mar. 10.1	43.29 .08	49.3 0.8	43.57 .37	67.5 2.3	6.85 .09	17.6 0.9	21.79 .09	34.0 0.3
20.1	43.22 -05	48.5 0.7	43.26 .36	65.1 2.6	6.78 .06	16.7 0.8	21.72 .06	33.9 -0.1
30.1	43.20 .00	47.9 0.5	43.06 -13	62.5 2.7	6.74 -02	16.0 0.7	21.68 -02	33.9 +0.1
Apr. 9.0	43.22 +04	47.4 0.4	43.00 .00	59.7 2.7	6.75 +03	15.4 0.5	21.68 +02	34.1 0.3
19.0	43.29 .09	47.2 -0.1	43.07 +14	57.0 2.6	6.80 .08	14.9 0.3	21.72 .07	34.6 0.6
29.0	43.40 .14	47.1 +0.1	43.28 .27	54.5 2.5	6.90 .13	14.7 -0.1	21.81 .11	35.3 0.8
May 8.9	43.56 .18	47.4 0.4	43.61 .40	52.2 2.2	7.05 .17	14.8 +0.2	21.94 .16	36.1 1.0
18.9	43.76 .23	47.9 0.7	44.07 .51	50.2 1.8	7.25 .22	15.1 0.5	22.12 .20	37.3 1.2
28.9	44.01 .26	48.7 0.9	44.64 .61	48.6 1.4	7.49 .26	15.7 0.7	22.34 .24	38.6 1.4
June 7.9	44.28 .29	49.7 1.2	45.29 .69	47.4 1.0	7.76 .29	16.5 1.0	22.59 .27	40.1 1.6
17.8	44.59 .32	51.0 1.4	46.02 .76	46.7 -0.5	8.07 .32	17.6 1.2	22.87 .29	41.8 1.7
27.8	44.91 .33	52.5 1.6	46.80 .80	46.5 +0.1	8.39 .33	19.0 1.5	23.17 .31	43.5 1.8
July 7.8	45.25 .34	54.2 1.8	47.61 .82	46.8 0.6	8.73 .34	20.5 1.6	23.49 .32	45.4 1.9
17.8	45.59 .34	56.0 1.9	48.43 .82	47.6 1.0	9.08 .34	22.2 1.8	23.81 .32	47.3 1.9
27.7	45.92 .33	57.9 1.9	49.25 .81	48.8 1.5	9.42 .34	24.0 1.8	24.13 .32	49.1 1.8
Aug. 6.7	46.25 .31	59.8 1.9	50.05 .78	50.5 1.9	9.75 .32	25.9 1.9	24.44 .31	50.8 1.7
16.7	46.55 .29	61.7 1.9	50.80 .73	52.7 2.3	10.06 .30	27.7 1.9	24.74 .29	52.5 1.6
26.6	46.83 .27	63.6 1.8	51.50 .67	55.1 2.7	10.35 .28	29.6 1.8	25.02 .27	53.9 1.4
Sept. 5.6	47.08 .24	65.3 1.7	52.14 .60	58.0 3.0	10.62 .25	31.4 1.8	25.27 .24	55.2 1.2
15.6	47.30 .21	67.0 1.6	52.70 .52	61.0 3.2	10.86 .22	33.1 1.6	25.50 .21	56.3 1.0
25.6	47.49 .17	68.5 1.4	53.17 .43	64.3 3.3	11.06 .19	34.7 1.5	25.70 .18	57.2 0.7
Oct. 5.5	47.66 .14	69.8 1.3	53.56 .34	67.7 3.5	11.24 .16	36.1 1.4	25.87 .15	57.8 0.5
15.5	47.78 .11	71.0 1.1	53.85 .24	71.2 3.5	11.38 .13	37.4 1.2	26.01 .12	58.2 0.3
25.5	47.87 .08	72.0 0.9	54.04 .14	74.7 3.5	11.49 .09	38.5 1.0	26.11 .09	58.4 +0.1
Nov. 4.5	47.94 .05	72.8 0.7	54.13 +03	78.1 3.3	11.57 .06	39.5 0.9	26.19 .06	58.4 0.0
14.4	47.97 +02	73.4 0.5	54.11 -07	81.3 3.1	11.61 +03	40.2 0.7	26.24 .03	58.3 -0.2
24.4	47.97 -01	73.8 0.3	53.98 .18	84.3 2.9	11.63 .00	40.8 0.5	26.26 +01	58.1 0.3
Dec. 4.4	47.95 .04	74.1 +0.2	53.75 .28	87.0 2.5	11.61 -03	41.2 0.3	26.25 -02	57.7 0.4
14.3	47.90 .06	74.1 0.0	53.43 .37	89.4 2.1	11.57 .05	41.5 +0.1	26.21 .05	57.3 0.5
24.3	47.82 .09	74.1 -0.2	53.02 .45	91.2 1.6	11.51 .08	41.5 -0.1	26.16 .09	56.8 0.5
34.3	47.73 -10	73.8 -0.3	52.53 -52	92.6 +1.1	11.41 -11	41.4 -0.3	26.07 -10	56.3 -0.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	* ϵ Cassiopeæ.		γ Ceti.		α Ceti.		*48 Cephei.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	^h 2 ^m 18	+66° 50'	^h 2 ^m 36	+2° 42'	^h 2 ^m 55	+3° 35'	^h 3 ^m 4	+77° 16'
(Dec. 30.3)	^s 47.27 -0.34	37.0 +1.4	^s 49.79 -0.07	31.3 -0.7	^s 45.16 -0.06	56.4 -0.7	^s 33.21 -0.55	37.7 +2.2
Jan. 9.3	46.90 .39	38.1 0.9	49.70 .10	30.7 0.7	45.08 .09	55.7 0.6	32.59 .68	39.6 1.7
19.3	46.49 .43	38.8 +0.4	49.60 .12	30.1 0.6	44.98 .11	55.1 0.6	31.86 .78	41.1 1.2
29.3	46.05 .45	38.9 -0.2	49.48 .13	29.5 0.5	44.86 .13	54.6 0.5	31.05 .84	42.0 +0.6
Feb. 8.2	45.60 .45	38.4 0.7	49.34 .14	29.1 0.4	44.73 .14	54.2 0.4	30.18 .88	42.3 0.0
18.2	45.16 .43	37.4 1.2	49.21 .14	28.8 0.3	44.59 .14	53.8 0.3	29.31 .87	42.0 -0.6
28.2	44.75 .38	36.0 1.7	49.08 .13	28.6 -0.1	44.45 .14	53.6 -0.1	28.46 .89	41.1 1.2
Mar. 10.1	44.40 .39	34.1 2.0	48.96 .11	28.6 +0.1	44.32 .12	53.6 0.0	27.67 .74	39.7 1.6
20.1	44.11 .24	32.0 2.3	48.86 .08	28.7 0.2	44.21 .10	53.6 +0.2	26.99 .62	37.9 2.1
30.1	43.92 .15	29.6 2.5	48.79 .05	29.0 0.4	44.13 .07	53.9 0.4	26.44 .47	35.6 2.4
Apr. 9.1	43.82 -0.05	27.1 2.5	48.76 -0.01	29.5 0.6	44.08 -0.03	54.4 0.5	26.06 .30	33.1 2.6
19.0	43.83 +0.07	24.6 2.5	48.77 +0.04	30.3 0.8	44.07 +0.02	55.0 0.7	25.85 -0.12	30.4 2.7
29.0	43.95 .18	22.1 2.4	48.83 .08	31.2 1.0	44.11 .06	55.8 1.0	25.82 +0.07	27.7 2.8
May 9.0	44.18 .98	19.9 2.1	48.93 .12	32.3 1.2	44.20 .11	56.9 1.2	25.99 .36	25.0 2.7
18.9	44.51 .38	17.9 1.8	49.07 .17	33.7 1.4	44.33 .15	58.1 1.3	26.34 .44	22.4 2.5
28.9	44.94 .47	16.2 1.5	49.26 .21	35.2 1.6	44.50 .19	59.6 1.5	26.87 .61	20.0 2.2
June 7.9	45.44 .54	15.0 1.1	49.49 .24	36.9 1.8	44.71 .23	61.2 1.7	27.56 .78	18.0 1.9
17.9	46.01 .60	14.1 0.6	49.74 .27	38.7 1.8	44.95 .26	62.9 1.8	28.39 .89	16.3 1.5
27.8	46.64 .64	13.8 -0.1	50.03 .29	40.6 1.9	45.23 .29	64.6 1.8	29.34 1.00	15.0 1.1
July 7.8	47.30 .67	13.9 +0.3	50.33 .31	42.4 1.9	45.52 .30	66.5 1.8	30.38 1.08	14.2 0.6
17.8	47.97 .68	14.4 0.8	50.65 .32	44.3 1.8	45.83 .31	68.3 1.8	31.49 1.13	13.6 -0.1
27.8	48.66 .68	15.4 1.2	50.96 .32	46.1 1.7	46.14 .32	70.0 1.7	32.64 1.16	14.0 +0.4
Aug. 6.7	49.33 .68	16.8 1.6	51.27 .31	47.7 1.6	46.46 .31	71.6 1.6	33.81 1.17	14.5 0.8
16.7	49.98 .63	18.6 2.0	51.57 .30	49.2 1.4	46.76 .30	73.1 1.4	34.97 1.15	15.6 1.3
26.7	50.59 .59	20.8 2.3	51.86 .28	50.5 1.2	47.06 .29	74.3 1.2	36.11 1.11	17.1 1.7
Sept. 5.6	51.16 .54	23.3 2.6	52.13 .26	51.5 0.9	47.34 .27	75.4 0.9	37.20 1.06	19.0 2.1
15.6	51.67 .49	26.0 2.9	52.38 .23	52.3 0.7	47.60 .25	76.2 0.7	38.22 .98	21.2 2.4
25.6	52.13 .42	29.0 3.1	52.60 .21	52.9 0.4	47.83 .22	76.7 0.4	39.16 .89	23.8 2.8
Oct. 5.6	52.52 .35	32.1 3.9	52.79 .18	53.1 +0.2	48.04 .20	77.0 +0.2	40.00 .78	26.7 3.0
15.5	52.83 .28	35.3 3.2	52.95 .15	53.2 -0.1	48.22 .17	77.0 -0.1	40.72 .65	29.8 3.2
25.5	53.07 .20	38.6 3.2	53.09 .12	53.0 0.3	48.38 .14	76.8 0.3	41.31 .52	33.1 3.3
Nov. 4.5	53.22 .12	41.8 3.2	53.19 .09	52.6 0.5	48.50 .11	76.5 0.4	41.75 .38	36.5 3.4
14.4	53.30 +0.03	44.9 3.0	53.27 .06	52.1 0.6	48.60 .08	76.0 0.6	42.04 .21	39.9 3.4
24.4	53.28 -0.05	47.8 2.8	53.31 +0.03	51.4 0.7	48.66 .05	75.3 0.7	42.17 +0.04	43.2 3.3
Dec. 4.4	53.19 .14	50.4 2.5	53.33 .00	50.7 0.7	48.69 +0.02	74.6 0.7	42.13 -0.13	46.4 3.1
14.4	53.01 .29	52.7 2.1	53.31 -0.03	50.0 0.7	48.69 -0.01	73.9 0.7	41.92 .29	49.4 2.8
24.3	52.76 .29	54.7 1.7	53.27 .06	49.3 0.7	48.67 .04	73.2 0.7	41.55 .45	52.1 2.5
34.3	52.43 -0.35	56.1 +1.9	53.20 -0.10	48.6 -0.7	48.61 -0.07	72.5 -0.7	41.03 -0.58	54.3 +2.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Arietis.		α Persei.		δ Persei.		γ Tauri.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 3 7	+20° 34'	h m 3 15	+49° 24'	h m 3 34	+47° 23'	h m 3 40	+23° 43'
	^s	"	^s	"	^s	"	^s	"
(Dec. 30.4)	43.49 -06	56.7 -0.1	24.79 -10	66.2 +1.3	2.33 -06	22.6 +1.3	3.87 -03	10.5 +0.9
Jan. 9.3	43.41 .09	56.6 0.1	24.66 .15	67.3 0.9	2.23 .13	23.8 1.0	3.82 .07	10.6 +0.1
19.3	43.31 .12	56.4 0.2	24.49 .19	68.1 0.6	2.08 .17	24.6 0.6	3.73 .11	10.6 -0.1
29.3	43.19 .14	56.1 0.3	24.28 .22	68.4 +0.2	1.89 .21	25.1 +0.3	3.61 .13	10.5 0.2
Feb. 8.2	43.04 .15	55.7 0.4	24.05 .24	68.4 -0.2	1.67 .23	25.2 -0.1	3.46 .15	10.3 0.3
18.2	42.89 .16	55.3 0.5	23.80 .25	68.0 0.6	1.44 .24	25.0 0.4	3.30 .17	10.0 0.4
28.2	42.73 .15	54.7 0.5	23.55 .24	67.3 0.9	1.20 .24	24.4 0.7	3.14 .17	9.6 0.4
Mar. 10.2	42.59 .13	54.2 0.6	23.32 .22	66.2 1.2	0.97 .22	23.5 1.0	2.98 .16	9.1 0.5
20.1	42.47 .11	53.6 0.5	23.12 .18	64.8 1.5	0.76 .19	22.4 1.3	2.83 .13	8.5 0.6
30.1	42.37 .08	53.1 0.5	22.96 .14	63.3 1.6	0.59 .15	21.0 1.4	2.71 .10	8.0 0.6
Apr. 9.1	42.31 -04	52.7 0.4	22.85 .08	61.6 1.7	0.47 .09	19.5 1.6	2.63 .07	7.5 0.5
19.1	42.30 +01	52.4 0.2	22.81 -01	59.9 1.7	0.40 -04	17.9 1.6	2.58 -02	7.0 0.4
29.0	42.33 .06	52.2 -0.1	22.83 +06	58.2 1.7	0.40 +03	16.4 1.6	2.58 +03	6.7 0.3
May 9.0	42.42 .11	52.3 +0.1	22.92 .13	56.6 1.5	0.47 .10	14.8 1.5	2.63 .08	6.4 -0.1
19.0	42.55 .15	52.5 0.3	23.08 .19	55.1 1.3	0.60 .16	13.5 1.3	2.74 .13	6.4 0.0
28.9	42.72 .20	52.9 0.5	23.30 .25	53.9 1.1	0.79 .22	12.3 1.1	2.89 .17	6.5 +0.2
June 7.9	42.94 .24	53.6 0.8	23.58 .31	53.0 0.8	1.04 .28	11.3 0.9	3.08 .22	6.9 0.4
17.9	43.20 .27	54.4 0.9	23.91 .36	52.3 0.5	1.35 .33	10.6 0.6	3.32 .25	7.4 0.6
27.9	43.48 .30	55.4 1.1	24.29 .40	52.0 -0.2	1.70 .37	10.2 -0.2	3.59 .29	8.1 0.8
July 7.8	43.79 .32	56.6 1.3	24.70 .43	52.0 +0.2	2.09 .40	10.1 +0.1	3.89 .31	8.9 0.9
17.8	44.12 .33	57.9 1.4	25.14 .44	52.3 0.5	2.50 .42	10.3 0.4	4.21 .33	9.9 1.1
27.8	44.45 .34	59.3 1.4	25.59 .45	53.0 0.8	2.93 .44	10.8 0.6	4.54 .34	11.0 1.2
Aug. 6.8	44.79 .33	60.8 1.5	26.04 .45	53.9 1.1	3.37 .44	11.6 0.9	4.88 .34	12.2 1.2
16.7	45.12 .33	62.2 1.5	26.49 .45	55.2 1.4	3.80 .44	12.6 1.1	5.21 .34	13.4 1.2
26.7	45.44 .31	63.7 1.4	26.93 .43	56.7 1.6	4.23 .43	13.8 1.4	5.55 .33	14.7 1.2
Sept. 5.7	45.74 .29	65.0 1.3	27.35 .41	58.3 1.8	4.65 .41	15.3 1.5	5.87 .32	15.9 1.2
15.6	46.02 .27	66.3 1.2	27.74 .38	60.2 2.0	5.05 .39	16.9 1.7	6.18 .30	17.0 1.1
25.6	46.29 .25	67.5 1.1	28.11 .35	62.2 2.1	5.42 .38	18.7 1.8	6.47 .28	18.1 1.0
Oct. 5.6	46.52 .22	68.6 1.0	28.45 .32	64.3 2.2	5.77 .33	20.6 1.9	6.74 .26	19.1 0.9
15.6	46.73 .19	69.5 0.8	28.74 .28	66.5 2.2	6.08 .30	22.5 2.0	6.98 .23	20.0 0.8
25.5	46.91 .17	70.2 0.7	29.00 .24	68.7 2.2	6.36 .28	24.5 2.0	7.20 .20	20.8 0.7
Nov. 4.5	47.06 .14	70.9 0.6	29.21 .19	71.0 2.2	6.59 .21	26.5 2.0	7.30 .17	21.5 0.7
14.5	47.18 .10	71.4 0.5	29.38 .14	73.1 2.1	6.78 .17	28.5 2.0	7.54 .14	22.1 0.6
24.5	47.27 .07	71.8 0.3	29.50 .09	75.2 2.0	6.93 .12	30.5 1.9	7.67 .11	22.6 0.5
Dec. 4.4	47.32 +04	72.1 0.2	29.56 +04	77.2 1.9	7.02 .07	32.3 1.8	7.76 .07	23.0 0.4
14.4	47.34 .00	72.2 +0.1	29.57 -02	79.0 1.7	7.06 +01	34.0 1.6	7.81 +03	23.4 0.3
24.4	47.32 -04	72.3 0.0	29.53 .07	80.5 1.4	7.04 -04	35.5 1.4	7.82 -01	23.6 0.2
34.4	47.27 -07	72.3 -0.1	29.43 -12	81.8 +1.2	6.97 -09	36.8 +1.2	7.79 -05	23.8 +0.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Persei.		γ ¹ Eridani.		γ Tauri.		ε Tauri.	
	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 3 46	° ′ +31 30	h m 3 52	° ′ -13 51	h m 4 12	° ′ +15 19	h m 4 21	° ′ +18 54
(Dec. 30.4)	17.20 ^a -0.04	49.1 +0.6	12.65 ^a -0.04	53.7 -1.5	41.54 ^a -0.01	34.9 -0.3	19.83 ^a .00	14.2 -0.1
Jan 9.3	17.14 .08	49.6 0.4	12.59 .08	55.1 1.3	41.51 .05	34.7 0.3	19.81 -0.04	14.2 0.1
	19.3 17.05 .11	49.9 +0.2	12.50 .11	56.2 1.0	41.45 .08	34.4 0.3	19.75 .06	14.1 0.1
	29.3 16.92 .15	50.1 0.0	12.38 .14	57.1 0.8	41.35 .11	34.2 0.3	19.65 .11	14.0 0.1
Feb. 8.3	16.76 .17	50.0 -0.2	12.23 .16	57.8 0.5	41.22 .14	33.9 0.3	19.53 .14	13.8 0.2
	18.2 16.59 .18	49.8 0.3	12.07 .17	58.1 -0.2	41.07 .15	33.7 0.3	19.38 .16	13.0 0.2
	28.2 16.41 .18	49.3 0.5	11.90 .17	58.2 +0.1	40.91 .16	33.4 0.3	19.22 .17	13.4 0.2
Mar. 10.2	16.23 .17	48.8 0.6	11.74 .16	57.9 0.4	40.75 .16	33.2 0.2	19.05 .16	13.1 0.2
	20.2 16.07 .15	48.1 0.8	11.58 .15	57.4 0.7	40.60 .15	33.0 0.2	18.89 .15	12.8 0.3
	30.1 15.93 .12	47.3 0.8	11.45 .12	56.5 1.0	40.46 .12	32.8 0.1	18.75 .13	12.6 0.2
Apr. 9.1	15.83 .08	46.4 0.8	11.34 .09	55.4 1.2	40.36 .09	32.7 -0.1	18.64 .10	12.4 0.2
	19.1 15.78 -0.03	45.6 0.8	11.27 .05	54.0 1.5	40.29 -0.05	32.7 0.0	18.56 .06	12.2 -0.1
	29.0 15.77 +0.02	44.8 0.7	11.25 -0.01	52.4 1.8	40.26 .00	32.8 +0.2	18.53 -0.01	12.1 0.0
May 9.0	15.82 .07	44.2 0.6	11.26 +0.04	50.5 2.0	40.28 +0.04	33.0 0.3	18.54 +0.04	12.1 +0.1
	19.0 15.92 .13	43.7 0.5	11.32 .09	48.5 2.1	40.35 .09	33.4 0.5	18.60 .08	12.3 0.2
	29.0 16.07 .18	43.3 -0.3	11.43 .13	46.3 2.3	40.46 .13	33.9 0.6	18.70 .13	12.6 0.4
June 7.9	16.27 .23	43.1 0.0	11.58 .17	44.0 2.3	40.61 .18	34.6 0.8	18.85 .17	13.0 0.5
	17.9 16.52 .27	43.2 +0.2	11.78 .21	41.6 2.4	40.81 .22	35.4 0.9	19.05 .21	13.6 0.7
	27.9 16.80 .30	43.5 0.4	12.00 .24	39.3 2.3	41.04 .25	36.3 1.0	19.28 .25	14.3 0.8
July 7.9	17.12 .33	44.0 0.6	12.26 .27	37.0 2.2	41.31 .28	37.4 1.1	19.54 .28	15.1 0.9
	17.8 17.45 .35	44.6 0.8	12.53 .29	34.8 2.0	41.59 .30	38.5 1.2	19.83 .30	16.1 1.0
	27.8 17.80 .36	45.4 0.9	12.83 .30	32.8 1.8	41.90 .31	39.7 1.2	20.13 .31	17.1 1.0
Aug. 6.8	18.16 .36	46.4 1.0	13.13 .31	31.1 1.6	42.21 .32	40.8 1.1	20.45 .32	18.1 1.0
	16.7 18.52 .36	47.5 1.1	13.44 .31	29.7 1.3	42.53 .32	41.9 1.1	20.78 .33	19.1 1.0
	26.7 18.88 .35	48.7 1.2	13.74 .30	28.6 0.9	42.85 .32	43.0 1.0	21.10 .32	20.0 0.9
Sept. 5.7	19.22 .34	49.9 1.3	14.04 .29	28.0 0.5	43.16 .31	43.9 0.9	21.42 .32	20.9 0.9
	15.7 19.56 .32	51.2 1.3	14.32 .28	27.7 +0.1	43.47 .30	44.7 0.7	21.74 .31	21.7 0.8
	25.6 19.87 .30	52.4 1.2	14.59 .26	27.8 -0.3	43.76 .29	45.4 0.6	22.04 .29	22.4 0.8
Oct. 5.6	20.16 .28	53.6 1.2	14.84 .24	28.3 0.7	43.04 .27	45.9 0.4	22.32 .28	23.0 0.5
	15.6 20.43 .25	54.8 1.2	15.06 .21	29.2 1.0	44.29 .25	46.2 0.3	22.59 .26	23.4 0.4
	25.6 20.67 .22	56.0 1.1	15.26 .19	30.4 1.3	44.53 .22	46.4 +0.1	22.84 .24	23.8 0.3
Nov. 4.5	20.88 .19	57.1 1.1	15.43 .16	31.8 1.6	44.74 .19	46.5 0.0	23.06 .21	24.0 0.2
	14.5 21.05 .16	58.2 1.0	15.57 .12	33.5 1.7	44.92 .17	46.4 -0.1	23.26 .18	24.1 0.1
	24.5 21.19 .12	59.1 0.9	15.68 .09	35.2 1.8	45.07 .14	46.4 0.1	23.42 .15	24.2 +0.1
Dec. 4.4	21.29 .08	60.0 0.9	15.75 .05	37.0 1.8	45.19 .10	46.2 0.2	23.55 .11	24.2 0.0
	14.4 21.35 +0.04	60.9 0.8	15.78 +0.02	38.8 1.7	45.27 .06	46.0 0.2	23.64 .07	24.2 0.0
	24.4 21.37 -0.01	61.6 0.6	15.78 -0.02	40.5 1.6	45.31 +0.02	45.7 0.3	23.69 +0.03	24.2 -0.1
	34.4 21.34 -0.05	62.1 +0.5	15.74 -0.05	42.0 -1.5	45.31 -0.02	45.5 -0.3	23.70 -0.01	24.1 -0.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Tauri. (Aldebaran.)		γ Camelopardalis.		ε Aurigæ.		ι Orionis.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 4 28	° ' " +16 15	h m 4 41	° ' " +66 7	h m 4 48	° ' " +32 58	h m 4 57	° ' " +15 13
(Dec. 30.4)	^s 45.70 +.01	31.0 -0.2	^s 39.85 -.04	52.2 +2.4	^s 52.17 +.03	8.7 +0.8	^s 26.53 +.03	49.7 -0.3
Jan. 9.4	45.69 -.03	30.8 0.2	39.75 .15	54.5 2.2	52.17 -.02	9.4 0.7	26.53 -.01	49.4 0.2
19.4	45.63 .07	30.6 0.2	39.56 .24	56.5 1.9	52.13 .07	10.0 0.6	26.50 .05	49.2 0.2
29.3	45.54 .11	30.4 0.2	39.28 .32	58.2 1.5	52.03 .11	10.5 0.4	26.43 .09	49.0 0.2
Feb. 8.3	45.42 .13	30.2 0.2	38.92 .39	59.5 1.0	51.90 .15	10.8 0.3	26.32 .12	48.8 0.2
18.3	45.28 .16	30.0 0.2	38.51 .43	60.2 +0.5	51.74 .18	11.0 +0.1	26.18 .15	48.6 0.2
28.2	45.11 .17	29.8 0.2	38.07 .45	60.5 0.0	51.55 .19	11.0 -0.1	26.03 .16	48.4 0.2
Mar 10.2	44.95 .16	29.6 0.2	37.62 .45	60.3 -0.5	51.36 .19	10.8 0.3	25.86 .17	48.3 0.1
20.2	44.79 .15	29.3 0.2	37.19 .42	59.6 0.9	51.17 .19	10.5 0.4	25.69 .16	48.2 0.1
30.2	44.65 .13	29.2 0.2	36.79 .37	58.5 1.3	51.00 .16	10.0 0.6	25.54 .14	48.1 -0.1
Apr. 9.1	44.53 .10	29.0 -0.1	36.44 .31	57.0 1.7	50.85 .13	9.4 0.7	25.41 .12	48.0 0.0
19.1	44.45 .06	29.0 0.0	36.18 .23	55.2 1.9	50.74 .09	8.7 0.7	25.31 .09	48.1 +0.1
29.1	44.41 -.01	29.0 +0.1	36.00 .13	53.1 2.1	50.67 -.04	7.9 0.7	25.24 -.04	48.1 0.1
May 9.1	44.41 +.03	29.2 0.2	35.92 -.03	50.9 2.3	50.66 +.01	7.2 0.7	25.22 .00	48.3 0.3
19.0	44.46 .07	29.5 0.4	35.94 +.08	48.6 2.3	50.69 .06	6.6 0.6	25.25 +.05	48.6 0.4
29.0	44.56 .12	29.9 0.5	36.07 .18	46.4 2.2	50.78 .11	6.0 0.6	25.31 .09	49.1 0.5
June 8.0	44.70 .16	30.5 0.6	36.29 .26	44.2 2.1	50.92 .16	5.5 0.4	25.43 .14	49.6 0.6
17.9	44.88 .20	31.2 0.8	36.62 .37	42.2 1.9	51.11 .21	5.1 0.3	25.59 .18	50.3 0.7
27.9	45.11 .24	32.0 0.9	37.03 .45	40.3 1.7	51.34 .25	4.9 -0.1	25.78 .21	51.0 0.8
July 7.9	45.36 .27	32.9 1.0	37.52 .52	38.8 1.4	51.61 .29	4.9 0.0	26.01 .24	51.9 0.9
17.9	45.64 .29	33.9 1.0	38.07 .56	37.6 1.1	51.91 .31	5.0 +0.2	26.27 .27	52.7 0.9
27.8	45.93 .31	34.9 1.0	38.68 .63	36.6 0.8	52.23 .33	5.2 0.3	26.55 .29	53.7 0.9
Aug. 6.8	46.24 .22	36.0 1.0	39.33 .66	36.0 -0.4	52.58 .35	5.6 0.4	26.84 .30	54.6 0.9
16.8	46.56 .22	37.0 1.0	40.00 .69	35.8 0.0	52.93 .36	6.1 0.5	27.15 .31	55.4 0.8
26.8	46.88 .22	37.9 0.9	40.69 .70	35.9 +0.3	53.29 .36	6.7 0.6	27.46 .28	56.2 0.7
Sept. 5.7	47.20 .31	38.7 0.8	41.39 .69	36.4 0.7	53.65 .36	7.3 0.7	27.78 .29	56.9 0.6
15.7	47.51 .31	39.5 0.7	42.08 .68	37.2 1.0	54.01 .36	8.0 0.7	28.09 .31	57.5 0.5
25.7	47.81 .29	40.0 0.5	42.75 .66	38.4 1.3	54.36 .35	8.7 0.7	28.40 .30	57.9 0.3
Oct. 5.6	48.10 .26	40.5 0.4	43.39 .63	39.8 1.6	54.70 .33	9.4 0.7	28.70 .29	58.1 +0.2
15.6	48.37 .26	40.8 0.2	44.01 .59	41.6 1.9	55.02 .31	10.2 0.8	28.99 .26	58.2 0.0
25.6	48.62 .24	41.0 +0.1	44.57 .54	43.6 2.2	55.33 .29	10.9 0.8	29.25 .26	58.2 -0.1
Nov. 4.6	48.84 .21	41.0 0.0	45.07 .47	45.9 2.4	55.60 .26	11.7 0.8	29.50 .24	58.0 0.2
14.5	49.04 .18	40.9 -0.1	45.51 .40	48.3 2.5	55.85 .23	12.5 0.8	29.73 .21	57.8 0.3
24.5	49.21 .15	40.8 0.2	45.87 .32	50.9 2.6	56.07 .20	13.3 0.8	29.92 .18	57.5 0.3
Dec. 4.5	49.34 .12	40.6 0.2	46.14 .22	53.5 2.7	56.24 .16	14.1 0.8	30.08 .14	57.2 0.3
14.5	49.44 .08	40.4 0.2	46.31 .12	56.2 2.6	56.38 .11	14.9 0.8	30.21 .11	56.8 0.3
24.4	49.49 +.04	40.2 0.2	46.39 +.02	58.8 2.5	56.46 .06	15.7 0.7	30.29 .06	56.5 0.3
34.4	49.51 -.01	40.0 -0.2	46.36 -.02	61.2 +2.3	56.50 +.01	16.4 +0.7	30.33 +.02	56.2 -0.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	<i>α</i> Aurigæ.			<i>β</i> Orionis. (<i>Rigel</i> .)		<i>β</i> Tauri.		*Groombridge 966.	
	Right Ascension.	Declination North.		Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 5 7	° ′ +45 52		h m 5 8	° ′ -8 20	h m 5 18	° ′ +28 29	h m 5 22	° ′ +74 57
(Dec. 30.4)	28.59 +.05	17.4 +1.5		32.80 +.03	46.7 -1.6	24.40 +.06	8.1 +0.5	65.31 +.03	34.7 +2.9
Jan. 9.4	28.61 -.02	18.8 1.4		32.81 -.02	48.3 1.4	24.43 +.01	8.0 0.5	65.25 -.14	37.5 2.7
19.4	28.56 .06	20.1 1.2		32.77 .06	49.6 1.2	24.42 -.04	9.0 0.4	65.03 .30	40.1 2.5
29.4	28.45 .13	21.2 1.0		32.69 .10	50.7 1.0	24.35 .09	9.4 0.4	64.66 .44	42.4 2.1
Feb. 8.3	28.30 .18	22.1 0.7		32.58 .13	51.6 0.8	24.24 .13	9.7 0.3	64.15 .56	44.3 1.7
18.3	28.11 .21	22.7 0.5		32.43 .15	52.3 0.5	24.10 .16	9.9 +0.2	63.54 .66	45.7 1.2
28.3	27.88 .23	23.0 +0.1		32.27 .17	52.7 -0.3	23.93 .18	10.0 0.0	62.86 .71	46.6 0.7
Mar. 10.2	27.64 .24	22.9 -0.2		32.10 .17	52.8 0.0	23.75 .19	10.0 -0.1	62.13 .74	47.0 +0.1
20.2	27.40 .24	22.6 0.5		31.93 .17	52.7 +0.2	23.57 .18	9.9 0.2	61.40 .72	46.8 -0.5
30.2	27.17 .21	22.0 0.7		31.76 .16	52.4 0.5	23.39 .17	9.6 0.3	60.60 .68	46.1 1.0
Apr. 9.2	26.98 .18	21.2 0.9		31.62 .13	51.7 0.7	23.24 .14	9.2 0.4	60.05 .60	44.9 1.4
19.1	26.82 .13	20.1 1.1		31.50 .10	50.9 1.0	23.11 .11	8.8 0.5	69.51 .49	43.3 1.8
29.1	26.71 .08	18.9 1.3		31.42 .07	49.8 1.2	23.03 .06	8.4 0.5	59.08 .37	41.3 2.2
May 9.1	26.66 -.02	17.6 1.3		31.37 -.02	48.5 1.4	22.99 -.02	7.9 0.5	58.78 .22	39.0 2.4
19.1	26.67 +.04	16.3 1.4		31.37 +.02	47.0 1.6	22.99 +.02	7.5 0.4	58.63 -.07	36.5 2.6
29.0	26.75 .10	14.9 1.3		31.41 .06	45.3 1.8	23.05 .08	7.1 0.3	58.64 +.09	33.9 2.6
June 8.0	26.68 .16	13.7 1.2		31.49 .11	43.5 1.9	23.15 .12	6.8 0.3	58.80 .24	31.3 2.6
18.0	27.07 .22	12.5 1.1		31.62 .14	41.6 2.0	23.30 .17	6.6 0.2	59.12 .39	28.7 2.5
27.9	27.32 .27	11.5 1.0		31.78 .18	39.6 2.0	23.50 .22	6.5 -0.1	59.58 .53	26.3 2.4
July 7.9	27.61 .31	10.6 0.8		31.98 .21	37.7 2.0	23.73 .25	6.5 +0.1	60.17 .65	24.0 2.1
17.9	27.94 .26	9.9 0.6		32.21 .24	35.7 1.9	24.00 .28	6.6 0.2	60.87 .76	22.0 1.9
27.9	28.31 .28	9.5 0.4		32.46 .26	33.9 1.7	24.29 .30	6.8 0.2	61.68 .86	20.3 1.6
Aug. 6.8	28.70 .40	9.2 -0.2		32.73 .28	32.3 1.5	24.60 .32	7.1 0.3	62.58 .93	18.9 1.2
16.8	29.11 .42	9.1 0.0		33.01 .29	30.9 1.3	24.93 .33	7.4 0.4	63.54 .99	17.9 0.8
26.8	29.53 .43	9.2 +0.2		33.31 .30	29.8 1.0	25.27 .34	7.8 0.4	64.55 1.03	17.2 0.5
Sept. 5.8	29.96 .42	9.5 0.4		33.60 .30	29.0 0.6	25.61 .35	8.2 0.4	65.60 1.06	17.0 -0.1
15.7	30.39 .43	10.0 0.6		33.90 .30	28.6 +0.3	25.96 .35	8.6 0.4	66.66 1.06	17.1 +0.3
25.7	30.81 .42	10.6 0.7		34.19 .29	28.5 -0.1	26.30 .34	9.0 0.4	67.71 1.05	17.6 0.7
Oct. 5.7	31.22 .41	11.4 0.9		34.48 .28	28.8 0.5	26.64 .33	9.3 0.4	68.75 1.02	18.6 1.1
15.6	31.62 .36	12.3 1.0		34.75 .27	29.5 0.8	26.97 .32	9.7 0.4	69.76 .98	19.9 1.5
25.6	31.99 .36	13.4 1.1		35.01 .26	30.5 1.1	27.28 .30	10.0 0.3	70.70 .91	21.6 1.9
Nov. 4.6	32.34 .33	14.6 1.3		35.24 .23	31.7 1.4	27.57 .28	10.4 0.4	71.57 .82	23.6 2.2
14.6	32.66 .30	15.9 1.3		35.46 .20	33.2 1.6	27.84 .25	10.7 0.4	72.34 .72	25.9 2.5
24.5	32.93 .26	17.3 1.4		35.64 .17	34.9 1.7	28.07 .22	11.1 0.4	72.99 .59	28.5 2.7
Dec. 4.5	33.16 .20	18.8 1.5		35.79 .13	36.6 1.8	28.28 .18	11.5 0.4	73.52 .45	31.3 2.9
14.5	33.33 .15	20.3 1.5		35.90 .09	38.4 1.8	28.44 .14	11.9 0.4	73.80 .30	34.2 2.9
24.5	33.45 .09	21.8 1.5		35.98 .05	40.1 1.7	28.55 .09	12.3 0.4	74.11 +.13	37.1 2.9
34.4	33.50 +.02	23.3 +1.5		36.01 +.01	41.7 -1.5	28.62 +.04	12.8 +0.4	74.15 -.04	40.0 +2.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Orionis.		α Leporis.		ε Orionis.		α Columbe.	
	Right Ascension.	Declination South.	Right Ascension.	Declination South.	Right Ascension.	Declination South.	Right Ascension.	Declination South.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	5 25	-0 23	5 27	-17 54	5 29	-1 16	5 35	-34 8
(Dec. 30.4)	38.22 +.05	30.5 -1.3	14.18 +.03	42.8 -2.1	53.20 +.06	54.4 -1.3	8.80 +.06	26.6 -2.8
Jan. 9.4	38.24 .00	31.7 1.1	14.19 -.02	44.8 1.9	53.23 +.01	55.6 1.2	8.78 -.04	29.3 2.6
19.4	38.23 -.04	32.8 1.0	14.15 .06	46.6 1.7	53.21 -.04	56.8 1.0	8.72 .00	31.7 2.3
29.4	38.17 .08	33.7 0.8	14.07 .10	48.2 1.4	53.15 .08	57.7 0.9	8.60 .14	33.8 1.9
Feb. 8.3	38.07 .11	34.4 0.6	13.95 .13	49.4 1.1	53.06 .11	58.5 0.7	8.45 .17	35.5 1.5
18.3	37.94 .14	34.9 0.4	13.80 .16	50.4 0.8	52.93 .14	59.0 0.5	8.26 .21	36.8 1.1
28.3	37.79 .16	35.3 0.3	13.63 .18	51.0 0.4	52.78 .16	59.4 0.3	8.04 .23	37.7 0.6
Mar. 10.3	37.63 .17	35.4 -0.1	13.45 .19	51.2 -0.1	52.62 .17	59.6 -0.1	7.81 .24	38.0 -0.2
20.2	37.46 .17	35.4 +0.1	13.26 .19	51.1 +0.3	52.45 .17	59.6 +0.1	7.57 .24	38.0 +0.3
30.2	37.30 .16	35.3 0.2	13.07 .18	50.7 0.6	52.28 .16	59.4 0.3	7.34 .22	37.6 0.7
Apr. 9.2	37.15 .13	34.9 0.5	12.91 .15	50.0 0.9	52.14 .14	59.0 0.5	7.12 .20	36.5 1.1
19.1	37.03 .11	34.4 0.6	12.77 .13	49.0 1.2	52.02 .11	58.5 0.7	6.94 .17	35.2 1.5
29.1	36.94 .07	33.6 0.8	12.66 .09	47.6 1.5	51.92 .07	57.7 0.8	6.78 .14	33.5 1.9
May 9.1	36.89 -.03	32.7 1.0	12.58 .05	46.0 1.7	51.87 -.04	56.8 1.0	6.66 .10	31.4 2.2
19.1	36.83 +.01	31.7 1.1	12.55 -.01	44.2 2.0	51.85 +.01	55.7 1.2	6.50 -.05	29.1 2.5
29.0	36.91 .05	30.5 1.3	12.57 +.03	42.1 2.1	51.88 .05	54.5 1.3	6.57 .00	26.5 2.7
June 8.0	36.99 .10	29.1 1.4	12.62 .08	39.9 2.3	51.95 .09	53.1 1.4	6.59 +.05	23.7 2.9
18.0	37.11 .14	27.7 1.5	12.72 .12	37.6 2.4	52.07 .13	51.6 1.5	6.66 .10	20.7 2.9
28.0	37.26 .17	26.2 1.5	12.86 .16	35.3 2.4	52.22 .17	50.1 1.6	6.78 .14	17.8 3.0
July 7.9	37.45 .21	24.6 1.5	13.04 .19	32.9 2.3	52.40 .20	48.5 1.6	6.94 .18	14.9 2.9
17.9	37.67 .23	23.1 1.5	13.25 .22	30.6 2.2	52.62 .23	46.9 1.5	7.14 .22	12.1 2.7
27.9	37.91 .26	21.6 1.4	13.48 .25	28.5 2.0	52.86 .25	45.5 1.4	7.38 .25	9.5 2.5
Aug. 6.8	38.18 .27	20.3 1.3	13.74 .27	26.6 1.8	53.12 .27	44.1 1.3	7.65 .28	7.1 2.2
16.8	38.46 .29	19.1 1.1	14.02 .28	25.0 1.5	53.39 .28	42.9 1.1	7.93 .30	5.1 1.8
26.8	38.75 .29	18.1 0.8	14.31 .29	23.7 1.1	53.68 .29	41.9 0.9	8.24 .31	3.6 1.3
Sept. 5.8	39.04 .30	17.4 0.8	14.60 .30	22.8 0.7	53.98 .30	41.2 0.6	8.56 .32	2.6 0.8
15.7	39.34 .30	17.0 +0.3	14.91 .30	22.3 +0.2	54.27 .30	40.8 +0.3	8.89 .33	2.1 +0.2
25.7	39.64 .29	16.9 0.0	15.21 .30	22.3 -0.2	54.57 .30	40.6 0.0	9.21 .33	2.1 -0.3
Oct. 5.7	39.93 .29	17.1 -0.3	15.50 .29	22.8 0.7	54.86 .29	40.8 -0.4	9.53 .32	2.7 0.9
15.7	40.21 .28	17.5 0.6	15.79 .28	23.7 1.1	55.15 .28	41.3 0.6	9.84 .30	3.9 1.4
25.6	40.48 .26	18.3 0.9	16.05 .26	24.9 1.5	55.42 .27	42.1 0.9	10.14 .28	5.5 1.9
Nov. 4.6	40.74 .24	19.2 1.1	16.30 .24	26.6 1.8	55.68 .25	43.1 1.1	10.41 .26	7.6 2.3
14.6	40.97 .22	20.4 1.2	16.53 .21	28.5 2.1	55.91 .22	44.3 1.3	10.65 .29	10.1 2.6
24.5	41.17 .19	21.7 1.3	16.73 .18	30.7 2.2	56.12 .19	45.7 1.4	10.85 .18	12.9 2.9
Dec. 4.5	41.34 .16	23.0 1.4	16.89 .14	32.9 2.3	56.29 .16	47.1 1.5	11.01 .14	15.8 3.0
14.5	41.48 .12	24.4 1.4	17.01 .10	35.2 2.3	56.43 .12	48.6 1.4	11.13 .09	18.8 3.0
24.5	41.58 .08	25.8 1.3	17.09 .06	37.5 2.2	56.53 .08	50.0 1.4	11.20 .04	21.8 2.9
34.4	41.63 +.03	27.0 -1.2	17.13 +.01	39.7 -2.1	56.59 +.04	51.3 -1.3	11.21 +.01	24.6 -2.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Orionis.		*22 Camelop. (H.)		μ Geminorum.		α Argus. (Canopus.)	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.
	h m 5 48	+7° 22'	h m 6 5	+69° 21'	h m 6 15	+22° 34'	h m 6 21	-52° 37'
(Dec. 30.5)	25.25 +.07	61.9 -0.9	6.97 +.16	45.5 +2.7	24.96 +.11	40.3 0.0	12.74 +.02	34.9 -3.5
Jan. 9.5	25.30 +.03	61.1 0.8	7.07 +.03	48.2 2.6	25.05 .06	40.3 +0.1	12.72 -.05	38.3 3.3
19.4	25.31 -.02	60.4 0.7	7.04 -.09	50.7 2.5	25.09 +.01	40.4 0.1	12.64 .12	41.5 3.0
29.4	25.27 .06	59.8 0.5	6.88 .21	53.1 2.2	25.08 -.04	40.6 0.2	12.48 .19	44.4 2.7
Feb. 8.4	25.19 .10	59.4 0.4	6.62 .22	55.2 1.9	25.02 .06	40.8 0.2	12.27 .24	46.9 2.3
18.3	25.07 .13	59.0 0.3	6.25 .41	56.9 1.5	24.92 .12	41.0 0.2	12.00 .29	48.9 1.8
28.3	24.93 .13	58.8 0.3	5.81 .47	58.2 1.1	24.78 .15	41.2 0.2	11.69 .33	50.5 1.3
Mar. 10.3	24.77 .17	58.6 -0.1	5.32 .51	59.1 0.8	24.62 .17	41.4 0.2	11.35 .35	51.5 0.8
20.3	24.61 .17	58.6 0.0	4.80 .52	59.4 +0.1	24.45 .18	41.5 +0.1	11.00 .36	52.1 -0.3
30.2	24.44 .16	58.7 +0.1	4.28 .51	59.3 -0.4	24.27 .17	41.6 0.0	10.64 .35	52.1 +0.3
Apr. 9.2	24.20 .14	58.9 0.2	3.78 .47	58.6 0.9	24.11 .16	41.6 0.0	10.30 .34	51.6 0.6
19.2	24.16 .11	59.2 0.3	3.34 .41	57.5 1.3	23.96 .13	41.5 -0.1	9.97 .31	50.6 1.2
29.2	24.07 .06	59.6 0.5	2.97 .33	56.0 1.7	23.85 .10	41.4 0.1	9.67 .27	49.1 1.7
May 9.1	24.00 -.04	60.1 0.6	2.69 .23	54.2 2.0	23.76 .06	41.3 0.1	9.42 .23	47.2 2.1
19.1	23.98 .00	60.7 0.7	2.51 .13	52.1 2.2	23.72 -.02	41.2 0.1	9.22 .18	44.9 2.4
29.1	24.00 +.04	61.5 0.8	2.43 -.02	49.8 2.4	23.72 +.02	41.1 -0.1	9.07 .12	42.2 2.8
June 8.0	24.06 .02	62.3 0.9	2.47 +.10	47.3 2.5	23.77 .07	41.1 0.0	8.98 -.06	39.3 3.0
18.0	24.16 .12	63.2 1.0	2.02 .21	44.9 2.5	23.86 .11	41.1 0.0	8.95 .00	36.2 3.2
28.0	24.31 .16	64.2 1.0	2.88 .31	42.5 2.4	23.99 .15	41.1 +0.1	9.98 +.06	32.9 3.3
July 8.0	24.48 .19	65.3 1.1	3.24 .41	40.1 2.3	24.16 .19	41.2 0.1	9.07 .12	29.7 3.3
17.9	24.69 .22	66.4 1.1	3.70 .50	37.9 2.1	24.36 .22	41.3 0.1	9.22 .18	26.5 3.2
27.9	24.92 .25	67.4 1.0	4.24 .58	36.0 1.9	24.60 .25	41.4 0.1	9.42 .23	23.4 3.0
Aug. 6.9	25.18 .27	68.4 0.9	4.85 .64	34.2 1.6	24.86 .27	41.5 0.1	9.68 .28	20.5 2.7
16.9	25.46 .28	69.2 0.8	5.52 .70	32.8 1.3	25.14 .28	41.6 0.1	9.98 .32	18.1 2.3
26.8	25.74 .28	69.9 0.6	6.24 .74	31.6 1.0	25.44 .31	41.7 +0.1	10.31 .35	16.0 1.8
Sept. 5.8	26.04 .30	70.5 0.4	7.00 .77	30.7 0.7	25.75 .32	41.8 0.0	10.68 .38	14.5 1.3
15.8	26.34 .30	70.8 +0.2	7.79 .80	30.2 -0.3	26.07 .33	41.8 -0.1	11.08 .40	13.5 +0.7
25.7	26.65 .30	70.0 0.0	8.59 .80	30.1 0.0	26.40 .33	41.7 0.2	11.48 .41	13.2 0.0
Oct. 5.7	26.95 .30	70.7 -0.2	9.39 .80	30.3 +0.4	26.74 .33	41.5 0.2	11.90 .41	13.4 -0.6
15.7	27.25 .29	70.4 0.4	10.18 .78	30.9 0.8	27.07 .33	41.2 0.3	12.31 .40	14.4 1.3
25.7	27.54 .28	69.8 0.7	10.95 .75	31.8 1.1	27.39 .32	41.0 0.3	12.70 .38	15.9 1.8
Nov. 4.6	27.81 .27	69.1 0.8	11.68 .70	33.1 1.5	27.71 .31	40.7 0.3	13.07 .35	18.0 2.4
14.6	28.07 .24	68.2 0.9	12.35 .64	34.8 1.8	28.01 .29	40.3 0.3	13.40 .31	20.7 2.8
24.6	28.30 .22	67.3 1.0	12.96 .56	36.7 2.1	28.28 .26	40.0 0.3	13.69 .26	23.7 3.2
Dec. 4.6	28.50 .19	66.3 1.0	13.47 .47	39.0 2.3	28.53 .22	39.7 0.2	13.92 .20	27.0 2.4
14.5	28.67 .15	65.3 1.0	13.89 .36	41.4 2.5	28.74 .19	39.5 0.2	14.08 .14	30.5 3.5
24.5	28.79 .11	64.3 0.9	14.19 .24	43.9 2.6	28.91 .15	39.4 -0.1	14.19 .07	34.1 3.6
34.5	28.88 +.06	63.4 -0.8	14.37 +.12	46.6 +2.7	29.04 +.10	39.3 0.0	14.22 +.01	37.6 -3.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Geminorum.		α Canis Majoris. (Sirius.)		ϵ Canis Majoris.		δ Canis Majoris.	
	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination South.	Right Ascension.	Declination South.
	^h ^m 6 30	+16° 30'	^h ^m 6 39	-16° 32'	^h ^m 6 53	-28° 47'	^h ^m 7 3	-26° 11'
(Dec. 30.5)	^s 30.47 +.12	" 22.1 -0.4	^s 39.35 +.11	" 40.4 -2.4	^s 44.07 +.11	" 63.7 -3.0	^s 19.73 +.12	" 36.0 -2.9
Jan. 9.5	30.57 .08	21.7 0.3	39.42 +.05	42.7 2.3	44.15 +.05	66.6 2.8	19.82 .07	38.9 2.7
19.4	30.62 +.03	21.4 0.2	39.45 .00	44.9 2.1	44.17 .00	69.4 2.6	19.86 +.01	41.5 2.6
29.4	30.63 -.02	21.3 0.1	39.43 -.04	46.8 1.8	44.15 -.05	71.8 2.4	19.85 -.04	44.0 2.3
Feb. 8.4	30.58 .07	21.2 -0.1	39.37 .09	48.5 1.5	44.07 .10	74.0 2.0	19.79 .09	46.1 2.0
18.4	30.49 .11	21.2 0.0	39.26 .12	49.9 1.2	43.95 .14	75.9 1.7	19.68 .13	47.9 1.7
28.4	30.37 .14	21.2 +0.1	39.12 .16	51.0 0.9	43.79 .18	77.4 1.3	19.54 .16	49.4 1.3
Mar. 10.3	30.22 .16	21.3 0.1	38.95 .18	51.7 0.6	43.60 .20	78.4 0.9	19.36 .19	50.5 0.9
20.3	30.05 .17	21.4 0.1	38.77 .19	52.1 -0.3	43.40 .21	79.1 0.5	19.17 .20	51.2 0.5
30.3	29.98 .17	21.5 0.1	38.59 .19	52.2 +0.1	43.19 .21	79.4 -0.1	18.96 .21	51.6 -0.1
Apr. 9.2	29.72 .16	21.6 0.1	38.41 .18	52.0 0.4	42.98 .21	79.2 +0.4	18.76 .20	51.5 +0.3
19.2	29.58 .13	21.7 0.1	38.24 .16	51.5 0.7	42.78 .19	78.7 0.7	18.57 .18	51.0 0.6
29.2	29.46 .11	21.9 0.1	38.09 .13	50.6 1.0	42.60 .17	77.8 1.1	18.40 .16	50.2 1.0
May 9.2	29.37 .07	22.0 0.2	37.98 .10	49.5 1.2	42.45 .14	76.5 1.5	18.25 .13	49.0 1.3
19.1	29.32 -.03	22.2 0.2	37.90 .07	48.1 1.5	42.33 .10	74.9 1.8	18.13 .10	47.6 1.6
29.1	29.30 +.01	22.4 0.2	37.85 -.03	46.6 1.7	42.25 .06	72.9 2.1	18.05 .06	45.8 1.9
June 8.1	29.33 .05	22.7 0.3	37.84 +.01	44.8 1.9	42.21 -.09	70.8 2.3	18.01 -.02	43.8 2.1
18.0	29.41 .09	23.0 0.3	37.88 .05	42.8 2.0	42.21 +.02	68.4 2.4	18.01 +.02	41.5 2.3
28.0	29.52 .13	23.3 0.4	37.95 .09	40.8 2.1	42.25 .06	65.9 2.5	18.05 .06	39.2 2.4
July 8.0	29.66 .17	23.7 0.4	38.05 .13	38.7 2.1	42.34 .10	63.3 2.6	18.12 .10	36.7 2.5
18.0	29.85 .20	24.1 0.4	38.20 .16	36.7 2.0	42.46 .14	60.8 2.5	18.24 .13	34.3 2.4
27.9	30.06 .23	24.4 0.4	38.37 .19	34.7 1.9	42.62 .18	58.3 2.4	18.39 .17	31.9 2.3
Aug. 6.9	30.30 .25	24.8 0.3	38.58 .22	32.9 1.7	42.81 .21	56.0 2.2	18.57 .20	29.7 2.1
16.9	30.56 .27	25.1 0.3	38.81 .24	31.3 1.5	43.03 .24	53.9 1.9	18.78 .23	27.7 1.9
26.9	30.83 .29	25.3 0.2	39.06 .26	29.9 1.2	43.28 .26	52.1 1.6	19.02 .25	26.0 1.5
Sept. 5.8	31.13 .30	25.4 +0.1	39.32 .28	29.0 0.8	43.55 .28	50.8 1.1	19.28 .27	24.6 1.1
15.8	31.43 .31	25.4 -0.1	39.61 .29	28.4 +0.4	43.84 .30	49.9 0.7	19.57 .29	23.7 0.7
25.8	31.75 .32	25.2 0.2	39.90 .30	28.2 -0.1	44.15 .31	49.5 +0.1	19.86 .31	23.3 +0.2
Oct. 5.7	32.07 .32	24.9 0.4	40.20 .30	28.5 0.5	44.47 .32	49.6 -0.4	20.18 .32	23.4 -0.4
15.7	32.39 .32	24.5 0.5	40.51 .30	29.3 0.9	44.79 .32	50.3 0.9	20.49 .32	24.1 0.9
25.7	32.71 .32	24.0 0.6	40.81 .30	30.4 1.4	45.11 .32	51.5 1.4	20.81 .32	25.2 1.4
Nov. 4.7	33.02 .31	23.4 0.7	41.10 .29	32.0 1.7	45.42 .31	53.1 1.9	21.13 .31	26.8 1.8
14.6	33.32 .29	22.7 0.7	41.38 .27	33.9 2.1	45.72 .29	55.3 2.3	21.43 .29	28.8 2.2
24.6	33.59 .27	22.0 0.7	41.64 .25	36.0 2.3	45.99 .26	57.7 2.6	21.70 .27	31.2 2.5
Dec. 4.6	33.84 .24	21.3 0.7	41.87 .21	38.4 2.4	46.24 .23	60.5 2.9	21.96 .23	33.9 2.8
14.6	34.06 .20	20.6 0.6	42.06 .17	40.8 2.5	46.44 .18	63.4 3.0	22.17 .20	36.7 2.9
24.5	34.24 .16	20.1 0.5	42.21 .13	43.3 2.5	46.60 .14	66.4 3.0	22.34 .15	39.6 2.9
34.5	34.37 +.11	19.6 -0.4	42.32 +.09	45.7 -2.4	46.72 +.09	69.4 -3.0	22.47 +.10	42.5 -2.9

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Geminorum.		* Piazzii vii. 67.		α Geminorum. (Castor.)		α Canis Minoris. (Procyon.)	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 7 12	+22° 12'	h m 7 17	+68° 42'	h m 7 26	+32° 9'	h m 7 32	+5° 32'
(Dec. 30.5)	40.51 +.18	44.3 -0.3	54.78 +.35	66.0 +2.4	38.26 +.21	42.6 +0.3	46.51 +.18	43.4 -1.4
Jan. 9.5	40.66 .12	44.2 -0.1	55.07 .23	68.4 2.5	38.43 .15	43.0 0.5	46.66 .13	42.0 1.2
19.5	40.76 .07	44.2 +0.1	55.23 +.10	71.0 2.6	38.56 .09	43.6 0.7	46.76 .08	40.9 1.0
29.5	40.80 +.02	44.3 0.9	55.27 -0.03	73.6 2.5	38.62 +.03	44.3 0.7	46.82 +.03	40.0 0.9
Feb. 8.4	40.79 -0.04	44.5 0.3	55.18 .15	76.1 2.4	38.62 -0.02	45.0 0.8	46.82 -0.02	39.2 0.7
18.4	40.73 .08	44.8 0.3	54.97 .26	78.3 2.2	38.57 .07	45.8 0.8	46.78 .07	38.6 0.5
28.4	40.63 .12	45.2 0.4	54.66 .36	80.3 1.8	38.48 .12	46.6 0.8	46.69 .10	38.2 0.3
Mar. 10.3	40.50 .15	45.5 0.3	54.26 .43	82.0 1.4	38.34 .15	47.4 0.7	46.57 .13	38.0 -0.2
20.3	40.34 .16	45.8 0.3	53.81 .47	83.2 1.0	38.18 .17	48.0 0.6	46.43 .15	37.8 0.0
30.3	40.18 .17	46.1 0.3	53.33 .50	83.0 +0.5	38.00 .19	48.5 0.4	46.28 .16	37.9 +0.1
Apr. 9.3	40.01 .17	46.3 0.2	52.83 .49	84.2 0.0	37.81 .19	48.8 0.2	46.12 .16	38.0 0.2
19.2	39.85 .15	46.5 0.1	52.35 .47	83.9 -0.5	37.63 .17	48.9 +0.1	45.96 .15	38.3 0.3
29.2	39.71 .13	46.6 +0.1	51.91 .42	83.2 1.0	37.47 .15	48.9 -0.1	45.83 .13	38.6 0.4
May 9.2	39.59 .10	46.7 0.0	51.52 .35	82.0 1.4	37.34 .12	48.8 0.2	45.71 .10	39.0 0.5
19.2	39.51 .08	46.7 0.0	51.21 .27	80.5 1.7	37.24 .08	48.5 0.4	45.62 .08	39.6 0.6
29.1	39.47 -0.02	46.6 -0.1	50.99 .18	78.6 2.0	37.17 -0.04	48.0 0.5	45.56 .04	40.2 0.6
June 8.1	39.46 +0.01	46.6 0.1	50.86 -0.08	76.4 2.3	37.15 .00	47.5 0.6	45.54 -0.01	40.8 0.7
18.1	39.50 .05	46.5 0.1	50.83 +0.02	74.0 2.5	37.17 +0.04	46.9 0.7	45.55 +0.03	41.5 0.7
28.0	39.57 .09	46.4 0.1	50.90 .12	71.5 2.6	37.23 .08	46.2 0.7	45.59 .06	42.3 0.8
July 8.0	39.69 .13	46.3 0.1	51.07 .22	69.0 2.6	37.34 .12	45.5 0.7	45.67 .10	43.1 0.8
18.0	39.84 .17	46.2 0.1	51.33 .31	66.4 2.6	37.48 .16	44.8 0.8	45.78 .13	43.9 0.8
28.0	40.02 .20	46.1 0.2	51.69 .40	63.8 2.5	37.66 .20	44.0 0.8	45.92 .16	44.6 0.7
Aug. 6.9	40.23 .22	45.9 0.2	52.13 .48	61.4 2.4	37.87 .23	43.2 0.8	46.10 .18	45.2 0.6
16.9	40.46 .25	45.7 0.2	52.65 .55	59.1 2.2	38.12 .26	42.4 0.8	46.29 .21	45.7 0.5
26.9	40.72 .27	45.4 0.3	53.23 .62	57.0 2.0	38.39 .28	41.6 0.8	46.51 .23	46.1 0.3
Sept. 5.9	41.00 .29	45.1 0.4	53.88 .67	55.2 1.7	38.68 .31	40.8 0.8	46.75 .25	46.3 +0.1
15.8	41.30 .31	44.6 0.5	54.57 .72	53.6 1.4	39.00 .33	39.9 0.8	47.02 .27	46.3 -0.2
25.8	41.61 .32	44.1 0.6	55.30 .75	52.3 1.1	39.33 .34	39.1 0.8	47.30 .29	46.0 0.4
Oct. 5.8	41.94 .33	43.5 0.6	56.07 .78	51.4 0.8	39.68 .36	38.3 0.8	47.59 .30	45.4 0.7
15.7	42.27 .34	42.8 0.7	56.85 .79	50.8 -0.4	40.04 .37	37.4 0.8	47.90 .31	44.7 0.9
25.7	42.61 .34	42.1 0.8	57.64 .79	50.6 0.0	40.41 .37	36.7 0.7	48.21 .32	43.7 1.1
Nov. 4.7	42.95 .34	41.3 0.8	58.42 .77	50.8 +0.4	40.78 .37	36.0 0.6	48.53 .31	42.5 1.3
14.7	43.28 .33	40.6 0.7	59.17 .74	51.4 0.8	41.15 .36	35.5 0.5	48.84 .31	41.1 1.4
24.6	43.60 .31	39.8 0.7	59.88 .68	52.4 1.2	41.50 .34	35.0 0.4	49.14 .29	39.6 1.5
Dec. 4.6	43.90 .28	39.2 0.6	60.53 .61	53.8 1.6	41.83 .32	34.7 -0.2	49.42 .27	38.1 1.6
14.6	44.16 .25	38.7 0.5	61.11 .53	55.6 1.9	42.13 .28	34.7 0.0	49.67 .24	36.5 1.5
24.6	44.38 .20	38.2 0.3	61.58 .42	57.7 2.2	42.39 .24	34.7 +0.2	49.89 .20	35.0 1.5
34.5	44.56 +.16	38.0 -0.2	61.95 +.31	60.0 +2.4	42.60 +.19	35.0 +0.4	50.07 +.16	33.7 -1.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Geminorum. (Pollux.)		ϕ Geminorum.		*3 Ursæ Majoris (H.)		15 Argus (ι)	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.
	h m 7 37	+28° 19'	h m 7 45	+27° 5'	h m 8 0	+68° 50'	h m 8 2	-23° 56'
(Dec. 30.5)	41.06 +.21	39.4 0.0	51.90 +.22	19.2 -0.1	24.42 +.46	20.3 +2.1	14.27 +.18	31.9 -2.9
Jan. 9.5	41.24 .16	39.6 +0.2	52.09 .16	19.2 +0.1	24.82 .34	22.5 2.4	14.43 .13	34.8 2.8
19.5	41.37 .10	39.9 0.4	52.23 .11	19.5 0.3	25.09 .21	25.0 2.5	14.54 .08	37.6 2.7
29.5	41.44 +.04	40.3 0.5	52.31 +.05	19.8 0.4	25.24 +.08	27.6 2.6	14.59 +.03	40.2 2.5
Feb. 8.4	41.46 -.01	40.9 0.6	52.33 .00	20.3 0.5	25.25 -.05	30.2 2.6	14.59 -.02	42.6 2.2
18.4	41.42 .07	41.5 0.7	52.30 -.05	20.9 0.6	25.14 .17	32.7 2.4	14.55 .07	44.7 2.0
28.4	41.33 .11	42.2 0.7	52.22 .10	21.5 0.6	24.92 .28	35.0 2.2	14.46 .11	46.5 1.6
Mar. 10.3	41.20 .14	42.8 0.6	52.11 .13	22.1 0.6	24.59 .37	37.0 1.9	14.33 .14	47.9 1.3
20.3	41.05 .16	43.4 0.5	51.96 .16	22.7 0.5	24.19 .43	38.7 1.5	14.17 .17	49.0 0.9
30.3	40.88 .18	43.9 0.4	51.80 .17	23.2 0.5	23.74 .47	39.9 1.0	14.00 .18	49.8 0.5
Apr. 9.3	40.71 .18	44.3 0.3	51.62 .17	23.6 0.4	23.26 .49	40.7 +0.5	13.81 .19	50.1 -0.2
19.2	40.53 .17	44.5 0.2	51.46 .16	23.9 0.2	22.77 .48	40.9 0.0	13.63 .18	50.1 +0.2
29.2	40.38 .15	44.6 +0.1	51.30 .14	24.1 +0.1	22.30 .45	40.7 -0.5	13.45 .17	49.8 0.5
May 9.2	40.24 .12	44.6 -0.1	51.17 .12	24.1 0.0	21.86 .41	40.0 0.9	13.30 .15	49.1 0.9
19.2	40.14 .09	44.5 0.2	51.07 .09	24.1 -0.1	21.49 .34	38.9 1.4	13.16 .12	48.1 1.2
29.1	40.08 .05	44.2 0.3	51.00 .05	23.9 0.2	21.19 .27	37.3 1.7	13.05 .10	46.8 1.5
June 8.1	40.05 -.01	43.9 0.4	50.97 -.01	23.6 0.3	20.96 .18	35.4 2.1	12.97 .06	45.2 1.7
18.1	40.06 +.03	43.5 0.4	50.97 +.03	23.3 0.4	20.83 -.08	33.2 2.3	12.93 -.03	43.4 1.9
28.0	40.11 .07	43.0 0.5	51.02 .06	22.9 0.4	20.80 +.01	30.8 2.5	12.92 +.01	41.4 2.1
July 8.0	40.20 .11	42.5 0.5	51.10 .10	22.4 0.5	20.86 .11	28.2 2.7	12.94 .04	39.3 2.2
18.0	40.33 .15	41.9 0.6	51.22 .14	21.9 0.5	21.01 .20	25.5 2.7	13.00 .08	37.2 2.2
28.0	40.49 .18	41.3 0.6	51.37 .17	21.4 0.6	21.26 .29	22.7 2.7	13.09 .11	35.0 2.1
Aug. 6.9	40.69 .21	40.7 0.7	51.56 .20	20.8 0.6	21.59 .38	20.0 2.7	13.22 .14	32.9 2.0
16.9	40.91 .24	40.0 0.7	51.77 .23	20.1 0.7	22.01 .46	17.3 2.6	13.37 .17	31.0 1.8
26.9	41.16 .28	39.3 0.7	52.01 .26	19.4 0.8	22.50 .53	14.8 2.5	13.56 .20	29.3 1.6
Sept. 5.9	41.44 .29	38.5 0.8	52.28 .28	18.6 0.8	23.06 .60	12.4 2.3	13.78 .23	27.9 1.2
15.8	41.73 .31	37.7 0.8	52.57 .30	17.8 0.9	23.69 .65	10.3 2.0	14.03 .26	26.9 0.8
25.8	42.05 .33	36.9 0.9	52.88 .32	16.9 0.9	24.37 .71	8.4 1.8	14.30 .28	26.3 +0.4
Oct. 5.8	42.38 .34	36.0 0.9	53.21 .33	16.0 0.9	25.09 .74	6.8 1.4	14.59 .30	26.1 -0.1
15.7	43.73 .35	35.1 0.9	53.55 .35	15.1 1.0	25.85 .77	5.5 1.1	14.90 .32	25.5 0.6
25.7	43.08 .36	34.2 0.9	53.90 .36	14.1 1.0	26.64 .79	4.7 0.7	15.22 .32	27.4 1.1
Nov. 4.7	43.44 .36	33.4 0.8	54.26 .36	13.1 0.9	27.43 .79	4.2 -0.2	15.54 .33	28.7 1.6
14.7	43.80 .35	32.6 0.7	54.61 .35	12.3 0.8	28.21 .78	4.2 +0.2	15.87 .32	30.5 2.0
24.6	44.14 .34	31.9 0.6	54.96 .34	11.5 0.7	28.97 .74	4.6 0.6	16.18 .31	32.7 2.4
Dec. 4.6	44.47 .31	31.4 0.5	55.29 .32	10.8 0.6	29.69 .69	5.5 1.1	16.48 .28	35.2 2.6
14.6	44.76 .28	31.0 0.3	55.59 .28	10.3 0.4	30.34 .61	6.8 1.5	16.75 .25	37.9 2.8
24.6	45.02 .24	30.8 -0.1	55.86 .24	10.0 -0.2	30.91 .52	8.5 1.9	16.98 .21	40.8 2.9
34.5	45.24 +.19	30.8 +0.1	56.08 +.20	9.9 0.0	31.37 +.41	10.5 +2.2	17.17 +.15	43.7 -2.9

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ε Hydras.		ε Ursæ Majoris.		*σ ² Ursæ Majoris.		κ Cancrī.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	8 40	+6 52	8 50	+48 31	8 59	+67 37	9 0	+11 10
(Dec. 30.6)	10.20 +.23	39.8 -1.5	40.03 +.35	48.4 +0.7	25.19 +.55	77.1 +1.5	59.30 +.26	16.4 -1.4
Jan. 9.6	10.42 .19	38.4 1.3	40.34 .29	49.3 1.0	25.69 .45	78.8 1.9	59.54 .22	15.2 1.2
19.6	10.59 .15	37.1 1.1	40.60 .22	50.5 1.3	26.09 .34	80.9 2.2	59.73 .17	14.1 1.0
29.5	10.71 .09	36.1 0.9	40.78 .15	51.0 1.6	26.38 .22	83.2 2.5	59.88 .12	13.3 0.7
Feb. 8.5	10.78 +.04	35.3 0.7	40.89 .07	53.6 1.7	26.54 +.10	85.8 2.6	59.97 .07	12.7 0.5
18.4	10.79 -.01	34.7 0.5	40.92 +.00	55.3 1.8	26.58 -.02	88.4 2.6	60.01 +.02	12.3 0.3
28.4	10.77 .05	34.3 0.3	40.89 -.07	57.1 1.8	26.50 .14	90.9 2.5	60.00 -.03	12.1 -0.1
Mar. 10.4	10.70 .06	34.0 -0.1	40.79 .13	58.9 1.7	26.31 .24	93.4 2.3	59.95 .07	12.1 +0.1
20.4	10.60 .11	34.0 0.0	40.64 .17	60.5 1.5	26.03 .32	95.5 2.0	59.87 .10	12.3 0.2
30.3	10.48 .13	34.1 +0.1	40.45 .21	61.9 1.3	25.68 .38	97.4 1.6	59.76 .12	12.5 0.3
Apr. 9.3	10.34 .14	34.3 0.2	40.24 .22	63.0 1.0	25.27 .43	98.8 1.2	59.63 .13	12.8 0.4
19.3	10.20 .14	34.6 0.3	40.01 .23	63.8 0.7	24.83 .45	99.8 0.7	59.50 .14	13.2 0.4
29.3	10.06 .14	34.9 0.4	39.78 .23	64.3 +0.3	24.38 .45	100.2 +0.2	59.36 .13	13.7 0.5
May 9.2	9.93 .12	35.4 0.5	39.56 .21	64.5 0.0	23.95 .43	100.2 -0.2	59.23 .12	14.1 0.5
19.2	9.82 .10	35.8 0.5	39.37 .18	64.3 -0.4	23.54 .39	99.8 0.7	59.12 .11	14.5 0.4
29.2	9.73 .06	36.4 0.5	39.20 .15	63.8 0.7	23.18 .34	98.8 1.2	59.02 .09	15.0 0.4
June 8.1	9.67 .05	36.9 0.6	39.07 .10	62.9 1.0	22.87 .27	97.4 1.6	58.95 .06	15.4 0.4
18.1	9.63 -.02	37.5 0.6	38.98 .07	61.8 1.3	22.63 .20	95.6 2.0	58.90 .03	15.8 0.4
28.1	9.62 +.01	38.1 0.6	38.94 -.02	60.4 1.5	22.47 .12	93.5 2.3	58.88 -.01	16.1 0.3
July 8.1	9.65 .04	38.6 0.6	38.94 +.03	58.8 1.7	22.39 -.04	91.1 2.5	58.89 +.02	16.5 0.3
18.0	9.70 .07	39.1 0.5	38.99 .07	57.0 1.9	22.39 +.04	88.5 2.7	58.92 .05	16.7 0.2
28.0	9.78 .10	39.6 0.4	39.08 .12	55.1 2.0	22.47 .13	85.7 2.9	58.99 .06	16.9 0.2
Aug. 7.0	9.89 .13	40.0 0.3	39.22 .16	53.1 2.1	22.64 .21	82.8 3.0	59.08 .11	17.0 +0.1
17.0	10.03 .15	40.3 +0.2	39.40 .20	51.0 2.1	22.89 .29	79.8 3.0	59.20 .14	16.9 -0.1
26.9	10.19 .18	40.4 0.0	39.63 .25	48.8 2.2	23.22 .37	76.9 2.9	59.35 .16	16.8 0.3
Sept. 5.9	10.39 .21	40.3 -0.2	39.89 .29	46.6 2.2	23.62 .44	74.0 2.8	59.53 .19	16.4 0.4
15.9	10.61 .23	40.1 0.4	40.20 .32	44.5 2.1	24.09 .51	71.2 2.7	59.73 .22	15.9 0.6
25.8	10.85 .26	39.6 0.6	40.54 .36	42.4 2.0	24.63 .57	68.6 2.5	59.97 .25	15.1 0.9
Oct. 5.8	11.12 .28	38.8 0.8	40.91 .39	40.5 1.9	25.23 .63	66.2 2.3	60.23 .27	14.2 1.1
15.8	11.40 .30	37.9 1.1	41.32 .42	38.6 1.8	25.88 .68	64.1 1.9	60.51 .30	13.0 1.2
25.8	11.71 .32	36.7 1.3	41.76 .45	37.0 1.6	26.58 .71	62.3 1.6	60.82 .31	11.7 1.4
Nov. 4.7	12.03 .33	35.3 1.5	42.21 .46	35.5 1.3	27.30 .74	60.9 1.9	61.14 .33	10.2 1.6
14.7	12.36 .33	33.7 1.6	42.67 .47	34.4 1.0	28.05 .75	60.0 0.7	61.47 .34	8.6 1.7
24.7	12.69 .33	32.1 1.7	43.14 .46	33.5 0.7	28.80 .74	59.5 -0.3	61.80 .34	6.9 1.7
Dec. 4.7	13.01 .31	30.3 1.7	43.60 .45	33.0 -0.3	29.53 .72	59.5 +0.3	62.14 .33	5.2 1.7
14.6	13.31 .29	28.6 1.7	44.03 .42	32.9 +0.1	30.23 .67	60.0 0.7	62.46 .31	3.6 1.6
24.6	13.59 .28	27.0 1.6	44.43 .38	33.2 0.5	30.87 .60	60.9 1.9	62.75 .29	2.0 1.5
34.6	13.83 +.22	25.4 -1.5	44.79 +.32	33.8 +0.8	31.43 +.52	62.4 +1.7	63.01 +.24	0.6 -1.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ι Argus.		*1 Draconis (H.)		α Hydræ.		*d Ursæ Majoris.	
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.
	h m 9 13	° ′ -58 44	h m 9 19	° ′ +81 52	h m ^s 9 21	° ′ -8 6	h m 9 23	° ′ +70 22
(Dec. 30.6)	45.72 +.32	44.2 -3.5	14.93+1.46	87.4 +1.8	27.31 +.26	56.0 -2.3	27.02 +.65	33.1 +1.3
Jan. 9.6	46.01 .24	47.8 3.7	16.21 1.91	29.5 2.3	27.55 .22	58.3 2.2	27.63 .56	34.7 1.8
19.6	46.21 .16	51.6 3.8	17.23 .88	31.9 2.6	27.75 .18	60.4 2.1	28.13 .44	36.7 2.2
29.5	46.33 +.08	55.4 3.8	17.96 .58	34.7 2.9	27.90 .13	62.5 1.9	28.50 .31	39.1 2.5
Feb. 8.5	46.37 .00	59.2 3.7	18.38 +.27	37.6 3.0	28.00 .08	64.3 1.7	28.74 .17	41.6 2.7
18.5	46.33 -.08	62.9 3.6	18.49 -.05	40.7 3.0	28.05 +.03	65.9 1.5	28.84 +.03	44.3 2.7
28.4	46.21 .16	66.3 3.3	18.28 .35	43.6 2.9	28.05 -.02	67.2 1.9	28.81 -.10	47.1 2.7
Mar. 10.4	46.02 .22	69.4 2.9	17.79 .83	46.5 2.7	28.01 .06	68.3 1.0	28.64 .22	49.7 2.5
20.4	45.78 .27	72.2 2.6	17.03 .87	49.0 2.4	27.94 .09	69.1 0.7	28.37 .32	52.1 2.3
30.4	45.49 .31	74.5 2.1	16.06 1.07	51.1 1.9	27.84 .11	69.7 0.5	28.01 .41	54.2 1.9
Apr. 9.3	45.16 .34	76.4 1.7	14.92 1.21	52.8 1.4	27.72 .13	70.0 -0.2	27.57 .47	55.9 1.5
19.3	44.81 .36	77.8 1.2	13.66 1.30	54.0 0.9	27.59 .13	70.1 0.0	27.08 .50	57.1 1.0
29.3	44.45 .36	78.7 0.7	12.34 1.34	54.6 +0.3	27.45 .13	70.0 +0.2	26.58 .51	57.9 +0.5
May 9.3	44.09 .36	79.1 -0.1	11.01 1.32	54.6 -0.2	27.32 .13	69.7 0.4	26.07 .50	58.2 0.0
19.2	43.74 .34	79.0 +0.4	9.72 1.25	54.1 0.8	27.20 .12	69.2 0.6	25.58 .47	57.9 -0.5
29.2	43.41 .32	78.3 0.9	8.52 1.14	53.0 1.3	27.09 .10	68.5 0.7	25.12 .43	57.1 1.0
June 8.2	43.10 .29	77.2 1.4	7.45 1.00	51.5 1.8	27.00 .08	67.7 0.9	24.73 .37	55.9 1.5
18.1	42.83 .25	75.6 1.8	6.53 .83	49.4 2.3	26.94 .06	66.7 1.0	24.40 .29	54.2 1.9
28.1	42.60 .21	73.7 2.2	5.80 .63	47.0 2.6	26.89 .03	65.7 1.1	24.14 .21	52.2 2.2
July 8.1	42.41 .16	71.3 2.5	5.28 .41	44.2 2.9	26.87 -.01	64.6 1.2	23.98 .13	49.8 2.5
18.1	42.28 .10	68.7 2.8	4.98 -.19	41.1 3.2	26.88 +.02	63.4 1.2	23.90 -.03	47.2 2.8
28.0	42.21 -.04	65.9 2.9	4.91 +.04	37.9 3.3	26.91 .05	62.2 1.2	23.91 +.06	44.3 3.0
Aug. 7.0	42.20 +.02	62.9 3.0	5.07 .28	34.5 3.4	26.98 .08	61.1 1.1	24.01 .15	41.2 3.1
17.0	42.26 .09	59.9 3.0	5.46 .50	31.0 3.5	27.07 .10	60.1 1.0	24.21 .24	38.1 3.2
27.0	42.38 .16	57.0 2.8	6.07 .72	27.6 3.4	27.18 .13	59.2 0.8	24.50 .33	35.0 3.2
Sept. 5.9	42.57 .22	54.3 2.5	6.91 .94	24.2 3.3	27.33 .16	58.5 0.5	24.87 .42	31.8 3.1
15.9	42.83 .29	52.0 2.2	7.94 1.14	21.0 3.1	27.51 .19	58.1 +0.3	25.33 .50	28.8 3.0
25.9	43.15 .35	50.0 1.8	9.17 1.32	18.0 2.9	27.72 .22	58.0 -0.1	25.87 .58	25.8 2.8
Oct. 5.8	43.53 .40	48.4 1.2	10.57 1.48	15.3 2.6	27.96 .25	58.2 0.4	26.49 .65	23.1 2.6
15.8	43.95 .45	47.5 +0.6	12.13 1.62	12.9 2.2	28.22 .28	58.8 0.7	27.17 .72	20.7 2.3
25.8	44.42 .48	47.2 0.0	13.80 1.73	10.9 1.8	28.51 .30	59.7 1.1	27.92 .77	18.6 1.9
Nov. 4.8	44.91 .50	47.5 -0.7	15.58 1.81	9.4 1.3	28.82 .32	61.0 1.5	28.70 .81	16.9 1.5
14.7	45.41 .51	48.5 1.2	17.40 1.84	8.4 0.8	29.14 .33	62.6 1.8	29.52 .83	15.6 1.1
24.7	45.92 .49	50.1 1.9	19.25 1.83	7.9 -0.2	29.47 .33	64.5 2.0	30.36 .83	14.8 -0.5
Dec. 4.7	46.40 .46	52.3 2.5	21.05 1.76	8.0 +0.4	29.80 .32	66.6 2.2	31.18 .81	14.6 0.0
14.7	46.84 .42	55.0 3.0	22.78 1.67	8.6 0.9	30.12 .31	68.8 2.3	31.97 .77	14.8 +0.5
24.6	47.23 .36	58.1 3.3	24.37 1.51	9.8 1.5	30.41 .28	71.2 2.4	32.72 .71	15.6 1.0
34.6	47.56 +.29	61.6 -3.6	25.78+1.30	11.6 +2.0	30.67 +.25	73.5 -2.4	33.38 +.61	16.9 +1.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	θ Ursæ Majoris.		ε Leonis.		μ Leonis.		α Leonis. (Regulus.)	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 9 24	+52° 14'	h m 9 38	+24° 20'	h m 9 45	+26° 35'	h m 10 1	+12° 34'
(Dec. 30.6)	30.76 +.41	39.5 +0.6	46.04 +.31	55.5 -0.9	39.87 +.32	39.6 -0.8	43.43 +.30	40.6 -1.6
Jan. 9.6	31.13 .35	40.3 1.0	46.32 .27	54.7 0.6	40.17 .28	38.9 0.5	43.71 .27	39.2 1.3
19.6	31.44 .28	41.4 1.3	46.57 .29	54.3 -0.3	40.42 .23	38.6 -0.2	43.96 .23	38.0 1.1
29.5	31.68 .20	42.9 1.6	46.76 .17	54.1 0.0	40.63 .18	38.5 +0.1	44.16 .18	37.0 0.8
Feb. 8.5	31.86 .12	44.7 1.9	46.91 .11	54.2 +0.2	40.78 .11	38.7 0.4	44.31 .13	36.4 0.5
18.5	31.93 +.05	46.6 2.0	46.99 .06	54.6 0.5	40.88 .07	39.2 0.6	44.42 .08	36.0 0.3
28.4	31.94 -0.03	48.6 2.0	47.03 +.01	55.2 0.7	40.92 +.02	39.9 0.8	44.47 +.03	35.8 -0.1
Mar. 10.4	31.87 .10	50.6 2.0	47.01 -0.04	55.9 0.8	40.91 -0.03	40.8 0.9	44.48 -0.01	35.8 +0.1
20.4	31.75 .15	52.5 1.8	46.95 .07	56.7 0.8	40.85 .07	41.7 1.0	44.44 .05	36.1 0.3
30.4	31.57 .20	54.3 1.6	46.86 .10	57.6 0.9	40.77 .10	42.7 1.0	44.38 .08	36.4 0.4
Apr. 9.3	31.36 .23	55.7 1.3	46.75 .13	58.4 0.8	40.65 .12	43.7 0.9	44.29 .10	36.9 0.5
19.3	31.12 .25	56.9 1.0	46.62 .14	59.2 0.8	40.52 .14	44.6 0.8	44.18 .12	37.4 0.6
29.3	30.87 .25	57.7 0.6	46.48 .14	59.9 0.7	40.38 .14	45.3 0.7	44.06 .12	38.0 0.6
May 9.3	30.63 .24	58.2 +0.2	46.34 .13	60.5 0.5	40.24 .14	46.0 0.6	43.94 .12	38.6 0.6
19.2	30.39 .22	58.2 -0.2	46.21 .12	61.0 0.4	40.10 .13	46.5 0.4	43.82 .11	39.1 0.5
29.2	30.19 .19	57.9 0.5	46.09 .11	61.3 0.2	39.98 .11	46.8 +0.2	43.72 .10	39.6 0.5
June 8.2	30.01 .16	57.2 0.9	46.00 .09	61.5 +0.1	39.88 .09	46.9 0.0	43.62 .09	40.1 0.4
18.1	29.87 .12	56.1 1.2	45.92 .06	61.5 -0.1	39.80 .07	46.0 -0.1	43.54 .07	40.5 0.4
28.1	29.77 .08	54.7 1.5	45.87 .04	61.3 0.2	39.74 .04	46.6 0.3	43.49 .05	40.8 0.3
July 8.1	29.72 -0.03	53.1 1.8	45.85 -0.01	61.0 0.4	39.71 -0.02	46.2 0.5	43.45 -0.03	41.0 0.2
18.1	29.71 +.02	51.2 2.0	45.85 +.02	60.5 0.5	39.71 +0.01	45.6 0.7	43.44 .00	41.1 +0.1
28.0	29.75 .06	49.0 2.2	45.89 .05	59.9 0.7	39.74 .04	44.9 0.8	43.45 +.02	41.1 -0.1
Aug. 7.0	29.84 .11	46.8 2.4	45.95 .08	59.2 0.8	39.79 .07	44.0 1.0	43.48 .05	41.0 0.2
17.0	29.97 .16	44.4 2.5	46.04 .11	58.3 1.0	39.88 .10	43.0 1.1	43.54 .08	40.8 0.3
27.0	30.15 .20	41.9 2.5	46.16 .14	57.2 1.1	39.99 .13	41.8 1.3	43.63 .10	40.4 0.5
Sept. 5.9	30.38 .25	39.3 2.5	46.31 .17	56.0 1.3	40.14 .16	40.4 1.4	43.75 .13	39.8 0.7
15.9	30.66 .30	36.8 2.5	46.50 .20	54.6 1.4	40.32 .20	38.9 1.6	43.90 .17	39.0 0.9
25.9	30.97 .34	34.3 2.5	46.72 .23	53.1 1.6	40.53 .23	37.3 1.7	44.08 .20	38.0 1.1
Oct. 5.8	31.34 .38	31.8 2.4	46.96 .26	51.5 1.7	40.78 .26	35.5 1.8	44.29 .22	36.8 1.3
15.8	31.74 .42	29.6 2.2	47.24 .29	49.8 1.8	41.05 .29	33.7 1.9	44.54 .26	35.4 1.5
25.8	32.17 .45	27.5 2.0	47.55 .32	48.0 1.8	41.36 .32	31.8 1.9	44.81 .29	33.8 1.7
Nov. 4.8	32.64 .48	25.7 1.7	47.88 .34	46.2 1.8	41.69 .34	29.9 1.9	45.12 .31	32.0 1.8
14.7	33.12 .49	24.1 1.4	48.23 .36	44.3 1.8	42.04 .36	28.0 1.8	45.44 .33	30.2 1.9
24.7	33.62 .50	22.9 1.0	48.59 .36	42.6 1.7	42.41 .37	26.2 1.7	45.78 .34	28.2 1.9
Dec. 4.7	34.11 .49	22.1 0.6	48.95 .36	41.0 1.5	42.78 .37	24.6 1.5	46.12 .35	26.3 1.9
14.7	34.59 .47	21.7 -0.2	49.31 .35	39.5 1.3	43.15 .36	23.2 1.3	46.47 .34	24.4 1.8
24.6	35.05 .43	21.8 +0.3	49.65 .33	38.3 1.1	43.49 .33	22.0 1.0	46.80 .32	22.7 1.7
34.6	35.45 +.38	22.3 +0.7	49.96 +.29	37.4 -0.8	43.81 +.30	21.1 -0.8	47.10 +.29	21.0 -1.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*32 Ursæ Majoris.		γ ¹ Leonis.		*9 Draconis (H.)		ρ Leonis.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 10 8	+65° 43'	h m 10 13	+20° 28'	h m 10 24	+76° 20'	h m 10 26	+9° 56'
(Dec. 30.6)	58.48 +.62	40.4 +0.6	5.33 +.32	22.8 -1.3	29.49+1.01	68.5 +0.8	14.19 +.31	58.5 -1.8
Jan. 9.6	59.06 .54	41.3 1.2	5.63 .39	21.6 1.0	30.45 .91	69.6 1.4	14.49 .38	56.8 1.6
19.6	59.56 .46	42.7 1.6	5.90 .25	20.8 0.7	31.29 .77	71.2 1.9	14.75 .34	55.4 1.3
29.6	59.97 .36	44.5 2.0	6.12 .20	20.2 0.4	31.99 .63	73.3 2.3	14.97 .30	54.2 1.0
Feb. 8.5	60.28 .25	46.7 2.3	6.30 .15	20.0 -0.1	32.52 .44	75.8 2.6	15.15 .15	53.3 0.8
18.5	60.48 .14	49.1 2.5	6.42 .10	20.0 +0.2	32.86 .25	78.5 2.8	15.28 .10	52.7 0.5
28.5	60.56 +.03	51.7 2.6	6.49 +.04	20.3 0.4	33.02 +.07	81.4 2.9	15.36 .06	52.3 -0.3
Mar. 10.5	60.54 -.07	54.4 2.6	6.51 .00	20.9 0.6	33.00 -.13	84.3 2.9	15.39 +.01	52.2 0.0
20.4	60.42 .17	56.9 2.5	6.49 -.04	21.5 0.7	32.79 .29	87.2 2.8	15.38 -.03	52.3 +0.2
30.4	60.21 .25	59.3 2.2	6.43 .07	22.3 0.8	32.43 .43	89.8 2.5	15.34 .06	52.5 0.3
Apr. 9.4	59.92 .31	61.4 1.9	6.34 .10	23.1 0.8	31.94 .56	92.1 2.1	15.26 .08	52.9 0.4
19.3	59.59 .36	63.1 1.5	6.23 .12	23.9 0.8	31.33 .65	94.0 1.7	15.17 .10	53.4 0.5
29.3	59.21 .39	64.4 1.1	6.12 .12	24.7 0.8	30.65 .71	95.5 1.2	15.07 .11	53.9 0.6
May 9.3	58.82 .39	65.3 0.6	5.99 .12	25.4 0.7	29.92 .75	96.4 0.7	14.96 .11	54.5 0.6
19.3	58.43 .39	65.6 +0.1	5.87 .12	26.0 0.6	29.16 .75	96.8 +0.1	14.85 .11	55.1 0.6
29.2	58.05 .37	65.5 -0.4	5.76 .11	26.5 0.4	28.42 .73	96.7 -0.4	14.74 .10	55.6 0.5
June 8.2	57.70 .33	64.9 0.9	5.65 .10	26.9 0.3	27.71 .69	96.0 1.0	14.65 .09	56.1 0.5
18.2	57.39 .29	63.8 1.3	5.57 .08	27.1 +0.1	27.05 .62	94.8 1.5	14.56 .08	56.6 0.5
28.2	57.12 .24	62.3 1.7	5.50 .06	27.2 0.0	26.47 .54	93.1 1.9	14.49 .06	57.0 0.4
July 8.1	56.92 .18	60.3 2.1	5.46 .03	27.1 -0.2	25.98 .44	91.0 2.3	14.44 .04	57.4 0.3
18.1	56.77 .12	58.1 2.4	5.43 -.01	26.8 0.3	25.60 .23	88.4 2.7	14.41 -.02	57.6 0.2
28.1	56.69 -.06	55.5 2.7	5.43 +.01	26.4 0.5	25.32 .21	85.6 3.0	14.40 .00	57.7 +0.1
Aug. 7.0	56.67 +.02	52.7 2.9	5.46 .04	25.9 0.7	25.17 -.09	82.4 3.3	14.41 +.02	57.7 -0.1
17.0	56.73 .09	49.7 3.1	5.51 .07	25.1 0.8	25.15 +.04	79.1 3.4	14.45 .05	57.6 0.2
27.0	56.86 .17	46.5 3.2	5.59 .10	24.2 1.0	25.25 .17	75.6 3.5	14.51 .08	57.3 0.4
Sept. 6.0	57.06 .24	43.3 3.3	5.71 .13	23.1 1.2	25.48 .30	72.0 3.6	14.60 .11	56.8 0.6
15.9	57.34 .31	40.0 3.3	5.85 .16	21.9 1.4	25.85 .43	68.4 3.5	14.73 .14	56.1 0.8
25.9	57.69 .38	36.8 3.2	6.03 .20	20.4 1.5	26.34 .56	64.9 3.5	14.88 .17	55.2 1.0
Oct. 5.9	58.11 .45	33.7 3.0	6.24 .23	18.8 1.7	26.96 .68	61.6 3.3	15.07 .21	54.1 1.2
15.9	58.59 .52	30.8 2.8	6.49 .26	17.0 1.8	27.70 .80	58.4 3.0	15.30 .24	52.7 1.5
25.8	59.14 .58	28.1 2.5	6.77 .29	15.2 1.9	28.54 .90	55.5 2.7	15.56 .27	51.2 1.7
Nov. 4.8	59.74 .63	25.8 2.2	7.07 .32	13.2 2.0	29.49 .99	53.0 2.3	15.85 .30	49.4 1.8
14.8	60.39 .66	23.8 1.8	7.41 .34	11.2 2.0	30.51 1.06	50.9 1.8	16.16 .32	47.5 2.0
24.7	61.06 .69	22.2 1.3	7.76 .36	9.2 2.0	31.59 1.10	49.3 1.3	16.49 .34	45.5 2.0
Dec. 4.7	61.75 .69	21.2 0.8	8.11 .36	7.3 1.9	32.70 1.12	48.3 0.8	16.83 .35	43.5 2.1
14.7	62.44 .68	20.6 -0.3	8.47 .35	5.5 1.7	33.82 1.10	47.8 -0.3	17.18 .34	41.4 2.0
24.7	63.10 .64	20.7 +0.3	8.82 .34	3.9 1.5	34.90 1.05	48.0 +0.4	17.51 .33	39.5 1.9
34.6	63.71 +.59	21.2 +0.8	9.14 +.31	2.6 -1.2	35.91 +.97	48.7 +1.0	17.83 +.30	37.7 -1.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Argus.		ι Leonis.		α Ursæ Majoris.		δ Leonis.	
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 10 40	° ′ -59 1	h m 10 42	° ′ +11 12	h m 10 56	° ′ +62 24	h m 11 7	° ′ +21 12
(Dec. 30.7)	13.07 +.45	16.9 -2.9	41.50 +.32	23.1 -1.8	1.58 +.60	78.1 -0.1	27.92 +.35	26.6 -1.6
Jan. 9.6	13.50 .40	20.0 3.3	41.81 .29	21.4 1.6	2.15 .54	78.3 +0.5	28.26 .32	25.1 1.3
	19.6 13.86 .33	23.4 3.5	42.08 .26	20.0 1.3	2.66 .48	79.1 1.0	28.56 .29	24.0 0.9
	29.6 14.16 .26	27.0 3.7	42.32 .21	18.8 1.0	3.11 .41	80.4 1.5	28.83 .25	23.3 0.6
Feb. 8.6	14.38 .18	30.8 3.8	42.51 .17	17.9 0.7	3.47 .32	82.1 2.0	29.05 .20	22.8 -0.2
	18.5 14.52 .10	34.5 3.8	42.66 .12	17.3 0.4	3.74 .23	84.3 2.3	29.23 .15	22.8 +0.1
	28.5 14.58 +.03	38.3 3.7	42.75 .07	17.0 -0.2	3.92 .13	86.7 2.5	29.36 .10	23.0 0.4
Mar. 10.5	14.57 -.05	41.9 3.5	42.80 +.03	17.0 +0.1	4.00 +.03	89.2 2.6	29.43 .06	23.6 0.7
	20.5 14.49 .11	45.2 3.2	42.81 -.01	17.1 0.3	3.99 -.06	91.8 2.6	29.47 +.01	24.3 0.8
	30.4 14.35 .17	48.3 2.9	42.78 .04	17.4 0.4	3.89 .14	94.4 2.5	29.46 -.03	25.2 1.0
Apr. 9.4	14.16 .21	51.1 2.6	42.72 .07	17.9 0.5	3.72 .20	96.7 2.3	29.42 .06	26.2 1.0
	19.4 13.93 .25	53.4 2.2	42.64 .09	18.5 0.6	3.49 .26	98.9 2.0	29.35 .08	27.2 1.0
	29.3 13.66 .28	55.4 1.7	42.55 .10	19.1 0.6	3.21 .30	100.7 1.6	29.26 .10	28.3 1.0
May 9.3	13.37 .30	56.8 1.2	42.44 .11	19.7 0.6	2.90 .32	102.0 1.2	29.16 .11	29.2 0.9
	19.3 13.06 .31	57.8 0.7	42.33 .11	20.3 0.6	2.57 .33	103.0 0.7	29.05 .11	30.1 0.8
	29.3 12.75 .32	58.3 -0.2	42.23 .10	20.9 0.6	2.24 .33	103.5 +0.2	28.94 .11	30.8 0.6
June 8.2	12.44 .31	58.3 +0.3	42.13 .10	21.5 0.5	1.91 .32	103.5 -0.3	28.83 .11	31.4 0.5
	18.2 12.13 .30	57.8 0.7	42.04 .08	21.9 0.4	1.61 .29	103.0 0.7	28.73 .10	31.8 0.3
	28.2 11.84 .28	56.8 1.2	41.97 .07	22.3 0.3	1.33 .26	102.0 1.2	28.64 .09	32.0 +0.1
July 8.2	11.58 .25	55.3 1.7	41.90 .05	22.6 0.2	1.09 .22	100.6 1.6	28.56 .07	32.0 -0.1
	18.1 11.35 .21	53.5 2.0	41.86 .03	22.8 +0.1	0.88 .18	98.8 2.0	28.49 .06	31.8 0.3
	28.1 11.16 .17	51.3 2.3	41.84 -.01	22.9 0.0	0.73 .13	96.6 2.4	28.45 .04	31.5 0.5
Aug. 7.1	11.02 .12	48.8 2.6	41.83 +.01	22.8 -0.1	0.63 .08	94.1 2.7	28.42 -.01	30.9 0.7
	17.0 10.93 -.06	46.2 2.7	41.86 .04	22.6 0.3	0.58 -.02	91.3 2.9	28.42 +.01	30.1 0.9
	27.0 10.90 +.01	43.4 2.8	41.90 .06	22.2 0.5	0.59 +.05	88.2 3.1	28.44 .04	29.1 1.1
Sept. 6.0	10.95 .08	40.6 2.7	41.98 .09	21.6 0.7	0.67 .11	85.0 3.3	28.50 .07	27.9 1.3
	16.0 11.06 .15	37.9 2.6	42.09 .12	20.8 0.9	0.81 .18	81.7 3.4	28.58 .10	26.5 1.5
	25.9 11.25 .22	35.5 2.3	42.23 .16	19.8 1.1	1.02 .24	78.3 3.4	28.70 .14	24.9 1.7
Oct. 5.9	11.52 .30	33.4 1.9	42.40 .19	18.6 1.3	1.30 .31	74.9 3.4	28.86 .18	23.1 1.9
	15.9 11.85 .37	31.6 1.5	42.62 .23	17.1 1.6	1.64 .38	71.6 3.2	29.05 .22	21.1 2.1
	25.9 12.25 .43	30.4 0.9	42.86 .26	15.5 1.7	2.06 .44	68.5 3.0	29.29 .26	19.0 2.2
Nov. 4.8	12.70 .46	29.8 +0.4	43.14 .29	13.7 1.9	2.53 .50	65.6 2.8	29.56 .29	16.7 2.3
	14.8 13.19 .51	29.8 -0.3	43.45 .32	11.7 2.0	3.06 .55	63.0 2.4	29.87 .32	14.4 2.3
	24.8 13.71 .53	30.4 0.9	43.78 .34	9.6 2.1	3.63 .59	60.8 2.0	30.20 .34	12.2 2.3
Dec. 4.7	14.25 .53	31.6 1.5	44.12 .35	7.5 2.1	4.23 .61	59.0 1.5	30.55 .36	10.0 2.2
	14.7 14.77 .52	33.4 2.1	44.47 .35	5.4 2.0	4.85 .62	57.7 1.0	30.91 .36	7.9 2.0
	24.7 15.27 .46	35.8 2.6	44.81 .34	3.5 1.9	5.46 .61	57.0 -0.5	31.27 .36	6.0 1.8
	34.7 15.74 +.43	38.6 -3.0	45.13 +.31	1.7 -1.7	6.05 +.57	56.8 +0.2	31.62 +.34	4.3 -1.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	δ Crateris.		τ Leonis.		*λ Draconis.		ν Leonis.	
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.
	h m 11 13	° ′ -14 6	h m 11 21	° ′ +3 32	h m 11 23	° ′ +70 0	h m 11 30	° ′ -0 7
(Dec. 30.7)	^s 5.56 +.33	["] 0.4 -2.4	^s 30.64 +.34	["] 41.7 -2.1	^s 59.77 +.78	["] 58.0 -0.9	^s 32.97 +.34	["] 58.8 -2.9
Jan. 9.7	5.87 .30	2.9 2.5	30.96 .31	39.7 2.0	60.53 .73	58.1 +0.4	33.29 .31	60.9 2.1
19.6	6.16 .37	5.3 2.4	31.26 .28	37.8 1.8	61.22 .66	58.8 1.0	33.59 .28	62.9 1.9
29.6	6.41 .23	7.7 2.3	31.52 .24	36.1 1.5	61.84 .58	60.1 1.6	33.86 .25	64.7 1.7
Feb. 8.6	6.62 .19	9.9 2.2	31.74 .20	34.7 1.3	62.37 .47	61.9 2.0	34.08 .21	66.3 1.5
18.5	6.79 .14	12.0 2.0	31.91 .15	33.6 1.0	62.78 .35	64.1 2.4	34.27 .16	67.7 1.2
28.5	6.90 .10	13.9 1.8	32.05 .11	32.8 0.7	63.06 .22	66.7 2.7	34.40 .12	68.7 0.9
Mar. 10.5	6.98 .05	15.5 1.5	32.13 .07	32.2 0.4	63.22 +.10	69.4 2.8	34.50 .08	69.6 0.7
20.5	7.01 +.01	16.9 1.3	32.18 +.03	31.9 -0.2	63.26 -.03	72.3 2.9	34.55 +.04	70.1 0.4
30.4	7.01 -.02	18.0 1.0	32.19 -.01	31.8 0.0	63.17 .14	75.1 2.8	34.57 .00	70.4 -0.2
Apr. 9.4	6.97 .05	18.9 0.7	32.17 .04	31.9 +0.2	62.98 .24	77.7 2.6	34.56 -.03	70.5 0.0
19.4	6.92 .07	19.5 0.5	32.12 .06	32.1 0.3	62.70 .33	80.2 2.3	34.52 .05	70.5 +0.1
29.4	6.84 .09	19.9 0.3	32.05 .08	32.5 0.4	62.33 .39	82.3 1.9	34.46 .07	70.2 0.3
May 9.3	6.75 .10	20.1 -0.1	31.97 .09	33.0 0.5	61.91 .44	83.9 1.5	34.38 .08	69.9 0.4
19.3	6.65 .10	20.0 +0.2	31.88 .09	33.5 0.6	61.45 .47	85.2 1.0	34.30 .09	69.5 0.5
29.3	6.55 .10	19.8 0.3	31.78 .10	34.1 0.6	60.97 .49	85.9 +0.4	34.21 .09	69.0 0.5
June 8.2	6.44 .10	19.3 0.5	31.69 .09	34.6 0.6	60.49 .48	86.0 -0.1	34.11 .09	68.4 0.6
18.2	6.34 .10	18.7 0.7	31.60 .09	35.2 0.6	60.01 .47	85.7 0.6	34.02 .09	67.8 0.6
28.2	6.25 .09	18.0 0.8	31.51 .08	35.8 0.5	59.56 .43	84.8 1.1	33.94 .08	67.2 0.6
July 8.2	6.16 .08	17.1 0.9	31.44 .07	36.3 0.5	59.15 .39	83.5 1.6	33.86 .08	66.6 0.6
18.1	6.09 .07	16.1 1.0	31.37 .06	36.8 0.4	58.78 .34	81.7 2.0	33.78 .07	66.1 0.5
28.1	6.04 .05	15.1 1.1	31.32 .04	37.2 0.3	58.47 .28	79.4 2.5	33.72 .05	65.6 0.5
Aug. 7.1	6.00 .03	14.0 1.1	31.28 -.03	37.5 0.2	58.23 .21	76.8 2.8	33.68 .03	65.1 0.4
17.1	5.98 -.01	12.9 1.0	31.27 .00	37.6 +0.1	58.05 .13	73.9 3.1	33.66 -.01	64.8 0.3
27.0	5.98 +.02	11.9 0.9	31.28 +.02	37.6 -0.1	57.96 -.05	70.7 3.3	33.66 +.01	64.6 +0.1
Sept. 6.0	6.02 .06	11.1 0.8	31.31 .05	37.5 0.3	57.95 +.03	67.2 3.5	33.68 .04	64.5 0.0
16.0	6.09 .09	10.4 0.6	31.38 .08	37.1 0.5	58.03 .12	63.6 3.6	33.74 .07	64.6 -0.3
25.9	6.20 .13	9.9 +0.3	31.48 .12	36.5 0.7	58.20 .22	60.0 3.7	33.83 .11	65.0 0.5
Oct. 5.9	6.35 .17	9.8 0.0	31.61 .16	35.7 1.0	58.47 .31	56.3 3.6	33.96 .15	65.7 0.8
15.9	6.53 .21	9.9 -0.3	31.79 .19	34.6 1.2	58.83 .41	52.7 3.5	34.12 .19	66.6 1.0
25.9	6.76 .24	10.4 0.7	32.00 .23	33.2 1.5	59.28 .50	49.3 3.3	34.33 .23	67.7 1.3
Nov. 4.8	7.02 .28	11.3 1.0	32.25 .27	31.6 1.7	59.82 .58	46.1 3.1	34.57 .26	69.2 1.6
14.8	7.31 .31	12.5 1.4	32.53 .30	29.7 1.9	60.44 .66	43.2 2.7	34.85 .29	70.9 1.8
24.8	7.63 .33	14.0 1.7	32.84 .32	27.7 2.1	61.14 .72	40.7 2.3	35.16 .32	72.8 2.0
Dec. 4.8	7.97 .34	15.9 2.0	33.18 .34	25.6 2.2	61.88 .76	38.7 1.8	35.49 .34	74.9 2.1
14.7	8.32 .35	18.0 2.2	33.52 .35	23.4 2.2	62.65 .79	37.2 1.9	35.83 .34	77.1 2.2
24.7	8.66 .34	20.3 2.4	33.86 .34	21.2 2.2	63.44 .78	36.3 -0.6	36.17 .34	79.3 2.2
34.7	9.00 +.32	22.8 -2.4	34.20 +.33	19.1 -2.1	64.21 +.76	36.0 0.0	36.51 +.33	81.5 -2.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Leonis.		γ Ursæ Majoris.		ο Virginis.		*4 Draconis (H.)	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 11 42	° ′ +15 15	h m 11 47	° ′ +54 22	h m 11 58	° ′ +9 25	h m 12 6	° ′ +78 17
(Dec. 30.7)	41.06 +.35	72.3 -1.9	15.69 +.51	68.8 -1.0	50.45 +.35	37.0 -2.1	22.42+1.23	79.8 -0.6
Jan. 9.7	41.40 .33	70.5 -1.7	16.18 .48	68.2 -0.4	50.79 .33	35.0 1.9	23.64 1.20	79.6 +0.1
19.6	41.71 .30	69.0 1.4	16.65 .45	68.1 +0.2	51.10 .30	33.2 1.6	24.81 1.13	80.0 0.7
29.6	42.00 .26	67.8 1.0	17.08 .40	68.5 0.7	51.39 .27	31.7 1.4	25.89 1.02	81.0 1.3
Feb. 8.6	42.24 .22	67.0 0.7	17.44 .34	69.5 1.2	51.64 .23	30.5 1.0	26.64 .88	82.6 1.9
18.6	42.44 .18	66.5 -0.3	17.75 .27	71.0 1.7	51.85 .19	29.6 0.7	27.63 .70	84.7 2.3
28.5	42.60 .13	66.3 0.0	17.98 .19	72.8 2.0	52.02 .15	29.1 0.4	28.24 .51	87.3 2.7
Mar. 10.5	42.71 .09	66.4 +0.3	18.13 .12	75.0 2.3	52.15 .11	28.9 -0.1	28.65 .31	90.1 2.9
20.5	42.78 .05	66.8 0.5	18.22 +.05	77.4 2.4	52.23 .08	28.9 +0.2	28.85 +.10	93.1 3.0
30.4	42.81 +.01	67.4 0.7	18.23 -.02	79.9 2.5	52.28 +.03	29.2 0.4	28.85 -1.10	96.1 3.0
Apr. 9.4	42.80 -.02	68.1 0.8	18.18 .08	82.3 2.4	52.20 .00	29.6 0.5	28.65 .29	99.0 2.9
19.4	42.77 .05	69.0 0.9	18.08 .13	84.7 2.2	52.27 -.03	30.2 0.7	28.27 .46	101.8 2.6
29.4	42.71 .07	69.9 0.9	17.93 .17	86.8 2.0	52.23 .05	30.9 0.7	27.74 .60	104.2 2.3
May 9.3	42.63 .08	70.8 0.9	17.74 .20	88.6 1.7	52.17 .07	31.7 0.8	27.07 .73	106.3 1.9
19.3	42.54 .09	71.7 0.9	17.52 .22	90.2 1.3	52.10 .08	32.4 0.8	26.30 .81	107.9 1.4
29.3	42.45 .10	72.5 0.8	17.29 .24	91.3 0.9	52.01 .09	33.2 0.7	25.45 .87	109.1 0.9
June 8.3	42.35 .10	73.2 0.6	17.05 .24	92.0 +0.5	51.92 .09	33.9 0.7	24.56 .91	109.6 +0.3
18.2	42.25 .10	73.8 0.5	16.82 .24	92.2 0.0	51.83 .09	34.5 0.8	23.65 .91	109.7 -0.3
28.2	42.15 .09	74.3 0.4	16.59 .22	92.0 -0.4	51.74 .09	35.0 0.5	22.75 .89	109.1 0.8
July 8.2	42.06 .09	74.6 +0.2	16.37 .21	91.3 0.9	51.65 .09	35.5 0.4	21.88 .85	108.1 1.3
18.1	41.98 .07	74.7 0.0	16.17 .18	90.2 1.3	51.56 .08	35.8 0.3	21.06 .76	106.5 1.8
28.1	41.91 .06	74.6 -0.2	16.00 .18	88.7 1.7	51.49 .07	36.0 +0.1	20.32 .70	104.4 2.3
Aug. 7.1	41.86 .05	74.4 0.3	15.86 .13	86.8 2.1	51.42 .06	36.0 -0.1	19.67 .60	101.9 2.7
17.1	41.83 -.03	73.9 0.5	15.75 .08	84.6 2.4	51.38 .04	35.9 0.2	19.12 .49	99.0 3.1
27.0	41.81 .00	73.3 0.8	15.69 -.04	82.0 2.7	51.35 -.01	35.6 0.4	18.70 .36	95.8 3.4
Sept. 6.0	41.83 +.03	72.4 1.0	15.67 .00	79.1 3.0	51.35 +.01	35.1 0.6	18.41 .29	92.3 3.6
16.0	41.87 .06	71.4 1.2	15.70 +.06	76.1 3.2	51.38 .05	34.3 0.9	18.26 -.07	88.6 3.8
26.0	41.95 .10	70.1 1.4	15.78 .11	72.8 3.3	51.44 .08	33.4 1.1	18.27 +.09	84.8 3.9
Oct. 5.9	42.07 .14	68.5 1.6	15.92 .17	69.5 3.4	51.54 .12	32.2 1.3	18.44 .25	80.9 3.9
15.9	42.22 .18	66.8 1.9	16.12 .23	66.1 3.4	51.68 .16	30.7 1.6	18.77 .41	77.0 3.8
25.9	42.42 .22	64.8 2.0	16.38 .29	62.7 3.4	51.86 .20	29.1 1.8	19.27 .58	73.3 3.7
Nov. 4.8	42.66 .26	62.7 2.2	16.70 .35	59.4 3.2	52.08 .24	27.2 2.0	19.92 .74	69.8 3.4
14.8	42.93 .29	60.4 2.3	17.08 .40	56.3 3.0	52.34 .28	25.1 2.1	20.73 .88	66.5 3.1
24.8	43.23 .28	58.1 2.3	17.50 .45	53.5 2.7	52.63 .31	22.9 2.3	21.68 1.01	63.6 2.7
Dec. 4.8	43.56 .34	55.8 2.3	17.97 .48	51.0 2.3	52.95 .33	20.6 2.3	22.74 1.11	61.2 2.2
14.7	43.91 .35	53.5 2.3	18.46 .50	49.0 1.8	53.29 .34	18.3 2.3	23.89 1.18	59.3 1.6
24.7	44.26 .35	51.4 2.1	18.97 .51	47.4 1.3	53.64 .35	16.1 2.2	25.10 1.22	58.0 1.0
34.7	44.61 +.34	49.4 -1.9	19.47 +.50	46.4 -0.8	53.98 +.34	14.0 -2.0	26.32+1.21	57.4 -0.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*β Chamæleonis.		γ Virginis.		α ¹ Crucis.		β Corvi.	
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination South.
	h m 12 10	° ′ -78° 36′	h m 12 13	° ′ +0° 1′	h m 12 19	° ′ -62° 23′	h m 12 27	° ′ -22° 42′
(Dec. 30.7)	60.35+1.22	44.5 -1.5	30.44 +.34	42.2 -2.2	37.82 +.60	58.7 -1.7	48.88 +.36	9.0 -2.2
Jan. 9.7	61.54 1.15	46.3 2.1	30.78 .33	40.0 2.1	38.41 .57	60.7 2.2	49.24 .35	11.3 2.4
19.7	62.64 1.05	48.7 2.6	31.10 .31	38.0 2.0	38.95 .53	63.2 2.7	49.58 .33	13.7 2.4
29.7	63.63 .93	51.5 3.0	31.39 .28	36.1 1.8	39.45 .47	66.0 3.0	49.89 .30	16.1 2.5
Feb. 8.6	64.49 .78	54.7 3.4	31.65 .24	34.5 1.5	39.89 .40	69.2 3.3	50.17 .26	18.6 2.4
18.6	65.19 .62	58.2 3.7	31.87 .20	33.1 1.2	40.25 .33	72.6 3.5	50.41 .22	21.0 2.3
28.6	65.73 .46	61.9 3.8	32.05 .16	32.0 1.0	40.55 .26	76.1 3.6	50.61 .18	23.2 2.2
Mar. 10.5	66.10 .29	65.8 3.9	32.19 .12	31.2 0.7	40.77 .18	79.7 3.6	50.77 .14	25.3 2.0
20.5	66.30 +.12	69.7 3.9	32.28 .08	30.6 0.4	40.92 .11	83.3 3.5	50.88 .10	27.1 1.8
30.5	66.34 -.05	73.6 3.8	32.35 .04	30.3 -0.3	40.99 +.04	86.8 3.4	50.96 .06	28.8 1.6
Apr. 9.5	66.21 .30	77.3 3.6	32.37 +.01	30.2 0.0	41.00 -.03	90.1 3.2	51.00 +.03	30.3 1.3
19.4	65.93 .35	80.8 3.4	32.37 -.01	30.4 +0.2	40.94 .09	93.2 3.0	51.02 .00	31.5 1.1
29.4	65.51 .49	84.1 3.1	32.35 .04	30.6 0.3	40.82 .14	96.0 2.7	51.00 -.03	32.5 0.9
May 9.4	64.96 .61	87.0 2.7	32.30 .05	31.0 0.4	40.66 .19	98.5 2.3	50.96 .05	33.2 0.6
19.4	64.30 .72	89.5 2.3	32.24 .07	31.4 0.5	40.44 .23	100.6 1.9	50.90 .07	33.7 0.4
29.3	63.54 .80	91.6 1.8	32.17 .08	32.0 0.6	40.19 .27	102.3 1.5	50.83 .08	34.0 -0.2
June 8.3	62.70 .87	93.2 1.3	32.08 .08	32.5 0.6	39.91 .30	103.5 1.0	50.74 .09	34.0 +0.1
18.3	61.80 .92	94.3 0.8	32.00 .09	33.1 0.6	39.60 .32	104.3 -0.5	50.64 .10	33.9 0.3
28.2	60.87 .94	94.8 -0.3	31.91 .09	33.7 0.6	39.27 .33	104.6 0.0	50.54 .11	33.5 0.5
July 8.2	59.93 .94	94.8 +0.3	31.82 .09	34.2 0.6	38.94 .34	104.4 +0.5	50.43 .11	32.9 0.7
18.2	59.00 .91	94.2 0.8	31.73 .09	34.8 0.5	38.60 .33	103.6 1.0	50.32 .11	32.1 0.8
28.2	58.12 .84	93.1 1.4	31.65 .08	35.3 0.4	38.29 .31	102.5 1.4	50.21 .10	31.2 1.0
Aug. 7.1	57.32 .75	91.5 1.8	31.58 .07	35.6 0.3	38.00 .27	100.9 1.8	50.12 .09	30.2 1.1
17.1	56.63 .63	89.5 2.3	31.52 .05	35.9 0.2	37.74 .23	98.9 2.1	50.03 .07	29.1 1.1
27.1	56.06 .49	87.0 2.6	31.48 -.03	36.1 +0.1	37.54 .18	96.7 2.4	49.97 .05	27.9 1.2
Sept. 6.1	55.66 .31	84.3 2.8	31.47 .00	36.1 -0.1	37.40 .11	94.2 2.6	49.93 -.08	26.8 1.1
16.0	55.44 -.12	81.4 3.0	31.48 +.03	35.9 0.3	37.33 -.03	91.5 2.7	49.92 +.01	25.7 1.0
26.0	55.42 +.08	78.5 3.0	31.53 .07	35.5 0.5	37.34 +.08	88.9 2.6	49.95 .05	24.8 0.8
Oct. 6.0	55.60 .29	75.5 2.9	31.61 .11	34.9 0.8	37.44 .15	86.3 2.5	50.03 .10	24.1 0.6
15.9	55.99 .50	72.8 2.7	31.74 .15	34.0 1.0	37.63 .24	84.0 2.2	50.14 .14	23.6 +0.3
25.9	56.59 .69	70.3 2.3	31.90 .19	32.8 1.3	37.91 .33	81.9 1.9	50.31 .19	23.4 0.0
Nov. 4.9	57.37 .87	68.1 1.9	32.11 .22	31.4 1.5	38.28 .41	80.2 1.5	50.52 .24	23.6 -0.4
14.9	58.32 1.02	66.5 1.4	32.36 .27	29.7 1.8	38.72 .48	79.0 0.9	50.78 .28	24.1 0.7
24.8	59.40 1.14	65.4 0.8	32.65 .30	27.8 2.0	39.23 .54	78.3 +0.4	51.08 .31	25.1 1.1
Dec. 4.8	60.58 1.22	65.0 +0.2	32.96 .32	25.8 2.1	39.79 .58	78.2 -0.2	51.41 .34	26.4 1.5
14.8	61.82 1.25	65.1 -0.5	33.29 .34	23.6 2.2	40.39 .60	78.8 0.8	51.76 .36	28.0 1.8
24.8	63.07 1.25	65.9 1.1	33.63 .34	21.3 2.2	40.99 .61	79.9 1.4	52.12 .36	29.9 2.1
34.7	64.30+1.21	67.4 -1.7	33.98 +.34	19.1 -2.2	41.59 +.59	81.6 -2.0	52.48 +.36	32.1 -2.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	* α Draconis.		*32 Camelop. (foll.)		12 Can. Venaticorum.		θ Virginis.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.
	h m 12 28	+70° 27'	h m 12 48	+84° 4'	h m 12 50	+38° 59'	h m 13 3	-4° 52'
(Dec. 30.7)	^s 9.58 +.78	" 79.2 -1.1	^s 18.01 +2.23	" 71.3 -1.0	^s 10.64 +.40	" 25.2 -2.0	^s 28.20 +.34	" 14.7 -2.2
Jan. 9.7	10.36 .78	78.5 -0.4	20.26 2.26	70.7 -0.4	11.05 .40	23.4 1.5	28.54 .34	16.9 2.1
19.7	11.13 .74	78.4 +0.9	22.50 2.21	70.6 +0.3	11.44 .38	22.2 1.0	28.87 .33	19.0 2.1
29.7	11.84 .68	78.9 0.8	24.65 2.07	71.3 0.9	11.81 .36	21.5 -0.4	29.19 .30	21.0 1.9
Feb. 8.6	12.49 .60	80.0 1.4	26.62 1.86	72.5 1.6	12.15 .32	21.3 +0.1	29.48 .28	22.8 1.7
18.6	13.04 .50	81.7 2.0	28.35 1.59	74.3 2.1	12.45 .28	21.6 0.6	29.74 .24	24.4 1.5
28.6	13.49 .39	83.9 2.4	29.77 1.26	76.6 2.5	12.71 .23	22.4 1.0	29.96 .20	25.7 1.2
Mar. 10.6	13.82 .27	86.4 2.7	30.85 .89	79.3 2.8	12.91 .18	23.7 1.5	30.15 .17	26.8 1.0
20.5	14.02 .15	89.2 2.9	31.54 .49	82.2 3.0	13.06 .13	25.3 1.8	30.30 .13	27.7 0.7
30.5	14.11 +.02	92.1 2.9	31.83 +.09	85.3 3.1	13.16 .08	27.2 2.0	30.41 .10	28.3 0.5
Apr. 9.5	14.07 -.09	95.1 2.9	31.73 -.30	88.3 3.0	13.22 +.03	29.2 2.1	30.49 .06	28.6 0.2
19.4	13.93 .20	97.9 2.7	31.24 .67	91.3 2.9	13.23 -.01	31.3 2.1	30.54 .03	28.8 -0.1
29.4	13.68 .29	100.5 2.5	30.40 1.00	94.0 2.6	13.20 .05	33.4 2.1	30.56 +.01	28.7 +0.1
May 9.4	13.35 .36	102.8 2.1	29.25 1.29	96.4 2.2	13.14 .08	35.4 1.9	30.55 -.01	28.6 0.2
19.4	12.96 .43	104.7 1.7	27.83 1.53	98.4 1.8	13.04 .10	37.3 1.7	30.53 .04	28.3 0.3
29.3	12.51 .47	106.2 1.2	26.20 1.72	99.9 1.3	12.93 .12	38.0 1.5	30.48 .05	27.9 0.4
June 8.3	12.02 .50	107.2 0.7	24.41 1.86	100.9 0.8	12.80 .14	40.2 1.2	30.42 .07	27.4 0.5
18.3	11.51 .51	107.7 +0.2	22.51 1.93	101.4 +0.2	12.66 .15	41.2 0.8	30.35 .08	26.9 0.5
28.3	11.00 .51	107.6 -0.3	20.56 1.96	101.3 -0.4	12.50 .16	41.9 0.5	30.27 .09	26.4 0.5
July 8.2	10.50 .50	107.0 0.9	18.61 1.93	100.7 0.9	12.34 .16	42.1 +0.1	30.18 .10	25.9 0.6
18.2	10.01 .47	105.9 1.4	16.71 1.86	99.5 1.4	12.19 .16	42.0 -0.3	30.08 .10	25.3 0.6
28.2	9.56 .43	104.3 1.9	14.90 1.75	97.8 2.0	12.03 .15	41.5 0.7	29.98 .10	24.7 0.5
Aug. 7.1	9.15 .38	102.2 2.3	13.22 1.59	95.6 2.4	11.89 .13	40.7 1.1	29.88 .10	24.2 0.5
17.1	8.80 .32	99.7 2.7	11.72 1.41	93.0 2.8	11.77 .12	39.4 1.4	29.79 .08	23.8 0.4
27.1	8.51 .25	96.8 3.0	10.42 1.18	90.0 3.2	11.66 .10	37.8 1.8	29.71 .07	23.5 0.3
Sept. 6.1	8.29 .18	93.6 3.3	9.36 .93	86.6 3.5	11.58 .07	35.9 2.1	29.66 .05	23.2 +0.2
16.0	8.16 -.09	90.2 3.6	8.57 .66	83.0 3.7	11.53 -.03	33.7 2.4	29.62 -.02	23.2 0.0
26.0	8.11 +.01	86.5 3.8	8.06 .36	79.2 3.9	11.52 +.01	31.1 2.7	29.62 +.02	23.3 -0.2
Oct. 6.0	8.17 .11	82.7 3.8	7.86 -.04	75.3 3.9	11.55 .06	28.4 2.9	29.65 .06	23.6 0.4
16.0	8.33 .21	78.9 3.9	7.99 +.29	71.4 3.9	11.64 .11	25.4 3.0	29.73 .10	24.2 0.7
25.9	8.59 .28	75.0 3.2	8.44 .62	67.5 3.9	11.77 .10	22.3 3.2	29.85 .14	25.0 0.9
Nov. 4.9	8.96 .22	71.4 3.6	9.22 .25	63.7 3.7	11.95 .21	19.1 3.2	30.02 .19	26.0 1.2
14.9	9.43 .22	67.9 3.4	10.33 1.27	60.2 3.4	12.19 .26	15.9 3.2	30.23 .22	27.4 1.5
24.8	9.99 .21	64.7 3.0	11.75 1.56	57.0 3.0	12.48 .31	12.8 3.1	30.42 .27	29.0 1.7
Dec. 4.8	10.63 .28	61.9 2.6	13.44 1.81	54.2 2.6	12.81 .35	9.8 2.9	30.77 .31	30.9 1.9
14.8	11.35 .24	59.6 2.0	15.36 2.02	51.9 2.0	13.17 .38	7.1 2.6	31.09 .32	32.9 2.1
24.8	12.11 .27	57.2 1.5	17.46 2.16	50.2 1.4	13.56 .40	4.6 2.2	31.42 .34	35.0 2.1
34.7	12.29 +.28	56.7 -0.9	19.67 +2.23	49.1 -0.8	13.96 +.39	2.6 -1.8	31.77 +.35	37.1 -2.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Virginis. (Spica.)		ζ Virginis.		η Ursæ Majoris.		γ Bootis.	
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	^h ^m 13 18	-10° 30'	^h ^m 13 28	+0° 2'	^h ^m 13 42	+49° 55'	^h ^m 13 48	+19° 1'
(Dec. 30.8)	^s 35.87 +.35	["] 26.7 -2.1	^s 18.81 +.34	["] 37.2 -2.2	^s 36.53 +.43	["] 58.9 -2.4	^s 43.39 +.34	["] 22.5 -2.4
Jan. 9.8	36.22 .34	28.8 2.1	19.15 .34	35.0 2.1	36.97 .45	56.8 1.8	43.73 .35	20.2 2.1
19.7	36.56 .33	30.9 2.1	19.49 .33	32.9 2.0	37.42 .45	55.3 1.9	44.08 .34	18.2 1.8
29.7	36.88 .31	32.9 2.0	19.81 .31	31.1 1.8	37.86 .43	54.4 -0.6	44.41 .33	16.6 1.4
Feb. 8.7	37.18 .29	34.9 1.9	20.11 .29	29.4 1.5	38.28 .41	54.1 0.0	44.73 .31	15.4 1.0
18.7	37.45 .28	36.7 1.7	20.39 .28	28.0 1.3	38.66 .37	54.4 +0.6	45.03 .28	14.6 0.6
29.6	37.69 .28	38.2 1.5	20.63 .28	26.9 1.0	39.01 .38	55.3 1.2	45.29 .26	14.3 -0.1
Mar. 10.6	37.89 .18	39.6 1.3	20.83 .19	26.1 0.7	39.30 .37	56.7 1.6	45.52 .21	14.3 +0.2
20.6	38.06 .15	40.7 1.0	21.00 .15	25.5 0.4	39.54 .31	58.5 2.0	45.72 .18	14.8 0.6
30.5	38.18 .11	41.7 0.8	21.14 .12	25.3 -0.2	39.72 .15	60.7 2.4	45.87 .14	15.6 0.9
Apr. 9.5	38.28 .08	42.3 0.6	21.24 .09	25.2 +0.1	39.84 .09	63.2 2.6	45.99 .10	16.6 1.2
19.5	38.35 .05	42.8 0.4	21.31 .06	25.4 0.3	39.91 +.04	65.8 2.6	46.08 .07	17.9 1.3
29.5	38.38 +.02	43.1 0.2	21.36 .03	25.7 0.4	39.92 -.01	68.4 2.6	46.13 .04	19.3 1.5
May 9.4	38.39 .00	43.2 -0.1	21.37 +.01	26.2 0.5	39.89 .06	71.0 2.5	46.16 +.01	20.8 1.5
19.4	38.38 -.02	43.2 +0.1	21.37 -.02	26.8 0.0	39.81 .10	73.4 2.3	46.15 -.02	22.3 1.5
29.4	38.35 .04	43.1 0.2	21.34 .04	27.4 0.6	39.69 .14	75.6 2.0	46.12 .04	23.7 1.4
June 8.3	38.30 .06	42.8 0.3	21.29 .06	28.0 0.6	39.54 .17	77.5 1.7	46.07 .06	25.0 1.3
18.3	38.23 .07	42.5 0.4	21.23 .07	28.7 0.6	39.36 .19	79.0 1.3	46.00 .08	26.2 1.1
28.3	38.15 .09	42.1 0.5	21.15 .08	29.3 0.6	39.15 .21	80.1 0.9	45.91 .10	27.2 0.9
July 8.3	38.06 .10	41.6 0.5	21.06 .10	29.9 0.6	38.93 .23	80.8 +0.4	45.81 .11	28.0 0.7
18.2	37.96 .10	41.0 0.6	20.96 .10	30.4 0.5	38.70 .23	81.0 0.0	45.69 .12	28.6 0.4
28.2	37.85 .11	40.4 0.6	20.85 .11	30.9 0.4	38.47 .23	80.7 -0.5	45.57 .13	28.9 +0.2
Aug. 7.2	37.74 .10	39.8 0.6	20.75 .11	31.3 0.3	38.24 .23	80.0 0.9	45.44 .13	28.9 -0.1
17.2	37.64 .10	39.3 0.6	20.64 .10	31.6 0.2	38.01 .22	78.9 1.4	45.31 .12	28.7 0.4
27.1	37.55 .08	38.7 0.5	20.55 .09	31.7 +0.1	37.80 .20	77.3 1.8	45.20 .11	28.2 0.7
Sept. 6.1	37.48 .06	38.3 0.4	20.47 .07	31.7 -0.1	37.62 .17	75.2 2.2	45.09 .09	27.4 0.9
16.1	37.43 -.03	37.9 0.3	20.42 .04	31.5 0.3	37.47 .13	72.8 2.6	45.01 .07	26.3 1.2
26.0	37.42 .00	37.7 +0.1	20.39 -.01	31.2 0.5	37.36 .09	70.1 2.9	44.95 -.04	24.9 1.5
Oct. 6.0	37.44 +.04	37.7 -0.1	20.40 +.03	30.6 0.7	37.29 -.04	67.1 3.2	44.93 .00	23.3 1.8
16.0	37.50 .09	37.9 0.3	20.45 .07	29.7 1.0	37.20 +.02	63.8 3.5	44.95 +.04	21.4 2.1
26.0	37.61 .13	38.3 0.6	20.54 .12	28.7 1.2	37.34 .08	60.3 3.6	45.02 .09	19.2 2.3
Nov. 4.9	37.76 .18	39.0 0.9	20.68 .16	27.3 1.5	37.45 .15	56.7 3.6	45.13 .14	16.8 2.6
14.9	37.97 .23	40.1 1.2	20.87 .21	25.8 1.7	37.64 .21	53.0 3.6	45.29 .19	14.3 2.5
24.9	38.21 .27	41.3 1.4	21.10 .25	24.0 1.9	37.88 .27	49.5 3.5	45.50 .23	11.6 2.7
Dec. 4.8	38.50 .30	42.9 1.7	21.37 .29	22.0 2.1	38.18 .33	46.1 3.3	45.76 .27	8.9 2.7
14.8	38.81 .33	44.7 1.9	21.67 .31	19.9 2.1	38.54 .38	42.9 3.0	46.04 .31	6.2 2.7
24.8	39.14 .35	46.6 2.0	21.99 .33	17.7 2.2	38.84 .42	40.1 2.6	46.36 .33	3.6 2.5
34.8	39.49 +.35	48.7 -2.1	22.33 +.34	15.5 -2.2	39.37 +.44	37.7 -2.2	46.70 +.34	1.2 -2.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	β Centauri.		α Draconis.		α Bootis. (Arcturus.)		θ Bootis.	
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	13 54	-59 45	14 0	+64 57	14 9	+19 49	14 20	+52 25
(Dec. 30.8)	58.86 +.58	53.7 -0.6	59.99 +.57	63.9 -2.4	56.86 +.33	54.3 -2.5	55.76 +.42	27.8 -2.7
Jan. 9.8	59.44 .58	54.5 1.1	60.58 .60	61.9 1.8	57.19 .34	51.9 2.3	56.20 .45	25.3 2.2
19.8	60.02 .58	55.8 1.5	61.19 .62	60.4 1.1	57.53 .34	49.8 1.9	56.65 .46	23.4 1.6
29.7	60.58 .55	57.5 1.9	61.81 .61	59.6 -0.5	57.87 .33	48.0 1.6	57.11 .45	22.1 1.0
Feb. 8.7	61.12 .52	59.6 2.3	62.40 .58	59.5 +0.2	58.20 .32	46.7 1.1	57.56 .44	21.5 -0.3
18.7	61.62 .48	62.1 2.6	62.96 .53	60.0 0.9	58.50 .29	45.8 0.7	57.98 .41	21.4 +0.3
28.6	62.07 .43	64.8 2.8	63.47 .47	61.2 1.4	58.78 .26	45.3 -0.2	58.37 .37	22.1 0.9
Mar. 10.6	62.47 .37	67.7 3.0	63.91 .40	62.9 2.0	59.02 .23	45.3 +0.2	58.72 .32	22.2 1.4
20.6	62.81 .31	70.7 3.1	64.26 .32	65.0 2.4	59.23 .19	45.7 0.6	59.01 .27	24.9 1.9
30.6	63.09 .25	73.8 3.1	64.54 .23	67.6 2.7	59.40 .16	46 5 0.9	59.25 .21	27.0 2.3
Apr. 9.5	63.31 .19	76.9 3.1	64.72 .14	70.4 2.9	59.54 .12	47.6 1.2	59.43 .15	29.5 2.6
19.5	63.47 .13	80.0 3.0	64.81 +0.5	73.4 3.0	59.65 .09	48.8 1.4	59.55 .09	32.2 2.8
29.5	63.57 .07	82.9 2.8	64.82 -0.4	76.4 3.0	59.72 .06	50.3 1.5	59.61 +0.3	34.9 2.8
May 9.4	63.61 +0.1	85.6 2.7	64.74 .12	79.3 2.8	59.76 +0.3	51.8 1.6	59.62 -0.2	37.7 2.7
19.4	63.59 -0.4	88.2 2.4	64.59 .19	82.0 2.6	59.77 .00	53.4 1.5	59.58 .07	40.4 2.6
29.4	63.52 .10	90.4 2.1	64.37 .25	84.4 2.3	59.76 -0.3	54.9 1.5	59.49 .11	42.9 2.4
June 8.4	63.40 .15	92.4 1.8	64.10 .30	86.5 1.9	59.72 .05	56.3 1.4	59.35 .15	45.1 2.1
18.3	63.23 .19	94.0 1.4	63.77 .35	88.2 1.5	59.65 .06	57.6 1.2	59.18 .19	47.0 1.7
28.3	63.02 .23	95.2 1.0	63.40 .36	89.4 1.0	59.57 .10	58.7 1.0	58.97 .22	48.5 1.3
July 8.3	62.77 .26	96.0 0.6	63.01 .41	90.1 +0.5	59.46 .11	59.5 0.8	58.74 .24	49.6 0.9
18.3	62.49 .29	96.3 -0.1	62.59 .42	90.3 -0.1	59.35 .12	60.1 0.5	58.49 .26	50.2 +0.4
28.2	62.19 .30	96.2 +0.3	62.16 .43	90.0 0.6	59.22 .13	60.5 +0.2	58.22 .27	50.4 -0.1
Aug. 7.2	61.89 .31	95.6 0.8	61.74 .42	89.2 1.1	59.08 .14	60.6 0.0	57.95 .27	50.0 0.6
17.2	61.59 .29	94.7 1.2	61.33 .40	87.9 1.6	58.94 .14	60.4 -0.3	57.68 .27	49.2 1.0
27.1	61.30 .27	93.3 1.6	60.94 .37	86.0 2.1	58.81 .13	59.0 0.6	57.41 .26	47.9 1.5
Sept. 6.1	61.05 .23	91.6 1.9	60.59 .33	83.8 2.5	58.69 .12	59.1 0.9	57.17 .23	46.2 2.0
16.1	60.85 .18	89.6 2.1	60.28 .28	81.1 2.9	58.58 .09	58.1 1.2	56.95 .20	44.0 2.4
26.1	60.70 .11	87.3 2.3	60.03 .22	78.0 3.2	58.50 .06	56.7 1.5	56.77 .16	41.4 2.8
Oct. 6.0	60.63 -0.3	85.0 2.4	59.84 .14	74.7 3.5	58.46 -0.3	55.0 1.8	56.63 .11	38.5 3.1
16.0	60.64 +0.5	82.6 2.3	59.74 -0.6	71.0 3.7	58.45 +0.2	53.1 2.1	56.55 -0.5	35.3 3.4
26.0	60.74 .15	80.3 2.2	59.72 +0.3	67.3 3.9	58.49 .06	50.9 2.3	56.53 +0.1	31.8 3.6
Nov. 5.0	60.93 .24	78.2 2.0	59.80 .12	63.4 3.9	58.58 .11	48.5 2.5	56.58 .06	28.2 3.7
14.9	61.21 .29	76.4 1.7	59.97 .22	59.5 3.9	58.72 .16	45.8 2.7	56.70 .15	24.5 3.7
24.9	61.58 .40	75.0 1.3	60.23 .31	55.7 3.7	58.90 .21	43.1 2.8	56.89 .22	20.7 3.7
Dec. 4.9	62.02 .47	73.9 0.8	60.58 .40	52.1 3.5	59.14 .25	40.3 2.8	57.14 .29	17.1 3.6
14.8	62.51 .52	73.4 +0.3	61.02 .48	48.8 3.1	59.41 .29	37.5 2.8	57.46 .35	13.7 3.3
24.8	63.06 .56	73.4 -0.2	61.53 .54	45.9 2.7	59.71 .32	34.8 2.6	57.83 .39	10.5 3.0
34.8	63.63 +.58	73.8 -0.7	62.09 +.58	43.5 -2.1	60.04 +.34	32.2 -2.4	58.24 +.43	7.8 -2.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*5 Ursæ Minoris.		α Centauri.		ε Bootis.		α Libræ.	
	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination South.
	^h ^m 14 27	+76° 14'	^h ^m 14 31	-60° 18'	^h ^m 14 39	+27° 35'	^h ^m 14 43	-15° 31'
(Dec. 30.8)	^s 47.84 +.85	" 43.8 -2.5	^s 5.83 +.55	" 42.8 0.0	^s 30.82 +.32	" 56.2 -2.7	^s 56.68 +.33	" 14.6 -1.6
Jan. 9.8	48.74 .94	41.6 1.9	6.39 .58	43.0 -0.5	31.15 .34	53.7 2.4	57.01 .34	16.2 1.7
19.8	49.70 .99	40.0 1.3	6.97 .58	43.8 1.0	31.50 .35	51.5 2.0	57.36 .35	17.9 1.7
29.7	50.70 1.00	39.1 -0.6	7.55 .57	45.0 1.4	31.85 .35	49.7 1.5	57.70 .34	19.6 1.7
Feb. 8.7	51.69 .98	38.9 +0.1	8.12 .55	46.6 1.8	32.19 .34	48.4 1.0	58.03 .33	21.3 1.7
18.7	52.65 .93	39.3 0.8	8.65 .52	48.6 2.1	32.52 .32	47.6 -0.5	58.35 .31	22.9 1.5
28.7	53.54 .84	40.4 1.4	9.15 .47	50.9 2.4	32.82 .29	47.4 0.0	58.65 .29	24.4 1.4
Mar. 10.6	54.32 .73	42.1 1.9	9.60 .42	53.4 2.6	33.10 .26	47.6 +0.5	58.92 .26	25.7 1.2
20.6	54.98 .59	44.2 2.4	9.99 .37	56.1 2.8	33.34 .23	48.3 0.9	59.17 .23	26.9 1.1
30.6	55.50 .44	46.8 2.7	10.34 .31	58.9 2.9	33.55 .19	49.4 1.3	59.38 .20	27.8 0.9
Apr. 9.6	55.87 .28	49.7 3.0	10.62 .26	61.8 2.9	33.73 .15	50.9 1.6	59.57 .17	28.6 0.7
19.5	56.07 +.12	52.7 3.1	10.85 .20	64.6 2.9	33.86 .12	52.6 1.8	59.73 .14	29.2 0.5
29.5	56.10 -0.04	55.8 3.1	11.02 .14	67.5 2.8	33.96 .08	54.6 2.0	59.85 .11	29.7 0.4
May 9.5	55.99 .20	58.9 3.0	11.12 .07	70.2 2.7	34.03 .05	56.6 2.0	59.95 .08	30.0 0.3
19.4	55.72 .34	61.7 2.8	11.16 +.01	72.8 2.5	34.06 +.02	58.6 2.0	60.02 .06	30.2 -0.1
29.4	55.31 .47	64.4 2.5	11.15 -0.05	75.2 2.3	34.06 -0.02	60.6 1.9	60.06 +.03	30.2 0.0
June 8.4	54.79 .58	66.6 2.1	11.07 .10	77.4 2.0	34.03 .05	62.5 1.8	60.07 .00	30.2 +0.1
18.4	54.15 .68	68.5 1.7	10.94 .16	79.2 1.7	33.97 .07	64.2 1.6	60.06 -0.03	30.1 0.1
28.3	53.43 .75	69.9 1.2	10.76 .21	80.7 1.3	33.89 .10	65.7 1.4	60.01 .06	29.9 0.2
July 8.3	52.65 .81	70.8 0.7	10.52 .25	81.8 0.9	33.78 .12	66.9 1.1	59.94 .06	29.7 0.3
18.3	51.82 .85	71.2 +0.1	10.25 .29	82.5 0.5	33.65 .14	67.8 0.7	59.86 .10	29.4 0.3
28.3	50.95 .87	71.1 -0.4	9.95 .32	82.8 -0.1	33.51 .15	68.3 0.4	59.75 .12	29.0 0.4
Aug. 7.2	50.08 .87	70.4 0.9	9.62 .33	82.7 +0.4	33.35 .16	68.6 +0.1	59.62 .13	28.6 0.4
17.2	49.23 .84	69.2 1.5	9.29 .33	82.1 0.8	33.19 .16	68.5 -0.3	59.49 .14	28.1 0.5
27.2	48.40 .80	67.5 2.0	8.97 .32	81.1 1.2	33.03 .16	68.0 0.6	59.36 .13	27.7 0.5
Sept. 6.1	47.63 .74	65.3 2.4	8.66 .29	79.6 1.6	32.87 .15	67.2 1.0	59.23 .12	27.2 0.5
16.1	46.94 .66	62.7 2.8	8.40 .24	77.9 1.9	32.73 .13	66.0 1.4	59.12 .10	26.7 0.4
26.1	46.33 .55	59.7 3.2	8.18 .18	75.9 2.2	32.62 .10	64.5 1.7	59.02 .08	26.4 0.3
Oct. 6.1	45.83 .43	56.3 3.5	8.04 .11	73.6 2.3	32.53 .07	62.6 2.0	58.96 -0.04	26.1 0.2
16.0	45.47 .30	52.7 3.7	7.97 -0.02	71.3 2.3	32.49 -0.02	60.5 2.3	58.94 .00	25.9 +0.1
26.0	45.24 -0.15	48.9 3.9	7.99 +0.07	69.0 2.3	32.49 +0.03	58.0 2.6	58.97 +0.05	26.0 -0.1
Nov. 5.0	45.17 +0.01	45.0 3.9	8.10 .16	66.8 2.2	32.54 .06	55.3 2.8	59.04 .10	26.2 0.4
15.0	45.27 .12	41.1 3.9	8.31 .25	64.7 1.9	32.64 .13	52.4 3.0	59.17 .15	26.7 0.6
24.9	45.53 .24	37.3 3.8	8.61 .34	62.9 1.6	32.80 .18	49.4 3.0	59.34 .20	27.4 0.8
Dec. 4.9	45.95 .50	33.6 3.6	8.99 .42	61.5 1.2	33.00 .22	46.4 3.1	59.57 .25	28.3 1.1
14.9	46.53 .65	30.2 3.2	9.45 .48	60.5 0.8	33.26 .27	43.3 3.0	59.83 .29	29.5 1.3
24.8	47.25 .78	27.2 2.8	9.96 .53	60.0 +0.3	33.55 .31	40.4 2.8	60.13 .22	30.9 1.5
34.8	48.08 +.88	24.7 -2.2	10.51 +.57	60.0 -0.2	33.86 +.34	37.7 -2.6	60.46 +.34	32.4 -1.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*β Ursæ Minoris.		β Bootis.		β Libræ.		μ ¹ Bootis.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.
	h m 14 51	° ′ +74 39	h m 14 57	° ′ +40 52	h m 15 10	° ′ -8 55	h m 15 19	° ′ +37 48
(Dec. 30.8)	^s 3.98 +.72	37.0 -2.8	^s 13.96 +.34	48.9 -2.9	^s 15.63 +.31	14.6 -1.7	^s 45.02 +.31	45.3 -3.0
Jan. 9.8	4.75 .81	34.6 2.2	13.61 .37	46.2 2.5	15.95 .32	16.3 1.7	45.35 .34	42.4 2.7
19.8	5.59 .87	32.7 1.6	13.99 .38	43.9 2.1	16.27 .33	18.1 1.7	45.70 .36	40.0 2.2
29.8	6.48 .91	31.4 0.9	14.37 .38	42.1 1.5	16.61 .33	19.7 1.6	46.06 .37	38.0 1.7
Feb. 8.7	7.38 .90	30.8 -0.3	14.75 .38	40.8 0.9	16.94 .33	21.3 1.5	46.43 .37	36.5 1.2
18.7	8.26 .86	31.0 +0.5	15.12 .36	40.2 -0.3	17.26 .31	22.7 1.3	46.79 .36	35.7 -0.6
28.7	9.10 .80	31.7 1.1	15.47 .34	40.2 +0.3	17.56 .29	24.0 0.1	47.14 .34	35.4 0.0
Mar 10.7	9.85 .71	33.1 1.7	15.79 .30	40.8 0.8	17.84 .27	25.0 0.9	47.46 .31	35.7 +0.6
20.6	10.51 .60	35.0 2.2	16.08 .27	41.8 1.3	18.10 .24	25.8 0.7	47.76 .28	36.6 1.1
30.6	11.05 .47	37.4 2.6	16.32 .23	43.4 1.8	18.33 .22	26.3 0.5	48.01 .24	37.9 1.6
Apr. 9.6	11.45 .34	40.2 2.9	16.53 .18	45.4 2.1	18.53 .19	26.7 0.3	48.24 .20	39.7 2.0
19.5	11.72 .19	43.2 3.1	16.69 .14	47.6 2.4	18.71 .16	26.9 -0.1	48.42 .16	41.8 2.3
29.5	11.84 +.05	46.3 3.1	16.80 .10	50.1 2.5	18.86 .13	26.8 +0.1	48.56 .12	44.2 2.5
May 9.5	11.81 -0.09	49.4 3.1	16.88 .05	52.7 2.6	18.97 .11	26.7 0.2	48.66 .08	46.7 2.5
19.5	11.65 .23	52.4 2.9	16.91 +.01	55.2 2.6	19.07 .08	26.4 0.3	48.72 +.04	49.2 2.6
29.4	11.36 .35	55.2 2.7	16.90 -0.03	57.7 2.4	19.13 .05	26.1 0.4	48.74 .00	51.8 2.5
June 8.4	10.96 .46	57.7 2.3	16.85 .07	60.1 2.2	19.16 +.02	25.7 0.4	48.73 -0.04	54.2 2.3
18.4	10.45 .56	59.8 1.9	16.77 .10	62.2 2.0	19.16 -0.01	25.3 0.4	48.67 .07	56.4 2.1
28.4	9.84 .64	61.6 1.5	16.65 .13	64.0 1.6	19.14 .04	24.8 0.4	48.58 .11	58.3 1.8
July 8.3	9.17 .70	62.8 1.0	16.51 .16	65.5 1.3	19.09 .07	24.4 0.4	48.46 .14	60.0 1.5
18.3	8.44 .75	63.5 +0.5	16.33 .18	66.6 0.9	19.01 .09	23.9 0.5	48.31 .16	61.3 1.1
28.3	7.67 .78	63.8 -0.1	16.14 .20	67.2 +0.5	18.91 .11	23.5 0.4	48.14 .19	62.2 0.7
Aug. 7.2	6.88 .80	63.4 0.6	15.94 .21	67.5 0.0	18.79 .13	23.1 0.4	47.94 .20	62.8 +0.3
17.2	6.09 .79	62.6 1.1	15.72 .22	67.3 -0.4	18.66 .14	22.7 0.3	47.74 .21	62.8 -0.1
27.2	5.31 .76	61.2 1.6	15.50 .21	66.7 0.8	18.52 .14	22.4 0.3	47.52 .21	62.5 0.5
Sept. 6.2	4.57 .72	59.4 2.1	15.29 .20	65.6 1.3	18.38 .13	22.1 0.2	47.31 .21	61.8 1.0
16.1	3.89 .65	57.1 2.5	15.10 .18	64.2 1.7	18.26 .12	21.9 +0.2	47.11 .19	60.6 1.4
26.1	3.27 .57	54.4 2.9	14.93 .16	62.3 2.1	18.15 .10	21.8 0.0	46.93 .17	59.0 1.8
Oct. 6.1	2.75 .47	51.2 3.3	14.79 .12	60.0 2.5	18.07 .06	21.9 -0.1	46.78 .13	57.0 2.2
16.1	2.34 .35	47.8 3.6	14.70 .07	57.4 2.8	18.03 -0.02	22.1 0.3	46.67 .09	54.6 2.5
26.0	2.05 .22	44.2 3.8	14.65 -0.02	54.4 3.1	18.02 +.02	22.5 0.5	46.61 -0.04	51.9 2.8
Nov. 5.0	1.91 -0.07	40.3 3.9	14.67 +.04	51.3 3.3	18.07 .07	23.1 0.7	46.59 +.02	49.0 3.1
15.0	1.91 +.08	36.4 3.9	14.74 .10	47.9 3.4	18.16 .12	23.9 0.9	46.64 .07	45.8 3.3
24.9	2.06 .23	32.5 3.9	14.87 .16	44.4 3.5	18.31 .17	24.9 1.1	46.74 .13	42.5 3.4
Dec. 4.9	2.37 .28	28.8 3.7	15.06 .22	40.9 3.5	18.50 .22	26.1 1.3	46.90 .19	39.0 3.4
14.9	2.82 .22	25.2 3.4	15.30 .27	37.5 3.3	18.74 .26	27.5 1.5	47.11 .24	35.7 3.3
24.9	3.41 .15	22.0 3.0	15.59 .31	34.3 3.1	19.01 .29	29.1 1.6	47.38 .29	32.4 3.1
34.8	4.11 +.77	19.2 -2.5	15.92 +.26	31.4 -2.7	19.32 +.22	30.8 -1.7	47.68 +.22	29.4 -2.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	* γ^2 Ursæ Minoris.		α Coronæ Borealis.		α Serpentis.		ϵ Serpentis.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m	° ' "	h m	° ' "	h m	° ' "	h m	° ' "
	15 20	+72 16	15 29	+27 7	15 38	+6 48	15 44	+4 50
(Dec. 30.9)	^a 54.62 +.57	24.6 -3.0	^a 22.56 +.29	59.9 -2.9	^a 5.39 +.28	66.0 -2.9	^a 33.84 +.27	72.5 -2.1
Jan. 9.8	55.24 .66	21.8 2.5	22.87 .30	57.2 2.6	5.68 .30	63.9 2.1	34.13 .30	70.4 2.1
19.8	55.94 .73	19.5 2.0	23.19 .33	54.8 2.2	5.99 .32	61.8 2.0	34.43 .31	68.4 1.9
29.8	56.69 .77	17.8 1.4	23.53 .34	52.8 1.8	6.31 .32	60.0 1.7	34.75 .32	66.6 1.7
Feb. 8.8	57.47 .79	16.8 -0.7	23.87 .34	51.2 1.3	6.63 .32	58.4 1.4	35.07 .32	65.1 1.4
18.7	58.26 .78	16.5 0.0	24.20 .33	50.1 0.8	6.95 .31	57.1 1.1	35.39 .31	63.7 1.1
28.7	59.01 .74	16.9 +0.7	24.52 .31	49.5 -0.3	7.25 .30	56.2 0.7	35.69 .30	62.8 0.8
Mar. 10.7	59.72 .67	17.9 1.3	24.83 .29	49.5 +0.2	7.54 .28	55.6 -0.4	35.98 .28	62.2 0.4
20.6	60.36 .59	19.5 1.9	25.10 .26	50.0 0.7	7.81 .26	55.4 0.0	36.25 .26	61.9 -0.1
30.6	60.90 .49	21.6 2.3	25.35 .23	50.9 1.1	8.05 .23	55.6 +0.3	36.50 .24	62.0 +0.2
Apr. 9.6	61.34 .38	24.1 2.7	25.57 .20	52.3 1.5	8.27 .21	56.0 0.6	36.73 .21	62.4 0.5
19.6	61.66 .26	27.0 3.0	25.76 .17	53.9 1.8	8.46 .18	56.8 0.9	36.93 .18	63.0 0.8
29.5	61.86 .14	30.0 3.1	25.91 .14	55.9 2.0	8.63 .15	57.7 1.0	37.10 .16	63.9 1.0
May 9.5	61.94 +.02	33.2 3.1	26.03 .10	58.0 2.2	8.76 .12	58.8 1.2	37.24 .13	64.9 1.1
19.5	61.90 -1.0	36.3 3.1	26.11 .07	60.1 2.2	8.87 .09	60.1 1.3	37.35 .10	66.1 1.2
29.5	61.75 .21	39.3 2.9	26.16 +0.3	62.3 2.2	8.95 .08	61.3 1.3	37.44 .07	67.3 1.2
June 8.4	61.48 .22	42.1 2.6	26.17 .00	64.4 2.1	8.99 +0.3	62.6 1.3	37.49 .04	68.5 1.2
18.4	61.11 .42	44.5 2.3	26.15 -0.4	66.4 1.9	9.01 .00	63.9 1.2	37.51 +0.1	69.6 1.1
28.4	60.65 .50	46.6 1.9	26.10 .07	68.2 1.7	8.99 -0.3	65.0 1.1	37.50 -0.3	70.7 1.1
July 8.3	60.12 .57	48.3 1.4	26.02 .10	69.8 1.4	8.95 .06	66.1 1.0	37.46 .05	71.8 1.0
18.3	59.52 .63	49.5 1.0	25.90 .12	71.0 -1.1	8.87 .09	67.0 0.8	37.40 .08	72.6 0.8
28.3	58.87 .67	50.2 +0.4	25.77 .15	72.0 0.8	8.77 .11	67.8 0.7	37.30 .11	73.4 0.7
Aug. 7.3	58.19 .69	50.3 -0.1	25.61 .16	72.6 0.5	8.65 .13	68.4 0.5	37.19 .13	74.0 0.5
17.2	57.49 .70	50.0 0.6	25.44 .18	72.9 +0.1	8.52 .14	68.8 0.3	37.05 .14	74.4 0.3
27.2	56.78 .70	49.1 1.1	25.26 .18	72.8 -0.3	8.37 .15	68.9 +0.1	36.91 .15	74.6 +0.1
Sept. 6.2	56.10 .67	47.7 1.6	25.08 .18	72.4 0.6	8.22 .15	68.9 -0.1	36.76 .15	74.7 -0.1
16.2	55.45 .63	45.8 2.1	24.91 .16	71.6 1.0	8.08 .14	68.7 0.4	36.61 .14	74.5 0.3
26.1	54.85 .57	43.5 2.6	24.76 .14	70.4 1.4	7.95 .12	68.2 0.6	36.48 .12	74.1 0.5
Oct. 6.1	54.32 .49	40.8 2.9	24.63 .11	68.8 1.7	7.85 .09	67.5 0.8	36.37 .10	73.5 0.7
16.1	53.88 .39	37.6 3.3	24.54 .08	66.9 2.1	7.77 .06	66.6 1.1	36.29 .06	72.7 1.0
26.0	53.55 .28	34.2 3.6	24.48 -0.3	64.7 2.4	7.73 -0.2	65.4 1.3	36.25 -0.2	71.6 1.2
Nov. 5.0	53.33 .16	30.5 3.8	24.47 +0.2	62.2 2.6	7.74 +0.3	64.0 1.6	36.25 +0.3	70.3 1.4
15.0	53.24 -0.3	26.7 3.9	24.52 .07	59.5 2.8	7.80 .00	62.3 1.2	36.31 .00	68.8 1.6
25.0	53.28 +.11	22.8 3.9	24.62 .13	56.6 3.0	7.90 .13	60.4 2.0	36.41 .13	67.0 1.9
Dec. 4.9	53.46 .25	19.0 3.8	24.77 .18	53.6 3.1	8.06 .18	58.4 2.1	36.56 .18	65.1 2.0
14.9	53.78 .28	15.3 3.6	24.97 .22	50.5 3.0	8.26 .22	56.2 2.2	36.75 .22	63.1 2.1
24.9	54.22 .20	11.8 3.3	25.22 .27	47.5 2.9	8.50 .26	54.0 2.2	36.99 .26	60.9 2.1
34.9	54.77 +.61	8.7 -2.9	25.51 +.30	44.7 -2.8	8.77 +.28	51.8 -2.2	37.26 +.28	58.8 -2.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*ζ Ursæ Minoris.		ε Coronæ Borealis.		δ Scorpii.		β ¹ Scorpii.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination South.
	h m 15 48	° ′ +78 10	h m 15 52	° ′ +27 14	h m 15 52	° ′ -22 15	h m 15 58	° ′ -19 27
(Dec. 30.9)	^s 30.63 +.68	21.9 -3.2	^s 23.56 +.27	16.6 -2.9	^s 55.02 +.30	50.4 -0.9	^s 8.59 +.30	43.5 -1.0
Jan. 9.8	31.38 .83	19.0 2.7	23.84 .30	13.8 2.7	55.33 .32	51.3 1.0	8.89 .32	44.6 1.1
	19.8 32.28 .96	16.5 2.9	24.15 .32	11.3 2.3	55.66 .34	52.4 1.1	9.22 .33	45.7 1.2
	29.8 33.29 1.05	14.6 1.6	24.48 .33	9.1 1.9	56.01 .35	53.6 1.2	9.56 .34	46.9 1.2
Feb. 8.8	34.37 1.10	13.3 0.9	24.81 .34	7.5 1.5	56.36 .35	54.8 1.2	9.90 .34	48.1 1.2
	18.7 35.48 1.11	12.7 -0.3	25.15 .33	6.2 1.0	56.70 .34	56.0 1.2	10.24 .34	49.3 1.2
	28.7 36.58 1.08	12.8 +0.4	25.47 .32	5.6 -0.4	57.04 .33	57.2 1.1	10.57 .33	50.4 1.1
Mar. 10.7	37.63 1.02	13.5 1.1	25.78 .30	5.4 +0.1	57.36 .31	58.3 1.1	10.89 .31	51.5 1.0
	20.7 38.60 .92	14.9 1.6	26.07 .28	5.8 0.6	57.66 .29	59.3 1.0	11.19 .29	52.4 0.8
	30.6 39.46 .79	16.8 2.2	26.34 .25	6.6 1.1	57.94 .27	60.2 0.8	11.46 .27	53.1 0.7
Apr. 9.6	40.17 .63	19.1 2.6	26.57 .22	7.9 1.5	58.20 .24	60.9 0.7	11.72 .25	53.8 0.6
	19.6 40.72 .48	21.9 2.9	26.78 .19	9.6 1.8	58.43 .22	61.6 0.6	11.95 .22	54.3 0.5
	29.6 41.09 .28	24.8 3.1	26.95 .16	11.5 2.1	58.63 .19	62.2 0.5	12.16 .19	54.7 0.4
May 9.5	41.28 +.09	28.0 3.2	27.09 .12	13.6 2.2	58.81 .16	62.7 0.5	12.33 .16	55.0 0.3
	19.5 41.28 -.09	31.1 3.1	27.20 .09	15.9 2.3	58.95 .13	63.1 0.4	12.48 .13	55.2 0.2
	29.5 41.10 .27	34.2 3.0	27.27 .05	18.1 2.3	59.06 .10	63.5 0.3	12.60 .10	55.4 0.1
June 8.4	40.74 .44	37.1 2.8	27.30 +.02	20.4 2.2	59.14 .06	63.7 0.2	12.68 .07	55.5 -0.1
	18.4 40.23 .59	39.8 2.5	27.30 -.02	22.5 2.0	59.19 +.03	64.0 0.2	12.73 +.03	55.6 0.0
	28.4 39.56 .73	42.1 2.1	27.27 .05	24.4 1.8	59.20 -.01	61.1 0.1	12.74 -.01	55.6 0.0
July 8.4	38.77 .85	44.0 1.7	27.20 .09	26.1 1.6	59.17 .04	61.2 -0.1	12.72 .04	55.6 +0.1
	18.3 37.86 .95	45.5 1.3	27.10 .12	27.6 1.3	59.11 .08	64.2 0.0	12.66 .07	55.5 0.1
	28.3 36.87 1.03	46.5 0.8	26.97 .14	28.7 1.0	59.02 .10	64.2 +0.1	12.58 .10	55.3 0.2
Aug. 7.3	35.81 1.08	47.0 +0.2	26.82 .16	29.5 0.8	58.90 .13	64.0 0.2	12.46 .13	55.2 0.2
	17.3 34.71 1.11	47.0 -0.3	26.64 .18	30.0 +0.2	58.76 .15	63.8 0.3	12.33 .14	54.9 0.3
	27.2 33.59 1.12	46.5 0.8	26.46 .19	30.1 -0.1	58.61 .16	63.5 0.3	12.18 .15	54.7 0.3
Sept. 6.2	32.48 1.10	45.4 1.3	26.27 .19	29.8 0.5	58.46 .16	63.2 0.4	12.02 .16	54.4 0.3
	16.2 31.41 1.05	43.9 1.8	26.09 .16	29.2 0.8	58.30 .15	62.8 0.4	11.87 .15	54.0 0.4
	26.1 30.39 .97	41.8 2.3	25.92 .16	28.2 1.2	58.16 .13	62.3 0.5	11.73 .13	53.6 0.4
Oct. 6.1	29.47 .87	39.4 2.7	25.77 .13	26.8 1.6	58.05 .10	61.9 0.5	11.61 .10	53.3 0.3
	16.1 28.66 .74	36.5 3.0	25.65 .10	25.0 1.9	57.96 .08	61.4 0.4	11.53 .07	53.0 0.3
	26.1 27.99 .59	33.3 3.3	25.58 .06	22.9 2.3	57.92 -.02	61.1 0.3	11.49 -.02	52.8 +0.2
Nov. 5.0	27.49 .49	29.8 3.6	25.54 -.01	20.5 2.5	57.93 +.04	60.8 +0.2	11.49 +.03	52.7 0.0
	15.0 27.16 .23	26.2 3.8	25.57 +.05	17.9 2.8	57.99 .09	60.7 0.0	11.54 .08	52.8 -0.1
	25.0 27.02 -.03	22.4 3.8	25.64 .10	15.0 2.9	58.11 .14	60.8 -0.2	11.65 .13	53.0 0.3
Dec. 4.9	27.09 +.17	18.6 3.8	25.77 .15	12.1 3.0	58.27 .19	61.0 0.4	11.81 .19	53.4 0.5
	14.9 27.36 .37	14.9 3.6	25.94 .20	9.0 3.0	58.49 .24	61.5 0.6	12.01 .23	54.0 0.7
	24.9 27.83 .56	11.3 3.4	26.17 .25	6.0 3.0	58.75 .28	62.2 0.8	12.27 .27	54.8 0.9
	34.9 28.48 +.73	8.1 -3.0	26.43 +.28	3.1 -2.8	59.05 +.31	63.0 -0.9	12.55 +.30	55.7 -1.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*Groombridge 2320.		δ Ophiuchi.		τ Herculis.		α Scorpii. (Antares.)	
	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination South.
	h m 16 5	+68° 7'	h m 16 7	-3° 22'	h m 16 15	+46° 36'	h m 16 21	-26° 9'
(Dec. 30.9)	^s 56.84 +.39	64.6 -3.5	^s 46.27 +.27	20.1 -1.7	^s 57.32 +.27	27.6 -3.4	^s 42.94 +.29	11.0 -0.5
Jan. 9.9	57.28 .48	61.4 3.0	46.55 .29	21.8 1.7	57.61 .31	24.4 3.0	43.24 .32	11.6 0.7
19.9	57.80 .55	58.6 2.5	46.85 .31	23.5 1.7	57.94 .35	21.6 2.6	43.57 .34	12.3 0.8
29.8	58.38 .61	56.4 1.9	47.16 .32	25.1 1.5	58.31 .38	19.2 2.1	43.91 .35	13.1 0.9
Feb. 8.8	59.00 .64	54.8 1.3	47.48 .32	26.6 1.4	58.69 .39	17.3 1.6	44.27 .36	14.0 0.9
18.8	59.64 .65	53.8 -0.6	47.80 .31	27.8 1.1	59.08 .39	16.0 1.0	44.62 .35	15.0 0.9
28.7	60.29 .64	53.5 +0.1	48.11 .31	28.8 0.9	59.47 .39	15.4 -0.3	44.97 .35	15.9 0.9
Mar. 10.7	60.91 .61	53.9 0.7	48.41 .29	29.5 0.6	59.85 .37	15.4 +0.3	45.31 .33	16.8 0.9
20.7	61.50 .56	55.0 1.4	48.69 .28	30.0 0.3	60.21 .35	16.1 0.9	45.64 .32	17.7 0.9
30.7	62.02 .49	56.6 1.9	48.96 .26	30.2 -0.1	60.55 .32	17.3 1.5	45.95 .30	18.5 0.8
Apr. 9.6	62.48 .42	58.8 2.4	49.20 .23	30.1 +0.2	60.84 .28	19.0 2.0	46.23 .28	19.3 0.7
19.6	62.86 .33	61.4 2.8	49.42 .21	29.8 0.4	61.10 .24	21.2 2.4	46.49 .26	20.0 0.7
29.6	63.14 .24	64.3 3.0	49.62 .18	29.3 0.6	61.32 .19	23.7 2.8	46.73 .22	20.6 0.6
May 9.5	63.33 .14	67.4 3.2	49.79 .16	28.7 0.7	61.49 .15	26.5 2.9	46.94 .19	21.2 0.6
19.5	63.42 +.04	70.6 3.2	49.93 .13	27.9 0.8	61.61 .10	29.4 2.9	47.12 .16	21.7 0.5
29.5	63.42 -0.05	73.8 3.2	50.04 .10	27.1 0.8	61.68 +.05	32.3 2.9	47.27 .13	22.2 0.5
June 8.5	63.32 .15	76.8 3.0	50.12 .06	26.3 0.8	61.70 .00	35.2 2.9	47.38 .09	22.7 0.4
18.4	63.13 .24	79.7 2.7	50.17 +.03	25.5 0.8	61.67 -0.05	38.0 2.7	47.45 .06	23.1 0.4
28.4	62.85 .32	82.3 2.4	50.18 .00	24.7 0.8	61.60 .10	40.6 2.4	47.49 +.02	23.4 0.3
July 8.4	62.49 .39	84.5 2.0	50.16 -0.04	23.9 0.7	61.48 .14	42.8 2.1	47.48 -0.02	23.7 0.3
18.4	62.07 .46	86.4 1.6	50.11 .07	23.3 0.6	61.32 .18	44.8 1.8	47.44 .06	24.0 0.2
28.3	61.58 .51	87.7 1.1	50.03 .09	22.7 0.6	61.12 .22	46.3 1.3	47.36 .10	24.1 -0.1
Aug. 7.3	61.05 .55	88.6 0.6	49.93 .12	22.2 0.5	60.80 .25	47.4 0.9	47.25 .12	24.2 0.0
17.3	60.49 .58	89.0 +0.1	49.80 .14	21.8 0.4	60.64 .27	48.1 +0.4	47.12 .15	24.1 +0.1
27.2	59.91 .59	88.9 -0.4	49.66 .15	21.5 0.2	60.36 .28	48.3 -0.1	46.96 .16	24.0 0.2
Sept. 6.2	59.32 .58	88.2 0.9	49.51 .15	21.3 +0.1	60.08 .28	48.0 0.5	46.79 .17	23.7 0.3
16.2	58.74 .57	87.0 1.4	49.36 .15	21.3 0.0	59.80 .28	47.2 1.0	46.63 .17	23.4 0.4
26.2	58.19 .53	85.3 1.9	49.22 .13	21.4 -0.2	59.53 .28	46.0 1.5	46.47 .15	22.9 0.5
Oct. 6.1	57.68 .48	83.2 2.4	49.10 .11	21.6 0.3	59.29 .23	44.3 1.9	46.33 .12	22.5 0.5
16.1	57.24 .41	80.6 2.8	49.00 .07	22.1 0.5	59.08 .19	42.2 2.4	46.22 .09	22.0 0.5
26.1	56.87 .33	77.6 3.2	48.95 -0.03	22.7 0.7	58.92 .14	39.6 2.7	46.15 -0.05	21.4 0.5
Nov. 5.0	56.59 .23	74.3 3.5	48.94 +0.01	23.5 0.9	58.80 .08	36.7 3.1	46.13 +0.01	21.0 0.4
15.0	56.41 .13	70.7 3.7	48.97 .06	24.5 1.1	58.75 -0.02	33.5 3.3	46.16 .06	20.6 0.3
25.0	56.34 -0.01	66.9 3.8	49.06 .11	25.7 1.3	58.76 +0.04	30.1 3.5	46.25 .12	20.4 +0.2
Dec. 5.0	56.39 +0.10	63.1 3.8	49.19 .16	27.0 1.5	58.83 .11	26.6 3.6	46.39 .17	20.3 0.0
14.9	56.55 .22	59.3 3.8	49.37 .20	28.6 1.6	58.98 .17	23.0 3.6	46.59 .22	20.4 -0.2
24.9	56.82 .33	55.6 3.6	49.60 .24	30.2 1.7	59.18 .23	19.4 3.5	46.83 .26	20.6 0.4
34.9	57.20 +.43	52.2 -3.1	49.86 +.27	31.9 -1.7	59.44 +.29	16.1 -3.2	47.11 +.30	21.1 -0.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Draconis.		*A Draconis.		ζ Ophiuchi.		*α Trianguli Australis.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination South.
	h m 16 22	+61° 47'	h m 16 28	+69° 1'	h m 16 30	-10° 18'	h m 16 35	-68° 47'
(Dec. 30.9)	16.09 +.31	34.3 -3.6	11.57 +.35	61.8 -3.5	15.01 +.26	47.8 -1.3	22.47 +.56	38.2 +1.7
Jan. 9.9	16.44 .38	31.0 3.2	11.97 .45	58.4 3.2	15.27 .28	49.1 1.3	23.08 .65	36.6 1.4
19.8	16.85 .44	28.0 2.7	12.46 .53	55.5 2.7	15.57 .30	50.4 1.3	23.76 .71	35.4 1.0
29.8	17.31 .49	25.6 2.2	13.02 .60	53.0 2.2	15.88 .32	51.7 1.3	24.50 .76	34.6 0.6
Feb. 8.8	17.81 .51	23.8 1.5	13.64 .64	51.2 1.6	16.20 .32	53.0 1.2	25.27 .78	34.3 +0.1
18.8	18.34 .53	22.5 0.9	14.29 .66	49.9 0.9	16.52 .32	54.1 1.0	26.06 .80	34.4 -0.3
28.7	18.86 .52	22.0 -0.2	14.96 .66	49.4 -0.2	16.84 .32	55.0 0.8	26.86 .79	34.8 0.7
Mar. 10.7	19.37 .50	22.1 +0.5	15.61 .64	49.5 +0.5	17.15 .31	55.7 0.6	27.64 .77	35.7 1.0
20.7	19.86 .47	22.9 1.1	16.24 .60	50.3 1.1	17.45 .29	56.2 0.4	28.30 .74	36.9 1.4
30.7	20.31 .43	24.3 1.7	16.81 .55	51.7 1.7	17.73 .27	56.5 -0.2	29.11 .70	38.4 1.7
Apr. 9.6	20.71 .37	26.3 2.2	17.32 .47	53.7 2.2	18.00 .26	56.7 0.0	29.79 .65	40.3 2.0
19.6	21.05 .31	28.7 2.6	17.75 .39	56.1 2.6	18.24 .23	56.6 +0.1	30.40 .58	42.4 2.2
29.6	21.32 .24	31.5 2.9	18.10 .30	58.9 2.9	18.46 .21	56.4 0.3	30.95 .51	44.6 2.4
May 9.5	21.53 .17	34.5 3.1	18.34 .20	62.0 3.2	18.66 .18	56.1 0.4	31.42 .43	47.1 2.5
19.5	21.66 .09	37.6 3.2	18.49 +.10	65.2 3.2	18.83 .15	55.6 0.5	31.81 .35	49.7 2.6
June 29.5	21.71 +.02	40.8 3.2	18.54 -0.1	68.4 3.2	18.97 .12	55.2 0.5	32.11 .26	52.3 2.7
8.5	21.69 -0.6	44.0 3.1	18.48 .11	71.6 3.1	19.07 .09	54.7 0.5	32.32 .16	55.0 2.6
18.4	21.59 .13	47.0 2.9	18.32 .20	74.6 2.9	19.15 .06	54.1 0.5	32.43 +0.6	57.6 2.6
28.4	21.43 .20	49.7 2.6	18.07 .30	77.4 2.6	19.18 +0.2	53.6 0.5	32.44 -0.4	60.1 2.4
July 8.4	21.20 .26	52.1 2.2	17.73 .38	79.9 2.2	19.18 -0.2	53.2 0.5	32.35 .14	62.4 2.2
18.4	20.90 .29	54.2 1.9	17.31 .45	81.9 1.9	19.15 .05	52.7 0.4	32.16 .23	64.4 1.9
28.3	20.56 .27	55.8 1.4	16.83 .52	83.6 1.4	19.08 .06	52.3 0.4	31.80 .31	66.2 1.6
Aug. 7.3	20.18 .41	57.0 0.9	16.29 .57	84.8 1.0	18.99 .11	52.0 0.3	31.54 .39	67.5 1.2
17.3	19.76 .43	57.6 +0.4	15.70 .60	85.4 +0.4	18.86 .13	51.7 0.3	31.12 .44	68.5 0.7
27.2	19.31 .45	57.8 -0.1	15.09 .62	85.7 -0.1	18.72 .15	51.4 0.3	30.66 .42	69.0 -0.3
Sept. 6.2	18.86 .45	57.4 0.6	14.46 .63	85.3 0.6	18.57 .16	51.2 0.2	30.18 .49	69.0 +0.2
16.2	18.41 .44	56.6 1.1	13.84 .62	84.5 1.1	18.41 .15	51.1 0.1	29.69 .46	68.5 0.7
26.2	17.98 .42	55.2 1.6	13.23 .59	83.1 1.6	18.27 .14	51.0 +0.1	29.22 .45	67.6 1.2
Oct. 6.1	17.58 .39	53.3 2.1	12.66 .54	81.3 2.1	18.13 .12	51.0 -0.1	28.80 .39	66.3 1.6
16.1	17.22 .33	51.0 2.6	12.15 .48	78.9 2.5	18.03 .09	51.1 0.2	28.44 .31	64.5 2.0
Nov. 26.1	16.92 .27	48.2 2.9	11.71 .40	76.2 2.9	17.96 .05	51.4 0.3	28.18 .23	62.4 2.3
5.1	16.69 .19	45.1 3.3	11.36 .30	73.1 3.3	17.93 -0.1	51.7 0.5	28.02 -0.10	60.0 2.4
15.0	16.54 .11	41.7 3.5	11.11 .20	69.6 3.6	17.95 +0.4	52.3 0.6	27.98 +0.2	57.5 2.5
25.0	16.48 -0.2	38.1 3.7	10.97 -0.2	66.0 3.7	18.02 .09	53.0 0.8	27.97 .15	55.0 2.5
Dec. 5.0	16.51 +0.6	34.3 3.8	10.95 +0.4	62.2 3.8	18.13 .14	53.0 1.0	27.98 .28	52.6 2.4
14.9	16.63 .17	30.5 3.8	11.05 .16	58.4 3.8	18.30 .19	54.9 1.1	28.62 .40	50.2 2.3
24.9	16.85 .26	26.8 3.6	11.27 .27	54.7 3.6	18.51 .23	56.0 1.2	29.07 .51	48.1 2.0
34.9	17.14 +.33	23.3 -3.4	11.60 +.38	51.2 -3.4	18.76 +.26	57.3 -1.3	29.63 +.60	46.3 +1.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Herculis.		κ Ophiuchi.		δ Herculis.		*ε Ursæ Minoris.		
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	
	h m 16 38	+39° 9'	h m 16 51	+9° 33'	h m 16 56	+33° 44'	h m 16 58	+82° 13'	
	^s	"	^s	"	^s	"	^s	"	
(Dec. 30.9)	35.03 +.24	27.4 -3.3	43.52 +.22	07.2 -2.2	57.67 +.20	50.4 -3.1	43.51 +.48	67.3 -3.5	
Jan. 9.9	35.29 .27	24.2 3.1	43.75 .25	65.0 2.1	57.90 .25	47.3 3.0	44.14 .78	63.9 3.2	
19.9	35.58 .31	21.3 2.7	44.02 .28	62.9 2.0	58.16 .28	44.5 2.7	45.05 1.04	60.9 2.8	
29.8	35.90 .33	18.8 2.3	44.30 .29	61.0 1.8	58.46 .31	42.0 2.3	46.21 1.37	58.3 2.3	
Feb. 8.8	36.24 .35	16.8 1.8	44.60 .30	59.4 1.5	58.78 .33	39.9 1.8	47.57 1.44	56.3 1.8	
	18.8	36.60 .36	15.3 1.3	44.91 .31	58.1 1.1	59.11 .33	38.3 1.3	49.07 1.56	54.8 1.2
	28.8	36.96 .36	14.4 -0.6	45.22 .31	57.1 0.8	59.45 .34	37.3 0.7	50.66 1.62	54.0 -0.5
Mar. 10.7	37.31 .35	14.2 0.0	45.52 .30	56.6 -0.4	59.78 .33	36.8 -0.2	52.28 1.61	53.8 +0.3	
20.7	37.64 .33	14.5 +0.6	45.81 .29	56.4 0.0	60.11 .32	37.0 +0.4	53.86 1.54	54.3 0.8	
30.7	37.96 .31	15.4 1.2	46.09 .28	56.6 +0.4	60.42 .30	37.7 0.9	55.35 1.42	55.4 1.4	
Apr. 9.6	38.25 .28	16.8 1.7	46.36 .28	57.2 0.8	60.71 .28	38.8 1.4	56.69 1.26	57.1 1.9	
19.6	38.52 .25	18.7 2.1	46.61 .24	58.1 1.1	60.98 .25	40.5 1.9	57.85 1.05	59.2 2.4	
29.6	38.75 .21	20.9 2.4	46.83 .21	59.3 1.3	61.22 .22	42.6 2.2	58.77 .80	61.8 2.7	
May 9.6	38.94 .17	23.5 2.7	47.03 .19	60.7 1.5	61.42 .19	44.9 2.5	59.45 .54	64.7 3.0	
19.5	39.09 .13	26.2 2.8	47.20 .16	62.2 1.6	61.59 .15	47.5 2.6	59.85 +.26	67.8 3.2	
	29.5	39.19 .09	29.0 2.8	47.34 .13	63.9 1.7	61.73 .11	50.1 2.7	59.97 -0.2	70.9 3.2
June 8.5	39.26 +.04	31.8 2.8	47.45 .09	65.5 1.7	61.82 .07	52.8 2.7	59.80 .31	74.1 3.1	
18.5	39.28 .00	34.5 2.7	47.52 .06	67.2 1.6	61.87 +.03	55.5 2.6	59.36 .58	77.2 3.0	
28.4	39.25 -0.05	37.1 2.5	47.56 +.02	68.7 1.5	61.87 -0.02	58.0 2.4	58.65 .83	80.1 2.8	
July 8.4	39.19 .09	39.4 2.2	47.56 -0.02	70.2 1.4	61.84 .06	60.3 2.2	57.70 1.07	82.7 2.5	
	18.4	39.08 .13	41.4 1.9	47.53 .05	71.5 1.2	61.76 .10	62.4 1.9	56.53 1.28	85.0 2.1
28.3	38.93 .17	43.2 1.5	47.46 .08	72.6 1.0	61.65 .13	64.2 1.6	55.16 1.46	86.9 1.7	
Aug. 7.3	38.75 .20	44.5 1.1	47.36 .11	73.5 0.8	61.50 .17	65.6 1.3	53.63 1.60	88.4 1.3	
17.3	38.54 .22	45.4 0.7	47.24 .14	74.2 0.6	61.32 .19	66.7 0.9	51.96 1.72	89.4 0.8	
27.3	38.31 .24	45.9 +0.3	47.09 .16	74.7 0.4	61.11 .21	67.4 0.5	50.21 1.78	90.0 +0.3	
Sept. 6.2	38.07 .25	45.9 -0.2	46.93 .17	74.9 +0.1	61.89 .22	67.7 +0.1	48.39 1.83	90.0 -0.2	
16.2	37.82 .24	45.5 0.6	46.76 .17	74.9 -0.1	60.67 .23	67.5 -0.4	46.57 1.82	89.6 0.7	
26.2	37.59 .23	44.7 1.1	46.59 .16	74.7 0.4	60.45 .22	66.9 0.8	44.76 1.78	88.6 1.2	
Oct. 6.2	37.37 .21	43.4 1.5	46.44 .14	74.1 0.7	60.24 .20	65.9 1.2	43.03 1.69	87.1 1.7	
16.1	37.17 .18	41.6 1.9	46.31 .12	73.3 0.9	60.05 .17	64.5 1.6	41.40 1.56	85.2 2.2	
	26.1	37.02 .14	39.5 2.3	46.21 .08	72.3 1.2	59.90 .13	62.6 2.0	39.93 1.28	82.9 2.6
Nov. 5.1	36.91 .09	37.0 2.7	46.15 -0.04	71.0 1.4	59.79 .09	60.4 2.4	38.65 1.17	80.1 2.9	
15.0	36.85 -0.03	34.1 3.0	46.13 +0.01	69.4 1.7	59.72 -0.04	57.9 2.7	37.61 .92	77.0 3.2	
25.0	36.85 +0.03	31.0 3.2	46.16 .06	67.6 1.9	59.71 +0.02	55.1 2.9	36.82 .24	73.7 3.5	
Dec. 5.0	36.90 .09	27.8 3.3	46.24 .11	65.7 2.1	59.76 .07	52.0 3.1	36.33 .34	70.1 3.6	
15.0	37.02 .15	24.4 3.4	46.37 .15	63.6 2.2	59.86 .13	48.9 3.2	36.15 -0.03	66.5 3.6	
24.9	37.19 .20	21.0 3.3	46.54 .19	61.4 2.2	60.01 .18	45.7 3.2	36.28 +.29	62.9 3.6	
34.9	37.42 +.25	17.7 -3.2	46.76 +.23	59.2 -2.1	60.21 +.22	42.5 -3.1	36.72 +.59	59.5 -3.3	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Herculis.		44 Ophiuchi.		β Draconis.		α Ophiuchi.	
	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 17 8	° ' " +14 31	h m 17 18	° ' " -24 3	h m 17 27	° ' " +52 23	h m 17 29	° ' " +12 38
(Dec. 30.9)	55.28 +.90	54.4 -2.4	42.35 +.23	32.7 -0.3	34.28 +.16	27.2 -3.6	6.26 +.19	60.4 -2.3
Jan. 9.9	55.49 .94	52.0 2.3	42.60 .97	33.0 0.4	34.49 .94	23.7 3.4	6.47 .99	58.1 2.2
19.9	55.74 .98	49.7 2.9	42.88 .30	33.4 0.4	34.75 .99	20.4 3.1	6.70 .25	55.9 2.1
29.9	56.02 .98	47.7 1.9	43.19 .38	33.9 0.5	35.07 .34	17.5 2.7	6.96 .97	54.0 1.9
Feb. 8.8	56.31 .30	46.0 1.6	43.51 .39	34.4 0.5	35.42 .37	15.0 2.2	7.24 .29	52.2 1.6
18.8	56.61 .31	44.6 1.2	43.85 .34	34.9 0.5	35.81 .40	13.1 1.6	7.53 .30	50.8 1.2
28.8	56.92 .31	43.5 0.8	44.19 .34	35.4 0.5	36.22 .41	11.9 1.0	7.83 .30	49.8 0.8
Mar 10.7	57.22 .30	43.0 -0.4	44.53 .34	35.9 0.4	36.64 .42	11.2 -0.3	8.14 .30	49.2 -0.4
20.7	57.52 .30	42.9 +0.1	44.86 .33	36.2 0.4	37.05 .41	11.2 +0.3	8.44 .30	49.0 0.0
30.7	57.81 .28	43.2 0.5	45.19 .32	36.6 0.3	37.45 .39	11.9 1.0	8.73 .29	49.3 +0.5
Apr. 9.7	58.09 .27	43.0 0.9	45.50 .31	36.9 0.2	37.84 .37	13.1 1.5	9.02 .28	49.9 0.8
19.6	58.35 .26	45.0 1.2	45.80 .29	37.1 0.2	38.19 .34	14.9 2.1	9.29 .26	50.9 1.2
29.6	58.59 .23	46.3 1.5	46.09 .27	37.2 0.2	38.50 .29	17.2 2.5	9.54 .24	52.2 1.4
May 9.6	58.80 .20	48.0 1.7	46.34 .25	37.4 0.1	38.77 .25	19.9 2.8	9.77 .22	53.8 1.7
19.6	58.98 .17	49.8 1.9	46.57 .22	37.5 0.1	38.99 .20	22.8 3.1	9.97 .19	55.5 1.8
29.5	59.14 .14	51.7 1.9	46.77 .18	37.6 0.1	39.16 .14	26.0 3.2	10.14 .16	57.4 1.9
June 8.5	59.26 .10	53.6 2.0	46.94 .15	37.8 0.2	39.27 .08	29.2 3.2	10.29 .13	59.3 1.9
18.5	59.34 .07	55.6 1.9	47.07 .11	37.9 0.2	39.32 +.02	32.4 3.2	10.39 .09	61.2 1.9
28.4	59.39 +.03	57.4 1.8	47.16 .07	38.1 0.2	39.31 -.04	35.5 3.0	10.46 .05	63.1 1.8
July 8.4	59.40 -.01	59.2 1.7	47.21 +.03	38.3 0.2	39.24 .10	38.4 2.8	10.49 +.01	64.8 1.7
18.4	59.37 .05	60.7 1.5	47.21 -.02	38.5 0.2	39.11 .15	41.1 2.5	10.48 -.03	66.4 1.5
28.4	59.31 .08	62.1 1.3	47.17 .06	38.7 0.2	38.93 .21	43.4 2.2	10.43 .07	67.8 1.3
Aug. 7.3	59.21 .11	63.2 1.0	47.10 .09	38.8 0.1	38.70 .25	45.4 1.8	10.35 .10	68.9 1.1
17.3	59.09 .14	64.1 0.8	46.99 .13	38.9 -0.1	38.43 .29	46.9 1.3	10.23 .13	69.9 0.8
27.3	58.93 .16	64.8 0.5	46.85 .15	39.0 0.0	38.12 .32	48.0 0.9	10.09 .15	70.6 0.6
Sept. 6.3	58.77 .17	65.1 +0.3	46.69 .17	39.0 0.0	37.79 .34	48.7 +0.4	9.93 .17	71.0 +0.3
16.2	58.59 .18	65.1 -0.1	46.52 .17	38.9 +0.1	37.44 .35	48.8 -0.1	9.76 .18	71.2 0.0
26.2	58.42 .17	64.9 0.4	46.35 .17	38.8 0.2	37.10 .34	48.4 0.6	9.58 .17	71.0 -0.3
Oct. 6.2	58.25 .16	64.3 0.7	46.19 .15	38.5 0.2	36.76 .32	47.5 1.1	9.41 .16	70.6 0.6
16.1	58.10 .13	63.5 1.0	46.05 .13	38.3 0.3	36.44 .30	46.1 1.7	9.26 .14	69.9 0.9
26.1	57.99 .10	62.3 1.3	45.94 .09	38.0 0.3	36.16 .26	44.2 2.1	9.14 .11	68.9 1.1
Nov. 5.1	57.91 .08	60.9 1.6	45.87 -.05	37.7 0.3	35.93 .21	41.9 2.6	9.04 .07	67.6 1.4
15.1	57.87 -.01	59.1 1.9	45.84 .00	37.4 0.2	35.75 .15	39.2 2.9	8.99 -.03	66.1 1.7
25.0	57.88 +.03	57.2 2.1	45.87 +.03	37.3 +0.1	35.63 .08	36.1 2.2	8.98 +.02	64.3 1.9
Dec. 5.0	57.94 .08	55.0 2.2	45.95 .11	37.2 0.0	35.58 -.01	32.8 3.5	9.03 .06	62.3 2.1
15.0	58.04 .13	52.7 2.4	46.09 .16	37.2 -0.1	35.60 +.06	29.3 3.6	9.11 .11	60.2 2.2
25.0	58.20 .18	50.3 2.4	46.27 .21	37.3 0.2	35.69 .13	25.6 3.6	9.25 .16	57.9 2.3
34.9	58.39 +.21	47.9 -2.4	46.49 +.25	37.5 -0.3	35.86 +.20	22.1 -3.5	9.42 +.20	55.7 -2.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	♄ Draconis.		μ Herculis.		*ψ ¹ Draconis (pr.)		γ Draconis.		
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	
	h m 17 37	+68° 48'	h m 17 41	+27° 47'	h m 17 44	+72° 12'	h m 17 53	+51° 29'	
(Dec. 31.0)	^s 37.66 +.16	41.0 -3.7	^s 32.25 +.16	32.5 -2.9	^s 5.79 +.15	22.3 -3.7	^s 40.07 +.13	63.8 -3.6	
Jan. 9.9	37.87 .97	37.4 3.5	32.43 .90	29.6 2.8	6.01 .98	18.7 3.5	40.24 .90	60.3 3.4	
19.9	38.20 .38	34.0 3.2	32.66 .94	26.8 2.6	6.35 .40	15.3 3.2	40.46 .35	56.9 3.2	
29.9	38.62 .47	31.0 2.8	32.91 .97	24.3 2.4	6.81 .52	12.2 2.9	40.74 .30	53.9 2.9	
Feb. 8.8	39.13 .54	28.5 2.3	33.19 .99	22.2 2.0	7.37 .61	9.6 2.4	41.06 .34	51.3 2.4	
	18.8	39.70 .60	26.5 1.7	33.48 .31	20.4 1.5	8.02 .68	7.5 1.8	41.42 .38	49.1 1.9
	28.8	40.31 .63	25.1 1.1	33.80 .39	19.1 1.0	8.72 .73	6.0 1.1	41.81 .40	47.6 1.9
Mar. 10.8	40.95 .65	24.3 -0.4	34.11 .39	18.4 -0.5	9.46 .75	5.2 -0.5	42.21 .41	46.7 -0.6	
20.7	41.60 .64	24.3 +0.3	34.43 .39	18.2 +0.1	10.21 .74	5.1 +0.2	42.62 .41	46.4 +0.1	
30.7	42.23 .69	24.9 0.9	34.74 .31	18.6 0.6	10.94 .78	5.6 0.9	43.03 .40	46.8 0.7	
Apr. 9.7	42.82 .57	26.1 1.6	35.04 .30	19.4 1.1	11.64 .67	6.8 1.5	43.42 .38	47.8 1.3	
19.7	43.37 .51	28.0 2.1	35.33 .98	20.7 1.5	12.28 .60	8.5 2.0	43.78 .35	49.4 1.9	
29.6	43.85 .44	30.3 2.5	35.59 .35	22.4 1.9	12.84 .52	10.8 2.5	44.12 .32	51.5 2.3	
May 9.6	44.24 .36	33.0 2.9	35.83 .33	24.5 2.2	13.30 .42	13.4 2.9	44.42 .28	54.0 2.7	
19.6	44.55 .36	36.1 3.2	36.05 .30	26.8 2.4	13.67 .31	16.4 3.1	44.67 .22	56.9 3.0	
	29.5	44.77 .16	39.3 3.3	36.23 .16	29.3 2.5	13.91 .19	19.6 3.3	44.87 .18	60.0 3.2
June 8.5	44.88 +.06	42.6 3.4	36.37 .19	31.9 2.6	14.04 +.07	22.9 3.3	45.02 .19	63.2 3.3	
18.5	44.89 -0.4	46.0 3.3	36.47 .08	34.5 2.6	14.05 -0.05	26.3 3.3	45.11 +0.08	66.4 3.3	
28.5	44.80 .14	49.3 3.2	36.53 +0.4	37.0 2.5	13.93 .18	29.5 3.2	45.14 .00	69.7 3.2	
July 8.4	44.60 .24	52.3 3.0	36.55 .00	39.4 2.3	13.70 .29	32.6 3.0	45.11 -0.06	72.7 3.0	
	18.4	44.32 .38	55.2 2.7	36.52 -0.05	41.6 2.1	13.35 .40	35.5 2.7	45.02 .12	75.6 2.7
28.4	43.94 .42	57.7 2.3	36.46 .09	43.5 1.8	12.90 .50	38.1 2.4	44.88 .17	78.2 2.4	
Aug. 7.4	43.49 .49	59.8 1.9	36.35 .19	45.2 1.5	12.35 .59	40.3 2.0	44.68 .22	80.4 2.1	
17.3	42.96 .55	61.5 1.5	36.21 .16	46.5 1.2	11.72 .66	42.0 1.6	44.43 .27	82.3 1.7	
27.3	42.39 .60	62.8 1.0	36.04 .18	47.6 0.8	11.03 .72	43.3 1.1	44.15 .30	83.7 1.2	
Sept. 6.3	41.77 .63	63.5 +0.5	35.85 .30	48.2 0.5	10.29 .76	44.2 0.8	43.83 .33	84.7 0.7	
16.2	41.13 .65	63.8 0.0	35.64 .21	48.5 +0.1	9.52 .78	44.5 +0.1	43.50 .34	85.1 +0.2	
26.2	40.48 .64	63.5 -0.5	35.43 .21	48.3 -0.3	8.74 .78	44.3 -0.5	43.16 .34	85.1 -0.3	
Oct. 6.2	39.85 .62	62.7 1.1	35.23 .30	47.8 0.7	7.97 .76	43.6 1.0	42.82 .33	84.6 0.8	
16.2	39.24 .59	61.4 1.6	35.04 .18	46.8 1.1	7.23 .72	42.3 1.5	42.49 .31	83.6 1.3	
	26.1	38.68 .53	59.5 2.1	34.87 .15	45.5 1.5	6.54 .65	40.6 2.0	42.20 .28	82.0 1.8
Nov. 5.1	38.19 .45	57.2 2.5	34.74 .11	43.8 1.9	5.93 .57	38.3 2.5	41.95 .23	80.0 2.2	
15.1	37.78 .36	54.5 2.9	34.65 .07	41.8 2.2	5.41 .47	35.7 2.9	41.74 .18	77.5 2.7	
25.1	37.47 .26	51.4 3.3	34.60 -0.02	39.4 2.5	4.99 .35	32.6 3.2	41.59 .12	74.7 3.0	
Dec. 5.0	37.26 .15	48.0 3.5	34.61 +0.03	36.8 2.7	4.71 .22	29.3 3.5	41.51 -0.05	71.6 3.3	
15.0	37.17 -0.03	44.4 3.7	34.67 .08	34.0 2.9	4.55 -0.09	25.7 3.8	41.50 +0.02	68.2 3.5	
25.0	37.20 +0.09	40.7 3.7	34.77 .13	31.1 2.9	4.54 +0.06	22.1 3.7	41.55 .09	64.7 3.5	
31.9	37.34 +0.20	37.1 -3.6	34.92 +0.18	28.2 -2.9	4.67 +0.19	18.4 -3.6	41.68 +0.15	61.1 -3.5	

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ^2 Sagittarii.		μ^1 Sagittarii.		$^* \sigma$ Octantis.	
	Right Ascension.	Declination South.	Right Ascension.	Declination South.	Right Ascension.	Declination South.
	^h 17 ^m 57	-30° 25'	^h 18 ^m 6	-21° 5'	^h 18	-89° 16'
(Dec. 31.0)	^s 44.70 +.21	31.1 +0.3	^s 15.40 +.18	29.3 -0.2	^m 13 ^s 26.16 + 6.55	44.4 +3.3
Jan. 9.9	44.92 .24	30.8 0.2	15.60 .22	29.5 0.3	13 34.32 9.72	41.2 3.1
19.9	45.18 .28	30.6 0.2	15.83 .25	29.8 0.3	13 45.49 12.56	38.3 2.8
29.9	45.48 .31	30.5 +0.1	16.10 .28	30.1 0.3	13 59.32 15.04	35.6 2.5
Feb. 8.9	45.79 .33	30.4 0.0	16.38 .30	30.4 0.3	14 15.44 17.12	33.3 2.1
18.8	46.13 .34	30.4 0.0	16.69 .31	30.7 0.2	14 33.42 18.74	31.4 1.7
28.8	46.48 .35	30.4 0.0	17.01 .32	30.9 0.2	14 52.79 19.90	29.9 1.2
Mar. 10.8	46.83 .36	30.5 -0.1	17.33 .33	31.0 -0.1	15 13.08 20.61	29.0 0.7
20.7	47.19 .36	30.5 0.1	17.66 .33	31.0 0.0	15 33.86 20.88	28.5 +0.2
30.7	47.54 .35	30.6 0.1	17.99 .33	30.9 +0.1	15 54.70 20.73	28.5 -0.3
Apr. 9.7	47.89 .34	30.7 0.1	18.32 .32	30.8 0.2	16 15.18 20.16	29.0 0.7
19.7	48.23 .33	30.7 0.1	18.63 .31	30.5 0.3	16 34.88 19.18	30.0 1.2
29.6	48.55 .31	30.9 0.1	18.94 .30	30.3 0.3	16 53.40 17.81	31.4 1.6
May 9.6	48.85 .29	31.0 0.2	19.22 .28	30.0 0.3	17 10.37 16.09	33.3 2.0
19.6	49.13 .27	31.2 0.2	19.49 .25	29.7 0.3	17 25.46 14.04	35.5 2.4
29.6	49.38 .23	31.5 0.3	19.73 .23	29.4 0.3	17 38.34 11.67	38.0 2.6
June 8.5	49.60 .20	31.8 0.4	19.93 .19	29.1 0.2	17 48.72 9.04	40.7 2.9
18.5	49.78 .16	32.2 0.4	20.11 .15	28.9 0.2	17 56.36 6.21	43.7 3.0
28.5	49.91 .11	32.7 0.5	20.24 .11	28.8 +0.1	18 1.10 3.94	46.8 3.1
July 8.4	50.00 .07	33.2 0.5	20.33 .07	28.8 0.0	18 2.83 + 0.20	49.9 3.1
18.4	50.04 +.02	33.7 0.5	20.38 +.02	28.8 0.0	18 1.49 - 2.85	52.9 3.0
28.4	50.03 -.03	34.2 0.5	20.38 -.02	28.8 -0.1	17 57.14 5.80	55.8 2.8
Aug. 7.4	49.98 .07	34.8 0.5	20.34 .06	28.9 0.1	17 49.92 8.57	58.4 2.5
17.3	49.89 .11	35.2 0.4	20.26 .10	29.0 0.1	17 40.07 11.05	60.8 2.1
27.3	49.75 .15	35.6 0.3	20.15 .13	29.1 0.1	17 27.94 13.14	62.7 1.7
Sept. 6.3	49.60 .17	35.9 0.2	20.00 .15	29.2 0.1	17 13.96 14.74	64.1 1.2
16.3	49.42 .18	36.0 -0.1	19.84 .17	29.3 -0.1	16 58.64 15.79	65.0 -0.6
26.2	49.24 .19	36.1 +0.1	19.67 .17	29.4 0.0	16 42.58 16.22	65.3 0.0
Oct. 6.2	49.06 .18	35.9 0.2	19.50 .17	29.4 0.0	16 26.41 16.00	65.0 +0.6
16.2	48.89 .16	35.7 0.3	19.35 .15	29.3 +0.1	16 10.79 15.12	64.2 1.2
26.1	48.75 .13	35.4 0.4	19.21 .12	29.3 0.1	15 56.38 13.59	62.7 1.7
Nov. 5.1	48.64 .08	34.9 0.5	19.11 .08	29.2 0.1	15 43.81 11.46	60.7 2.2
15.1	48.58 -.04	34.4 0.5	19.05 -.04	29.1 +0.1	15 33.64 8.81	58.3 2.7
25.1	48.57 +.02	33.9 0.5	19.03 +.01	29.1 0.0	15 26.31 5.79	55.4 3.0
Dec. 5.0	48.61 .07	33.3 0.5	19.06 .08	29.1 0.0	15 22.14 - 2.51	52.3 3.2
15.0	48.71 .12	32.8 0.5	19.15 .11	29.1 -0.1	15 21.33 + 0.92	49.1 3.3
25.0	48.86 .17	32.4 0.4	19.28 .15	29.3 0.2	15 23.96 4.36	45.7 3.3
35.0	49.06 +.22	32.1 +0.3	19.45 +.19	29.4 -0.2	15 30.00 + 7.63	42.4 +3.2

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Serpentis.		ι Aquilæ.		α Lyræ. (Vega.)		β Lyræ.	
	Right Ascension.	Declination South.	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 18 14	° ′ -2 55	h m 18 28	° ′ -8 19	h m 18 32	° ′ +38 39	h m 18 45	° ′ +33 12
Jan. 0.0	48.71 +.15	53.9 -1.3	22.47 +.14	54.7 -0.9	40.33 +.09	57.1 -3.2	25.92 +.09	58.8 -3.0
9.9	48.88 .19	55.3 1.3	22.63 .18	55.6 0.9	40.44 .14	54.0 3.2	26.03 .13	55.8 2.9
19.9	49.08 .22	56.6 1.3	22.82 .21	56.6 0.9	40.61 .19	50.0 3.0	26.18 .17	52.9 2.8
29.9	49.31 .24	57.8 1.2	23.05 .24	57.5 0.8	40.82 .23	48.0 2.7	26.37 .21	50.2 2.6
Feb. 8.9	49.57 .27	58.9 1.0	23.30 .26	58.3 0.7	41.07 .27	45.5 2.4	26.60 .24	47.8 2.3
18.8	49.84 .28	59.8 0.9	23.58 .28	58.9 0.5	41.35 .30	43.3 1.9	26.86 .27	45.7 1.9
28.8	50.13 .29	60.4 0.5	23.86 .29	59.3 0.3	41.66 .32	41.6 1.4	27.15 .30	44.0 1.4
Mar. 10.8	50.43 .30	60.8 -0.3	24.16 .30	59.6 -0.1	41.98 .33	40.5 0.8	27.46 .32	42.8 0.9
20.8	50.73 .30	61.0 0.0	24.47 .31	59.6 +0.1	42.32 .34	39.9 -0.2	27.78 .33	42.2 -0.3
30.7	51.03 .30	60.8 +0.3	24.78 .31	59.4 0.3	42.67 .34	40.0 +0.4	28.10 .33	42.2 +0.3
Apr. 9.7	51.33 .30	60.4 0.5	25.08 .30	58.9 0.5	43.01 .34	40.6 0.9	28.43 .32	42.8 0.9
19.7	51.62 .29	59.8 0.8	25.39 .30	58.3 0.7	43.34 .33	41.8 1.5	28.75 .31	43.9 1.4
29.6	51.90 .27	58.9 1.0	25.68 .29	57.6 0.8	43.66 .31	43.6 1.9	29.06 .30	45.5 1.8
May 9.6	52.17 .26	57.9 1.1	25.96 .27	56.7 0.9	43.96 .28	45.7 2.3	29.36 .28	47.5 2.2
19.6	52.41 .24	56.7 1.2	26.22 .25	55.7 1.0	44.22 .25	48.2 2.7	29.63 .25	49.8 2.5
29.6	52.64 .21	55.5 1.2	26.46 .23	54.7 1.0	44.46 .22	51.0 2.9	29.87 .22	52.4 2.7
June 8.5	52.83 .18	54.2 1.3	26.67 .19	53.6 1.0	44.65 .17	54.0 3.0	30.07 .18	55.2 2.8
18.5	52.99 .14	53.0 1.2	26.85 .16	52.6 1.0	44.80 .13	57.0 3.1	30.24 .14	58.1 2.9
28.5	53.11 .10	51.8 1.2	26.99 .12	51.7 0.9	44.91 .08	60.1 3.1	30.36 .10	61.1 2.9
July 8.5	53.19 .06	50.7 1.1	27.09 .08	50.8 0.8	44.96 +.03	63.1 2.9	30.44 +.05	64.0 2.8
18.4	53.24 +.02	49.7 0.9	27.15 +.04	50.1 0.7	44.96 -.02	65.9 2.8	30.47 .00	66.7 2.6
28.4	53.24 -.02	48.8 0.8	27.16 .00	49.4 0.6	44.92 .07	68.6 2.5	30.45 -.05	69.2 2.4
Aug. 7.4	53.20 .06	48.1 0.7	27.14 -.05	48.9 0.5	44.82 .12	71.0 2.2	30.38 .09	71.5 2.2
17.3	53.12 .09	47.5 0.5	27.07 .08	48.5 0.3	44.68 .16	73.0 1.9	30.27 .13	73.6 1.9
27.3	53.01 .12	47.1 0.4	26.98 .11	48.3 0.2	44.50 .20	74.7 1.5	30.12 .17	75.3 1.5
Sept. 6.3	52.88 .15	46.8 0.2	26.85 .14	48.1 +0.1	44.29 .22	76.0 1.1	29.94 .20	76.6 1.1
16.3	52.72 .16	46.6 +0.1	26.70 .16	48.0 0.0	44.06 .24	76.9 0.7	29.73 .22	77.5 0.7
26.2	52.56 .17	46.6 -0.1	26.54 .16	48.0 -0.1	43.81 .25	77.4 +0.2	29.51 .23	78.0 +0.3
Oct. 6.2	52.39 .16	46.7 0.2	26.38 .16	48.1 0.2	43.55 .25	77.3 -0.3	29.28 .23	78.1 -0.2
16.2	52.24 .15	47.0 0.4	26.22 .15	48.3 0.2	43.31 .24	76.8 0.7	29.06 .22	77.7 0.6
26.2	52.10 .12	47.4 0.5	26.08 .13	48.6 0.3	43.08 .22	75.9 1.2	28.85 .20	76.9 1.0
Nov. 5.1	52.00 .09	48.0 0.7	25.97 .10	49.0 0.4	42.88 .19	74.5 1.6	28.66 .17	75.7 1.4
15.1	51.93 .05	48.8 0.8	25.89 .06	49.5 0.5	42.71 .15	72.6 2.1	28.50 .13	74.1 1.8
25.1	51.89 -.01	49.6 1.0	25.86 -.02	50.1 0.6	42.59 .10	70.4 2.4	28.39 .09	72.1 2.2
Dec. 5.0	51.91 +.04	50.7 1.1	25.86 +.03	50.7 0.7	42.51 -.05	67.8 2.7	28.32 -.05	69.7 2.5
15.0	51.97 .08	51.8 1.2	25.91 .07	51.5 0.8	42.49 +.01	64.9 3.0	28.30 .00	67.1 2.7
25.0	52.07 .12	53.0 1.3	26.01 .12	52.4 0.9	42.53 .06	61.9 3.1	28.33 +.05	64.3 2.9
35.0	52.22 +.17	54.3 -1.3	26.15 +.16	53.3 -0.9	42.61 +.11	58.7 -3.2	28.41 +.09	61.3 -3.0

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	σ Sagittarii.		*50 Draconis.		ζ Aquilæ.		δ Sagittarii.	
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.
	h m 18 47	° ′ -26 27	h m 18 50	° ′ +75 16	h m 18 59	° ′ +13 40	h m 19 10	° ′ -19 10
Jan. 0.0	28.92 +.14	7.8 +0.3	18.07 - .12	59.1 -3.6	38.05 +.09	37.0 -2.1	17.41 +.11	31.2 -0.1
9.9	29.09 .18	7.5 0.3	18.04 +.06	55.5 3.5	38.16 .13	34.9 2.1	17.54 .15	31.3 -0.1
19.9	29.29 .22	7.3 0.3	18.19 .23	52.0 3.4	38.31 .17	32.8 2.0	17.71 .18	31.4 0.0
29.9	29.53 .25	7.0 0.3	18.50 .28	48.7 3.2	38.49 .20	30.9 1.8	17.91 .21	31.4 0.0
Feb. 8.9	29.80 .28	6.8 0.3	18.95 .29	45.6 2.9	38.70 .23	29.2 1.6	18.14 .24	31.4 0.0
18.9	30.09 .30	6.5 0.3	19.53 .24	42.9 2.5	38.94 .25	27.8 1.3	18.40 .27	31.4 +0.1
28.8	30.40 .32	6.2 0.3	20.23 .74	40.7 1.9	39.20 .27	26.7 0.9	18.68 .29	31.2 0.2
Mar. 10.8	30.72 .33	5.9 0.4	21.02 .81	39.1 1.2	39.47 .28	25.9 0.5	18.98 .30	30.9 0.3
20.8	31.05 .34	5.5 0.4	21.86 .85	38.2 -0.6	39.76 .29	25.6 -0.1	19.29 .31	30.5 0.4
30.8	31.39 .34	5.1 0.4	22.73 .87	37.9 0.0	40.06 .30	25.7 +0.3	19.61 .32	30.0 0.5
Apr. 9.7	31.73 .34	4.7 0.4	23.60 .83	38.2 +0.7	40.36 .30	26.2 0.7	19.93 .32	29.4 0.6
19.7	32.07 .34	4.3 0.4	24.44 .81	39.2 1.3	40.66 .30	27.1 1.1	20.25 .32	28.7 0.7
29.7	32.41 .33	3.8 0.4	25.23 .75	40.8 1.8	40.95 .29	28.4 1.4	20.58 .32	27.9 0.8
May 9.6	32.74 .33	3.4 0.3	25.94 .66	42.9 2.3	41.24 .28	30.0 1.7	20.90 .31	27.1 0.8
19.6	33.05 .30	3.1 0.3	26.55 .55	45.4 2.7	41.51 .28	31.8 1.9	21.20 .29	26.3 0.8
29.6	33.33 .27	2.8 0.2	27.04 .43	48.3 3.0	41.76 .23	33.9 2.1	21.48 .27	25.6 0.7
June 8.6	33.58 .24	2.6 +0.1	27.40 .29	51.5 3.3	41.98 .20	36.1 2.2	21.74 .24	24.9 0.6
18.5	33.80 .20	2.6 0.0	27.61 +.14	54.9 3.4	42.16 .17	38.3 2.2	21.97 .21	24.3 0.5
28.5	33.98 .16	2.6 -0.1	27.68 .00	58.3 3.4	42.31 .13	40.5 2.1	22.16 .17	23.8 0.4
July 8.5	34.11 .11	2.8 0.2	27.60 - .15	61.7 3.4	42.42 .09	42.6 2.0	22.31 .13	23.4 0.3
18.5	34.20 .06	3.0 0.3	27.38 .30	65.1 3.3	42.49 +.05	44.6 1.9	22.41 .08	23.1 +0.2
28.4	34.24 +.02	3.3 0.4	27.01 .43	68.3 3.1	42.52 .00	46.4 1.7	22.47 +.04	23.0 0.0
Aug. 7.4	34.24 -.03	3.7 0.4	26.51 .56	71.2 2.8	42.50 -.04	48.0 1.5	22.49 .00	23.0 -0.1
17.4	34.19 .07	4.1 0.4	25.89 .67	73.8 2.4	42.44 .08	49.5 1.3	22.46 -.05	23.1 0.1
27.4	34.10 .11	4.5 0.4	25.17 .76	76.0 2.0	42.34 .11	50.7 1.0	22.39 .09	23.2 0.2
Sept. 6.3	33.97 .14	4.9 0.4	24.36 .84	77.9 1.8	42.21 .14	51.6 0.7	22.28 .12	23.4 0.2
16.3	33.81 .16	5.2 0.3	23.48 .90	79.3 1.1	42.06 .16	52.2 0.4	22.14 .15	23.7 0.2
26.3	33.64 .17	5.5 0.2	22.55 .94	80.2 0.8	41.89 .17	52.5 +0.1	21.98 .16	23.9 0.2
Oct. 6.2	33.46 .17	5.6 -0.1	21.59 .98	80.6 +0.1	41.71 .18	52.6 -0.1	21.82 .17	24.1 0.2
16.2	33.29 .16	5.7 0.0	20.63 .94	80.4 -0.5	41.54 .17	52.4 0.4	21.65 .16	24.3 0.2
26.2	33.13 .14	5.7 +0.1	19.70 .90	79.7 1.0	41.38 .15	51.8 0.7	21.50 .14	24.5 0.2
Nov. 5.2	33.00 .11	5.5 0.2	18.83 .84	78.5 1.5	41.24 .13	51.0 1.0	21.37 .11	24.6 0.1
15.1	32.91 .07	5.3 0.2	18.03 .75	76.7 2.0	41.12 .10	49.9 1.3	21.27 .08	24.7 0.1
25.1	32.86 -.02	5.1 0.3	17.33 .64	74.5 2.4	41.04 .08	48.5 1.5	21.20 -.05	24.8 0.1
Dec. 5.1	32.85 +.01	4.8 0.4	16.75 .51	71.8 2.8	41.00 -.02	46.9 1.7	21.17 .00	24.9 0.1
15.0	32.89 .06	4.4 0.4	16.31 .36	68.8 3.1	41.00 +.02	45.1 1.8	21.19 +.04	24.9 0.1
25.0	32.98 .11	4.1 0.3	16.03 .21	65.5 3.4	41.05 .07	43.2 1.9	21.26 .08	25.0 0.1
35.0	33.12 +.16	3.8 +0.3	15.89 -.06	62.0 -3.6	41.14 +.11	41.2 -2.0	21.36 +.11	25.1 -0.1

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	*δ Draconis.		*γ Draconis.		δ Aquilæ.		κ Aquilæ.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.
	h m 19 12	° ′ +67 26	h m 19 17	° ′ +73 6	h m 19 19	° ′ +2 51	h m 19 30	° ′ -7 18
Jan. 0.0	27.37 ^s -08	23.5 -3.4	51.66 ^s -17	76.2 -3.5	9.97 ^s +08	53.5 -1.4	8.22 ^s +08	21.4 -0.8
10.0	27.35 +03	20.0 3.5	51.56 -03	72.7 3.5	10.07 .12	52.1 1.4	8.32 .12	22.2 0.8
20.0	27.43 .13	16.5 3.5	51.61 +12	69.2 3.4	10.21 .15	50.7 1.3	8.46 .15	22.9 0.7
29.9	27.02 .34	13.0 3.3	51.20 .26	65.8 3.3	10.38 .18	49.4 1.2	8.63 .18	23.6 0.6
Feb. 8.9	27.91 .34	9.8 3.0	52.13 .39	62.6 3.0	10.58 .21	48.2 1.1	8.83 .21	24.2 0.5
18.9	28.29 .42	7.0 2.6	52.59 .51	59.7 2.6	10.81 .24	47.2 0.8	9.06 .24	24.6 0.3
28.9	28.75 .49	4.7 2.1	53.15 .60	57.3 2.1	11.06 .26	46.5 0.5	9.30 .26	24.8 -0.1
Mar. 10.8	29.27 .54	2.9 1.5	53.79 .68	55.4 1.6	11.33 .27	46.2 -0.2	9.56 .27	24.9 +0.1
20.8	29.84 .58	1.7 0.8	54.51 .74	54.1 1.0	11.61 .28	46.1 +0.1	9.85 .29	24.7 0.3
30.8	30.43 .60	1.2 -0.2	55.27 .76	53.5 -0.3	11.90 .29	46.3 0.4	10.15 .30	24.2 0.6
Apr. 9.7	31.04 .60	1.3 +0.4	56.04 .77	53.5 +0.3	12.20 .30	46.0 0.7	10.45 .31	23.5 0.8
19.7	31.64 .58	2.0 1.1	56.81 .75	54.1 1.0	12.50 .30	47.8 1.0	10.76 .31	22.7 1.0
29.7	32.21 .55	3.4 1.7	57.54 .71	55.4 1.6	12.80 .30	48.9 1.2	11.07 .31	21.6 1.1
May 9.7	32.74 .50	5.4 2.2	58.22 .65	57.3 2.1	13.10 .29	50.3 1.4	11.38 .30	20.4 1.2
19.6	33.22 .44	7.8 2.6	58.83 .56	59.6 2.5	13.38 .28	51.8 1.6	11.68 .29	19.1 1.3
29.6	33.63 .37	10.6 3.0	59.34 .46	62.3 2.9	13.65 .26	53.5 1.7	11.95 .26	17.8 1.3
June 8.6	33.96 .28	13.8 3.3	59.75 .35	65.4 3.2	13.89 .23	55.2 1.8	12.20 .24	16.5 1.3
18.6	34.20 .19	17.2 3.4	60.04 .23	68.7 3.4	14.10 .19	57.0 1.8	12.43 .21	15.2 1.3
28.5	34.34 +10	20.6 3.5	60.20 +10	72.2 3.5	14.27 .15	58.7 1.7	12.63 .18	13.9 1.2
July 8.5	34.39 .00	24.1 3.5	60.23 -03	75.7 3.5	14.41 .12	60.4 1.6	12.79 .14	12.8 1.1
18.5	34.34 -10	27.6 3.4	60.14 .16	79.2 3.4	14.51 .08	61.9 1.5	12.90 .09	11.8 0.9
28.5	34.19 .20	31.0 3.3	59.92 .28	82.6 3.3	14.56 +03	63.3 1.3	12.97 +04	11.0 0.7
Aug. 7.4	33.94 .29	34.2 3.0	59.58 .40	85.8 3.1	14.57 -01	64.5 1.1	13.00 .00	10.3 0.6
17.4	33.61 .37	37.0 2.6	59.12 .51	88.7 2.8	14.54 .05	65.5 0.9	12.98 -04	9.7 0.5
27.4	33.20 .44	39.5 2.3	58.56 .61	91.3 2.4	14.47 .09	66.4 0.7	12.92 .08	9.3 0.3
Sept. 6.3	32.73 .50	41.6 1.9	57.91 .69	93.5 2.0	14.36 .12	67.0 0.5	12.82 .11	9.1 +0.1
16.3	32.20 .55	43.3 1.5	57.19 .75	95.3 1.5	14.23 .14	67.4 0.3	12.70 .13	9.0 0.0
26.3	31.63 .58	44.5 0.9	56.42 .79	96.6 1.0	14.08 .15	67.6 +0.1	12.56 .14	9.0 -0.1
Oct. 6.3	31.03 .60	45.2 +0.4	55.61 .81	97.4 +0.5	13.92 .16	67.7 -0.1	12.41 .15	9.1 0.2
16.2	30.43 .60	45.3 -0.1	54.79 .81	97.7 0.0	13.76 .16	67.5 0.3	12.25 .15	9.3 0.3
26.2	29.84 .58	44.9 0.6	53.98 .79	97.4 -0.5	13.60 .15	67.2 0.5	12.10 .14	9.6 0.3
Nov. 5.2	29.28 .54	44.0 1.2	53.20 .75	96.6 1.0	13.47 .13	66.6 0.7	11.96 .12	10.0 0.4
15.2	28.76 .48	42.5 1.7	52.48 .69	95.3 1.6	13.36 .10	65.8 +0.9	11.85 .09	10.4 0.5
25.1	28.31 .41	40.5 2.2	51.83 .60	93.4 2.1	13.28 .06	64.9 1.0	11.77 .06	11.0 0.6
Dec. 5.1	27.93 .33	38.0 2.7	51.27 .50	91.0 2.6	13.24 -02	63.8 1.1	11.73 -02	11.6 0.6
15.1	27.64 .24	35.1 3.0	50.83 .38	88.2 3.0	13.24 +02	62.6 1.2	11.73 +02	12.3 0.7
25.0	27.45 .14	31.9 3.2	50.51 .25	85.1 3.2	13.28 .06	61.3 1.3	11.77 .06	13.0 0.7
35.0	27.35 -03	28.6 -3.3	50.33 -11	81.8 -3.3	13.36 +10	59.0 -1.4	11.85 +10	13.8 -0.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Aquilæ.		α Aquilæ. (Altair.)		*ε Draconis.		β Aquilæ.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.*	Right Ascension.	Declination North.
	h m 19 40	° ' " +10 18	h m 19 44	° ' " +8 32	h m 19 48	° ' " +69 56	h m 19 49	° ' " +6 5
Jan. 0.0	17.28 +.06	28.5 -1.7	39.33 +.05	14.8 -1.6	30.69 -.20	54.3 -3.4	8.07 +.05	37.6 -1.5
10.0	17.36 .09	26.7 1.8	39.40 .09	13.1 1.6	30.55 -.08	50.9 3.5	8.74 .09	36.1 1.5
20.0	17.47 .13	25.0 1.7	39.51 .13	11.5 1.6	30.53 +.04	47.4 3.5	8.85 .12	34.6 1.5
30.0	17.62 .16	23.3 1.6	39.66 .16	10.0 1.5	30.63 .16	44.0 3.4	8.99 .16	33.2 1.4
Feb. 8.9	17.79 .19	21.8 1.4	39.83 .19	8.6 1.3	30.84 .27	40.7 3.2	9.16 .19	31.9 1.2
18.9	18.00 .22	20.5 1.2	40.03 .22	7.4 1.1	31.16 .37	37.6 2.9	9.36 .21	30.8 0.9
28.9	18.23 .24	19.5 0.8	40.26 .24	6.5 0.8	31.59 .47	34.9 2.4	9.58 .24	30.0 0.7
Mar. 10.9	18.48 .26	18.9 0.5	40.51 .26	5.9 -0.4	32.10 .55	32.8 1.8	9.83 .26	29.5 -0.3
20.8	18.75 .28	18.6 -0.1	40.78 .28	5.7 0.0	32.68 .61	31.3 1.2	10.09 .28	29.4 0.0
30.8	19.04 .29	18.7 +0.3	41.07 .29	5.9 +0.3	33.31 .65	30.3 0.7	10.38 .29	29.6 +0.4
Apr. 9.8	19.33 .30	19.2 0.7	41.36 .30	6.4 0.7	33.97 .67	29.9 -0.1	10.67 .30	30.1 0.7
19.7	19.64 .31	20.1 1.1	41.67 .31	7.3 1.1	34.64 .67	30.2 +0.6	10.97 .30	31.0 1.0
29.7	19.94 .30	21.3 1.4	41.97 .30	8.6 1.4	35.30 .65	31.2 1.2	11.28 .31	32.2 1.3
May 9.7	20.24 .30	22.8 1.6	42.27 .30	10.0 1.6	35.93 .61	32.7 1.8	11.58 .30	33.6 1.6
19.7	20.53 .28	24.6 1.9	42.57 .30	11.7 1.8	36.51 .55	34.8 2.4	11.87 .29	35.3 1.8
29.6	20.80 .26	26.5 2.0	42.85 .27	13.7 2.0	37.02 .48	37.4 2.8	12.15 .27	37.1 1.9
June 8.6	21.05 .24	28.6 2.1	43.10 .24	15.7 2.1	37.46 .39	40.3 3.1	12.41 .25	39.0 2.0
18.6	21.28 .21	30.7 2.1	43.33 .21	17.8 2.1	37.80 .29	43.5 3.3	12.65 .22	41.0 2.0
28.6	21.47 .17	32.9 2.1	43.53 .18	19.8 2.1	38.04 .19	46.9 3.5	12.85 .18	42.9 1.9
July 8.5	21.62 .13	35.0 2.0	43.68 .14	21.8 2.0	38.17 +.08	50.5 3.6	13.01 .14	44.8 1.8
18.5	21.73 .09	36.9 1.9	43.80 .09	23.8 1.9	38.20 -.03	54.1 3.5	13.13 .10	46.6 1.7
28.5	21.79 +.04	38.8 1.8	43.87 .05	25.5 1.7	38.12 .14	57.6 3.4	13.21 .08	48.2 1.6
Aug. 7.4	21.82 .00	40.4 1.6	43.90 +.01	27.1 1.5	37.93 .25	61.0 3.3	13.24 +.11	49.7 1.4
17.4	21.79 -.04	41.9 1.3	43.88 -.04	28.5 1.3	37.63 .35	64.2 3.1	13.23 -.03	50.9 1.2
27.4	21.73 .08	43.1 1.1	43.83 .07	29.7 1.1	37.24 .43	67.1 2.8	13.18 .07	52.0 0.9
Sept. 6.4	21.63 .11	44.1 0.9	43.74 .11	30.6 0.8	36.77 .50	69.7 2.4	13.09 .10	52.8 0.7
16.3	21.50 .14	44.8 0.6	43.61 .14	31.3 0.6	36.23 .57	71.9 2.0	12.97 .13	53.4 0.5
26.3	21.36 .16	45.3 0.3	43.47 .15	31.8 0.3	35.63 .62	73.6 1.5	12.83 .15	53.8 +0.3
Oct. 6.3	21.19 .17	45.5 +0.1	43.31 .16	32.0 +0.1	34.99 .65	74.9 1.0	12.68 .16	53.9 0.0
16.3	21.03 .17	45.5 -0.2	43.15 .16	32.0 -0.2	34.32 .67	75.7 +0.5	12.51 .16	53.9 -0.2
26.2	20.86 .16	45.2 0.4	42.99 .15	31.7 0.4	33.65 .66	75.9 -0.1	12.36 .15	53.6 0.4
Nov. 5.2	20.72 .14	44.6 0.7	42.84 .13	31.2 0.7	33.00 .64	75.5 0.7	12.21 .14	53.1 0.6
15.2	20.59 .11	43.8 0.9	42.72 .11	30.4 0.9	32.38 .60	74.6 1.2	12.09 .11	52.3 0.8
25.1	20.50 .06	42.7 1.2	42.62 .08	29.4 1.1	31.81 .54	73.1 1.7	11.99 .08	51.4 1.0
Dec. 5.1	20.43 .05	41.4 1.4	42.56 .05	28.2 1.3	31.31 .46	71.1 2.2	11.93 .05	50.3 1.2
15.1	20.41 -.01	40.0 1.6	42.53 -.01	26.9 1.4	30.90 .37	68.6 2.7	11.90 -.01	49.0 1.3
25.0	20.42 +.03	38.4 1.7	42.55 +.03	25.3 1.6	30.58 .27	65.7 3.0	11.91 +.03	47.6 1.4
35.0	20.47 +.07	36.7 -1.7	42.60 +.07	23.8 -1.7	30.37 -.17	62.6 -3.2	11.96 +.07	46.2 -1.5

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Aquilæ.		α² Capricorni.		*κ Cephei.		α Pavonis.	
	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination South.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	19 58	+6 55	20 11	-12 55	20 12	+77 19	20 15	-57 7
Jan. 0.1	0.33 +.04	28.3 -1.5	5.42 +.04	60.9 -0.4	56.91 -.49	61.0 -3.0	42.76 +.09	73.7 +2.9
10.0	0.39 .08	26.8 1.5	5.48 .08	61.2 0.3	56.52 .30	57.9 3.9	42.83 .10	71.5 2.3
20.0	0.49 .11	25.3 -1.5	5.58 .19	61.5 0.3	56.31 -.11	54.6 3.3	42.96 .17	69.1 2.4
30.0	0.62 .14	23.8 1.4	5.72 .15	61.7 -0.2	56.30 +.08	51.2 3.3	43.16 .32	66.6 2.5
Feb. 8.9	0.78 .17	22.6 1.2	5.88 .18	61.8 0.0	56.47 .06	47.9 3.9	43.42 .39	64.2 2.4
18.9	0.97 .20	21.5 1.0	6.08 .21	61.7 +0.1	56.83 .44	44.3 3.0	43.74 .34	61.9 2.3
28.9	1.19 .23	20.7 0.7	6.30 .23	61.5 0.3	57.35 .60	41.9 2.7	44.11 .38	59.6 2.2
Mar. 10.9	1.43 .25	20.1 -0.4	6.55 .26	61.2 0.5	58.03 .74	39.4 2.9	44.52 .43	57.4 2.1
20.8	1.69 .27	19.9 0.0	6.81 .28	60.6 0.7	58.83 .85	37.5 1.6	44.97 .46	55.4 1.9
30.8	1.97 .28	20.1 +0.4	7.10 .29	59.9 0.8	59.73 .93	36.2 1.0	45.45 .49	53.7 1.6
Apr. 9.8	2.26 .29	20.6 0.7	7.40 .31	59.0 1.0	60.70 .99	35.5 -0.4	45.96 .51	52.2 1.3
19.8	2.56 .30	21.5 1.0	7.71 .32	57.9 1.1	61.70 1.00	35.4 +0.2	46.48 .52	51.0 1.0
29.7	2.87 .31	22.7 1.3	8.03 .32	56.7 1.2	62.70 .98	35.9 0.8	47.01 .53	50.1 0.7
May 9.7	3.18 .30	24.2 1.6	8.35 .33	55.4 1.3	63.66 .93	37.1 1.5	47.55 .53	49.5 0.4
19.7	3.47 .29	25.9 1.6	8.67 .31	54.1 1.3	64.56 .85	38.8 2.0	48.08 .52	49.2 +0.1
29.6	3.75 .27	27.8 1.9	8.97 .30	52.8 1.3	65.36 .75	41.0 2.5	48.59 .50	49.3 -0.3
June 8.6	4.02 .25	29.8 2.0	9.26 .28	51.5 1.3	66.05 .62	43.7 2.9	49.07 .46	49.8 0.7
18.6	4.26 .22	31.8 2.0	9.53 .25	50.3 1.2	66.60 .48	46.7 3.1	49.50 .41	50.6 1.0
28.6	4.46 .19	33.8 2.0	9.76 .22	49.2 1.0	67.01 .34	50.0 3.4	49.89 .35	51.7 1.3
July 8.5	4.63 .15	35.8 1.9	9.96 .18	48.2 0.9	67.26 +.17	53.5 3.5	50.21 .28	53.1 1.5
18.5	4.76 .11	37.7 1.8	10.12 .14	47.4 0.7	67.34 .00	57.1 3.6	50.46 .21	54.7 1.7
28.5	4.85 .08	39.4 1.6	10.23 .09	46.8 0.6	67.25 -.17	60.7 3.5	50.64 .14	56.5 1.8
Aug. 7.5	4.89 +.02	40.9 1.4	10.30 +.04	46.3 0.4	66.99 .34	64.2 3.4	50.74 +.06	58.4 1.9
17.4	4.88 -.02	42.3 1.2	10.32 .00	46.0 0.2	66.57 .49	67.6 3.3	50.76 -.02	60.4 2.0
27.4	4.84 .06	43.4 1.0	10.29 -.05	45.9 +0.1	66.01 .63	70.8 3.1	50.70 .09	62.4 1.9
Sept. 6.4	4.76 .10	44.3 0.8	10.23 .06	45.8 0.0	65.32 .75	73.7 2.7	50.57 .16	64.3 1.8
16.3	4.65 .13	45.0 0.6	10.13 .11	45.9 -0.1	64.50 .87	76.3 2.3	50.38 .22	66.0 1.6
26.3	4.51 .15	45.4 0.3	10.01 .14	46.1 0.2	63.58 .96	78.4 1.9	50.13 .26	67.4 1.3
Oct. 6.3	4.35 .16	45.6 +0.1	9.87 .15	46.4 0.3	62.59 1.02	80.1 1.5	49.85 .29	68.5 1.0
16.3	4.19 .16	45.6 -0.1	9.71 .15	46.7 0.3	61.54 1.06	81.3 1.0	49.55 .30	69.3 0.6
26.2	4.04 .15	45.4 0.3	9.56 .15	47.0 0.4	60.46 1.07	82.0 +0.4	49.24 .30	69.6 -0.1
Nov. 5.2	3.90 .14	44.9 0.6	9.42 -.13	47.4 0.4	59.39 1.06	82.1 -0.2	48.94 .28	69.5 +0.3
15.2	3.77 .12	44.2 0.8	9.30 .11	47.7 0.4	58.35 1.01	81.6 0.7	48.67 .25	69.0 0.7
25.2	3.67 .09	43.3 1.0	9.20 .08	48.1 0.4	57.36 .95	80.6 1.3	48.44 .20	68.1 1.1
Dec. 5.1	3.60 .05	42.2 1.2	9.13 .05	48.5 0.4	56.46 .85	79.1 1.8	48.27 .14	66.8 1.5
15.1	3.56 -.02	40.9 1.3	9.10 -.01	48.8 0.4	55.67 .72	77.0 2.3	48.16 .08	65.2 1.8
25.1	3.56 +.02	39.5 1.4	9.10 +.02	49.2 0.3	55.02 .57	74.4 2.8	48.11 -.01	63.2 2.1
35.0	3.60 +.05	38.1 -1.4	9.15 +.06	49.5 -0.3	54.53 -.41	71.5 -3.0	48.13 +.06	61.0 +2.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	π Capricorni.		ε Delphini.		*Groombridge 3241.		α Cygni.	
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 20 20	° ′ -18 37	h m 20 27	° ′ +10 52	h m 20 30	° ′ +72 6	h m 20 37	° ′ +44 49
Jan. 0.1	8.26 +.03	22.5 0.0	12.79 .00	40.2 -1.6	27.02 -.34	30.4 -3.1	8.00 -.07	62.7 -2.6
10.0	8.32 .07	22.4 +0.1	12.82 +.04	38.6 1.6	26.73 -.22	27.3 3.2	7.95 -.02	60.0 2.9
20.0	8.41 .11	22.3 0.1	12.88 .08	37.0 1.6	26.57 -.09	24.0 3.3	7.95 +.03	57.0 3.0
30.0	8.54 .14	22.2 0.2	12.98 .11	35.4 1.5	26.54 +.03	20.7 3.3	8.00 .08	54.0 3.0
Feb. 9.0	8.70 .17	21.9 0.3	13.11 .14	34.0 1.4	26.64 .16	17.4 3.2	8.10 .13	51.1 2.8
18.9	8.89 .20	21.5 0.5	13.27 .17	32.7 1.2	26.87 .29	14.2 3.1	8.25 .18	48.4 2.6
28.9	9.12 .23	20.9 0.6	13.46 .20	31.7 0.8	27.22 .41	11.2 2.8	8.45 .22	46.0 2.2
Mar. 10.9	9.37 .26	20.3 0.8	13.68 .23	31.1 0.4	27.69 .52	8.7 2.3	8.70 .27	44.0 1.8
20.9	9.63 .28	19.4 0.9	13.92 .25	30.8 -0.1	28.26 .61	6.7 1.7	8.98 .30	42.4 1.3
30.8	9.92 .30	18.5 1.0	14.19 .27	30.8 +0.2	28.90 .67	5.2 1.2	9.30 .33	41.4 0.7
Apr. 9.8	10.22 .31	17.4 1.1	14.47 .29	31.2 0.6	29.59 .71	4.3 -0.6	9.64 .36	41.0 -0.1
19.8	10.54 .32	16.3 1.2	14.77 .30	32.0 1.0	30.31 .73	4.1 +0.1	10.01 .37	41.1 +0.5
29.7	10.87 .33	15.0 1.2	15.07 .31	33.2 1.3	31.05 .73	4.5 0.7	10.39 .38	41.9 1.0
May 9.7	11.20 .33	13.8 1.2	15.39 .31	34.7 1.6	31.78 .71	5.5 1.3	10.76 .38	43.2 1.6
19.7	11.53 .32	12.6 1.2	15.70 .30	36.4 1.8	32.48 .67	7.1 1.8	11.13 .36	45.0 2.0
29.7	11.85 .31	11.4 1.2	16.00 .29	38.4 2.0	33.12 .60	9.2 2.3	11.48 .34	47.2 2.5
June 8.6	12.15 .29	10.2 1.1	16.28 .27	40.5 2.2	33.68 .52	11.8 2.8	11.81 .31	49.9 2.8
18.6	12.43 .26	9.2 0.9	16.53 .24	42.8 2.3	34.16 .43	14.8 3.2	12.11 .27	52.8 3.1
28.6	12.68 .23	8.4 0.8	16.76 .21	45.1 2.2	34.54 .32	18.1 3.4	12.36 .23	56.0 3.3
July 8.6	12.90 .19	7.7 0.6	16.95 .17	47.2 2.1	34.80 .20	21.6 3.5	12.56 .18	59.3 3.4
18.5	13.07 .15	7.2 0.4	17.11 .13	49.3 2.0	34.94 +.06	25.2 3.6	12.71 .12	62.7 3.4
28.5	13.19 .10	6.9 0.2	17.22 .08	51.3 1.9	34.97 -.03	28.9 3.6	12.81 .07	66.0 3.3
Aug. 7.5	13.27 .05	6.7 +0.1	17.28 +.04	53.2 1.7	34.88 .15	32.5 3.5	12.84 +.01	69.3 3.2
17.4	13.30 +.01	6.7 -0.1	17.30 .00	54.8 1.5	34.67 .27	36.0 3.4	12.82 -.05	72.4 3.0
27.4	13.29 -.04	6.9 0.2	17.28 -.04	56.2 1.3	34.34 .38	39.3 3.2	12.75 .10	75.2 2.7
Sept. 6.4	13.23 .02	7.1 0.3	17.22 .08	57.4 1.1	33.91 .47	42.3 2.9	12.62 .15	77.8 2.4
16.4	13.14 .11	7.5 0.4	17.12 .11	58.3 0.8	33.39 .55	45.0 2.6	12.45 .19	80.1 2.1
26.3	13.02 .13	7.9 0.4	17.00 .14	59.0 0.5	32.80 .62	47.4 2.2	12.25 .22	82.0 1.7
Oct. 6.3	12.87 .14	8.3 0.4	16.85 .15	59.4 +0.3	32.15 .67	49.3 1.7	12.02 .24	83.4 1.3
16.3	12.71 .15	8.7 0.4	16.69 .15	59.6 0.0	31.45 .71	50.7 1.1	11.77 .26	84.4 0.8
26.3	12.56 .15	9.1 0.3	16.54 .15	59.5 -0.2	30.72 .73	51.6 +0.6	11.51 .26	85.0 +0.3
Nov. 5.2	12.42 .14	9.4 0.3	16.39 .14	59.2 0.5	29.98 .73	51.9 0.0	11.25 .25	85.0 -0.2
15.2	12.29 .12	9.7 0.3	16.25 .13	58.6 0.8	29.26 .70	51.7 -0.5	11.00 .24	84.5 0.7
25.2	12.19 .09	10.0 0.2	16.14 .10	57.7 1.0	28.58 .65	50.9 1.1	10.78 .21	83.5 1.2
Dec. 5.1	12.11 .06	10.1 0.1	16.05 .07	56.6 1.2	27.96 .59	49.5 1.7	10.58 .18	82.1 1.7
15.1	12.07 -.02	10.2 -0.1	15.99 .04	55.3 1.3	27.40 .51	47.5 2.2	10.41 .14	80.2 2.1
25.1	12.07 +.02	10.3 0.0	15.96 -.01	53.9 1.4	26.94 .41	45.1 2.6	10.29 .10	77.9 2.4
35.1	12.10 +.05	10.3 +0.1	15.97 +.02	52.4 -1.5	26.58 -.30	42.3 -3.0	10.21 -.05	75.3 -2.7

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	μ Aquarii.		ν Cygni.		*12 Year Cat. 1879.		61 Cygni (pr.)	
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 20 45	° ′ -9 26	h m 20 52	° ′ +40 40	h m 20 53	° ′ +80 4	h m 21 1	° ′ +38 7
Jan. 0.1	53.08 .00	72.8 -0.5	28.71 -0.08	72.7 -2.5	3.25 -0.85	59.1 -2.8	15.76 -0.08	68.3 -2.3
10.1	53.11 +0.04	73.3 0.4	28.66 -0.03	70.1 2.7	2.53 .61	56.4 2.9	15.71 -0.02	65.9 2.5
20.0	53.17 .07	73.7 0.3	28.65 +0.01	67.4 2.8	2.03 .38	53.3 3.1	15.71 +0.02	63.4 2.6
30.0	53.26 .11	74.0 0.2	28.69 .06	64.6 2.7	1.77 -0.14	50.1 3.2	15.75 .06	60.8 2.6
Feb. 9.0	53.39 .14	74.2 -0.1	28.78 .11	61.9 2.6	1.75 +0.10	46.8 3.3	15.84 .11	58.2 2.5
19.0	53.55 .17	74.2 +0.1	28.91 .15	59.3 2.4	1.96 .33	43.5 3.2	15.97 .15	55.8 2.3
28.9	53.74 .20	74.0 0.2	29.08 .19	57.0 2.1	2.41 .58	40.4 2.9	16.14 .19	53.7 2.0
Mar. 10.9	53.95 .23	73.7 0.4	29.30 .24	55.0 1.7	3.08 .77	37.7 2.5	16.36 .23	51.9 1.8
20.9	54.19 .26	73.2 0.6	29.56 .28	53.5 1.2	3.94 .94	35.4 2.0	16.62 .27	50.5 1.1
30.8	54.45 .27	72.4 0.9	29.85 .31	52.5 0.7	4.95 1.07	33.6 1.5	16.91 .30	49.6 0.6
Apr. 9.8	54.73 .29	71.4 1.1	30.17 .33	52.0 -0.2	6.08 1.17	32.3 0.9	17.22 .33	49.2 -0.1
19.8	55.03 .30	70.2 1.2	30.52 .35	52.1 +0.4	7.30 1.23	31.7 -0.3	17.56 .35	49.4 +0.5
29.8	55.34 .31	68.9 1.3	30.88 .36	52.8 0.9	8.55 1.25	31.7 +0.3	17.92 .36	50.2 1.0
May 9.7	55.66 .32	67.5 1.4	31.24 .36	54.0 1.4	9.80 1.23	32.3 0.9	18.28 .36	51.5 1.5
19.7	55.98 .32	66.0 1.5	31.60 .35	55.7 1.9	11.00 1.16	33.5 1.5	18.64 .36	53.2 2.0
29.7	56.30 .31	64.4 1.6	31.95 .34	57.9 2.4	12.11 1.06	35.3 2.0	19.00 .35	55.4 2.4
June 8.7	56.60 .29	62.8 1.5	32.28 .32	60.5 2.7	13.11 .93	37.6 2.5	19.34 .33	57.9 2.7
18.6	56.88 .28	61.3 1.4	32.58 .28	63.3 2.9	13.97 .77	40.3 2.9	19.65 .30	60.8 3.0
28.6	57.13 .23	59.9 1.3	32.84 .23	66.3 3.1	14.65 .59	43.4 3.2	19.93 .26	63.9 3.1
July 8.6	57.35 .20	58.6 1.2	33.05 .19	69.5 3.2	15.14 .39	46.7 3.4	20.16 .21	67.1 3.2
18.5	57.54 .16	57.4 1.0	33.22 .14	72.8 3.3	15.43 +0.19	50.2 3.5	20.35 .16	70.4 3.3
28.5	57.68 .12	56.5 0.8	33.34 .09	76.1 3.2	15.52 -0.01	53.8 3.6	20.49 .11	73.7 3.2
Aug. 7.5	57.78 .08	55.8 0.6	33.40 +0.03	79.3 3.1	15.40 .22	57.5 3.6	20.58 .06	76.9 3.1
17.5	57.83 +0.03	55.2 0.5	33.41 -0.01	82.3 2.9	15.08 .42	61.1 3.5	20.62 +0.01	80.0 2.9
27.4	57.84 -0.01	54.8 0.3	33.37 .06	85.1 2.7	14.56 .62	64.5 3.4	20.60 -0.04	82.8 2.7
Sept. 6.4	57.80 .05	54.6 +0.1	33.28 .11	87.7 2.4	13.85 .79	67.8 3.2	20.54 .09	85.4 2.4
16.4	57.73 .08	54.6 0.0	33.14 .15	89.9 2.0	12.98 .85	70.9 2.9	20.43 .13	87.7 2.1
26.4	57.63 .11	54.7 -0.1	32.97 .18	91.8 1.7	11.96 1.08	73.6 2.5	20.28 .16	89.7 1.8
Oct. 6.3	57.51 .13	54.9 0.2	32.77 .21	93.3 1.3	10.81 1.20	75.9 2.1	20.11 .18	91.3 1.4
16.3	57.37 .14	55.2 0.3	32.55 .22	94.4 0.8	9.57 1.28	77.7 1.6	19.92 .19	92.5 1.0
26.3	57.23 .14	55.5 0.3	32.33 .23	95.0 +0.4	8.26 1.33	79.1 1.1	19.72 .20	93.2 +0.5
Nov. 5.3	57.08 .14	55.9 0.4	32.10 .22	95.1 -0.1	6.91 1.35	79.9 +0.5	19.51 .20	93.5 0.0
15.2	56.95 .12	56.3 0.4	31.88 .21	94.8 0.6	5.56 1.33	80.1 0.0	19.31 .19	93.3 -0.4
25.2	56.84 .10	56.8 0.5	31.67 .20	94.0 1.1	4.24 1.29	79.8 -0.6	19.13 .17	92.7 0.9
Dec. 5.2	56.76 .07	57.3 0.5	31.48 .17	92.7 1.5	2.99 1.20	78.9 1.2	18.97 .15	91.6 1.3
15.1	56.71 .04	57.8 0.5	31.33 .13	91.0 1.9	1.84 1.08	77.4 1.8	18.83 .12	90.1 1.7
25.1	56.68 -0.01	58.3 0.4	31.22 .09	88.9 2.2	0.83 .92	75.3 2.3	18.72 .08	88.2 2.0
35.1	56.68 +0.02	58.7 -0.4	31.14 -0.04	86.5 -2.5	0.00 -0.73	72.8 -2.7	18.66 -0.04	86.0 -2.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Cygni.			α Cephei.			ι Pegasi.			β Aquarii.						
	Right Ascension.		Declination North.	Right Ascension.		Declination North.	Right Ascension.		Declination North.	Right Ascension.		Declination South.				
	h	m	°	′	h	m	°	′	h	m	°	′				
	21	7	+29	42	21	15	+62	2	21	16	+19	15	21	24	-6	6
Jan. 0.1	35.21	-.06	52.8	-2.0	32.55	-.25	85.4	-2.5	16.83	-.05	71.9	-1.6	57.30	-.02	80.4	-0.6
10.1	35.17	-.02	50.6	2.2	32.34	.18	82.7	2.8	16.80	-.01	70.2	1.7	57.30	+0.1	81.0	0.5
20.1	35.17	+0.02	48.3	2.3	32.19	.11	79.8	3.1	16.81	+0.03	68.4	1.8	57.32	.04	81.5	0.4
30.0	35.21	.06	46.0	2.3	32.13	-.03	76.6	3.2	16.85	.06	66.6	1.8	57.37	.07	81.9	0.3
Feb. 9.0	35.29	.10	43.7	2.2	32.14	+0.06	73.4	3.2	16.93	.10	64.8	1.7	57.46	.10	82.2	-0.2
19.0	35.41	.14	41.5	2.0	32.24	.13	70.2	3.1	17.04	.13	63.1	1.6	57.58	.13	82.3	0.0
28.9	35.56	.17	39.6	1.7	32.42	.21	67.3	2.8	17.19	.16	61.7	1.3	57.72	.16	82.3	+0.2
Mar. 10.9	35.75	.21	38.0	1.4	32.68	.30	64.6	2.5	17.37	.19	60.6	0.9	57.89	.19	82.0	0.4
20.9	35.97	.24	36.8	1.0	33.00	.36	62.4	2.0	17.58	.22	59.9	0.5	58.10	.22	81.5	0.6
30.9	36.23	.27	36.1	-0.5	33.40	.42	60.6	1.5	17.82	.25	59.6	-0.1	58.33	.25	80.7	0.9
Apr. 9.8	36.52	.30	35.9	0.0	33.84	.47	59.4	0.9	18.08	.28	59.7	+0.3	58.59	.27	79.7	1.1
19.8	36.83	.32	36.2	+0.5	34.33	.50	58.9	-0.3	18.37	.30	60.2	0.7	58.87	.29	78.5	1.3
29.8	37.15	.33	36.9	1.0	34.84	.52	58.9	+0.4	18.68	.31	61.1	1.1	59.17	.30	77.1	1.5
May 9.8	37.48	.33	38.1	1.5	35.37	.53	59.6	1.0	18.99	.32	62.5	1.5	59.48	.31	75.5	1.6
19.7	37.81	.33	39.8	1.9	35.89	.51	60.8	1.5	19.31	.32	64.2	1.8	59.80	.32	73.8	1.7
29.7	38.14	.32	41.9	2.2	36.39	.49	62.6	2.1	19.63	.31	66.1	2.0	60.12	.31	72.1	1.8
June 8.7	38.46	.30	44.3	2.5	36.86	.45	64.9	2.5	19.94	.30	68.3	2.3	60.43	.30	70.3	1.8
18.6	38.75	.27	46.9	2.7	37.29	.40	67.7	2.9	20.23	.28	70.7	2.5	60.73	.29	68.5	1.7
28.6	39.01	.24	49.7	2.8	37.66	.34	70.7	3.2	20.50	.25	73.3	2.8	61.01	.26	66.8	1.6
July 8.6	39.24	.21	52.6	2.9	37.97	.27	74.1	3.5	20.73	.21	75.9	2.6	61.26	.23	65.2	1.5
18.6	39.43	.17	55.5	2.9	38.20	.20	77.6	3.6	20.92	.17	78.5	2.5	61.47	.20	63.8	1.3
28.5	39.57	.12	58.4	2.9	38.35	.12	81.3	3.7	21.07	.13	81.0	2.4	61.65	.16	62.6	1.2
Aug. 7.5	39.66	.07	61.3	2.8	38.43	+0.03	85.0	3.7	21.18	.09	83.4	2.3	61.78	.11	61.5	1.0
17.5	39.70	+0.02	64.0	2.6	38.43	-.05	88.6	3.6	21.24	+0.04	85.6	2.1	61.86	.08	60.6	0.8
27.5	39.70	-.03	66.5	2.3	38.34	.12	92.1	3.4	21.26	.00	87.6	1.9	61.90	+0.02	60.0	0.5
Sept. 6.4	39.65	.07	68.7	2.0	38.18	.20	95.4	3.2	21.23	-.04	89.4	1.7	61.90	-.02	59.6	0.3
16.4	39.56	.11	70.6	1.7	37.95	.26	98.4	2.9	21.17	.08	90.9	1.4	61.86	.05	59.4	+0.1
26.4	39.43	.14	72.2	1.4	37.66	.29	101.1	2.5	21.07	.11	92.1	1.1	61.79	.08	59.3	0.0
Oct. 6.3	39.28	.16	73.5	1.1	37.33	.36	103.4	2.1	20.95	.13	93.1	0.8	61.69	.11	59.4	-0.2
16.3	39.11	.17	74.4	0.7	36.95	.39	105.2	1.6	20.81	.14	93.7	0.5	61.57	.12	59.6	0.3
26.3	38.93	.18	74.9	+0.3	36.54	.42	106.6	1.1	20.66	.15	94.0	+0.1	61.44	.13	59.9	0.4
Nov. 5.3	38.75	.17	75.0	-0.1	36.12	.42	107.4	+0.6	20.50	.15	94.0	-0.2	61.31	.13	60.3	0.4
15.2	38.58	.16	74.7	0.5	35.70	.42	107.7	0.0	20.35	.14	93.7	0.5	61.18	.12	60.8	0.5
25.2	38.42	.15	74.0	0.9	35.29	.40	107.4	-0.6	20.21	.13	93.1	0.8	61.06	.11	61.4	0.5
Dec. 5.2	38.27	.13	72.9	1.3	34.90	.37	106.5	1.2	20.09	.11	92.1	1.1	60.96	.09	61.9	0.5
15.2	38.15	.10	71.5	1.6	34.55	.33	105.1	1.7	20.00	.08	90.9	1.3	60.88	.08	62.5	0.6
25.1	38.06	.07	69.7	1.9	34.24	.28	103.1	2.2	19.93	.06	89.4	1.5	60.83	-.03	63.1	0.6
35.1	38.01	-.04	67.7	-2.2	33.99	-.22	100.7	-2.6	19.88	-.03	87.8	-1.7	60.81	+0.1	63.7	-0.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.								
Mean Solar Date.	*β Cephei.		ξ Aquarii.		ε Pegasi.		*11 Cephei.	
	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	^h 21 ^m 26	+70° 0'	^h 21 ^m 31	-8° 24'	^h 21 ^m 37	+9° 17'	^h 21 ^m 39	+70° 43'
Jan. 0.1	58.19 ^s -.41	48.3 -2.3	4.44 -.03	58.6 -0.5	61.42 -.05	65.4 -1.2	60.86 -.45	75.9 -2.1
10.1	57.82 ^s .38	45.8 2.7	4.43 .00	59.1 0.4	61.39 -.01	64.2 1.3	60.46 ^s .36	73.5 2.6
20.1	57.55 ^s .22	42.9 3.0	4.45 +.04	59.5 0.3	61.40 +.02	62.9 1.3	60.14 ^s .26	70.7 2.9
30.0	57.39 ^s -.11	39.8 3.2	4.50 .07	59.7 0.2	61.43 .05	61.6 1.2	59.93 ^s .15	67.7 3.1
Feb. 9.0	57.34 +.01	36.6 3.3	4.58 .10	59.9 -0.1	61.49 .08	60.4 1.1	59.84 ^s -.03	64.5 3.2
19.0	57.40 ^s .12	33.3 3.2	4.69 .13	59.9 +0.1	61.58 .11	59.4 0.9	59.87 ^s +0.09	61.3 3.2
Mar. 1.0	57.58 ^s .24	30.2 3.0	4.83 .16	59.6 0.3	61.71 .14	58.6 0.7	60.02 ^s .21	58.1 3.1
10.9	57.88 ^s .35	27.4 2.7	5.00 .19	59.2 0.5	61.86 .17	58.0 0.4	60.29 ^s .32	55.2 2.8
20.9	58.27 ^s .45	24.9 2.3	5.20 ^s .22	58.6 0.7	62.05 ^s .20	57.7 -0.1	60.66 ^s .43	52.6 2.4
30.9	58.76 ^s .53	22.9 1.7	5.43 ^s .24	57.7 1.0	62.27 ^s .24	57.8 +0.2	61.14 ^s .52	50.5 1.9
Apr. 9.9	59.33 ^s .60	21.4 1.2	5.69 ^s .27	56.6 1.2	62.52 ^s .26	58.2 0.6	61.71 ^s .60	48.9 1.3
19.8	59.95 ^s .65	20.5 -0.6	5.96 ^s .29	55.3 1.4	62.79 ^s .28	59.0 0.9	62.34 ^s .66	47.9 0.7
29.8	60.62 ^s .68	20.3 +0.1	6.26 ^s .31	53.9 1.6	63.08 ^s .30	60.1 1.3	63.01 ^s .69	47.5 -0.1
May 9.8	61.30 ^s .68	20.6 0.7	6.58 ^s .32	52.3 1.7	63.39 ^s .31	61.5 1.6	63.72 ^s .71	47.7 +0.5
19.7	61.98 ^s .67	21.6 1.3	6.90 ^s .32	50.5 1.7	63.71 ^s .32	63.2 1.8	64.42 ^s .70	48.5 1.1
29.7	62.64 ^s .64	23.2 1.8	7.22 ^s .32	48.8 1.8	64.03 ^s .32	65.1 2.0	65.11 ^s .68	49.9 1.7
June 8.7	63.25 ^s .59	25.3 2.3	7.54 ^s .31	47.0 1.8	64.34 ^s .31	67.2 2.1	65.77 ^s .63	51.8 2.2
18.7	63.81 ^s .52	27.8 2.8	7.84 ^s .29	45.3 1.7	64.63 ^s .29	69.4 2.2	66.36 ^s .57	54.3 2.7
28.6	64.29 ^s .44	30.8 3.1	8.12 ^s .27	43.7 1.6	64.91 ^s .27	71.6 2.3	66.89 ^s .49	57.1 3.0
July 8.6	64.69 ^s .35	34.1 3.4	8.38 ^s .24	42.2 1.4	65.16 ^s .23	73.8 2.2	67.33 ^s .40	60.3 2.3
18.6	65.00 ^s .25	37.6 3.6	8.60 ^s .20	40.8 1.2	65.38 ^s .20	76.0 2.1	67.68 ^s .30	63.7 2.6
28.5	65.20 ^s .15	41.2 3.7	8.78 ^s .16	39.7 1.0	65.55 ^s .16	78.1 2.0	67.92 ^s .19	67.4 3.7
Aug. 7.5	65.29 +.04	45.0 3.7	8.92 ^s .12	38.8 0.8	65.69 ^s .11	80.0 1.8	68.06 ^s +0.08	71.1 3.8
17.5	65.28 ^s -.07	48.7 3.7	9.01 ^s .07	38.1 0.6	65.78 ^s .07	81.8 1.7	68.08 ^s -.03	74.9 3.7
27.5	65.16 ^s .17	52.3 3.6	9.06 ^s +0.03	37.6 0.4	65.82 ^s +0.03	83.3 1.4	68.00 ^s .14	78.6 3.7
Sept. 6.4	64.04 ^s .27	55.8 3.4	9.07 ^s -.02	37.2 +0.2	65.83 ^s -.02	84.6 1.2	67.81 ^s .24	82.2 3.5
16.4	64.63 ^s .35	59.1 3.1	9.03 ^s .05	37.1 0.0	65.79 ^s .05	85.7 1.0	67.53 ^s .33	85.5 3.2
26.4	64.24 ^s .43	62.0 2.8	8.97 ^s .08	37.2 -0.1	65.72 ^s .08	86.5 0.7	67.15 ^s .42	88.6 2.9
Oct. 6.4	63.77 ^s .50	64.6 2.4	8.87 ^s .11	37.4 0.2	65.63 ^s .11	87.1 0.5	66.70 ^s .49	91.4 2.6
16.3	63.25 ^s .55	66.8 1.9	8.76 ^s .12	37.7 0.3	65.51 ^s .12	87.5 +0.2	66.18 ^s .55	93.7 2.1
26.3	62.68 ^s .59	68.4 1.4	8.63 ^s .13	38.0 0.4	64.38 ^s .13	87.6 0.0	65.62 ^s .59	95.6 1.6
Nov. 5.3	62.08 ^s .61	69.6 0.9	8.49 ^s .13	38.5 0.5	65.25 ^s .14	87.5 -0.2	65.01 ^s .62	96.9 1.1
15.2	61.47 ^s .61	70.2 +0.3	8.37 ^s .13	39.0 0.5	65.11 ^s .13	87.2 0.5	64.39 ^s .63	97.7 +0.5
25.2	60.86 ^s .60	70.2 -0.3	8.25 ^s .11	39.5 0.5	64.99 ^s .12	86.6 0.7	63.76 ^s .62	97.9 -0.1
Dec. 5.2	60.28 ^s .57	69.6 0.9	8.15 ^s .09	40.0 0.5	64.88 ^s .10	85.9 0.8	63.15 ^s .60	97.5 0.7
15.2	59.73 ^s .52	68.4 1.5	8.07 ^s .07	40.6 0.5	64.79 ^s .08	84.9 1.0	62.58 ^s .55	96.6 1.3
25.1	59.25 ^s .45	66.6 2.0	8.01 ^s .04	41.1 0.5	64.72 ^s .06	83.9 1.1	62.05 ^s .49	95.0 1.8
35.1	58.83 ^s -.37	64.4 -2.5	7.99 ^s -.01	41.5 -0.5	64.68 ^s -.03	82.7 -1.2	61.60 ^s -.41	93.0 -2.3

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	μ Capricorni.		*79 Draconis.		α Aquarii.		α Gruis.	
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination South.
	^h ^m 21 46	[°] ['] -14 8	^h ^m 21 51	[°] ['] +73 6	^h ^m 21 59	[°] ['] -0 55	^h ^m 22 0	[°] ['] -47 33
Jan. 0.1	27.54 -03	30.5 -0.2	13.09 -55	47.2 -2.0	20.55 -04	41.7 -0.8	19.58 -09	72.7 +1.3
10.1	27.52 -01	30.7 -0.1	13.49 .46	45.0 2.5	20.52 -02	42.5 0.7	19 51 .05	71.2 1.6
20.1	27.53 +02	30.7 0.0	13.09 .34	42.3 2.8	20.51 .00	43.2 0.7	19.48 -01	69.5 1.9
30.1	27.56 .05	30.6 +0.2	12.80 .22	39.4 3.1	20.53 +03	43.9 0.6	19.49 +04	67.5 2.1
Feb. 9.0	27.63 .08	30.4 0.3	12.65 -09	36.2 3.2	20.58 .06	44.4 0.5	19.55 .08	65.2 2.3
19.0	27.73 .11	30.0 0.5	12.63 +06	33.0 3.2	20.65 .09	44.8 0.3	19.65 .13	62.8 2.5
Mar. 1.0	27.86 .15	29.4 0.7	12.76 .19	29.8 3.1	20.76 .12	44.9 -0.1	19.80 .17	60.3 2.6
10.9	28.02 .18	28.6 0.9	13.01 .33	26.8 2.9	20.90 .16	44.9 +0.2	20.00 .22	57.7 2.6
20.9	28.21 .21	27.6 1.1	13.40 .45	24.1 2.5	21.07 .19	44.6 0.4	20.24 .26	55.1 2.6
30.9	28.44 .24	26.4 1.3	13.91 .56	21.9 2.0	21.27 .22	44.0 0.7	20.52 .30	52.5 2.6
Apr. 9.9	28.69 .28	25.1 1.4	14.52 .65	20.1 1.5	21.50 .25	43.2 1.0	20.84 .34	50.0 2.5
19.8	28.96 .29	23.6 1.6	15.20 .72	18.9 0.9	21.76 .27	42.1 1.2	21.20 .37	47.6 2.3
29.8	29.26 .31	21.9 1.7	15.95 .77	18.3 -0.3	22.05 .29	40.7 1.5	21.59 .40	45.4 2.1
May 9.8	29.57 .32	20.2 1.8	16.73 .79	18.3 +0.3	22.35 .31	39.2 1.7	22.00 .42	43.4 1.9
19.8	29.90 .33	18.5 1.8	17.52 .79	19.0 0.9	22.66 .32	37.4 1.8	22.44 .44	41.7 1.6
29.7	30.23 .33	16.7 1.8	18.30 .76	20.2 1.5	22.98 .32	35.5 1.9	22.88 .44	40.2 1.3
June 8.7	30.56 .32	15.0 1.7	19.04 .79	22.0 2.0	23.30 .32	33.6 2.0	23.31 .44	39.2 0.9
18.7	30.88 .31	13.3 1.6	19.73 .85	24.3 2.5	23 61 .30	31.6 2.0	23.74 .42	38.5 0.5
28.6	31.18 .29	11.9 1.4	20.34 .56	27.0 2.9	23.90 .28	29.6 1.9	24.15 .39	38.2 +0.1
July 8.6	31.45 .28	10.6 1.2	20.85 .47	30.1 3.2	24.17 .25	27.7 1.8	24.52 .36	38.2 -0.3
18.6	31.69 .28	9.4 1.0	21.26 .36	33.4 3.5	24.40 .22	26.0 1.7	24.86 .31	38.7 0.6
28.6	31.89 .18	8.6 0.8	21.56 .34	37.0 3.7	24.61 .18	24.4 1.5	25.14 .26	39.5 1.0
Aug. 7.5	32.04 .14	7.9 0.5	21.74 +1.2	40.7 3.8	24.76 .14	22.9 1.3	25.37 .20	40.7 1.3
17.5	32.16 .09	7.5 0.3	21.80 -0.1	44.5 3.8	24.88 .09	21.7 1.1	25.53 .13	42.1 1.6
27.5	32.23 +0.5	7.3 +0.1	21.73 .13	48.3 3.7	24.95 .05	20.7 0.9	25.63 .07	43.7 1.7
Sept. 6.5	32.25 .00	7.3 -0.1	21.55 .34	51.9 3.6	24.98 +0.1	19.9 0.7	25.67 +0.1	45.5 1.9
16.4	32.23 -04	7.5 0.3	21.25 .35	55.4 3.4	24.97 -03	19.4 0.4	25.64 -05	47.4 1.9
26.4	32.17 .07	7.8 0.4	20.85 .45	58.6 3.1	24.93 .06	19.0 0.3	25.56 .11	49.3 1.8
Oct. 6.4	32.09 .10	8.3 0.5	20.36 .53	61.5 2.7	24.85 .09	18.9 +0.1	25.43 .15	51.1 1.7
16.3	31.98 .19	8.8 0.6	19.79 .61	64.0 2.3	24.75 .11	18.9 -0.1	25.26 .19	52.7 1.5
26.3	31.85 .13	9.4 0.6	19.16 .66	66.1 1.8	24.64 .12	19.1 0.3	25.06 .21	54.0 1.9
Nov. 5.3	31.72 .13	10.0 0.6	18.48 .70	67.7 1.3	24.52 .12	19.4 0.4	24.85 .22	55.1 0.9
15.3	31.59 .13	10.5 0.5	17.77 .72	68.7 0.7	24.39 .12	19.8 0.5	24.63 .22	55.8 0.5
25.2	31.47 .11	11.0 0.5	17.05 .72	69.1 +0.1	24.28 .11	20.3 0.6	24.42 .21	56.1 -0.1
Dec. 5.2	31.37 .10	11.5 0.4	16.34 .70	68.9 -0.5	24.17 .10	21.0 0.7	24.23 .18	56.0 +0.3
15.2	31.28 .08	11.9 0.3	15.66 .66	68.1 1.1	24.08 .08	21.7 0.7	24.06 .15	55.5 0.7
25.2	31.22 .05	12.2 0.3	15.04 .59	66.8 1.6	24.01 .06	22.4 0.7	23.92 .12	54.6 1.1
35.1	31.18 -03	12.4 -0.2	14.49 -51	64.9 -2.2	23.96 -04	23.1 -0.8	23.82 -06	53.4 +1.4

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	θ Aquarii.		π Aquarii.		γ Aquarii.		*26 Cephei (B.)	
	Right Ascension.	Declination South.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination North.
	h m 22 10	° ′ -8 24	h m 22 18	° ′ +0 44	h m 22 28	° ′ -0 45	h m 22 29	° ′ +75 34
Jan. 0.2	13.06 ^s -03	26.7 ["] -0.4	52.42 ^s -06	31.3 ["] -0.8	54.85 ^s -06	46.5 ["] -0.7	59.44 ^s -73	67.1 ["] -1.5
10.1	13.02 -03	27.1 0.4	52.37 .04	30.5 0.8	54.80 .04	47.2 0.7	58.75 .64	65.4 2.0
20.1	13.00 .00	27.4 0.3	52.35 -01	29.8 0.7	54.77 -02	47.9 0.6	58.16 .53	63.2 2.5
30.1	13.02 +03	27.6 -0.1	52.35 +01	29.1 0.6	54.76 +01	48.5 0.6	57.70 .40	60.5 2.8
Feb. 9.0	13.05 .05	27.7 0.0	52.38 .04	28.5 0.5	54.78 .03	48.9 0.4	57.37 .25	57.6 3.1
19.0	13.12 .09	27.6 +0.2	52.43 .07	28.1 0.4	54.82 .06	49.3 -0.3	57.19 -10	54.5 3.2
Mar. 1.0	13.23 .12	27.3 0.4	52.52 .10	27.8 -0.1	54.90 .09	49.4 0.0	57.18 +07	51.3 3.2
11.0	13.36 .15	26.8 0.6	52.64 .14	27.8 +0.1	55.01 .13	49.3 +0.2	57.33 .23	48.2 3.0
20.9	13.52 .18	26.0 0.8	52.79 .17	28.0 0.4	55.15 .16	49.0 0.5	57.64 .39	45.3 2.8
30.9	13.72 .21	25.1 1.1	52.98 .20	28.5 0.6	55.33 .19	48.4 0.7	58.10 .53	42.8 2.4
Apr. 9.9	13.95 .24	23.9 1.3	53.19 .23	29.3 0.9	55.54 .23	47.6 1.0	58.70 .66	40.6 1.9
19.9	14.20 .27	22.5 1.5	53.44 .26	30.3 1.2	55.78 .25	46.5 1.3	59.41 .76	38.9 1.4
29.8	14.48 .29	20.9 1.7	53.71 .28	31.7 1.5	56.05 .28	45.1 1.5	60.21 .84	37.8 0.8
May 9.8	14.79 .31	19.2 1.8	54.01 .30	33.2 1.7	56.34 .30	43.5 1.7	61.08 .89	37.3 -0.2
19.8	15.10 .32	17.4 1.9	54.32 .32	35.0 1.8	56.65 .32	41.7 1.9	61.99 .92	37.4 +0.4
29.7	15.43 .33	15.5 1.9	54.64 .32	36.9 2.0	56.97 .32	39.8 2.0	62.91 .91	38.1 1.0
June 8.7	15.75 .32	13.6 1.9	54.96 .32	38.9 2.0	57.29 .32	37.8 2.0	63.81 .88	39.4 1.5
18.7	16.07 .31	11.7 1.8	55.28 .31	40.9 2.1	57.61 .31	35.8 2.0	64.66 .83	41.2 2.1
28.7	16.37 .29	9.9 1.7	55.58 .29	43.0 2.0	57.91 .30	33.7 2.0	65.45 .75	43.5 2.5
July 8.6	16.65 .27	8.3 1.5	55.85 .26	45.0 1.9	58.20 .27	31.8 1.9	66.15 .65	46.2 2.9
18.6	16.90 .23	6.9 1.4	56.10 .23	46.8 1.8	58.45 .24	29.9 1.8	66.74 .54	49.3 3.3
28.6	17.11 .20	5.6 1.2	56.32 .20	48.6 1.6	58.68 .21	28.3 1.6	67.22 .41	52.7 3.5
Aug. 7.5	17.29 .15	4.5 0.9	56.49 .16	50.1 1.5	58.86 .17	26.8 1.4	67.57 .28	56.3 3.7
17.5	17.42 .11	3.7 0.7	56.63 .11	51.5 1.2	59.01 .12	25.5 1.2	67.78 .15	60.1 3.8
27.5	17.51 .07	3.2 0.5	56.72 .07	52.6 1.0	59.11 .08	24.4 1.0	67.86 +01	63.9 3.8
Sept. 6.5	17.55 +02	2.8 +0.2	56.76 +03	53.5 0.8	59.17 +04	23.6 0.7	67.80 -13	67.7 3.8
16.4	17.55 -02	2.7 0.0	56.77 -01	54.2 0.6	59.18 .00	23.0 0.5	67.60 .26	71.4 3.6
26.4	17.52 .05	2.7 -0.1	56.75 .05	54.6 0.4	59.17 -04	22.6 0.3	67.28 .38	75.0 3.4
Oct. 6.4	17.45 .08	3.0 0.3	56.68 .07	54.9 +0.2	59.12 .07	22.5 +0.1	66.85 .49	78.3 3.9
16.4	17.36 .10	3.3 0.4	56.60 .09	54.9 0.0	59.04 .09	22.5 -0.1	66.30 .59	81.3 2.8
26.3	17.25 .12	3.7 0.5	56.50 .11	54.8 -0.2	58.94 .10	22.7 0.2	65.67 .68	83.8 2.4
Nov. 5.3	17.13 .12	4.2 0.5	56.39 .12	54.6 0.3	58.84 .11	23.0 0.4	64.95 .75	86.0 1.9
15.3	17.01 .12	4.8 0.6	56.27 .12	54.2 0.5	58.72 .12	23.4 0.5	64.18 .79	87.6 1.3
25.2	16.89 .11	5.3 0.6	56.15 .11	53.7 0.6	58.61 .11	23.9 0.6	63.37 .82	88.6 0.8
Dec. 5.2	16.79 .10	5.9 0.6	56.04 .10	53.1 0.6	58.50 .10	24.5 0.6	62.55 .83	89.1 +0.2
15.2	16.69 .09	6.4 0.5	55.95 .09	52.4 0.7	58.40 .09	25.1 0.7	61.73 .81	88.9 -0.5
25.2	16.62 .07	6.9 0.5	55.86 .07	51.7 0.8	58.32 .08	25.8 0.7	60.94 .76	88.2 1.1
35.1	16.57 -04	7.4 -0.4	55.80 -05	50.9 -0.8	58.25 -06	26.5 -0.7	60.21 -09	86.8 -1.6

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	ζ Pegasi.		*ι Cephei.		λ Aquarii.		α Piscis Australis. (Fomalhaut.)	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination South.	Right Ascension.	Declination South.
	h m 22 35	+10° 10'	h m 22 45	+65° 32'	h m 22 46	-8° 14'	h m 22 50	-30° 16'
Jan. 0.2	12.47 ^s -08	43.5 ["] -1.0	11.10 ^s -40	46.3 ["] -1.4	4.53 ^s -07	46.9 ["] -0.5	43.57 ^s -09	77.3 ["] -0.3
10.1	12.40 .06	42.5 1.1	10.72 .35	44.7 1.9	4.47 .05	47.3 0.4	43.49 .07	76.9 0.6
20.1	12.35 .04	41.4 1.1	10.40 .30	42.5 2.3	4.43 .03	47.6 0.2	43.43 .05	76.2 0.6
30.1	12.33 -01	40.3 1.1	10.14 .23	40.0 2.7	4.41 -01	47.8 -0.1	43.40 -02	75.2 1.1
Feb. 9.1	12.34 +02	39.2 1.0	9.95 .15	37.2 2.9	4.41 +02	47.8 +0.1	43.40 +01	74.0 1.4
19.0	12.37 .05	38.2 0.9	9.85 -06	34.2 3.0	4.44 .05	47.7 0.2	43.43 .04	72.5 1.6
Mar. 1.0	12.44 .08	37.4 0.7	9.84 +04	31.2 3.0	4.50 .08	47.4 0.5	43.49 .08	70.8 1.8
11.0	12.54 .12	36.8 0.5	9.93 .14	28.2 2.9	4.60 .11	46.8 0.7	43.59 .12	68.9 2.0
20.9	12.68 .15	36.5 -0.2	10.11 .23	25.5 2.6	4.73 .15	46.0 0.9	43.73 .16	66.9 2.1
30.9	12.85 .19	36.5 +0.2	10.38 .29	23.0 2.3	4.89 .18	45.0 1.1	43.90 .20	64.7 2.2
Apr. 9.9	13.05 .22	36.8 0.5	10.75 .40	21.0 1.8	5.09 .21	43.7 1.4	44.12 .23	62.5 2.3
19.9	13.29 .25	37.5 0.8	11.19 .47	19.4 1.3	5.32 .25	42.3 1.6	44.37 .27	60.1 2.3
29.8	13.56 .28	38.5 1.1	11.69 .53	18.4 0.8	5.58 .27	40.6 1.7	44.65 .30	57.8 2.3
May 9.8	13.85 .30	39.8 1.5	12.24 .57	17.9 -0.2	5.86 .30	38.8 1.9	44.96 .33	55.5 2.2
19.8	14.16 .32	41.4 1.7	12.82 .59	18.1 +0.4	6.17 .32	36.9 2.0	45.30 .35	53.3 2.1
29.8	14.48 .32	43.2 1.9	13.42 .60	18.8 1.0	6.49 .32	34.9 2.0	45.65 .36	51.3 2.0
June 8.7	14.80 .32	45.2 2.1	14.01 .59	20.1 1.6	6.82 .33	32.9 2.0	46.02 .37	49.4 1.8
18.7	15.12 .31	47.4 2.2	14.59 .56	21.9 2.1	7.14 .32	30.9 1.9	46.38 .36	47.8 1.5
28.7	15.43 .30	49.6 2.3	15.13 .52	24.2 2.5	7.46 .31	29.1 1.8	46.73 .35	46.4 1.2
July 8.6	15.71 .27	51.9 2.3	15.63 .47	26.9 2.9	7.75 .29	27.3 1.7	47.07 .32	45.4 0.9
18.6	15.97 .24	54.2 2.2	16.06 .40	30.0 3.2	8.03 .26	25.7 1.5	47.38 .29	44.7 0.5
28.6	16.19 .21	56.3 2.1	16.43 .33	33.4 3.5	8.27 .22	24.3 1.3	47.65 .26	44.4 -0.2
Aug. 7.6	16.38 .17	58.4 2.0	16.71 .25	36.9 3.6	8.47 .18	23.2 1.0	47.89 .21	44.3 +0.2
17.5	16.53 .13	60.2 1.8	16.92 .16	40.6 3.7	8.63 .14	22.3 0.8	48.08 .17	44.7 0.5
27.5	16.63 .08	61.9 1.6	17.04 +08	44.3 3.7	8.75 .10	21.7 0.5	48.22 .12	45.3 0.6
Sept. 6.5	16.69 +04	63.4 1.4	17.07 -01	48.0 3.7	8.83 .06	21.3 0.3	48.31 .07	46.2 1.0
16.5	16.71 .00	64.7 1.1	17.03 .09	51.6 3.5	8.87 +02	21.1 +0.1	48.36 +02	47.3 1.2
26.4	16.70 -03	65.7 0.9	16.90 .16	55.1 3.3	8.87 -02	21.1 -0.1	48.36 -02	48.5 1.3
Oct. 6.4	16.65 .06	66.4 0.7	16.70 .23	58.3 3.1	8.83 .05	21.3 0.3	48.31 .06	49.9 1.4
16.4	16.57 .09	67.0 0.4	16.44 .29	61.1 2.7	8.77 .08	21.7 0.4	48.24 .09	51.2 1.3
26.3	16.48 .10	67.3 +0.2	16.12 .35	63.6 2.3	8.68 .09	22.2 0.5	48.13 .12	52.6 1.3
Nov. 5.3	16.37 .11	67.3 -0.1	15.75 .39	65.7 1.8	8.58 .11	22.7 0.6	48.01 .13	53.8 1.1
15.3	16.25 .12	67.2 0.3	15.35 .42	67.2 1.3	8.47 .11	23.3 0.6	47.87 .14	54.8 1.0
25.3	16.13 .12	66.8 0.5	14.92 .44	68.3 0.7	8.36 .11	24.0 0.6	47.73 .14	55.6 0.7
Dec. 5.2	16.02 .11	66.3 0.6	14.48 .44	68.7 +0.1	8.25 .11	24.6 0.6	47.59 .13	56.2 0.4
15.2	15.92 .10	65.5 0.8	14.04 .44	68.5 -0.5	8.15 .10	25.2 0.6	47.46 .12	56.5 +0.2
25.2	15.82 .09	64.7 0.9	13.61 .41	67.8 1.0	8.06 .08	25.7 0.5	47.35 .11	56.5 -0.1
35.2	15.75 -07	63.7 -1.0	13.22 -38	66.5 -1.6	7.99 -06	26.1 -0.4	47.25 -09	56.3 -0.4

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	α Pegasi. (Markab.)		*ο Cephei.		θ Piscium.		ι Piscium.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 22 58	° ′ +14 31	h m 23 13	° ′ +67 25	h m 23 21	° ′ +5 41	h m 23 33	° ′ +4 56
Jan. 0.2	31.03 -09	59.2 -1.0	27.25 -46	51.7 -1.0	36.76 -10	31.5 -0.8	30.54 -10	53.8 -0.7
10.2	30.94 .08	58.1 1.1	26.81 .42	50.5 1.5	36.67 .08	30.7 0.8	30.45 .08	53.1 0.8
20.1	30.88 .06	56.9 1.2	26.41 .37	48.7 2.0	36.60 .06	29.9 0.8	30.37 .07	52.3 0.8
30.1	30.83 .03	55.7 1.2	26.08 .30	46.5 2.4	36.55 .04	29.1 0.8	30.31 .05	51.6 0.7
Feb. 9.1	30.82 -01	54.4 1.2	25.81 .22	43.9 2.7	36.51 -02	28.3 0.7	30.27 -03	50.9 0.6
19.1	30.82 +03	53.3 1.1	25.63 .13	41.0 2.9	36.51 +01	27.7 0.5	30.26 .00	50.3 0.5
Mar. 1.0	30.87 .06	52.3 0.9	25.55 -03	38.1 3.0	36.53 .04	27.3 0.4	30.27 +03	49.9 0.3
11.0	30.94 .09	51.5 0.7	25.57 +07	35.1 2.9	36.58 .07	27.0 -0.2	30.31 .06	49.7 -0.1
21.0	31.05 .13	50.9 0.4	25.70 .18	32.2 2.8	36.67 .11	27.0 +0.1	30.39 .10	49.7 +0.1
30.9	31.20 .17	50.6 -0.1	25.93 .28	29.6 2.5	36.80 .15	27.2 0.4	30.50 .13	50.0 0.4
Apr. 9.9	31.39 .21	50.7 +0.3	26.26 .38	27.3 2.1	36.96 .18	27.7 0.7	30.66 .17	50.5 0.7
19.9	31.61 .24	51.1 0.6	26.68 .46	25.5 1.8	37.16 .22	27.5 1.0	30.85 .21	51.3 1.0
29.9	31.87 .27	51.9 0.9	27.18 .53	24.1 1.1	37.40 .25	29.6 1.2	31.08 .24	52.4 1.3
May 9.8	32.15 .30	53.0 1.3	27.74 .59	23.3 -0.5	37.66 .28	31.0 1.5	31.34 .27	53.8 1.5
19.8	32.46 .31	54.4 1.6	28.34 .62	23.0 +0.1	37.96 .30	32.6 1.7	31.62 .30	55.4 1.7
29.8	32.78 .33	56.1 1.8	28.98 .64	23.4 0.6	38.27 .32	34.4 1.9	31.93 .32	57.2 1.9
June 8.8	33.11 .33	58.1 2.1	29.62 .64	24.3 1.2	38.59 .32	36.4 2.1	32.25 .32	59.2 2.0
18.7	33.43 .32	60.2 2.2	30.26 .63	25.8 1.7	38.91 .32	38.5 2.1	32.57 .33	61.3 2.1
28.7	33.75 .31	62.5 2.3	30.87 .59	27.7 2.2	39.23 .31	40.7 2.2	32.90 .32	63.4 2.1
July 8.7	34.05 .29	64.8 2.4	31.44 .54	30.1 2.6	39.54 .30	42.8 2.1	33.21 .30	65.5 2.1
18.6	34.32 .26	67.2 2.4	31.96 .48	33.0 3.0	39.82 .27	44.9 2.1	33.50 .28	67.6 2.0
28.6	34.57 .23	69.5 2.3	32.40 .41	36.1 3.3	40.08 .24	47.0 1.9	33.77 .25	69.6 1.9
Aug. 7.6	34.77 .19	71.8 2.2	32.77 .33	39.5 3.5	40.31 .21	48.8 1.8	34.00 .22	71.4 1.8
17.6	34.94 .15	73.9 2.0	33.06 .25	43.1 3.7	40.49 .17	50.5 1.6	34.20 .18	73.1 1.6
27.5	35.07 .11	75.8 1.8	33.27 .16	46.8 3.7	40.64 .13	52.0 1.4	34.36 .14	74.5 1.3
Sept. 6.5	35.15 .06	77.6 1.6	33.38 +07	50.6 3.7	40.75 .09	53.2 1.2	34.49 .10	75.7 1.1
16.5	35.20 +03	79.1 1.4	33.41 -02	54.3 3.7	40.82 .05	54.3 0.9	34.57 .06	76.7 0.9
26.5	35.20 -01	80.4 1.2	33.35 .10	57.9 3.5	40.86 +01	55.1 0.7	34.61 .03	77.5 0.6
Oct. 6.4	35.17 .04	81.4 0.9	33.21 .18	61.3 3.3	40.85 -02	55.6 0.5	34.62 +01	78.0 0.4
16.4	35.11 .07	82.2 0.7	32.99 .25	64.4 3.0	40.82 .05	56.0 0.3	34.60 -03	78.3 +0.2
26.4	35.03 .09	82.8 0.4	32.71 .32	67.3 2.6	40.76 .07	56.1 +0.1	34.56 .06	78.4 0.0
Nov. 5.3	34.94 .10	83.1 +0.2	32.36 .37	69.7 2.2	40.69 .08	56.1 -0.1	34.49 .08	78.3 -0.2
15.3	34.83 .11	83.1 -0.1	31.97 .49	71.6 1.7	40.60 .10	55.9 0.3	34.41 .09	78.0 0.3
25.3	34.72 .12	82.9 0.3	31.53 .45	73.0 1.2	40.50 .10	55.5 0.4	34.31 .10	77.7 0.4
Dec. 5.3	34.60 .11	82.5 0.5	31.08 .47	73.9 +0.6	40.39 .10	55.0 0.6	34.22 .10	77.2 0.6
15.2	34.49 .11	81.8 0.7	30.60 .47	74.2 0.0	40.29 .10	54.4 0.7	34.12 .10	76.6 0.7
25.2	34.39 .10	81.0 0.9	30.13 .46	73.9 -0.6	40.19 .10	53.7 0.7	34.02 .10	75.9 0.7
35.2	34.29 -09	80.0 -1.0	29.68 -44	73.0 -1.2	40.10 -09	53.0 -0.8	33.92 -09	75.1 -0.8

APPARENT PLACES FOR THE UPPER TRANSIT AT WASHINGTON.

Mean Solar Date.	γ Cephei.		*Groombridge 4163.		ω Piscium.	
	Right Ascension.	Declination North.	Right Ascension.	Declination North.	Right Ascension.	Declination North.
	h m 23 34	+76° 55'	h m 23 48	+73° 42'	h m 23 52	+6° 10'
Jan. 0.2	^s 9.62 - .87	80.7 -0.5	^s 43.16 - .68	68.2 -0.4	^s 52.91 - .10	15.4 -0.7
10.2	8.77 .83	79.8 1.1	42.49 .66	67.5 1.0	52.81 .09	14.7 0.8
20.2	7.97 .75	78.4 1.7	41.86 .61	66.3 1.6	52.72 .06	13.9 0.6
30.1	7.27 .65	76.5 2.2	41.29 .53	64.5 2.0	52.65 .07	13.2 0.7
Feb. 9.1	6.69 .51	74.1 2.6	40.80 .43	62.2 2.5	52.59 .05	12.5 0.6
19.1	6.25 .36	71.4 2.9	40.43 .31	59.6 2.8	52.56 -.02	11.9 0.5
Mar. 1.0	5.98 .19	68.4 3.0	40.18 .18	56.7 3.0	52.55 +.01	11.5 0.4
11.0	5.88 -.01	65.3 3.1	40.07 -.04	53.7 3.0	52.57 .04	11.2 -0.2
21.0	5.96 +.17	62.3 3.0	40.10 +.11	50.7 2.9	52.63 .06	11.2 +0.1
31.0	6.22 .35	59.4 2.8	40.28 .25	47.9 2.8	52.72 .19	11.4 0.2
Apr. 9.9	6.66 .52	56.8 2.5	40.60 .39	45.2 2.5	52.86 .16	11.8 0.6
19.9	7.25 .67	54.6 2.1	41.06 .52	43.0 2.1	53.03 .19	12.6 0.9
29.9	7.98 .80	52.8 1.6	41.64 .63	41.1 1.6	53.25 .23	13.6 1.2
May 9.9	8.83 .90	51.5 1.0	42.31 .72	39.7 1.1	53.49 .26	14.9 1.4
19.8	9.77 .97	50.7 -0.5	43.07 .79	38.9 -0.5	53.77 .29	16.5 1.7
29.8	10.76 1.01	50.6 +0.1	43.88 .83	38.6 0.0	54.07 .31	18.2 1.9
June 8.8	11.78 1.02	51.0 0.7	44.73 .85	39.0 +0.6	54.39 .32	20.2 2.0
18.7	12.80 1.01	52.0 1.3	45.58 .85	39.8 1.2	54.71 .33	22.2 2.1
28.7	13.79 .96	53.6 1.8	46.42 .82	41.3 1.7	55.04 .32	24.3 2.2
July 8.7	14.72 .90	55.6 2.3	47.22 .78	43.2 2.2	55.35 .31	26.5 2.1
18.7	15.57 .81	58.1 2.7	47.96 .71	45.6 2.6	55.65 .29	28.6 2.1
28.6	16.33 .70	61.0 3.1	48.63 .63	48.4 3.0	55.93 .26	30.6 2.0
Aug. 7.6	16.97 .58	64.2 3.4	49.21 .53	51.5 3.3	56.18 .23	32.5 1.8
17.6	17.49 .45	67.7 3.6	49.70 .43	54.9 3.5	56.40 .20	34.2 1.6
27.6	17.87 .31	71.4 3.8	50.07 .32	58.5 3.7	56.57 .16	35.7 1.4
Sept. 6.5	18.11 .17	75.3 3.8	50.34 .21	52.3 3.8	56.71 .12	37.0 1.2
16.5	18.20 +.02	79.1 3.9	50.49 +.09	66.1 3.8	56.82 .08	38.1 1.0
26.5	18.15 -.19	82.9 3.8	50.52 -.03	69.9 3.7	56.88 .05	38.9 0.7
Oct. 6.4	17.96 .26	86.6 3.6	50.44 .14	73.6 3.6	56.91 +.01	39.5 0.5
16.4	17.64 .39	90.1 3.4	50.25 .24	77.1 3.4	56.91 -.02	39.9 0.3
26.4	17.19 .51	93.4 3.1	49.96 .34	80.3 3.1	56.88 .04	40.1 +0.1
Nov. 5.4	16.63 .62	96.2 2.7	49.57 .44	83.2 2.7	56.83 .06	40.1 -0.1
15.3	15.06 .71	98.7 2.2	49.09 .52	85.7 2.3	56.75 .08	39.9 0.2
25.3	15.21 .79	100.7 1.7	48.54 .59	87.8 1.8	56.67 .09	39.6 0.4
Dec. 5.3	14.39 .85	102.1 1.1	47.92 .64	89.3 1.2	56.58 .10	39.2 0.5
15.3	13.52 .88	102.9 +0.5	47.27 .67	90.2 +0.6	56.48 .10	38.6 0.6
25.2	12.64 .88	103.1 -0.1	46.60 .68	90.5 0.0	56.38 .10	38.0 0.7
35.2	11.78 -.85	102.6 -0.8	45.92 -.67	90.2 -0.6	56.29 -.10	37.3 -0.7

324 SOLAR EPHEMERIS, 1875.

AT WASHINGTON MEAN AND APPARENT NOON.

Date.	APPARENT RIGHT ASCENSION.			APPARENT DECLINATION.			Hourly Motion.			Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. passing Merid.	Sidereal Time of Mean Noon.
	Mean Noon.	Appar. Noon.	Appar. Noon.	Mean Noon.	Appar. Noon.	Right Ascension.	Declination.	Right Ascension.	Declination.				
1875.													
Jan. 0	18 43 11.69	12.32	23 5 10.0	9.4	11.051	+11.39	+ 3 22.60	16' 18.38	1 11.12	18 39 49.08			
1	18 47 36.77	37.49	23 0 22.6	21.8	11.039	12.54	3 51.18	18.38	11.08	18 43 45.64			
2	18 52 1.53	2.34	22 55 7.7	6.7	11.025	13.69	4 19.42	18.37	11.03	18 47 42.20			
3	18 56 25.56	26.85	22 49 25.3	24.1	11.010	14.83	4 47.30	18.36	10.98	18 51 38.75			
4	19 0 50.03	51.00	22 43 15.6	14.2	10.993	15.97	5 14.82	18.34	10.93	18 55 35.31			
5	19 5 13.69	14.74	22 36 38.8	37.2	10.976	17.09	5 41.91	18.32	10.87	18 59 31.87			
6	19 9 36.90	38.03	22 29 35.1	33.2	10.957	18.20	6 8.56	18.29	10.81	19 3 28.43			
7	19 13 59.64	60.85	22 22 4.8	2.7	10.937	19.31	6 34.74	18.26	10.75	19 7 24.99			
8	19 18 21.87	23.15	22 14 8.1	5.8	10.915	20.41	7 0.44	18.23	10.68	19 11 21.55			
9	19 22 43.57	44.93	22 5 45.1	42.5	10.892	21.49	7 25.60	18.19	10.60	19 15 18.10			
10	19 27 4.69	6.12	21 56 56.3	53.3	10.868	22.56	7 50.18	18.15	10.52	19 19 14.66			
11	19 31 25.22	26.72	21 47 41.8	38.5	10.842	23.63	8 14.15	18.11	10.44	19 23 11.22			
12	19 35 45.14	46.70	21 37 61.8	58.3	10.816	24.68	8 37.51	18.06	10.36	19 27 7.78			
13	19 40 4.43	6.06	21 27 56.8	52.9	10.789	25.72	9 0.24	18.01	10.28	19 31 4.34			
14	19 44 23.05	24.74	21 17 26.9	22.6	10.762	26.74	9 22.30	17.95	10.19	19 35 0.90			
15	19 48 40.99	42.74	21 6 32.6	28.0	10.734	27.76	9 43.68	17.89	10.10	19 38 57.45			
16	19 52 58.22	60.03	20 55 14.1	9.2	10.705	28.76	10 4.36	17.82	10.00	19 42 54.01			
17	19 57 14.74	16.60	20 43 31.8	26.5	10.674	29.75	10 24.32	17.74	9.90	19 46 50.57			
18	20 1 30.54	32.45	20 31 26.0	20.4	10.643	30.73	10 43.55	17.66	9.80	19 50 47.13			
19	20 5 45.60	47.56	20 18 57.1	51.2	10.612	31.69	11 2.05	17.58	9.70	19 54 43.69			
20	20 9 59.90	61.91	20 5 65.2	59.0	10.580	32.63	11 19.80	17.49	9.60	19 58 40.25			
21	20 14 13.43	15.48	19 52 50.9	44.3	10.548	33.56	11 36.77	17.39	9.50	20 2 36.80			
22	20 18 26.19	28.28	19 39 14.4	7.5	10.516	34.47	11 52.97	17.29	9.39	20 6 33.36			
23	20 22 38.18	40.31	19 25 16.1	8.9	10.484	35.38	12 8.41	17.18	9.28	20 10 29.91			
24	20 26 49.39	51.55	19 10 56.3	48.8	10.451	36.27	12 23.06	17.06	9.16	20 14 26.47			
25	20 30 59.82	62.02	18 56 15.5	7.6	10.418	37.13	12 36.92	16.94	9.06	20 18 23.03			
26	20 35 9.47	11.70	18 41 13.8	5.6	10.385	37.99	12 50.01	16.81	8.95	20 22 19.59			
27	20 39 18.33	20.59	18 25 51.8	43.3	10.352	38.83	13 2.31	16.68	8.84	20 26 16.14			
28	20 43 26.39	28.67	18 10 9.8	1.0	10.319	39.65	13 13.81	16.55	8.72	20 30 12.70			
29	20 47 33.65	35.95	17 53 68.1	59.0	10.286	40.46	13 24.50	16.41	8.61	20 34 9.26			
30	20 51 40.11	42.43	17 37 47.2	37.8	10.252	41.26	13 34.39	16.27	8.49	20 38 5.82			
31	20 55 45.76	48.10	17 20 67.4	57.7	10.219	42.03	13 43.48	16.12	8.38	20 42 2.37			
Feb. 1	20 59 50.61	52.97	17 3 69.2	59.3	10.185	42.80	13 51.77	15.97	8.26	20 45 58.93			
2	21 3 54.65	57.02	16 46 52.9	42.8	10.152	43.55	13 59.25	15.82	8.15	20 49 55.48			
3	21 7 57.88	60.26	16 29 18.0	8.5	10.118	44.27	14 5.91	15.66	8.03	20 53 52.04			
4	21 12 0.30	2.69	16 11 27.7	17.0	10.084	44.98	14 11.77	15.49	7.92	20 57 48.59			
5	21 16 1.91	4.30	15 53 19.6	8.7	10.050	45.67	14 16.82	15.32	7.80	21 1 45.15			
6	21 20 2.71	5.10	15 34 55.3	44.2	10.016	46.34	14 21.05	15.15	7.69	21 5 41.71			
7	21 24 2.70	5.09	15 16 14.9	3.6	9.983	46.99	14 24.47	14.98	7.57	21 9 38.27			
8	21 28 1.88	4.27	14 57 19.1	7.6	9.949	47.63	14 27.08	14.81	7.46	21 13 34.82			
9	21 32 0.25	2.64	14 37 68.3	56.7	9.916	48.25	14 28.88	14.63	7.34	21 17 31.38			
10	21 35 57.82	60.21	14 18 42.9	31.1	9.883	48.85	14 29.88	14.45	7.23	21 21 27.93			
11	21 39 54.59	56.97	13 58 63.2	51.3	9.850	49.44	14 30.10	14.27	7.12	21 25 24.49			
12	21 43 50.58	52.95	13 38 69.8	57.8	9.817	50.00	14 29.53	14.09	7.01	21 29 21.04			
13	21 47 45.79	48.15	13 18 63.2	51.0	9.785	50.54	14 28.18	13.90	6.90	21 33 17.60			
14	21 51 40.23	42.58	12 58 43.7	31.4	9.753	51.07	14 26.06	13.71	6.79	21 37 14.15			
15	21 55 33.92	36.25	12 37 71.7	59.3	9.722	51.57	14 23.19	13.51	6.69	21 41 10.71			
16	21 59 26.86	29.17	12 17 27.7	15.2	9.692	52.06	14 19.57	13.31	6.59	21 45 7.26			
17	22 3 19.08	21.37	11 56 32.0	19.5	9.662	52.55	14 15.23	13.11	6.49	21 49 3.82			
18	22 7 10.59	12.86	11 35 25.1	12.6	9.633	53.01	14 10.18	12.90	6.39	21 53 0.37			
19	22 11 1.41	3.66	11 13 67.3	54.8	9.604	53.45	14 4.44	12.68	6.29	21 56 56.93			
20	22 14 51.56	53.79	10 52 39.1	26.6	9.576	53.88	13 58.01	12.46	6.19	22 0 53.48			
21	22 18 41.04	43.25	10 30 60.8	48.3	9.549	54.30	13 50.93	12.24	6.10	22 4 50.04			
22	22 22 29.88	32.06	10 9 12.9	0.4	9.523	54.69	13 43.22	12.02	6.00	22 8 46.59			
23	22 26 18.11	20.25	9 47 15.6	3.2	9.498	55.07	13 34.90	11.79	5.91	22 12 43.15			
24	22 30 5.74	7.85	9 24 69.4	57.1	9.473	55.43	13 25.96	11.57	5.82	22 16 39.70			
25	22 33 52.78	54.86	9 2 54.6	42.3	9.449	55.78	13 16.44	11.32	5.74	22 20 36.26			
26	22 37 30.27	41.32	8 40 31.7	19.4	9.426	56.12	13 6.37	11.08	5.65	22 24 32.81			
27	22 41 25.22	27.24	8 17 69.9	48.7	9.403	56.43	12 55.76	10.83	5.57	22 28 29.37			
28	22 45 10.64	12.62	7 55 22.8	10.7	9.382	56.73	12 44.63	10.59	5.49	22 32 25.92			
29	22 48 55.54	57.48	7 32 37.6	25.7	9.361	+57.02	+12 32.97	16 10.34	5.42	22 36 22.48			

NOTE.—For Mean interval of Semidiameter passing the Meridian, subtract 0s.19 from the Sidereal Interval.

AT WASHINGTON MEAN AND APPARENT NOON.

Date.	APPARENT RIGHT ASCENSION.				APPARENT DECLINATION.		Hourly Motion. Mean Noon.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. passing Merid.	Sidereal Time of Mean Noon.								
	Mean Noon.		Apparent Noon.		Mean Noon.	Apparent Noon.	Right Ascension.	Declination.												
	h	m	s	sec																
1875.	Mar. 1	22	48	55.54	57.48	- 7	32	37.6	25.7	9.361	+57.02	+12	32.97	16'	10.34	1	5.42	22	36	22.48
	2	22	52	39.96	41.87	7	9	45.9	34.1	9.341	57.28	12	20.84	10.09	5.35	22	40	19.03		
	3	22	56	23.90	25.72	6	46	47.9	36.3	9.321	57.53	12	8.23	9.84	5.28	22	44	15.58		
	4	23	0	7.38	9.22	6	23	44.2	32.7	9.302	57.77	11	55.15	9.59	5.21	22	48	12.13		
	5	23	3	50.42	52.22	6	0	35.0	23.7	9.284	57.98	11	41.63	9.33	5.15	22	52	8.69		
	6	23	7	33.03	34.79	5	37	20.9	9.8	9.266	58.18	11	27.68	9.07	5.08	22	56	5.24		
	7	23	11	15.23	16.95	5	13	62.2	51.3	9.250	58.37	11	13.33	8.81	5.03	23	0	1.80		
	8	23	14	57.04	58.72	4	50	39.4	28.7	9.234	58.53	10	58.58	8.56	4.97	23	3	58.35		
	9	23	18	38.46	40.09	4	27	12.8	2.4	9.218	58.68	10	43.46	8.30	4.92	23	7	54.91		
	10	23	22	19.52	21.11	4	3	42.9	32.7	9.203	58.81	10	27.97	8.04	4.87	23	11	51.46		
	11	23	26	0.24	1.79	3	40	10.0	0.0	9.189	58.92	10	12.13	7.78	4.82	23	15	48.01		
	12	23	29	40.63	42.14	3	16	34.7	24.9	9.176	59.02	9	55.97	7.51	4.77	23	19	44.56		
	13	23	33	20.71	22.18	2	52	57.2	47.7	9.164	59.09	9	39.50	7.26	4.73	23	23	41.12		
	14	23	37	0.50	1.92	2	29	18.0	8.8	9.153	59.16	9	22.73	7.00	4.69	23	27	37.67		
	15	23	40	40.02	41.40	2	5	37.5	28.6	9.142	59.21	9	5.68	6.74	4.65	23	31	34.23		
	16	23	44	19.29	20.62	1	41	56.0	47.4	9.132	59.24	8	48.39	6.48	4.62	23	35	30.78		
	17	23	47	58.33	59.61	1	18	13.8	5.5	9.123	59.26	8	30.88	6.21	4.59	23	39	27.34		
	18	23	51	37.16	38.39	0	54	31.4	23.3	9.115	59.27	8	13.18	5.94	4.57	23	43	23.89		
	19	23	55	15.82	17.00	0	30	49.1	41.3	9.108	59.26	7	55.30	5.67	4.55	23	47	20.44		
	20	23	58	54.32	55.46	- 0	7	7.2	0.3	9.102	59.23	7	37.24	5.40	4.53	23	51	16.99		
	21	0	2	32.68	33.78	+	0	16	34.1	41.3	9.096	59.20	7	19.04	5.13	4.51	23	55	13.55	
	22	0	6	10.92	11.98	0	40	14.2	21.1	9.091	59.15	7	0.75	4.86	4.49	23	59	10.10		
	23	0	9	49.09	50.10	1	3	52.8	59.4	9.088	59.08	6	42.37	4.58	4.48	0	3	6.66		
	24	0	13	27.19	28.15	1	27	29.7	36.0	9.086	59.00	6	23.91	4.30	4.47	0	7	3.21		
	25	0	17	5.25	6.16	1	51	4.6	10.6	9.085	58.91	6	5.41	4.02	4.47	0	10	59.77		
	26	0	20	43.29	44.15	2	14	37.1	42.7	9.084	58.79	5	46.90	3.74	4.46	0	14	56.32		
	27	0	24	21.34	22.15	2	38	6.9	12.2	9.085	58.67	5	28.41	3.46	4.46	0	18	52.87		
	28	0	27	59.42	60.19	3	1	33.6	38.6	9.087	58.54	5	9.94	3.18	4.46	0	22	49.42		
	29	0	31	37.54	38.27	3	24	56.9	61.7	9.090	58.39	4	51.51	2.88	4.47	0	26	45.88		
	30	0	35	15.73	16.41	3	48	16.4	20.9	9.093	58.22	4	33.15	2.61	4.48	0	30	42.53		
	31	0	38	54.01	54.64	4	11	31.9	36.0	9.097	58.05	4	14.88	2.32	4.49	0	34	39.09		
Apr. 1	1	0	42	32.39	32.98	4	34	42.8	46.6	9.102	57.86	3	56.72	2.04	4.50	0	38	35.64		
	2	0	46	10.90	11.45	4	57	49.0	52.5	9.107	57.64	3	38.67	1.76	4.52	0	42	32.20		
	3	0	49	49.55	50.05	5	20	49.9	53.1	9.113	57.42	3	20.76	1.48	4.54	0	46	28.75		
	4	0	53	28.35	28.81	5	43	45.2	48.1	9.120	57.18	3	3.02	1.20	4.56	0	50	25.30		
	5	0	57	7.32	7.73	6	6	34.6	37.2	9.128	56.93	2	45.45	0.92	4.59	0	54	21.85		
	6	1	0	46.48	46.84	6	29	17.7	20.0	9.136	56.66	2	28.05	0.65	4.62	0	58	18.41		
	7	1	4	25.84	26.16	6	51	54.2	56.2	9.144	56.38	2	10.85	0.37	4.65	1	2	14.96		
	8	1	8	5.42	5.69	7	14	23.6	25.3	9.153	56.07	1	53.88	16	0.10	4.68	1	6	11.52	
	9	1	11	45.22	45.45	7	36	45.6	47.1	9.163	55.75	1	37.13	15	59.83	4.72	1	10	8.07	
	10	1	15	25.27	25.46	7	58	59.8	61.0	9.173	55.42	1	20.62	15	59.56	4.76	1	14	4.63	
	11	1	19	5.57	5.72	8	21	5.8	6.8	9.185	55.07	1	4.38	59.29	4.80	1	18	1.18		
	12	1	22	46.15	46.26	8	43	3.3	4.0	9.197	54.71	0	48.42	59.03	4.84	1	21	57.74		
	13	1	26	27.02	27.09	9	4	51.9	52.4	9.209	54.34	0	32.74	58.76	4.89	1	25	54.29		
	14	1	30	8.20	8.23	9	26	31.4	31.7	9.222	53.94	0	17.36	58.51	4.94	1	29	50.85		
	15	1	33	49.70	49.69	9	48	1.4	1.5	9.236	53.54	+	0	2.30	58.24	4.99	1	33	47.40	
	16	1	37	31.53	31.49	10	9	21.6	21.4	9.250	53.13	-	0	12.42	57.98	5.05	1	37	43.95	
	17	1	41	13.69	13.61	10	30	31.7	31.3	9.265	52.70	0	26.79	57.72	5.16	1	41	40.51		
	18	1	44	56.29	56.16	10	51	31.3	30.7	9.282	52.26	0	40.77	57.46	5.16	1	45	37.06		
	19	1	48	39.24	39.08	11	12	20.2	19.4	9.299	51.81	0	54.36	57.20	5.22	1	49	33.61		
	20	1	52	22.60	22.41	11	32	58.0	57.0	9.316	51.34	1	7.56	56.94	5.28	1	53	30.17		
	21	1	56	6.39	6.17	11	53	24.4	23.2	9.334	50.86	1	20.33	56.68	5.34	1	57	26.72		
	22	1	59	50.62	50.36	12	13	39.2	37.8	9.353	50.36	1	32.63	56.43	5.41	2	1	23.28		
	23	2	3	35.31	35.02	12	33	42.0	40.5	9.372	49.86	1	44.45	56.17	5.47	2	5	19.83		
	24	2	7	20.46	20.14	12	53	32.6	31.0	9.392	49.35	1	55.91	55.91	5.54	2	9	16.39		
	25	2	11	6.10	5.75	13	13	10.6	8.9	9.412	48.81	2	6.80	55.65	5.61	2	13	12.94		
	26	2	14	52.25	51.87	13	32	35.7	33.8	9.433	48.27	2	17.21	55.41	5.68	2	17	9.50		
	27	2	18	38.91	38.51	13	51	47.5	45.5	9.455	47.72	2	27.12	55.15	5.75	2	21	6.06		
	28	2	22	26.09	25.66	14	10	45.9	43.8	9.477	47.15	2	36.49	54.90	5.83	2	25	2.62		
	29	2	26	13.80	13.35	14	29	30.4	28.2	9.499	46.56	2	45.33	54.65	5.90	2	28	59.17		
	30	2	30	2.06	1.59	14	47	60.7	58.4	9.521	45.96	2	53.61	54.41	5.98	2	32	55.73		
	31	2	33	50.86	50.38	+15	6	16.5	14.2	9.544	45.35	-	3	1.40	54.17	1	6.06	2	36	52.28

NOTE.—For Mean interval of Semidiameter passing the Meridian, subtract 0s.15 from the Sidereal Interval.

AT WASHINGTON MEAN AND APPARENT NOON.

Date.	APPARENT RIGHT ASCENSION.			APPARENT DECLINATION.		Hourly Motion. Mean Noon.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. passing Merid.	Sidereal Time of Mean Noon.
	Mean Noon.	Appa- rent Noon.	Mean Noon.	Appa- rent Noon.	Right Ascension.	Declination.					
							h m s				
1875.											
May 1	2 33 50.86	50.38	+15 6 16.5	14.2	9.544	+45.35	-3 1.40	15 54.17	m 1	6.06	2 36 52.28
2	2 37 40.21	39.71	15 24 17.4	15.0	9.567	44.73	3 8.60	53.93		6.14	2 40 48.84
3	2 41 30.12	29.60	15 42 3.1	0.6	9.590	44.08	3 15.25	53.69		6.22	2 44 45.39
4	2 45 20.59	20.05	15 59 33.2	30.7	9.614	43.43	3 21.33	53.46		6.30	2 48 41.95
5	2 49 11.62	11.06	16 16 47.5	45.0	9.637	42.76	3 26.86	53.23		6.38	2 52 38.50
6	2 53 3.21	2.63	16 33 45.5	43.0	9.661	42.07	3 31.84	53.01		6.46	2 56 35.06
7	2 56 55.36	54.77	16 50 27.0	24.5	9.684	41.38	3 36.25	52.79		6.54	3 0 31.61
8	3 0 48.07	47.47	17 6 51.7	49.2	9.708	40.67	3 40.09	52.58		6.63	3 4 28.17
9	3 4 41.35	40.74	17 22 59.3	56.8	9.731	39.94	3 43.36	52.37		6.71	3 8 24.72
10	3 8 35.19	34.57	17 38 49.3	46.8	9.755	39.21	3 46.07	52.16		6.79	3 12 21.28
11	3 12 29.58	28.96	17 54 21.5	19.0	9.779	38.47	3 48.24	51.95		6.87	3 16 17.83
12	3 16 24.53	23.90	18 9 35.5	33.0	9.802	37.71	3 49.86	51.75		6.96	3 20 14.40
13	3 20 20.03	19.39	18 24 31.2	28.8	9.825	36.93	3 50.92	51.55		7.04	3 24 10.96
14	3 24 16.09	15.45	18 39 8.3	6.0	9.848	36.15	3 51.42	51.35		7.13	3 28 7.52
15	3 28 12.71	12.07	18 53 26.5	24.2	9.871	35.36	3 51.35	51.16		7.21	3 32 4.07
16	3 32 9.89	9.25	19 7 25.5	23.3	9.894	34.55	3 50.74	50.97		7.29	3 36 0.63
17	3 36 7.62	6.98	19 21 5.2	3.1	9.917	33.73	3 49.57	50.78		7.37	3 39 57.19
18	3 40 5.89	5.25	19 34 25.1	23.1	9.940	32.91	3 47.85	50.60		7.45	3 43 53.75
19	3 44 4.71	4.08	19 47 25.2	23.2	9.963	32.08	3 45.59	50.41		7.53	3 47 50.30
20	3 48 4.08	3.45	20 0 5.0	3.0	9.986	31.24	3 42.79	50.23		7.61	3 51 46.86
21	3 52 3.99	3.37	20 12 24.5	22.6	10.009	30.39	3 39.43	50.05		7.69	3 55 43.42
22	3 56 4.45	3.85	20 24 23.3	21.6	10.031	29.52	3 35.52	49.87		7.76	3 59 39.98
23	4 0 5.45	4.86	20 35 61.4	59.7	10.053	28.64	3 31.08	49.69		7.83	4 3 36.53
24	4 4 6.98	6.40	20 47 18.3	16.7	10.075	27.76	3 26.11	49.52		7.90	4 7 33.09
25	4 8 9.03	8.46	20 58 13.9	12.4	10.096	26.87	3 20.62	49.35		7.97	4 11 29.65
26	4 12 11.60	11.05	21 8 47.9	46.5	10.117	25.97	3 14.62	49.19		8.04	4 15 26.21
27	4 16 14.67	14.14	21 18 60.2	58.9	10.138	25.05	3 8.11	49.03		8.11	4 19 22.76
28	4 20 18.24	17.73	21 28 50.5	49.3	10.158	24.13	3 1.10	48.87		8.17	4 23 19.32
29	4 24 22.29	21.8	21 38 18.6	17.5	10.178	23.20	2 53.61	48.72		8.23	4 27 15.88
30	4 28 26.80	26.33	21 47 24.2	23.3	10.197	22.26	2 45.66	48.57		8.29	4 31 12.44
31	4 32 31.76	31.31	21 56 7.2	6.3	10.215	21.31	2 37.26	48.42		8.35	4 35 9.00
June 1	4 36 37.15	36.73	22 4 27.3	26.5	10.233	20.35	2 28.41	48.28		8.41	4 39 5.55
2	4 40 42.96	42.56	22 12 24.4	23.7	10.249	19.39	2 19.15	48.14		8.47	4 43 2.11
3	4 44 49.15	48.78	22 19 58.2	57.6	10.265	18.42	2 9.52	48.01		8.52	4 46 58.67
4	4 48 55.71	55.37	22 27 8.6	8.0	10.280	17.44	1 59.53	47.88		8.57	4 50 55.23
5	4 53 2.62	2.30	22 33 55.4	54.9	10.294	16.46	1 49.18	47.77		8.62	4 54 51.79
6	4 57 9.85	9.56	22 40 18.5	18.1	10.308	15.47	1 38.51	47.66		8.67	4 58 48.35
7	5 1 17.38	17.13	22 46 17.7	17.3	10.320	14.47	1 27.54	47.55		8.71	5 2 44.91
8	5 5 25.19	24.98	22 51 52.9	52.6	10.331	13.47	1 16.27	47.44		8.75	5 6 41.46
9	5 9 33.26	33.08	22 57 4.0	3.8	10.341	12.46	1 4.76	47.34		8.79	5 10 38.02
10	5 13 41.56	41.41	23 1 50.9	50.8	10.351	11.45	0 53.02	47.24		8.83	5 14 34.58
11	5 17 50.07	49.95	23 6 13.4	13.3	10.358	10.44	0 41.07	47.15		8.86	5 18 31.14
12	5 21 58.76	58.68	23 10 11.5	11.4	10.365	9.42	0 28.93	47.06		8.88	5 22 27.70
13	5 26 7.62	7.58	23 13 45.1	45.1	10.372	8.40	0 16.64	46.98		8.90	5 26 24.26
14	5 30 16.62	16.61	23 16 54.2	54.2	10.378	7.37	-0 4.20	46.90		8.92	5 30 20.82
15	5 34 25.75	25.78	23 19 38.7	38.7	10.383	6.34	+0 8.37	46.83		8.94	5 34 17.38
16	5 38 34.99	35.06	23 21 58.6	58.6	10.387	5.31	0 21.07	46.76		8.95	5 38 13.93
17	5 42 44.31	44.41	23 23 53.7	53.7	10.390	4.28	0 33.84	46.69		8.96	5 42 10.49
18	5 46 53.70	53.84	23 25 24.1	24.1	10.392	3.25	0 46.66	46.62		8.97	5 46 7.05
19	5 51 3.14	3.31	23 26 29.8	29.8	10.394	2.22	0 59.54	46.56		8.98	5 50 3.61
20	5 55 12.60	12.81	23 27 10.8	10.8	10.395	1.19	1 12.45	46.50		8.98	5 54 0.17
21	5 59 22.08	22.33	23 27 27.0	27.0	10.395	+0.16	1 25.37	46.44		8.98	5 57 56.73
22	6 3 31.55	31.84	23 27 18.4	18.4	10.394	-0.87	1 38.29	46.39		8.98	6 1 53.29
23	6 7 40.98	41.31	23 26 45.1	45.0	10.391	1.90	1 51.17	46.34		8.97	6 5 49.85
24	6 11 50.36	50.73	23 25 47.0	46.8	10.388	2.93	2 3.99	46.29		8.96	6 9 46.40
25	6 15 59.66	60.07	23 24 24.2	24.0	10.385	3.96	2 16.73	46.25		8.95	6 13 42.96
26	6 20 8.87	9.31	23 22 36.7	36.5	10.381	4.99	2 29.38	46.21		8.93	6 17 39.52
27	6 24 17.96	18.43	23 20 24.5	24.2	10.376	6.01	2 41.92	46.18		8.90	6 21 36.08
28	6 28 26.91	27.42	23 17 47.7	47.4	10.369	7.03	2 54.31	46.16		8.87	6 25 32.64
29	6 32 35.68	36.23	23 14 46.5	46.1	10.361	8.05	3 6.52	46.14		8.84	6 29 29.20
30	6 36 44.26	44.84	23 11 20.8	20.3	10.352	9.07	3 18.53	46.12		8.81	6 33 25.76
31	6 40 52.62	53.23	+23 7 30.5	29.9	10.343	-10.09	+3 30.33	46.11	1	8.78	6 37 22.32

NOTE.—For Mean interval of Semidiameter passing the Meridian, subtract 0.18 from the Sidereal Interval.

AT WASHINGTON MEAN AND APPARENT NOON.

Date.	APPARENT RIGHT ASCENSION.			APPARENT DECLINATION.			Hourly Motion. Mean Noon.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. passing Merid.	Sidereal Time of Mean Noon.
	Mean Noon.	Apparent Noon.	Mean Noon.	Apparent Noon.	Right Ascension.	Declination.	Right Ascension.	Declination.				
1875.	h m s	s	° ' "	° ' "	° ' "	° ' "	° ' "	m s	m s	m s	h m s	
July 1	6 40 52.62	53.23	+23 7 30.5	29.9	10.343	-10.09	+3 30.33	15 46.11	1 8.78	6 37 22.32		
2	6 45 0.74	1.38	23 3 15.9	15.2	10.332	11.10	3 41.89	46.10	8.74	6 41 18.87		
3	6 49 8.58	9.25	22 58 37.2	36.4	10.320	12.11	3 53.18	46.10	8.70	6 45 15.43		
4	6 53 16.13	16.83	22 53 34.4	33.5	10.308	13.11	4 4.18	46.11	8.66	6 49 11.99		
5	6 57 23.35	24.08	22 48 7.6	6.6	10.294	14.11	4 14.82	46.12	8.62	6 53 8.55		
6	7 1 30.23	30.99	22 42 17.0	15.8	10.281	15.10	4 25.16	46.13	8.57	6 57 5.11		
7	7 5 36.75	37.54	22 36 2.8	1.5	10.263	16.08	4 35.12	46.16	8.52	7 1 1.67		
8	7 9 42.87	43.68	22 29 25.1	23.8	10.246	17.06	4 44.68	46.19	8.47	7 4 58.23		
9	7 13 48.59	49.42	22 22 24.0	22.7	10.229	18.03	4 53.83	46.22	8.41	7 8 54.79		
10	7 17 53.88	54.73	22 14 59.9	58.3	10.211	18.99	5 2.56	46.25	8.35	7 12 51.35		
11	7 21 58.72	59.60	22 7 12.7	11.0	10.192	19.94	5 10.85	46.29	8.29	7 16 47.91		
12	7 26 3.10	4.00	21 59 2.8	0.9	10.173	20.88	5 18.67	46.33	8.23	7 20 44.47		
13	7 30 7.01	7.92	21 50 30.4	28.4	10.153	21.82	5 26.01	46.38	8.16	7 24 41.03		
14	7 34 10.44	11.37	21 41 35.6	33.5	10.133	22.75	5 32.87	46.43	8.10	7 28 37.58		
15	7 38 13.36	14.31	21 32 18.6	16.4	10.112	23.66	5 39.25	46.49	8.03	7 32 34.14		
16	7 42 15.77	16.73	21 22 39.7	37.3	10.090	24.57	5 45.11	46.55	7.96	7 36 30.69		
17	7 46 17.67	18.64	21 12 39.0	36.5	10.068	25.47	5 50.45	46.61	7.89	7 40 27.25		
18	7 50 19.04	20.03	21 2 16.8	14.2	10.046	26.36	5 55.25	46.68	7.81	7 44 23.81		
19	7 54 19.87	20.87	20 51 33.3	30.6	10.024	27.25	5 59.52	46.75	7.73	7 48 20.37		
20	7 58 20.16	21.17	20 40 28.7	25.9	10.001	28.12	6 3.26	46.83	7.65	7 52 16.92		
21	8 2 19.91	20.93	20 29 3.3	0.4	9.978	28.98	6 6.45	46.91	7.57	7 56 13.48		
22	8 6 19.11	20.14	20 17 17.2	14.2	9.955	29.84	6 9.10	46.99	7.49	8 0 10.04		
23	8 10 17.76	18.79	20 5 10.7	7.6	9.932	30.69	6 11.19	47.07	7.41	8 4 6.60		
24	8 14 15.85	16.88	19 52 44.0	40.7	9.909	31.53	6 12.72	47.16	7.33	8 8 3.15		
25	8 18 13.37	14.40	19 39 57.3	53.9	9.885	32.36	6 13.68	47.25	7.24	8 11 59.71		
26	8 22 10.32	11.35	19 26 50.9	47.5	9.861	33.17	6 14.08	47.34	7.16	8 15 56.27		
27	8 26 6.71	7.74	19 13 25.2	21.7	9.837	33.97	6 13.91	47.44	7.07	8 19 52.83		
28	8 30 2.51	3.53	18 59 40.3	36.7	9.813	34.77	6 13.13	47.54	6.99	8 23 49.38		
29	8 33 57.72	58.73	18 45 36.4	32.7	9.789	35.55	6 11.78	47.65	6.90	8 27 45.94		
30	8 37 52.34	53.34	18 31 13.9	10.2	9.764	36.32	6 9.83	47.77	6.82	8 31 42.50		
31	8 41 46.36	47.35	18 16 33.1	29.3	9.739	37.08	6 7.29	47.89	6.73	8 35 39.06		
Aug. 1	8 45 39.79	40.77	18 1 34.3	30.5	9.714	37.83	6 4.16	48.01	6.64	8 39 35.61		
2	8 49 32.61	33.58	17 46 17.8	14.0	9.689	38.55	6 0.43	48.14	6.55	8 43 32.17		
3	8 53 24.83	25.79	17 30 43.8	39.9	9.664	39.27	5 56.08	48.27	6.47	8 47 28.72		
4	8 57 16.43	17.37	17 14 52.8	48.9	9.638	39.98	5 51.14	48.41	6.38	8 51 25.28		
5	9 1 7.42	8.34	16 58 45.1	41.2	9.613	40.68	5 45.57	48.55	6.30	8 55 21.84		
6	9 4 57.80	58.71	16 42 20.7	16.9	9.587	41.35	5 39.38	48.70	6.21	8 59 18.40		
7	9 8 47.57	48.46	16 25 40.2	36.3	9.562	42.02	5 32.58	48.85	6.13	9 3 14.96		
8	9 12 36.74	37.60	16 8 44.0	40.1	9.537	42.66	5 25.18	49.01	6.04	9 7 11.51		
9	9 16 25.31	26.15	15 51 32.2	28.4	9.512	43.30	5 17.22	49.18	5.96	9 11 8.06		
10	9 20 13.29	14.11	15 34 5.4	1.6	9.487	43.93	5 8.64	49.35	5.87	9 15 4.62		
11	9 24 0.68	1.47	15 16 23.7	20.0	9.462	44.55	4 59.49	49.52	5.79	9 19 1.17		
12	9 27 47.48	48.24	14 58 27.3	23.7	9.438	45.14	4 49.74	49.69	5.71	9 22 57.73		
13	9 31 33.71	34.44	14 40 16.6	13.1	9.414	45.73	4 39.40	49.86	5.63	9 26 54.29		
14	9 35 19.38	20.08	14 21 52.1	48.7	9.391	46.31	4 28.51	50.04	5.55	9 30 50.85		
15	9 39 4.51	5.18	14 3 13.9	10.5	9.369	46.88	4 17.08	50.22	5.47	9 34 47.40		
16	9 42 49.11	49.74	13 44 22.3	19.0	9.348	47.43	4 5.12	50.40	5.39	9 38 43.96		
17	9 46 33.19	33.79	13 25 17.6	14.4	9.327	47.96	3 52.65	50.58	5.32	9 42 40.52		
18	9 50 16.77	17.33	13 5 60.1	57.1	9.306	48.49	3 39.68	50.77	5.25	9 46 37.07		
19	9 53 59.86	60.38	12 46 30.2	27.4	9.286	49.01	3 26.22	50.96	5.18	9 50 33.62		
20	9 57 42.47	42.96	12 26 48.0	45.4	9.266	49.50	3 12.28	51.15	5.11	9 54 30.18		
21	10 1 24.62	25.07	12 6 53.9	51.4	9.247	49.99	2 57.87	51.34	5.04	9 58 26.73		
22	10 5 6.32	6.73	11 46 48.0	45.7	9.228	50.47	2 43.01	51.54	4.97	10 2 23.29		
23	10 8 47.59	47.96	11 26 30.9	28.8	9.210	50.94	2 27.73	51.74	4.90	10 6 19.84		
24	10 12 28.45	28.78	11 6 2.9	1.0	9.193	51.38	2 12.04	51.94	4.84	10 10 16.40		
25	10 16 8.91	9.20	10 45 24.2	22.5	9.177	51.82	1 55.94	52.14	4.77	10 14 12.95		
26	10 19 48.97	49.22	10 24 35.0	33.5	9.161	52.25	1 39.45	52.35	4.71	10 18 9.51		
27	10 23 28.65	28.86	10 3 35.8	34.5	9.146	52.67	1 22.57	52.57	4.65	10 22 6.06		
28	10 27 7.96	8.12	9 42 26.8	25.8	9.131	53.06	1 5.33	52.79	4.60	10 26 2.62		
29	10 30 46.93	47.04	9 21 8.5	7.6	9.117	53.45	0 47.75	53.01	4.55	10 29 59.18		
30	10 34 25.56	25.63	8 59 41.1	40.6	9.103	53.82	0 29.83	53.23	4.50	10 33 55.73		
31	10 38 3.87	3.89	8 38 5.1	4.8	9.089	54.17	+0 11.59 15	53.45	1 4.44	10 37 52.28		

NOTE.—For Moon interval of Semidiameter passing the Meridian, subtract 0s.18 from the Sidereal Interval.

AT WASHINGTON MEAN AND APPARENT NOON.

Date.	APPARENT RIGHT ASCENSION.		APPARENT DECLINATION.		Hourly Motion. Mean Noon.		Equation of Time for Apparent Noon.		Semi-diameter at Apparent Noon.	Sidereal Time of Semid. passing Merid.	Sidereal Time of Mean Noon.
	Mean Noon.	Apparent Noon.	Mean Noon.	Apparent Noon.	Right Ascension.	Declination.	Apparent Noon.	Apparent Noon.			
1875.											
Sept. 1	10 41 41.85	41.83	+ 8 16 20.7	20.7	9.076	-54.51	- 0 6.96	15 53.68	1	4.41	10 41 48.83
2	10 45 19.55	19.48	7 54 28.3	28.6	9.063	54.84	0 25.82	53.91	4.36	10 45 45.38	
3	10 48 56.94	56.82	7 32 28.3	29.0	9.052	55.15	0 44.97	54.15	4.32	10 49 41.93	
4	10 52 34.07	33.90	7 10 21.0	22.0	9.041	55.45	1 4.39	54.39	4.28	10 53 38.49	
5	10 56 10.94	10.72	6 48 6.7	8.0	9.030	55.73	1 24.08	54.64	4.25	10 57 35.05	
6	10 59 47.57	47.30	6 25 45.8	47.4	9.020	56.00	1 44.01	54.89	4.22	11 1 31.60	
7	11 3 23.97	23.65	6 3 18.8	20.8	9.011	56.25	2 4.15	55.14	4.19	11 5 28.16	
8	11 6 60.17	59.80	5 40 45.9	48.3	9.004	56.50	2 24.50	55.39	4.17	11 9 24.71	
9	11 10 36.19	35.77	5 18 7.3	10.0	8.997	56.72	2 45.03	55.65	4.15	11 13 21.27	
10	11 14 12.04	11.57	4 55 23.5	26.5	8.992	56.93	3 5.74	55.91	4.13	11 17 17.82	
11	11 17 47.74	47.22	4 32 34.7	38.1	8.985	57.13	3 26.58	56.17	4.11	11 21 14.38	
12	11 21 23.31	22.74	4 9 41.3	45.0	8.980	57.32	3 47.54	56.43	4.09	11 25 10.93	
13	11 24 58.78	58.16	3 46 43.6	47.6	8.976	57.49	4 8.61	56.69	4.08	11 29 7.48	
14	11 28 34.18	33.50	3 23 41.9	46.3	8.974	57.65	4 29.76	56.95	4.07	11 33 4.03	
15	11 32 9.51	8.78	3 0 36.4	41.2	8.972	57.80	4 50.98	57.21	4.06	11 37 0.59	
16	11 35 44.81	44.02	2 37 27.6	32.7	8.971	57.94	5 12.24	57.47	4.06	11 40 57.14	
17	11 39 20.11	19.27	2 14 15.6	21.1	8.971	58.06	5 33.49	57.73	4.06	11 44 53.70	
18	11 42 55.41	54.52	1 51 0.9	6.8	8.972	58.17	5 54.73	57.99	4.06	11 48 50.25	
19	11 46 30.76	29.82	1 27 43.6	49.8	8.975	58.27	6 15.93	58.25	4.06	11 52 46.81	
20	11 50 6.16	5.16	1 4 24.1	30.6	8.978	58.35	6 37.08	58.51	4.07	11 56 43.36	
21	11 53 41.64	40.59	0 41 2.8	9.7	8.981	58.42	6 58.14	58.78	4.08	12 0 39.91	
22	11 57 17.23	16.13	+ 0 17 40.0	47.2	8.986	58.48	7 19.11	59.04	4.09	12 4 36.46	
23	12 0 52.94	51.79	- 0 5 44.1	36.5	8.991	58.52	7 39.96	59.31	4.11	12 8 33.62	
24	12 4 28.79	27.58	0 29 9.0	1.1	8.997	58.54	8 0.65	59.57	4.13	12 12 29.57	
25	12 8 4.81	3.55	0 52 34.4	26.1	9.005	58.56	8 21.18	59.84	4.15	12 16 26.13	
26	12 11 41.00	39.69	1 15 59.9	51.3	9.013	58.56	8 41.54	60.11	4.18	12 20 22.68	
27	12 15 17.40	16.03	1 39 25.2	16.3	9.021	58.53	9 1.70	60.38	4.21	12 24 19.24	
28	12 18 54.01	52.59	2 2 49.9	40.7	9.030	58.50	9 24.64	60.65	4.24	12 28 15.79	
29	12 22 30.86	29.39	2 26 13.6	4.1	9.040	58.46	9 41.35	60.93	4.28	12 32 12.34	
30	12 26 7.96	6.44	2 49 35.9	26.1	9.051	58.39	10 0.80	61.20	4.32	12 36 8.89	
Oct. 1	12 29 45.33	43.76	3 12 56.5	46.4	9.063	58.31	10 19.99	61.48	4.36	12 40 5.45	
2	12 33 22.98	21.36	3 36 14.9	4.6	9.075	58.22	10 38.88	61.76	4.41	12 44 2.00	
3	12 36 60.94	59.27	3 59 30.9	20.4	9.088	58.11	10 57.46	62.04	4.46	12 47 58.56	
4	12 40 39.22	37.50	4 22 44.0	33.2	9.102	57.98	11 15.76	62.33	4.51	12 51 55.11	
5	12 44 17.84	16.07	4 45 53.9	42.8	9.116	57.84	11 33.68	62.61	4.56	12 55 51.67	
6	12 47 56.81	55.00	5 8 60.0	48.6	9.131	57.67	11 51.26	62.90	4.61	12 59 48.22	
7	12 51 36.16	34.30	5 31 62.1	50.5	9.148	57.50	12 8.46	63.18	4.67	13 3 44.77	
8	12 55 15.90	13.99	5 54 59.7	47.9	9.165	57.31	12 25.27	63.47	4.73	13 7 41.32	
9	12 58 56.06	54.10	6 17 52.7	40.6	9.182	57.10	12 41.67	63.75	4.80	13 11 37.88	
10	13 2 36.65	34.65	6 40 40.6	28.3	9.201	56.88	12 57.63	64.03	4.87	13 15 34.43	
11	13 6 17.70	15.66	7 3 23.0	10.5	9.220	56.65	13 13.14	64.31	4.94	13 19 30.99	
12	13 9 59.22	57.14	7 25 59.5	46.8	9.240	56.39	13 28.18	64.59	5.01	13 23 27.54	
13	13 13 41.24	39.11	7 48 30.0	17.1	9.262	56.13	13 42.72	64.87	5.10	13 27 24.10	
14	13 17 23.78	21.61	8 10 53.9	40.9	9.284	55.86	13 56.73	65.15	5.18	13 31 20.65	
15	13 21 6.87	4.66	8 32 71.0	57.9	9.307	55.56	14 10.20	65.42	5.26	13 35 17.21	
16	13 24 50.53	48.28	8 55 20.8	7.6	9.331	55.25	14 23.10	65.69	5.34	13 39 13.76	
17	13 28 34.77	32.49	9 17 23.0	9.7	9.356	54.93	14 35.41	65.96	5.42	13 43 10.32	
18	13 32 19.61	17.29	9 39 17.3	3.9	9.382	54.59	14 47.13	66.23	5.51	13 47 6.87	
19	13 36 5.08	2.72	10 0 63.3	40.8	9.408	54.23	14 58.21	66.50	5.60	13 51 3.42	
20	13 39 51.19	48.80	10 22 40.6	27.0	9.435	53.86	15 8.66	66.77	5.69	13 54 59.97	
21	13 43 37.97	35.55	10 43 68.9	55.2	9.463	53.47	15 18.46	67.03	5.78	13 58 56.53	
22	13 47 25.42	22.97	11 5 27.7	14.0	9.492	53.07	15 27.56	67.29	5.88	14 2 53.08	
23	13 51 13.57	11.09	11 26 36.7	23.0	9.521	52.66	15 35.97	67.55	5.98	14 6 49.64	
24	13 54 62.43	59.92	11 47 35.4	21.7	9.551	52.22	15 43.66	67.81	6.08	14 10 46.19	
25	13 58 52.02	49.49	12 8 23.5	9.9	9.585	51.77	15 50.64	68.07	6.19	14 14 42.75	
26	14 2 42.34	39.79	12 28 60.5	46.9	9.612	51.30	15 56.88	68.32	6.29	14 18 39.30	
27	14 6 33.40	30.83	12 49 25.9	12.4	9.643	50.81	16 2.40	68.58	6.40	14 22 35.86	
28	14 10 25.21	22.62	13 9 39.4	25.9	9.675	50.31	16 7.15	68.84	6.51	14 26 32.42	
29	14 14 17.79	15.18	13 29 40.4	27.0	9.707	49.78	16 11.14	69.09	6.62	14 30 28.98	
30	14 18 11.14	8.51	13 49 28.6	15.3	9.739	49.24	16 14.36	69.35	6.73	14 34 25.53	
31	14 22 5.27	2.62	14 8 63.6	50.5	9.772	48.68	16 16.78	69.60	6.84	14 38 22.09	
32	14 25 60.18	57.52	-14 28 25.0	12.0	9.805	-48.10	-16 18.44	69.85	6.95	14 42 18.64	

NOTE.—For Mean interval of Semidiameter passing the Meridian, subtract 0s.18 from the Sidereal Interval.

AT WASHINGTON MEAN AND APPARENT NOON.

Date.	APPARENT RIGHT ASCENSION.		APPARENT DECLINATION.		Hourly Motion. Mean Noon.		Equation of Time for Apparent Noon.	Semi-diameter at Apparent Noon.	Sidereal Time of Semid. passing Merid.	Sidereal Time of Mean Noon.
	Mean Noon.	Appa- rent Noon.	Mean Noon.	Appa- rent Noon.	Right Ascension.	Declination.				
Nov. 1	h m s	h m s	° ' "	° ' "	"	"	m s	m s	m s	h m s
2	14 25 59.18	57.52	-14 28 25.0	12.0	9.805	-48.10	-16 18.44	16' 9.85	1 6.95	14 42 18.64
3	14 29 55.89	53.22	14 47 32.2	19.3	9.838	47.50	16 19.29	10.10	7.07	14 46 15.20
4	14 33 52.39	49.71	15 6 24.8	12.1	9.872	46.89	16 19.36	10.35	7.19	14 50 11.75
5	14 37 49.69	47.00	15 24 62.4	49.8	9.905	46.25	16 18.63	10.60	7.31	14 54 8.31
6	14 41 47.79	45.10	15 43 24.8	12.4	9.938	45.60	16 17.09	10.85	7.43	14 58 4.86
7	14 45 46.71	44.01	16 1 31.4	19.2	9.972	44.94	16 14.74	11.05	7.55	15 2 1.42
8	14 49 46.44	43.74	16 19 21.9	10.0	10.006	44.26	16 11.57	11.34	7.67	15 5 57.97
9	14 53 46.90	44.29	16 36 55.8	44.1	10.040	43.56	16 7.58	11.59	7.79	15 9 54.53
10	14 57 48.37	45.68	16 54 12.7	1.3	10.074	42.84	16 2.77	11.82	7.91	15 13 51.09
11	15 1 50.58	47.89	17 11 12.3	1.2	10.109	42.11	15 57.13	12.05	8.03	15 17 47.65
12	15 5 53.63	50.95	17 27 54.2	43.3	10.144	41.37	15 50.64	12.28	8.15	15 21 44.20
13	15 9 57.53	54.86	17 44 18.1	7.5	10.179	40.61	15 43.30	12.50	8.27	15 25 40.76
14	15 13 62.28	59.63	18 0 23.5	13.2	10.214	39.83	15 35.11	12.71	8.39	15 29 37.31
15	15 18 7.87	5.23	18 16 10.1	0.1	10.250	39.04	15 26.08	12.92	8.51	15 33 33.87
16	15 22 14.31	11.69	18 31 37.6	28.0	10.285	38.23	15 16.22	13.13	8.63	15 37 30.43
17	15 26 21.60	19.00	18 46 45.4	36.2	10.321	37.41	15 5.50	13.34	8.74	15 41 26.99
18	15 30 29.75	27.18	19 1 33.3	24.4	10.356	36.57	14 53.92	13.54	8.86	15 45 23.54
19	15 34 38.74	36.20	19 15 60.9	52.3	10.392	35.72	14 41.49	13.74	8.97	15 49 20.10
20	15 38 48.58	46.08	19 29 67.8	59.5	10.427	34.84	14 27.22	13.93	9.08	15 53 16.66
21	15 42 59.26	56.80	19 43 53.7	45.8	10.462	33.96	14 14.10	14.12	9.19	15 57 13.22
22	15 47 10.77	8.34	19 57 18.1	10.5	10.497	33.05	13 59.16	14.31	9.30	16 1 9.77
23	15 51 23.10	20.71	20 10 20.6	13.3	10.531	32.14	13 43.39	14.49	9.41	16 5 6.33
24	15 55 36.24	33.89	20 22 61.0	54.1	10.564	31.21	13 26.81	14.67	9.52	16 9 2.89
25	15 59 50.19	47.88	20 35 18.8	12.3	10.597	30.26	13 9.42	14.84	9.63	16 12 59.45
26	16 4 4.91	2.65	20 47 13.6	7.5	10.629	29.30	12 51.25	15.02	9.74	16 16 56.00
27	16 8 20.39	18.18	20 58 45.2	39.4	10.660	28.32	12 32.32	15.19	9.84	16 20 52.56
28	16 12 36.61	34.45	21 9 53.1	47.6	10.690	27.33	12 12.67	15.35	9.94	16 24 49.12
29	16 16 53.56	51.46	21 20 37.1	31.9	10.720	26.33	11 52.29	15.51	10.04	16 28 45.68
30	16 21 11.20	9.15	21 30 56.8	52.0	10.749	25.31	11 31.21	15.68	10.14	16 32 42.24
31	16 25 29.53	27.54	21 40 51.8	47.4	10.777	24.28	11 9.43	15.84	10.23	16 36 38.80
Dec. 1	16 29 48.50	46.57	21 50 21.9	17.8	10.803	23.24	10 47.02	16.00	10.32	16 40 35.35
2	16 34 8.10	6.23	21 59 26.8	23.1	10.828	22.18	10 23.98	16.14	10.40	16 44 31.91
3	16 38 28.30	26.50	22 8 6.3	2.9	10.853	21.11	10 0 33	16.29	10.48	16 48 28.47
4	16 42 49.08	47.35	22 16 19.9	16.8	10.877	20 03	9 36.10	16.44	10.56	16 52 25.03
5	16 47 10.41	8.75	22 24 7.6	4.8	10.900	18.95	9 11.34	16.59	10.63	16 56 21.59
6	16 51 32.27	30.68	22 31 29.0	26.5	10.921	17.85	8 46.05	16.72	10.70	17 0 18.15
7	16 55 54.62	53.12	22 38 24.0	21.8	10.942	16.74	8 20.25	16.85	10.77	17 4 14.71
8	17 0 17.45	16.03	22 44 52.4	50.4	10.961	15.62	7 53.97	16.98	10.84	17 8 11.27
9	17 4 40.73	39.39	22 50 53.9	52.1	10.979	14.50	7 27.23	17.10	10.90	17 12 7.82
10	17 9 4.43	3.17	22 56 28.4	26.8	10.996	13.37	7 0.08	17.21	10.96	17 16 4.38
11	17 13 28.53	27.36	23 1 35.7	34.4	11.011	12.24	6 32.53	17.32	11.01	17 20 0.94
12	17 17 52.99	51.90	23 6 15.7	14.6	11.026	11.10	6 4.63	17.42	11.06	17 23 57.50
13	17 22 17.80	16.79	23 10 28.2	27.3	11.040	9.95	5 36.37	17.52	11.11	17 27 54.06
14	17 26 42.93	42.00	23 14 13.1	12.4	11.053	8.80	5 7.80	17.60	11.15	17 31 50.62
15	17 31 8.34	7.50	23 17 30.3	29.8	11.064	7.64	4 38.94	17.70	11.19	17 35 47.18
16	17 35 34.03	33.28	23 20 19.6	19.2	11.075	6.47	4 9.81	17.78	11.22	17 39 43.74
17	17 39 59.94	59.28	23 22 40.9	40.6	11.084	5.30	3 40.42	17.85	11.24	17 43 40.29
18	17 44 26.06	25.49	23 24 34.1	33.9	11.091	4.13	3 10.86	17.92	11.26	17 47 36.85
19	17 48 52.34	51.87	23 25 59.1	58.9	11.098	2.96	2 41.13	17.98	11.28	17 51 33.41
20	17 53 18.77	18.39	23 26 55.9	55.8	11.103	1.78	2 11.26	18.04	11.29	17 55 29.97
21	17 57 45.29	45.00	23 27 24.5	24.5	11.106	-0.60	1 41.29	18.09	11.30	17 59 26.53
22	18 2 11.89	11.69	23 27 24.7	24.7	11.108	+0.58	1 11.23	18.14	11.30	18 3 23.09
23	18 6 38.51	38.40	23 26 56.6	56.6	11.109	1.76	0 41.15	18.18	11.30	18 7 19.65
24	18 11 5.13	5.11	23 26 0.2	0.2	11.108	2.94	-0 11.08	18.22	11.30	18 11 16.21
25	18 15 31.70	31.78	23 24 35.5	35.4	11.105	4.12	+0 18.94	18.26	11.29	18 15 12.77
26	18 19 58.19	58.36	23 22 42.5	42.4	11.101	5.30	0 48.88	18.29	11.28	18 19 9.33
27	18 24 24.56	24.82	23 20 21.2	21.1	11.095	6.48	1 18.70	18.32	11.26	18 23 5.89
28	18 28 50.77	51.12	23 17 31.8	31.5	11.087	7.65	1 48.37	18.34	11.24	18 27 2.45
29	18 33 16.78	17.22	23 14 14.3	13.9	11.079	8.81	2 17.84	18.36	11.20	18 30 59.00
30	18 37 42.57	43.10	23 10 28.7	28.2	11.068	9.97	2 47.06	18.38	11.17	18 34 55.56
31	18 42 8.08	8.71	23 6 15.3	14.7	11.056	11.12	3 16.01	18.39	11.13	18 38 52.12
32	18 46 33.24	34.00	-23 1 34.3	33.5	11.043	+12.27	+3 44.64	16 18.40	11.09	18 42 48.68

NOTE.—For Mean Interval of Semidiameter passing the Meridian, subtract 0.19 from the Sidereal Interval.

330 MOON-CULMINATIONS, 1875.

WASHINGTON MERIDIAN.													
Date.		Mean	Diff.	Sidereal	Stars.	Bright	Date.		Mean	Diff.	Sidereal	Stars.	Bright
1875.		Time of	for 1 h.	Time of		Limb.	1875.		Time of	for 1 h.	Time of		Limb.
		Meridian	of	Semid.					Meridian	of	Semid.		
		Transit.	Long.	passing					Transit.	Long.	passing		
				Merid.							Merid.		
		h m	m	s					h m	m	s		
Jan.	1	19 54.84	1.805	64.15	107 .. 110	II.	Mar.	1	19 44.67	2.274	71.80	132 .. 135	II.
	2	20 39.70	1.939	66.28	111 .. 114	II.		2	20 39.65	2.296	72.06	140 .. 143	II.
	3	21 29.00	2.086	68.58	119 .. 122	II.		3	21 34.44	2.260	71.43	147 .. 150	II.
	4	22 19.73	2.220	70.59		II.		4	22 27.86	2.188	70.25		II.
	5	23 14.17	2.304	71.82		II.		5	23 19.42	2.112	69.00		II.
	7	0 9.76	2.315	71.97		II.		7	0 9.34	2.056	68.11		II.
	8	1 4.75	2.256	71.09		I.		8	0 58.42	2.043	67.91		I.
	9	1 57.74	2.156	69.58		I.		9	1 47.77	2.080	68.54		I.
	10	2 48.12	2.050	67.99		I.		10	2 38.63	2.168	69.98		I.
	11	3 36.35	1.971	66.79	166 .. 169	I.		11	3 32.13	2.295	72.01	13 .. 16	I.
	12	4 23.13	1.938	66.29	171 .. 174	I.		12	4 28.86	2.432	74.14	20 .. 23	I.
	13	5 9.78	1.959	66.68	3 .. 6	I.		13	5 28.56	2.532	75.67	28 .. 31	I.
	14	5 57.63	2.040	68.01	7 .. 10	I.		14	6 29.77	2.552	75.97	34 .. 37	I.
	15	6 48.12	2.178	70.16	11 .. 14	I.		15	7 30.33	2.474	74.76	40 .. 43	I.
	16	7 42.43	2.352	72.77	18 .. 21	I.		16	8 27.91	2.316	72.35	50 .. 53	I.
	17	8 40.93	2.517	75.17	25 .. 28	I.		17	9 21.27	2.131	69.43	60 .. 63	I.
	18	9 42.74	2.616	76.55	32 .. 35	I.		18	10 10.29	1.958	66.60	67 .. 70	I.
	19	10 45.63	2.600	76.26	38 .. 41	I.		19	10 55.53	1.820	64.26	73 .. 76	I.
	20	11 46.67	2.468	74.30	45 .. 48	I.		20	11 37.99	1.726	62.66	82 .. 85	I.
	21	12 43.59	2.260	71.31	58 .. 61	I.		21	12 18.76	1.680	61.85	85 .. 88	I.
	22	13 35.50	2.061	68.11	66 .. 64	II.		22	12 58.97	1.677	61.83	95 .. 98	II.
	23	14 22.74	1.885	65.33	72 .. 75	II.		23	13 39.59	1.715	62.55	102 .. 105	II.
	24	15 6.35	1.758	63.27	81 .. 84	II.		24	14 21.60	1.791	63.89	107 .. 110	II.
	25	15 47.55	1.684	62.08	84 .. 87	II.		25	15 5.78	1.895	65.69	110 .. 113	II.
	26	16 27.61	1.662	61.77	93 .. 96	II.		26	15 52.66	2.013	67.68	115 .. 118	II.
	27	17 7.73	1.690	62.29	100 .. 103	II.		27	16 42.37	2.126	69.55	124 .. 127	II.
	28	17 49.08	1.763	63.56	106 .. 109	II.		28	17 34.49	2.209	70.87	130 .. 133	II.
	29	18 32.66	1.875	65.43	109 .. 112	II.		29	18 28.02	2.243	71.42	136 .. 139	II.
	30	19 19.29	2.016	67.65	114 .. 117	II.		30	19 21.75	2.226	71.12	144 .. 147	II.
	31	20 9.31	2.155	69.84	123 .. 126	II.		31	20 14.59	2.172	70.23	155 .. 153	II.
	Feb.	1	21 2.50	2.270	71.53	129 .. 132		II.	Apr.	1	21 5.94	2.108	69.15	156 .. 159	II.
2		21 57.81	2.325	72.31		II.	2	21 55.90		2.059	68.32		II.
3		22 53.58	2.309	72.02		II.	3	22 45.07		2.046	68.06		II.
4		23 48.22	2.236	70.85		II.	4	23 34.54		2.085	68.63		II.
6		0 40.71	2.138	69.30		I.	6	0 25.57		2.176	70.05		I.
7		1 30.90	2.049	67.92		I.	7	1 19.33		2.313	72.18		I.
8		2 19.30	1.993	67.10		I.	8	2 16.74		2.470	74.59		I.
9		3 6.95	1.988	67.07	1 .. 4	I.	9	3 17.66		2.596	76.54	26 .. 29	I.
10		3 55.12	2.037	67.93	6 .. 9	I.	10	4 20.72		2.639	77.21	32 .. 35	I.
11		4 45.11	2.138	69.69	10 .. 13	I.	11	5 23.47		2.566	76.19	38 .. 41	I.
12		5 38.06	2.280	71.80	16 .. 19	I.	12	6 23.19		2.399	73.71	46 .. 49	I.
13		6 34.56	2.427	74.02	22 .. 25	I.	13	7 18.30		2.192	70.54	58 .. 61	I.
14		7 34.22	2.532	75.55	30 .. 33	I.	14	8 8.48		1.996	67.36	66 .. 69	I.
15		8 35.44	2.549	75.73	36 .. 39	I.	15	8 54.38		1.838	64.76	71 .. 74	I.
16		9 35.81	2.463	74.38	42 .. 45	I.	16	9 37.09		1.729	62.86	80 .. 83	I.
17		10 33.07	2.301	71.87	53 .. 56	I.	17	10 17.79		1.671	61.78	84 .. 87	I.
18		11 26.03	2.113	68.93	61 .. 64	I.	18	10 57.66		1.659	61.52	91 .. 94	I.
19		12 14.58	1.940	66.16	68 .. 71	I.	19	11 37.77		1.691	62.06	98 .. 101	I.
20		12 59.43	1.805	63.96	77 .. 80	II.	20	12 19.10		1.759	63.29	105 .. 108	II.
21		13 41.60	1.718	62.53	83 .. 86	II.	21	13 2.44		1.857	64.97	109 .. 112	II.
22		14 22.28	1.679	61.92	87 .. 90	II.	22	13 48.37		1.972	66.84	113 .. 116	II.
23		15 2.57	1.686	62.11	95 .. 98	II.	23	14 37.07		2.083	68.67	122 .. 125	II.
24		15 43.56	1.737	63.05	103 .. 106	II.	24	15 28.16		2.167	70.08	128 .. 131	II.
25		16 26.23	1.825	64.63	108 .. 111	II.	25	16 20.74		2.204	70.73	134 .. 137	II.
26		17 11.41	1.942	66.62	111 .. 114	II.	26	17 13.57		2.189	70.53	142 .. 145	II.
27		17 59.59	2.075	68.76	121 .. 124	II.	27	18 5.52		2.135	69.70	149 .. 152	II.
28		18 50.92	2.196	70.62	126 .. 129	II.	28	18 55.96		2.068	68.62	154 .. 157	II.
29		19 44.67	2.274	71.80	132 .. 135	II.	29	19 44.86		2.012	67.69	159 .. 162	II.
30		20 39.65	2.296	72.06	140 .. 143	II.	30	20 32.80		1.991	67.30	166 .. 169	II.
31		21 34.44	2.260	71.43	147 .. 150	II.	31	21 20.79		2.018	67.69	172 .. 1	II.

MOON-CULMINATIONS, 1875. 331

WASHINGTON MERIDIAN.

Date.		Mean Time of Meridian Transit.	Diff. for 1 h. of Long.	Sidereal Time of Semid. passing Merid.	Stars.	Bright Limb.	Date.	Mean Time of Meridian Transit.	Diff. for 1 h. of Long.	Sidereal Time of Semid. passing Merid.	Stars.	Bright Limb.	
1875.							1875.						
		h m	in	s			h m	m	s				
May	1	21 20.79	2.018	67.69	172 .. 1	II.	July	1	23 32.09	2.766	78.75		II.
	2	22 10.12	2.104	68.99		II.		3	0 37.48	2.655	77.18		I.
	3	23 2.22	2.248	71.19		II.		4	1 38.73	2.438	73.99		I.
	4	23 58.32	2.434	73.95		II.		5	2 34.26	2.193	70.35		I.
	6	0 58.99	2.618	76.67		I.		6	3 24.23	1.980	67.04	69 .. 72	I.
	7	2 3.40	2.729	78.35		I.		7	4 9.73	1.822	64.53	79 .. 82	I.
	8	3 9.03	2.711	78.14		I.		8	4 52.23	1.728	62.96	83 .. 86	I.
	9	4 12.55	2.561	76.04	42 .. 45	I.		9	5 33.14	1.691	62.34	91 .. 94	I.
	10	5 11.35	2.332	72.72	54 .. 57	I.		10	6 13.79	1.705	62.59	97 .. 100	I.
	11	6 4.44	2.100	69.14	62 .. 65	I.		11	6 55.32	1.767	63.58	104 .. 107	I.
	12	6 52.43	1.908	65.99	69 .. 72	I.		12	7 38.77	1.862	65.16	109 .. 112	I.
	13	7 36.44	1.769	63.61	78 .. 81	I.		13	8 24.86	1.981	67.07	113 .. 116	I.
	14	8 17.74	1.683	62.12	83 .. 86	I.		14	9 13.88	2.101	68.92	123 .. 125	I.
	15	8 57.61	1.650	61.52	87 .. 90	I.		15	10 5.50	2.192	70.28	128 .. 131	I.
	16	9 37.33	1.667	61.75	96 .. 99	I.		16	10 58.69	2.228	70.79	134 .. 137	I.
	17	10 17.98	1.727	62.72	103 .. 106	I.		17	11 52.00	2.202	70.35	142 .. 145	I.
	18	11 0.50	1.821	64.26	108 .. 111	I.		18	12 44.02	2.127	69.18	149 .. 152	II.
	19	11 45.56	1.937	66.15	111 .. 114	I.		19	13 33.94	2.031	67.69	154 .. 157	II.
	20	12 33.48	2.055	68.06	119 .. 122	II.		20	14 21.57	1.943	66.33	159 .. 162	II.
	21	13 24.00	2.148	69.58	126 .. 129	II.		21	15 7.46	1.888	65.49	166 .. 169	II.
	22	14 16.25	2.196	70.37	132 .. 135	II.		22	15 52.56	1.880	65.42	172 .. 1	II.
	23	15 8.96	2.187	70.27	140 .. 143	II.		23	16 38.13	1.928	66.25	3 .. 6	II.
	24	16 0.80	2.128	69.43	146 .. 149	II.		24	17 25.57	2.035	68.01	8 .. 11	II.
	25	16 50.91	2.047	68.20	153 .. 156	II.		25	18 16.25	2.199	70.59	12 .. 15	II.
	26	17 39.10	1.973	67.03	157 .. 160	II.		26	19 11.39	2.400	73.61	19 .. 22	II.
	27	18 25.82	1.928	66.32	164 .. 167	II.		27	20 11.33	2.588	76.32	26 .. 29	II.
	28	19 11.98	1.926	66.31	170 .. 173	II.		28	21 14.97	2.634	77.80		II.
	29	19 58.86	1.988	67.32	2 .. 5	II.		29	22 19.66	2.669	77.39		II.
	30	20 47.92	2.112	69.14	6 .. 9	II.		30	23 22.15	2.519	75.17		II.
	31	21 40.66	2.295	71.90		II.		Aug. 1	0 20.08	2.305	71.96		I.
	June	22	22 38.30	2.513	75.11			II.	2	1 12.75	2.091	68.67		I.
2		23 41.05	2.705	77.88		II.	3	2 0.72	1.916	65.92		I.	
4		0 47.34	2.791	79.12		I.	4	2 45.13	1.795	64.00	82 .. 85	I.	
5		1 53.87	2.722	78.18		I.	5	3 27.35	1.732	62.97	86 .. 89	I.	
6		2 57.00	2.523	75.35		I.	6	4 8.69	1.721	62.84	95 .. 98	I.	
7		3 54.54	2.272	71.65	59 .. 62	I.	7	4 50.33	1.757	63.50	102 .. 105	I.	
8		4 46.13	2.036	68.05	67 .. 70	I.	8	5 33.33	1.833	64.80	107 .. 110	I.	
9		5 32.68	1.855	65.12	73 .. 76	I.	9	6 18.55	1.939	66.54	111 .. 114	I.	
10		6 15.63	1.735	63.10	82 .. 85	I.	10	7 6.48	2.055	68.40	119 .. 122	I.	
11		6 56.41	1.673	62.02	85 .. 88	I.	11	7 57.10	2.158	69.98	125 .. 128	I.	
12		7 36.36	1.665	61.85	94 .. 97	I.	12	8 49.76	2.220	70.86	131 .. 134	I.	
13		8 16.72	1.706	62.50	102 .. 105	I.	13	9 43.25	2.225	70.87	139 .. 142	I.	
14		8 58.56	1.787	63.81	106 .. 109	I.	14	10 36.16	2.175	70.04	146 .. 149	I.	
15		9 42.74	1.899	65.60	110 .. 113	I.	15	11 27.41	2.092	68.70	153 .. 156	I.	
16		10 29.79	2.022	67.57	115 .. 118	I.	16	12 16.55	2.005	67.29	156 .. 159	I.	
17		11 19.70	2.133	69.27	123 .. 126	I.	17	13 8.83	1.940	66.26	146 .. 167	II.	
18		12 11.84	2.201	70.32	130 .. 133	I.	18	13 49.96	1.913	65.85	170 .. 173	II.	
19		13 4.89	2.208	70.45	137 .. 140	II.	19	14 36.03	1.936	66.29	2 .. 5	II.	
20		13 57.38	2.158	69.71	144 .. 147	II.	20	15 23.31	2.013	67.61	6 .. 9	II.	
21		14 48.19	2.072	68.40	150 .. 153	II.	21	16 13.10	2.145	69.76	11 .. 14	II.	
22		15 36.78	1.980	67.00	156 .. 159	II.	22	17 6.57	2.315	72.41	17 .. 20	II.	
23		16 23.37	1.908	65.90	162 .. 165	II.	23	18 4.24	2.488	74.98	23 .. 26	II.	
24		17 8.70	1.878	65.45	167 .. 170	II.	24	19 5.56	2.606	76.71	30 .. 33	II.	
25		17 53.94	1.902	65.85	174 .. 3	II.	25	20 8.54	2.620	76.94	36 .. 39	II.	
26		18 40.47	1.986	67.21	5 .. 8	II.	26	21 10.44	2.519	75.40	44 .. 47	II.	
27		19 29.78	2.136	69.54	9 .. 12	II.	27	22 8.86	2.341	72.60		II.	
28		20 23.32	2.339	72.60	14 .. 17	II.	28	23 2.64	2.143	69.50		II.	
29		21 22.14	2.560	75.81	21 .. 24	II.	29	23 51.91	1.970	66.74		II.	
30		22 25.82	2.725	78.20		II.	31	0 37.53	1.841	64.66		I.	
31		23 32.09	2.766	78.75		II.	32	1 20.69	1.764	63.39		I.	

332 MOON-CULMINATIONS, 1875.

WASHINGTON MERIDIAN.													
Date. 1875.	Mean Time of Meridian Transit.	Diff. for 1 h. of Long.	Sidereal Time of Semid. passing Merid.	Stars.	Bright Limb.	Date. 1875.	Mean Time of Meridian Transit.	Diff. for 1 h. of Long.	Sidereal Time of Semid. passing Merid.	Stars.	Bright Limb.		
Sept.	1	20.69	1.764	63.39		Nov.	1	24.35	2.114	69.20	124 .. 127	I.	
	2	2 2.60	1.737	62.98	91 .. 94		I.	2	3 15.66	2.153	69.88	130 .. 133	I.
	3	2 44.41	1.755	63.37	98 .. 101		I.	3	4 7.31	2.142	69.78	137 .. 140	I.
	4	3 27.17	1.814	64.42	106 .. 109		I.	4	4 58.16	2.090	69.00	144 .. 147	I.
	5	4 11.71	1.903	65.96	108 .. 112		I.	5	5 47.45	2.017	67.86	151 .. 154	I.
	6	4 58.63	2.009	67.72	114 .. 117		I.	6	6 34.99	1.948	66.74	155 .. 158	I.
	7	5 48.09	2.110	69.35	122 .. 125		I.	7	7 21.14	1.904	65.99	161 .. 164	I.
	8	6 39.70	2.183	70.49	129 .. 131		I.	8	8 6.72	1.903	65.91	167 .. 170	I.
	9	7 32.54	2.210	70.86	135 .. 138		I.	9	8 52.88	1.954	66.69	173 .. 2	I.
	10	8 25.37	2.185	70.40	143 .. 146		I.	10	9 40.99	2.066	68.41	4 .. 7	I.
	11	9 17.12	2.123	69.36	150 .. 153		I.	11	10 32.50	2.239	71.06	9 .. 12	I.
	12	10 7.16	2.048	68.12	155 .. 158		I.	12	11 28.76	2.456	74.29	14 .. 17	I.
	13	10 55.50	1.985	67.06	161 .. 164		I.	13	12 30.28	2.665	77.36	22 .. 25	II
	14	11 42.69	1.954	66.53	167 .. 170		I.	14	13 36.02	2.790	79.22	30 .. 33	II.
	15	12 29.66	1.968	66.76	173 .. 2		II.	15	14 43.08	2.768	78.94	36 .. 39	II
	16	13 17.59	2.035	67.87	5 .. 8		II.	16	15 47.71	2.597	76.59	44 .. 47	II.
	17	14 7.73	2.153	69.78	9 .. 12		II.	17	16 47.22	2.355	73.05	56 .. 59	II.
	18	15 1.21	2.310	72.27	14 .. 17		II.	18	17 40.80	2.116	69.39	66 .. 67	II.
	19	15 58.63	2.473	74.77	21 .. 24		II.	19	18 29.14	1.922	66.28	70 .. 73	II.
	20	16 50.55	2.591	76.55	29 .. 32		II.	20	19 13.55	1.790	64.05	79 .. 82	II.
	21	18 2.25	2.612	76.89	34 .. 37		II.	21	19 55.52	1.717	62.76	84 .. 87	II.
	22	19 4.11	2.523	75.56	40 .. 43		II.	22	20 36.40	1.698	62.38	90 .. 93	II.
	23	20 2.75	2.355	72.99	52 .. 55		II.	23	21 17.43	1.726	62.81	98 .. 101	II.
	24	20 56.92	2.161	69.95	61 .. 64		II.	24	21 59.66	1.797	63.93		II.
	25	21 46.58	1.984	67.10	68 .. 71		II.	25	22 43.91	1.895	65.48		II.
	26	22 32.51	1.851	64.87			II.	26	23 30.67	2.001	67.19		II.
	27	23 15.85	1.768	63.44			II.	28	0 19.84	2.093	68.67		I.
	28	23 57.77	1.733	62.83			II.	29	1 10.84	2.147	69.56		I.
	29	0 39.40	1.743	63.02			I.	30	2 2.49	2.147	69.60		I.
	Oct. 1	1 21.75	1.792	63.90			I.	Dec. 1	2 53.50	2.096	68.89	142 .. 145	I.
2	2 5.67	1.873	65.30		I.	2	3 42.85	2.013	67.65	148 .. 151	I.		
3	2 51.77	1.971	66.94	111 .. 114	I.	3	4 30.11	1.927	66.31	153 .. 156	I.		
4	3 40.25	2.067	68.54	120 .. 123	I.	4	5 15.50	1.860	65.24	157 .. 160	I.		
5	4 30.80	2.141	69.80	126 .. 129	I.	5	5 59.68	1.830	64.76	165 .. 168	I.		
6	5 22.73	2.176	70.41	132 .. 135	I.	6	6 43.75	1.851	65.10	170 .. 173	I.		
7	6 14.88	2.162	70.19	140 .. 143	I.	7	7 29.01	1.932	66.38	2 .. 5	I.		
8	7 6.21	2.110	69.36	147 .. 150	I.	8	8 17.02	2.080	68.71	7 .. 10	I.		
9	7 56.06	2.043	68.24	153 .. 156	I.	9	9 9.33	2.292	71.91	11 .. 14	I.		
10	8 44.34	1.984	67.21	157 .. 160	I.	10	10 7.27	2.540	75.54	17 .. 20	I.		
11	9 31.50	1.953	66.64	164 .. 167	I.	11	11 11.00	2.759	78.68	26 .. 29	I.		
12	10 18.42	1.965	66.77	170 .. 173	I.	12	12 18.81	2.860	80.10	32 .. 35	I.		
13	11 6.22	2.028	67.77	2 .. 5	I.	13	13 26.98	2.786	79.08	39 .. 42	II.		
14	11 56.21	2.148	69.65	7 .. 10	I.	14	14 31.47	2.571	76.06	50 .. 53	II.		
15	12 49.68	2.315	72.23	11 .. 14	II.	15	15 29.98	2.307	72.20	60 .. 63	II.		
16	13 47.45	2.499	75.04	18 .. 21	II.	16	16 22.34	2.067	68.54	68 .. 71	II.		
17	14 49.33	2.645	77.24	26 .. 29	II.	17	17 9.62	1.886	65.67	76 .. 79	II.		
18	15 53.66	2.691	77.99	32 .. 35	II.	18	17 53.40	1.773	63.78	83 .. 86	II.		
19	16 57.54	2.698	76.83	38 .. 41	II.	19	18 35.19	1.720	62.89	86 .. 89	II.		
20	17 58.11	2.427	74.18	47 .. 50	II.	20	19 16.40	1.723	62.90	96 .. 99	II.		
21	18 53.78	2.212	70.88	59 .. 62	II.	21	19 58.27	1.773	63.69	104 .. 107	II.		
22	19 44.40	2.014	67.71	66 .. 69	II.	22	20 41.76	1.857	65.04	108 .. 111	II.		
23	20 30.78	1.861	65.17	72 .. 75	II.	23	21 27.57	1.963	66.68	111 .. 114	II.		
24	21 14.13	1.762	63.44	81 .. 84	II.	24	22 15.96	2.066	68.26		II.		
25	21 55.76	1.716	62.59		II.	25	23 6.49	2.139	69.39		II.		
26	22 36.87	1.717	62.60		II.	26	23 58.22	2.161	69.74		II.		
27	23 18.51	1.760	63.32		II.	29	0 49.80	2.126	69.19		I.		
29	0 1.61	1.837	64.56		I.	29	1 39.96	2.048	67.96		I.		
30	0 46.86	1.935	66.19		I.	30	2 27.95	1.951	66.48		I.		
31	1 34.51	2.034	67.86		I.	31	3 13.67	1.863	65.12	156 .. 159	I.		
32	2 24.35	2.114	69.20	124 .. 127	I.	32	3 57.61	1.806	64.22	163 .. 166	I.		

MOON-CULMINATING STARS. 333

MEAN PLACES FOR 1875.0.

No.	Name,	Magni- tude.	Right Ascension.			Annual Variation.	Declination.			Annual Variation.	
			h	m	s		°	'	"		
1	δ Piscium . . .	6.5	0	14	10.04	+3.086	+	7	29	46.3	+20.06
2	44 Piscium . . .	6	0	18	59.78	3.075	+	1	14	51.6	19.99
3	10 Ceti . . .	6	0	20	12.76	3.077	-	0	44	32.1	19.98
4	δ Piscium . . .	4.5	0	42	11.88	3.108	+	6	54	16.7	19.71
5	ϵ PISCIMUM . . .	4	0	56	27.42	3.109		7	13	0.5	19.48
6	ζ^1 Piscium . . .	5.4	1	7	12.09	+3.131	+	6	54	49.9	+19.14
7	μ Piscium . . .	5	1	23	38.18	3.139		5	29	51.1	18.56
8	η PISCIMUM . . .	4.3	1	24	47.72	3.200		14	42	3.8	18.72
9	ν Piscium . . .	5.4	1	34	55.64	3.119		4	51	03.6	18.33
10	\omicron PISCIMUM . . .	4	1	38	47.72	3.163		8	31	40.4	18.26
11	ξ^1 CETI . . .	4.5	2	6	22.51	+3.169	+	8	15	33.7	+17.07
12	ξ^2 Ceti . . .	4	2	21	30.92	3.184		7	53	55.7	16.35
13	μ Ceti . . .	4	2	38	11.20	3.235		9	35	5.8	15.42
14	π Arietis . . .	6.5	2	42	19.15	3.339		16	58	37.5	15.27
15	ϵ Arietis . . .	4.5	2	52	4.09	3.422		20	50	20.8	14.67
16	λ Ceti . . .	6.5	2	53	1.39	+3.215	+	8	24	31.2	+14.62
17	δ Arietis . . .	4.5	3	4	29.06	3.422		19	15	9.1	13.91
18	ζ ARIETIS . . .	4.5	3	7	43.14	3.437		20	34	48.2	13.64
19	f Tauri . . .	4	3	23	58.55	3.307		12	30	23.3	12.63
20	η TAURI . . .	3	3	40	3.36	3.554		23	43	0.9	11.45
21	ϵ Tauri . . .	5	3	41	25.00	+3.281	+	10	45	24.3	+11.35
22	λ Tauri . . .	3.4	3	53	45.40	3.317		12	8	8.2	10.51
23	A^1 Tauri . . .	5.4	3	57	18.41	3.537		21	44	18.2	10.17
24	γ TAURI . . .	4	4	12	40.87	3.407		15	19	27.1	9.05
25	υ^1 Tauri . . .	5.4	4	18	49.79	3.582		22	31	42.1	8.54
26	ϵ TAURI . . .	4.3	4	21	19.13	+3.496	+	18	54	5.7	+ 8.36
27	α TAURI . . .	1	4	28	44.97	3.436		16	15	22.9	7.61
28	τ Tauri . . .	4.5	4	34	44.67	3.595		22	42	55.4	7.29
29	ι Tauri . . .	5	4	55	37.57	3.583		21	24	33.8	5.53
30	11 ORIONIS . . .	5	4	57	25.70	3.425		15	13	41.8	5.39
31	\omicron Tauri . . .	6	5	20	7.68	+3.603	+	21	49	41.7	+ 3.50
32	119 Tauri . . .	6.5	5	24	53.22	3.517		18	29	57.2	3.07
33	ζ Tauri . . .	3.4	5	30	10.60	3.586		21	3	51.7	2.58
34	χ^1 Orionis . . .	5.4	5	46	58.84	3.552		20	15	2.9	+ 1.04
35	ν Orionis . . .	5.4	6	0	26.19	3.428		14	46	52.5	- 0.06
36	η Geminorum . . .	3.4	6	7	19.96	+3.624	+	22	32	27.1	- 0.65
37	μ GEMINORUM . . .	3	6	15	23.93	3.633		22	34	32.8	1.45
38	γ GEMINORUM . . .	2.3	6	30	29.46	3.469		16	30	15.1	2.69
39	ξ Geminorum . . .	4.3	6	38	16.57	3.373		13	1	42.0	3.50
40	ζ Geminorum . . .	4	6	56	41.72	3.565		20	45	6.2	4.93
41	λ Geminorum . . .	4.3	7	10	54.65	+3.456	+	16	45	51.0	- 6.11
42	δ GEMINORUM . . .	3.4	7	12	39.43	3.590		22	12	38.6	6.25
43	63 Geminorum . . .	6.5	7	20	19.22	3.570		21	41	57.8	6.96
44	6 Canis Minoris . . .	6.5	7	22	50.48	+3.346	+	12	15	50.0	- 7.09

334 MOON-CULMINATING STARS.

MEAN PLACES FOR 1875.0.

No.	Name.	Magni- tude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
45	68 Geminorum . . .	6.5	^h 7 ^m 26 ^s 28.45	+3.431	+16° 5' 38.8	- 7.35
46	f Geminorum . . .	6	7 32 15.52	3.475	17 57 25.8	7.85
47	1 Cancri . . .	6	7 49 53.70	3.417	16 7 21.2	9.25
48	5 Cancri . . .	6	7 54 22.78	3.427	16 47 54.4	9.56
49	8 Cancri . . .	6	7 58 6.72	3.351	13 28 22.1	9.94
50	μ ² Cancri . . .	5	8 0 24.47	+3.542	+21 56 41.4	-10.08
51	12 Cancri . . .	6	8 1 43.25	3.360	14 0 10.1	10.21
52	ζ ¹ Cancri . . .	5.4	8 5 2.59	3.452	18 1 23.4	10.52
53	d ¹ Cancri . . .	6	8 16 12.35	3.447	18 43 55.4	11.23
54	29 Cancri . . .	6	8 21 38.87	3.357	14 37 21.2	11.69
55	θ Cancri . . .	6	8 24 28.06	+3.432	+18 30 55.7	-11.87
56	c ¹ Cancri . . .	6	8 30 18.85	3.257	10 5 22.4	12.23
57	39 Cancri . . .	6	8 32 54.78	3.459	20 26 50.5	12.43
58	δ Cancri . . .	4	8 37 34.84	3.421	18 36 44.0	12.97
59	A ² Cancri . . .	6	8 40 4.83	3.295	12 34 1.4	12.95
60	α Cancri . . .	4	8 51 39.01	+3.290	+12 20 25.1	-13.69
61	κ Cancri . . .	5	9 0 58.51	3.255	11 10 12.8	14.22
62	π ² Cancri . . .	6	9 8 19.71	3.322	15 27 33.6	14.66
63	ω Leonis . . .	6	9 21 45.84	3.220	9 35 57.8	15.51
64	h Leonis . . .	6	9 25 15.54	3.225	10 15 55.8	15.70
65	10 Leonis . . .	5.6	9 30 36.78	+3.174	+ 7 23 45.2	-15.92
66	o Leonis . . .	4.3	9 34 29.13	3.225	10 27 35.2	16.20
67	B. A. C. 3336 . . .	5.6	9 39 34.43	3.169	7 17 6.8	16.41
68	π Leonis . . .	5	9 53 36.53	3.179	8 38 34.6	17.11
69	α LEONIS . . .	1.2	10 1 42.85	3.203	12 34 39.4	17.42
70	43 Leonis . . .	6	10 16 28.05	+3.144	+ 7 10 35.8	-18.14
71	45 Leonis . . .	6	10 21 2.75	3.176	10 23 54.5	18.23
72	ρ LEONIS . . .	4	10 26 13.76	3.166	9 56 57.4	18.40
73	34 Sextantis . . .	6	10 36 10.16	3.103	4 14 6.7	18.74
74	l LEONIS . . .	5	10 42 41.13	3.159	11 12 23.0	18.93
75	55 Leonis . . .	6	10 49 16.74	+3.092	+ 1 24 12.8	-19.10
76	d Leonis . . .	5	10 54 6.29	3.102	4 17 16.3	19.28
77	c Leonis . . .	5	10 54 16.10	3.117	6 46 20.4	19.27
78	χ Leonis . . .	5	10 58 34.16	3.101	8 0 39.0	19.42
79	ρ ² Leonis . . .	5	11 7 22.16	3.085	+ 0 36 36.0	19.58
80	φ Leonis . . .	5.4	11 10 18.44	+3.053	- 2 58 8.0	-19.63
81	σ Leonis . . .	4	11 14 41.43	3.097	+ 6 42 50.0	19.68
82	79 Leonis . . .	6	11 17 37.53	3.084	+ 2 5 35.8	19.74
83	υ LEONIS . . .	5.4	11 30 32.97	3.072	- 0 8 0.9	19.84
84	β Virginis . . .	3.4	11 44 11.09	3.127	+ 2 28 7.8	20.29
85	10 Virginis . . .	6	12 3 16.96	+3.074	+ 2 35 57.5	-20.28
86	γ VIRGINIS . . .	3.4	12 13 30.68	3.068	+ 0 1 41.6	20.03
87	q Virginis . . .	6	12 27 19.76	3.092	- 8 45 43.6	19.89
88	f Virginis . . .	6	12 30 21.20	+3.086	- 5 8 39.3	-19.97

MOON-CULMINATING STARS. 335

MEAN PLACES FOR 1875.0.

No.	Name.	Magni- tude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
			h m s		° ' "	
89	χ Virginis . . .	5	12 32 48.11	+3.095	- 7 18' 25.0	-19.89
90	γ Virginis . . .	3.2	12 35 19.71	3.041	0 45 49.8	19.83
91	28 Virginis . . .	6	12 35 30.08	3.100	6 48 41.7	19.83
92	38 Virginis . . .	6	12 46 47.32	3.073	2 52 24.8	19.67
93	ψ Virginis . . .	5	12 47 51.33	3.118	8 51 34.6	19.64
94	k Virginis . . .	6	12 53 13.37	+3.089	- 3 8 9.3	-19.48
95	48 Virginis . . .	6	12 57 27.97	3.086	2 59 22.0	19.45
96	θ VIRGINIS . . .	4.5	13 3 28.78	3.101	4 52 15.2	19.31
97	α VIRGINIS . . .	1	13 18 36.60	3.153	10 30 28.6	18.90
98	β Virginis . . .	5	13 25 28.22	3.118	5 36 35.4	18.73
99	h Virginis . . .	5	13 26 23.18	+3.153	- 9 31 13.1	-18.69
100	m Virginis . . .	6	13 35 3.18	3.143	8 4 19.0	18.34
101	83 Virginis . . .	6	13 37 45.42	3.228	15 33 2.9	18.32
102	86 Virginis . . .	6	13 39 16.81	3.189	11 47 57.9	18.20
103	89 Virginis . . .	5	13 43 4.94	3.250	17 30 39.1	18.11
104	94 Virginis . . .	6	13 59 40.77	+3.169	- 8 17 39.1	-17.36
105	κ Virginis . . .	4.5	14 6 13.92	3.198	9 41 31.8	17.08
106	λ Virginis . . .	5.4	14 12 20.97	3.240	12 47 41.2	16.78
107	ρ Libræ . . .	6	14 16 42.11	3.220	11 8 32.8	16.68
108	ϵ Libræ . . .	6	14 39 4.38	+3.300	-14 55 54.9	-15.44
109	α^2 LIBRÆ . . .	2.3	14 43 57.93	3.307	15 31 14.5	15.19
110	γ^1 Libræ . . .	5.4	15 5 6.03	3.411	19 19 1.1	13.88
111	ζ^1 Libræ . . .	4	15 21 12.66	3.377	16 16 45.2	12.85
112	γ Libræ . . .	4.5	15 28 32.12	+3.347	-14 22 15.3	-12.29
113	θ Libræ . . .	5.4	15 46 42.76	3.413	16 21 38.8	10.89
114	δ SCORPII . . .	2.3	15 52 56.67	3.537	22 15 48.7	10.55
115	β^1 SCORPII . . .	2	15 58 10.22	3.478	19 27 40.9	10.18
116	ν Scorpii . . .	4	16 4 44.03	+3.481	-19 8 1.1	- 9.64
117	σ Scorpii . . .	3.4	16 13 35.60	3.637	25 17 26.0	8.98
118	ψ Ophiuchi . . .	5	16 16 47.42	3.504	19 44 34.5	8.78
119	χ Ophiuchi . . .	6	16 19 46.89	3.471	18 10 13.7	8.49
120	α SCORPII . . .	1.2	16 21 44.75	+3.669	-26 9 8.5	- 8.36
121	ω Ophiuchi . . .	5	16 24 43.78	3.549	21 11 50.2	8.02
122	B. A. C. 5579 . . .	5	16 34 20.72	3.463	17 29 52.6	7.29
123	20 Ophiuchi . . .	5	16 42 55.21	3.314	10 33 35.3	6.70
124	29 Ophiuchi . . .	6	16 54 32.55	+3.504	-18 41 54.5	- 5.64
125	η Ophiuchi . . .	2.3	17 3 12.64	3.436	15 34 3.9	4.80
126	ν Serpentis . . .	5.4	17 13 47.85	3.372	12 43 2.9	3.99
127	θ Ophiuchi . . .	3.4	17 14 20.09	3.682	24 52 21.5	4.02
128	ξ Serpentis . . .	4.3	17 30 25.79	+3.434	-15 19 3.1	- 2.63
129	ν Serpentis . . .	5.4	17 34 23.39	3.370	12 48 22.5	2.26
130	4 Sagittarii . . .	5	17 52 9.64	3.661	23 48 7.4	- 0.70
131	μ^1 SAGITTARII . . .	4	18 6 17.27	+3.586	-21 5 21.0	+ 0.55

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MEAN PLACES FOR 1875.0.

No.	Name.	Magni- tude.	Right Ascension.	Annual Variation.	Declination.	Annual Variation.
			h m s	s	° ' "	
132	21 Sagittarii . .	5	18 17 54.28	+3.573	-20 36 23.0	+ 1.55
133	λ Sagittarii . .	3	18 20 15.42	3.706	25 29 20.4	1.54
134	B. A. C. 6279 . .	5.4	18 22 4.43	3.418	14 38 37.6	1.91
135	24 Sagittarii . .	6	18 26 15.43	3.667	24 7 21.4	2.29
136	ν ¹ Sagittarii . .	5	18 46 37.30	3.625	22 53 46.0	4.06
137	ξ ² Sagittarii . .	4	18 50 16.21	+3.581	-21 16 7.4	+ 4.37
138	ο Sagittarii . .	4	18 57 11.42	3.598	21 55 19.3	4.93
139	π Sagittarii . .	3	19 2 19.68	3.573	21 13 11.3	5.40
140	d SAGITTARIUM . .	5	19 10 19.21	3.513	19 10 20.6	6.10
141	ρ ¹ Sagittarii . .	4	19 14 25.38	3.487	18 4 48.7	6.46
142	υ Sagittarii . .	5.4	19 14 34.14	+3.444	-16 11 17.3	+ 6.37
143	e ² Sagittarii . .	5	19 35 22.07	3.438	16 24 51.6	8.14
144	f Sagittarii . .	5	19 39 4.16	3.505	20 3 32.8	8.38
145	g Sagittarii . .	6.5	19 50 51.65	3.408	15 49 16.6	9.28
146	63 Sagittarii . .	6	19 54 58.39	3.366	13 58 49.4	9.72
147	ξ ² Capricorni . .	6	20 5 28.06	+3.350	-12 58 49.9	+10.28
148	α ² CAPRICORNUM . .	3.4	20 11 7.03	3.333	12 55 49.7	10.87
149	ρ Capricorni . .	5	20 21 43.67	3.430	18 13 29.4	11.65
150	τ ² Capricorni . .	5	20 32 16.84	3.362	15 23 31.3	12.34
151	ε Aquarii . .	4.3	20 40 54.59	+3.256	- 9 57 6.5	+12.93
152	μ AQUARIUM . .	5.4	20 45 54.58	3.240	9 27 2.1	13.26
153	θ Capricorni . .	4	20 58 55.16	3.383	17 43 38.9	14.09
154	ν Aquarii . .	4.5	21 2 46.89	3.273	11 52 34.8	14.36
155	β AQUARIUM . .	3	21 24 58.65	+3.164	- 6 7 10.7	+15.65
156	ξ AQUARIUM . .	5.4	21 31 5.76	3.198	8 24 48.5	15.95
157	λ Capricorni . .	5.6	21 39 48.30	3.237	11 56 28.4	16.44
158	θ AQUARIUM . .	4.5	22 10 14.19	3.170	8 24 17.1	17.78
159	ρ Aquarii . .	5.6	22 13 37.27	+3.163	- 8 26 50.7	+17.98
160	γ Aquarii . .	4.3	22 15 12.04	3.104	2 0 58.1	18.04
161	ζ Aquarii . .	3.4	22 22 23.65	3.091	0 39 30.8	18.32
162	σ Aquarii . .	5.4	22 24 1.78	3.181	11 18 57.7	18.41
163	η AQUARIUM . .	4.3	22 28 55.94	+3.083	- 0 45 39.5	+18.45
164	κ Aquarii . .	5	22 31 16.91	3.112	4 52 19.1	18.48
165	78 Aquarii . .	6	22 48 3.67	3.129	- 7 52 1.1	19.10
166	β Piscium . .	5.4	22 57 31.09	3.057	+ 3 8 50.9	19.31
167	φ Aquarii . .	4.5	23 7 50.97	+3.112	- 6 43 20.2	+19.38
168	γ Piscium . .	4	23 10 41.09	3.110	+ 2 35 59.5	19.63
169	κ Piscium . .	5.4	23 20 31.58	3.078	0 34 17.4	19.66
170	ι PISCIMUM . .	4.5	23 33 31.33	3.085	4 56 56.9	19.48
171	19 Piscium . .	6	23 40 0.54	+3.067	+ 2 47 40.2	+20.00
172	26 Piscium . .	6	23 48 44.27	3.069	6 22 36.8	20.06
173	ω PISCIMUM . .	4	23 52 53.60	3.079	6 10 17.3	19.94
174	c ² Piscium . .	6	23 56 6.59	+3.066	+ 7 47 29.8	+20.02

FOR WASHINGTON MEAN NOON AND MIDNIGHT.

Day of Month.	JANUARY.			FEBRUARY.			MARCH.		
	Semi-diameter.	Horizontal Parallax.	Hourly Diff.	Semi-diameter.	Horizontal Parallax.	Hourly Diff.	Semi-diameter.	Horizontal Parallax.	Hourly Diff.
d 1.0	14 47.5	54 10.3	-0.02	15 1.5	55 1.8	+1.22	15 2.2	55 4.5	+1.35
1.5	14 47.7	54 11.3	+0.18	15 5.7	55 17.4	1.37	15 6.9	55 21.9	1.53
2.0	14 48.6	54 14.5	0.37	15 10.4	55 34.6	1.49	15 12.2	55 41.3	1.70
2.5	14 50.1	54 20.0	0.54	15 15.5	55 53.1	1.59	15 18.0	56 2.6	1.85
3.0	14 52.2	54 27.6	0.70	15 20.8	56 12.6	1.65	15 24.3	56 25.5	1.96
3.5	14 54.7	54 36.9	0.85	15 26.2	56 32.6	1.69	15 30.8	56 49.5	2.04
4.0	14 57.7	54 47.9	0.98	15 31.7	56 52.9	1.69	15 37.5	57 14.2	2.08
4.5	15 1.1	55 0.3	1.09	15 37.2	57 13.0	1.66	15 44.4	57 39.2	2.08
5.0	15 4.8	55 13.8	1.17	15 42.5	57 32.6	1.60	15 51.1	58 3.9	2.04
5.5	15 8.7	55 28.1	1.23	15 47.6	57 51.3	1.52	15 57.6	58 27.8	1.95
6.0	15 12.7	55 43.1	1.27	15 52.4	58 8.8	1.40	16 3.7	58 50.3	1.82
6.5	15 16.9	55 58.6	1.29	15 56.7	58 24.7	-1.26	16 9.3	59 10.9	1.64
7.0	15 21.2	56 14.3	1.30	16 0.6	58 38.9	1.10	16 14.3	59 29.2	1.42
7.5	15 25.5	56 29.9	1.30	16 3.9	58 51.1	0.94	16 18.5	59 44.7	1.17
8.0	15 29.7	56 45.4	1.28	16 6.7	59 1.3	0.77	16 21.9	59 57.0	0.90
8.5	15 33.8	57 0.5	1.24	16 8.9	59 9.4	0.59	16 24.3	60 6.0	0.61
9.0	15 37.8	57 15.1	1.20	16 10.6	59 15.5	0.42	16 25.8	60 11.5	0.32
9.5	15 41.6	57 29.2	1.15	16 11.7	59 19.6	0.26	16 26.4	60 13.6	+0.04
10.0	15 45.3	57 42.6	1.09	16 12.3	59 21.8	+0.11	16 26.1	60 12.4	-0.23
10.5	15 48.8	57 55.4	1.03	16 12.4	59 22.3	-0.02	16 24.9	60 8.1	0.48
11.0	15 52.1	58 7.6	0.98	16 12.1	59 21.2	0.15	16 23.0	60 1.0	0.70
11.5	15 55.2	58 19.0	0.92	16 11.4	59 18.6	0.26	16 20.4	59 51.4	0.89
12.0	15 58.1	58 29.7	0.87	16 10.4	59 14.8	0.36	16 17.2	59 39.7	1.05
12.5	16 0.8	58 39.7	0.81	16 9.0	59 9.9	0.45	16 13.5	59 26.3	1.18
13.0	16 3.3	58 49.0	0.75	16 7.4	59 4.0	0.53	16 9.5	59 11.6	1.27
13.5	16 5.6	58 57.6	0.69	16 5.6	58 57.1	0.61	16 5.3	58 56.0	1.33
14.0	16 7.7	59 5.3	0.61	16 3.5	58 49.3	0.68	16 0.8	58 39.8	1.37
14.5	16 9.6	59 12.1	0.53	16 1.1	58 40.7	0.75	15 56.3	58 23.2	1.40
15.0	16 11.2	59 17.9	0.43	15 58.5	58 31.3	0.82	15 51.8	58 6.4	1.40
15.5	16 12.5	59 22.5	0.33	15 55.7	58 21.0	0.89	15 47.2	57 49.7	1.39
16.0	16 13.4	59 25.7	0.21	15 52.7	58 9.9	0.96	15 42.7	57 33.2	1.37
16.5	16 13.8	59 27.4	+0.07	15 49.4	57 57.9	1.03	15 38.3	57 16.9	1.34
17.0	16 13.8	59 27.3	-0.09	15 45.9	57 45.0	1.10	15 33.9	57 0.9	1.31
17.5	16 13.2	59 25.2	0.26	15 42.2	57 31.4	1.17	15 29.7	56 45.3	1.28
18.0	16 12.1	59 21.0	0.44	15 38.3	57 17.0	1.23	15 25.6	56 30.2	1.25
18.5	16 10.3	59 14.6	0.63	15 34.2	57 2.0	1.28	15 21.5	56 15.4	1.22
19.0	16 7.9	59 5.9	0.81	15 30.0	56 46.5	1.31	15 17.6	56 1.0	1.18
19.5	16 5.0	58 55.0	1.00	15 25.7	56 30.6	1.33	15 13.8	55 47.1	1.14
20.0	16 1.4	58 41.9	1.18	15 21.5	56 14.5	1.34	15 10.1	55 33.6	1.10
20.5	15 57.3	58 26.8	1.34	15 16.9	55 58.4	1.33	15 6.6	55 20.8	1.05
21.0	15 52.7	58 9.9	1.48	15 12.6	55 42.6	1.30	15 3.3	55 8.5	1.00
21.5	15 47.7	57 51.5	1.59	15 8.4	55 27.3	1.25	15 0.2	54 56.9	0.93
22.0	15 42.4	57 31.9	1.67	15 4.5	55 12.7	1.18	14 57.3	54 46.2	0.86
22.5	15 36.8	57 11.5	1.73	15 0.8	54 59.2	1.09	14 54.6	54 36.4	0.78
23.0	15 31.1	56 50.6	1.75	14 57.4	54 46.9	0.97	14 52.2	54 27.7	0.68
23.5	15 25.4	56 29.7	1.73	14 54.5	54 36.2	0.83	14 50.2	54 20.2	0.58
24.0	15 19.8	56 9.2	1.68	14 52.1	54 27.2	0.67	14 48.5	54 14.0	0.46
24.5	15 14.4	55 49.5	1.61	14 50.1	54 20.2	0.50	14 47.2	54 9.4	0.32
25.0	15 9.4	55 31.0	1.51	14 48.8	54 15.3	0.32	14 46.4	54 6.5	0.17
25.5	15 4.8	55 13.9	1.37	14 48.1	54 12.6	-0.12	14 46.1	54 5.4	-0.01
26.0	15 0.6	54 58.5	1.20	14 48.1	54 12.4	+0.08	14 46.4	54 6.3	+0.16
26.5	14 57.0	54 45.2	1.02	14 48.7	54 14.6	0.29	14 47.2	54 9.4	0.35
27.0	14 53.9	54 34.1	0.83	14 50.0	54 19.5	0.51	14 48.7	54 14.7	0.54
27.5	14 51.5	54 25.3	0.63	14 52.0	54 26.9	0.73	14 50.8	54 22.4	0.74
28.0	14 49.9	54 19.1	0.42	14 54.7	54 36.9	0.94	14 53.5	54 32.5	0.94
28.5	14 48.9	54 15.5	-0.20	14 58.1	54 49.5	1.15	14 56.9	54 45.1	1.14
29.0	14 48.6	54 14.5	+0.03	15 2.2	55 4.5	1.35	15 1.0	55 0.0	1.34
29.5	14 49.0	54 16.1	0.25	15 7.0	55 21.9	1.53	15 5.7	55 17.4	1.54
30.0	14 50.2	54 20.4	0.46	15 12.2	55 41.3	1.70	15 11.1	55 37.1	1.73
30.5	14 52.1	54 27.2	0.67	15 18.0	56 2.6	+1.85	15 17.1	55 59.0	1.91
31.0	14 54.7	54 36.5	0.85				15 23.6	56 22.8	2.06
31.5	14 57.8	54 44.1	+1.05		$\Delta s = .272 \Delta \pi$		15 30.5	56 48.4	+2.19

FOR WASHINGTON MEAN NOON AND MIDNIGHT.

Day of Month.	APRIL.			MAY.			JUNE.		
	Semi-diameter.	Horizontal Parallax.	Hourly Diff.	Semi-diameter.	Horizontal Parallax.	Hourly Diff.	Semi-diameter.	Horizontal Parallax.	Hourly Diff.
1.0	15 37.8	57 15.3	+2.29	16 6.0	58 58.5	+2.37	16 37.0	60 52.6	+1.18
1.5	15 45.4	57 43.1	2.34	16 13.5	59 26.3	2.28	16 40.3	61 4.6	0.83
2.0	15 53.1	58 11.2	2.35	16 20.7	59 52.7	2.12	16 42.3	61 12.2	0.45
2.5	16 0.7	58 39.2	2.31	16 27.3	60 16.9	1.91	16 43.1	61 15.1	+0.05
3.0	16 8.1	59 6.3	2.21	16 33.1	60 38.2	1.64	16 42.6	61 13.2	-0.35
3.5	16 15.0	59 31.9	2.06	16 37.9	60 55.8	1.31	16 40.8	61 6.6	0.75
4.0	16 21.4	59 55.3	1.85	16 41.6	61 9.3	0.94	16 37.7	60 55.3	1.13
4.5	16 27.0	60 15.9	1.58	16 44.0	61 18.2	0.54	16 33.5	60 39.6	1.47
5.0	16 31.7	60 33.0	1.28	16 45.0	61 22.1	+0.13	16 28.2	60 20.1	1.76
5.5	16 35.3	60 46.2	0.95	16 44.7	61 21.0	-0.29	16 22.0	59 57.5	2.00
6.0	16 37.7	60 55.1	0.58	16 43.1	61 15.0	0.70	16 15.1	59 32.3	2.19
6.5	16 38.9	60 59.5	+0.10	16 40.2	61 4.3	1.08	16 7.8	59 5.3	2.31
7.0	16 38.9	60 59.4	-0.19	16 36.1	60 49.2	1.42	16 0.1	58 37.2	2.38
7.5	16 37.7	60 54.9	0.55	16 30.9	60 30.3	1.71	15 52.3	58 8.5	2.39
8.0	16 35.3	60 46.2	0.88	16 24.9	60 8.3	1.95	15 44.6	57 40.1	2.36
8.5	16 31.9	60 33.8	1.18	16 18.3	59 43.9	2.12	15 37.0	57 12.3	2.28
9.0	16 27.6	60 18.1	1.43	16 11.2	59 17.7	2.24	15 29.7	56 45.6	2.17
9.5	16 22.6	59 59.7	1.63	16 3.8	58 50.5	2.30	15 22.9	56 20.4	2.03
10.0	16 17.0	59 39.2	1.78	15 56.2	58 22.8	2.31	15 16.5	55 57.0	1.87
10.5	16 11.0	59 17.1	1.89	15 48.7	57 55.2	2.28	15 10.7	55 35.5	1.70
11.0	16 4.7	58 54.1	1.95	15 41.4	57 28.2	2.21	15 5.4	55 16.2	1.52
11.5	15 58.3	58 30.6	1.97	15 34.3	57 2.3	2.11	15 0.7	54 59.1	1.33
12.0	15 51.9	58 7.0	1.95	15 27.6	56 37.7	1.99	14 56.7	54 44.3	1.14
12.5	15 45.6	57 43.9	1.91	15 21.3	56 14.7	1.85	14 53.3	54 31.8	0.95
13.0	15 39.5	57 21.4	1.84	15 15.5	55 53.3	1.70	14 50.5	54 21.5	0.77
13.5	15 33.6	56 59.5	1.76	15 10.2	55 33.8	1.55	14 48.3	54 13.4	0.59
14.0	15 28.0	56 39.3	1.66	15 5.4	55 16.2	1.39	14 46.7	54 7.5	0.41
14.5	15 22.8	56 20.0	1.56	15 1.1	55 0.5	1.23	14 45.6	54 3.6	0.24
15.0	15 17.9	56 1.9	1.45	14 57.3	54 46.7	1.07	14 45.1	54 1.6	-0.09
15.5	15 13.3	55 45.1	1.35	14 54.1	54 34.8	0.92	14 45.1	54 1.5	+0.06
16.0	15 9.1	55 29.6	1.24	14 51.4	54 24.7	0.77	14 45.5	54 3.1	0.19
16.5	15 5.2	55 15.4	1.13	14 49.1	54 16.3	0.63	14 46.4	54 6.2	0.32
17.0	15 1.6	55 2.4	1.03	14 47.3	54 9.6	0.49	14 47.6	54 10.7	0.43
17.5	14 58.4	54 50.7	0.93	14 45.9	54 4.5	0.36	14 49.2	54 16.5	0.53
18.0	14 55.6	54 40.2	0.83	14 44.9	54 0.9	0.24	14 51.1	54 23.5	0.63
18.5	14 53.1	54 30.9	0.72	14 44.3	53 58.8	0.12	14 53.3	54 31.6	0.72
19.0	14 50.9	54 22.8	0.62	14 44.1	53 58.0	-0.01	14 55.8	54 40.8	0.81
19.5	14 49.0	54 15.8	0.53	14 44.3	53 58.5	+0.10	14 58.6	54 51.1	0.89
20.0	14 47.4	54 10.0	0.43	14 44.8	54 0.4	0.21	15 1.6	55 2.3	0.98
20.5	14 46.1	54 5.4	0.33	14 45.6	54 3.5	0.31	15 5.0	55 14.5	1.06
21.0	14 45.2	54 2.1	0.23	14 46.8	54 8.0	0.42	15 8.6	55 27.8	1.14
21.5	14 44.7	54 0.1	-0.12	14 48.4	54 13.8	0.54	15 12.4	55 42.0	1.22
22.0	14 44.6	53 59.4	+0.01	14 50.4	54 21.0	0.66	15 16.8	55 57.1	1.30
22.5	14 44.8	54 0.3	0.14	14 52.8	54 29.7	0.78	15 20.9	56 13.2	1.38
23.0	14 45.4	54 2.8	0.28	14 55.5	54 39.8	0.91	15 25.6	56 30.3	1.46
23.5	14 46.6	54 7.0	0.42	14 58.7	54 51.5	1.04	15 30.5	56 48.2	1.53
24.0	14 48.2	54 13.1	0.58	15 2.3	55 4.8	1.18	15 35.6	57 7.0	1.60
24.5	14 50.4	54 21.1	0.74	15 6.4	55 19.8	1.31	15 40.9	57 26.5	1.65
25.0	14 53.1	54 31.1	0.91	15 10.9	55 36.4	1.45	15 46.4	57 46.7	1.70
25.5	14 56.4	54 43.1	1.09	15 15.9	55 54.7	1.59	15 52.0	58 7.3	1.73
26.0	15 0.2	54 57.2	1.26	15 21.3	56 14.6	1.72	15 57.7	58 28.1	1.74
26.5	15 4.7	55 13.5	1.44	15 27.2	56 36.1	1.85	16 3.3	58 48.9	1.72
27.0	15 9.7	55 31.8	1.62	15 33.4	56 59.0	1.96	16 8.8	59 9.2	1.67
27.5	15 15.3	55 52.5	1.89	15 40.0	57 23.2	2.06	16 14.1	59 28.7	1.58
28.0	15 21.4	56 15.0	1.96	15 46.9	57 48.4	2.14	16 19.0	59 46.9	1.45
28.5	15 28.1	56 39.5	2.10	15 53.9	58 14.3	2.18	16 23.5	60 3.2	1.28
29.0	15 35.2	57 5.5	2.23	16 1.0	58 40.5	2.19	16 27.4	60 17.3	1.07
29.5	15 42.6	57 32.8	2.32	16 8.1	59 6.5	2.15	16 30.5	60 28.6	0.82
30.0	15 50.3	58 1.1	2.38	16 15.0	59 31.8	2.06	16 32.6	60 36.6	0.53
30.5	15 58.2	58 29.9	+2.40	16 21.5	59 55.7	1.92	16 33.8	60 41.0	+0.22
31.0				16 27.5	60 17.6	1.73	16 34.0	60 41.6	-0.12
31.5				16 32.7	60 36.8	+1.48	16 33.1	60 38.1	-0.45

$\Delta s = .272 \Delta \pi$

FOR WASHINGTON MEAN NOON AND MIDNIGHT.

Day of Month.	JULY.			AUGUST.			SEPTEMBER.		
	Semi-diameter.	Horizontal Parallax.	Hourly Diff.	Semi-diameter.	Horizontal Parallax.	Hourly Diff.	Semi-diameter.	Horizontal Parallax.	Hourly Diff.
d 1.0	16 34.0	60 41.6	-0.12	16 3.9	58 51.1	-1.50	15 21.7	56 16.1	-1.55
1.5	16 33.1	60 38.1	0.45	15 58.7	58 32.1	1.66	15 16.7	55 57.8	1.51
2.0	16 31.0	60 30.6	0.79	15 53.1	58 11.5	1.78	15 11.9	55 40.1	1.44
2.5	16 27.9	60 19.2	1.11	15 47.2	57 49.5	1.87	15 7.4	55 23.4	1.35
3.0	16 23.8	60 4.0	1.40	15 41.0	57 26.8	1.91	15 3.2	55 7.9	1.24
3.5	16 18.7	59 45.5	1.66	15 34.7	57 3.8	1.92	14 59.3	54 53.9	1.10
4.0	16 12.9	59 24.3	1.88	15 28.5	56 40.9	1.89	14 56.0	54 41.7	0.94
4.5	16 6.6	59 0.8	2.04	15 22.4	56 18.7	1.82	14 53.3	54 31.5	0.77
5.0	15 59.7	58 35.6	2.15	15 16.6	55 57.4	1.73	14 51.1	54 23.5	0.58
5.5	15 52.5	58 9.3	2.22	15 11.2	55 37.4	1.60	14 49.5	54 17.8	0.37
6.0	15 45.3	57 42.6	2.23	15 6.2	55 19.1	1.45	14 48.6	54 14.6	-0.16
6.5	15 38.0	57 16.0	2.20	15 1.8	55 2.8	1.23	14 48.5	54 14.0	+0.05
7.0	15 30.9	56 50.0	2.13	14 57.9	54 48.6	1.09	14 49.0	54 15.9	0.26
7.5	15 24.2	56 25.1	2.03	14 54.7	54 36.7	0.89	14 50.2	54 20.4	0.47
8.0	15 17.8	56 1.6	1.89	14 52.1	54 27.3	0.68	14 52.1	54 27.5	0.69
8.5	15 11.9	55 39.9	1.73	14 50.2	54 20.4	0.47	14 54.8	54 37.2	0.90
9.0	15 6.5	55 20.3	1.55	14 49.0	54 16.1	0.25	14 58.1	54 49.3	1.10
9.5	15 1.8	55 2.8	1.36	14 48.6	54 14.4	-0.04	15 2.0	55 3.6	1.28
10.0	14 57.7	54 47.7	1.16	14 48.8	54 15.2	+0.16	15 6.4	55 20.0	1.44
10.5	14 54.2	54 35.1	0.96	14 49.7	54 18.5	0.37	15 11.4	55 38.2	1.59
11.0	14 51.4	54 24.9	0.75	14 51.3	54 24.2	0.57	15 16.8	55 58.0	1.71
11.5	14 49.3	54 17.2	0.54	14 53.4	54 32.1	0.75	15 22.5	56 19.0	1.79
12.0	14 47.9	54 12.0	0.34	14 56.1	54 42.1	0.91	15 28.5	56 40.9	1.85
12.5	14 47.2	54 9.2	-0.14	14 59.3	54 54.0	1.06	15 34.6	57 3.3	1.87
13.0	14 47.0	54 8.7	+0.05	15 3.0	55 7.5	1.19	15 40.6	57 25.6	1.85
13.5	14 47.4	54 10.3	0.22	15 7.1	55 22.4	1.29	15 46.6	57 47.4	1.80
14.0	14 48.4	54 14.0	0.39	15 11.5	55 38.4	1.37	15 52.3	58 8.4	1.71
14.5	14 50.0	54 19.6	0.54	15 16.1	55 55.3	1.43	15 57.7	58 28.2	1.58
15.0	14 52.0	54 26.9	0.67	15 20.8	56 12.8	1.47	16 2.6	58 46.2	1.43
15.5	14 54.4	54 35.7	0.79	15 25.7	56 30.6	1.48	16 6.9	59 2.2	1.24
16.0	14 57.1	54 45.8	0.89	15 30.5	56 48.3	1.47	16 10.7	59 15.9	1.04
16.5	15 0.2	54 57.1	0.98	15 35.2	57 5.7	1.43	16 13.7	59 27.0	0.82
17.0	15 3.6	55 9.4	1.06	15 39.8	57 22.5	1.38	16 16.0	59 35.5	0.60
17.5	15 7.1	55 22.4	1.12	15 44.2	57 38.6	1.31	16 17.6	59 41.3	0.38
18.0	15 10.8	55 36.1	1.16	15 48.3	57 53.7	1.22	16 18.5	59 44.5	+0.16
18.5	15 14.7	55 50.3	1.20	15 52.1	58 7.8	1.12	16 18.6	59 45.1	-0.05
19.0	15 18.7	56 4.8	1.22	15 55.6	58 20.6	1.02	16 18.2	59 43.4	0.24
19.5	15 22.7	56 19.6	1.24	15 58.7	58 32.1	0.91	16 17.1	59 39.5	0.40
20.0	15 26.7	56 34.5	1.25	16 1.5	58 42.3	0.80	16 15.6	59 33.8	0.55
20.5	15 30.8	56 49.5	1.25	16 3.9	58 51.2	0.69	16 13.5	59 26.4	0.68
21.0	15 34.9	57 4.6	1.25	16 6.0	58 58.8	0.58	16 11.1	59 17.6	0.78
21.5	15 39.0	57 19.7	1.24	16 7.7	59 5.0	0.47	16 8.4	59 7.7	0.87
22.0	15 43.1	57 34.7	1.24	16 9.1	59 10.0	0.37	16 5.5	58 56.8	0.94
22.5	15 47.2	57 49.5	1.23	16 10.1	59 13.8	0.27	16 2.3	58 45.1	1.00
23.0	15 51.2	58 4.1	1.21	16 10.8	59 16.3	0.17	15 59.0	58 32.9	1.05
23.5	15 55.1	58 18.5	1.19	16 11.2	59 17.7	+0.07	15 55.5	58 20.1	1.09
24.0	15 58.9	58 32.6	1.15	16 11.2	59 17.9	-0.04	15 51.9	58 6.9	1.12
24.5	16 2.6	58 46.2	1.11	16 10.9	59 16.7	0.15	15 48.2	57 53.3	1.15
25.0	16 6.1	58 59.2	1.05	16 10.2	59 14.3	0.26	15 44.4	57 39.3	1.18
25.5	16 9.4	59 11.4	0.98	16 9.2	59 10.5	0.37	15 40.5	57 25.0	1.20
26.0	16 12.5	59 22.5	0.88	16 7.8	59 5.2	0.49	15 36.5	57 10.4	1.22
26.5	16 15.2	59 32.4	0.77	16 6.0	58 58.5	0.62	15 32.4	56 55.5	1.24
27.0	16 17.5	59 40.8	0.63	16 3.7	58 50.2	0.76	15 28.4	56 40.5	1.25
27.5	16 19.2	59 47.3	0.46	16 1.0	58 40.3	0.89	15 24.3	56 25.5	1.26
28.0	16 20.4	59 51.7	0.27	15 57.9	58 28.8	1.02	15 20.2	56 10.4	1.26
28.5	16 21.0	59 53.7	+0.06	15 54.3	58 15.9	1.14	15 16.0	55 55.4	1.24
29.0	16 20.8	59 53.1	-0.16	15 50.4	58 1.6	1.25	15 12.1	55 40.7	1.21
29.5	16 19.9	59 49.8	0.39	15 46.2	57 45.9	1.35	15 8.2	55 26.3	1.17
30.0	16 18.2	59 43.6	0.63	15 41.6	57 29.1	1.44	15 4.4	55 12.6	1.12
30.5	16 15.7	59 34.5	0.87	15 36.8	57 11.5	1.50	15 0.9	54 59.6	-1.04
31.0	16 12.5	59 22.6	1.10	15 31.8	56 53.3	1.54			
31.5	16 8.6	59 8.1	-1.31	15 26.8	56 34.7	-1.55			

$\Delta p = .272 \Delta \pi$

FOR WASHINGTON MEAN NOON AND MIDNIGHT.

Day of Month.	OCTOBER.			NOVEMBER.			DECEMBER.		
	Semi-diameter.	Horizontal Parallax.	Hourly Diff.	Semi-diameter.	Horizontal Parallax.	Hourly Diff.	Semi-diameter.	Horizontal Parallax.	Hourly Diff.
d 1.0	14 57.6	54 47.6	-0.96	14 44.4	53 59.0	+0.03	14 49.6	54 18.0	+0.72
1.5	14 54.7	54 36.8	0.85	14 44.8	54 0.4	0.20	14 52.2	54 27.6	0.87
2.0	14 52.1	54 27.3	0.73	14 45.7	54 3.9	0.37	14 55.3	54 39.1	1.03
2.5	14 50.0	54 19.5	0.59	14 47.2	54 9.4	0.55	14 59.0	54 52.5	1.20
3.0	14 48.3	54 13.4	0.43	14 49.3	54 17.1	0.74	15 3.2	55 7.9	1.37
3.5	14 47.2	54 9.3	0.26	14 52.0	54 27.1	0.93	15 7.9	55 25.4	1.54
4.0	14 46.6	54 7.3	-0.08	14 55.4	54 39.5	1.13	15 13.2	55 44.9	1.70
4.5	14 46.7	54 7.6	+0.12	14 59.4	54 54.3	1.33	15 19.0	56 6.3	1.86
5.0	14 47.5	54 10.3	0.33	15 4.1	55 11.6	1.53	15 25.4	56 29.7	2.02
5.5	14 48.9	54 15.5	0.54	15 9.5	55 31.2	1.73	15 32.3	56 54.8	2.16
6.0	14 51.0	54 23.3	0.75	15 15.5	55 53.0	1.91	15 39.5	57 21.3	2.27
6.5	14 53.8	54 33.6	0.97	15 22.0	56 17.0	2.08	15 47.1	57 49.1	2.36
7.0	14 57.3	54 46.5	1.18	15 29.0	56 42.8	2.22	15 54.8	58 17.7	2.41
7.5	15 1.5	55 1.9	1.38	15 36.5	57 10.2	2.34	16 2.7	58 46.6	2.41
8.0	15 6.4	55 19.7	1.57	15 44.2	57 38.7	2.42	16 10.5	59 15.2	2.36
8.5	15 11.8	55 39.7	1.75	15 52.2	58 8.0	2.46	16 18.0	59 42.8	2.25
9.0	15 17.8	56 1.7	1.91	16 0.2	58 37.4	2.45	16 25.1	60 8.7	2.08
9.5	15 24.3	56 25.5	2.05	16 8.1	59 6.3	2.38	16 31.5	60 32.2	1.85
10.0	15 31.2	56 50.8	2.15	16 15.6	59 34.0	2.25	16 37.0	60 52.5	1.56
10.5	15 38.3	57 17.0	2.22	16 22.6	59 59.8	2.06	16 41.5	61 9.1	1.21
11.0	15 45.5	57 43.7	2.24	16 29.9	60 23.0	1.81	16 44.8	61 21.2	0.82
11.5	15 52.8	58 10.4	2.21	16 34.4	60 42.9	1.51	16 46.7	61 28.4	+0.40
12.0	15 59.9	58 36.5	2.14	16 38.7	60 58.8	1.16	16 47.3	61 30.4	-0.04
12.5	16 6.7	59 1.4	2.01	16 41.8	61 10.3	0.77	16 46.4	61 27.3	0.48
13.0	16 13.0	59 24.5	1.84	16 43.6	61 17.0	+0.36	16 44.2	61 19.0	0.90
13.5	16 18.7	59 45.3	1.62	16 44.1	61 18.8	-0.05	16 40.6	61 5.8	1.29
14.0	16 23.6	60 3.2	1.36	16 43.3	61 15.6	0.46	16 35.8	60 45.2	1.63
14.5	16 27.5	60 17.6	1.06	16 41.2	61 7.7	0.85	16 30.0	60 26.9	1.92
15.0	16 30.4	60 28.3	0.74	16 37.8	60 55.4	1.20	16 23.3	60 2.4	2.15
15.5	16 32.2	60 35.1	0.40	16 33.3	60 39.1	1.50	16 16.0	59 35.6	2.32
16.0	16 33.0	60 37.9	+0.07	16 28.0	60 19.5	1.76	16 8.3	59 7.1	2.42
16.5	16 32.7	60 36.7	-0.25	16 21.9	59 57.2	1.95	16 0.3	58 37.7	2.47
17.0	16 31.3	60 31.8	0.56	16 15.3	59 32.9	2.09	15 52.2	58 8.2	2.46
17.5	16 29.0	60 23.4	0.83	16 8.3	59 7.3	2.17	15 44.3	57 39.1	2.40
18.0	16 25.9	60 11.9	1.07	16 1.2	58 41.0	2.21	15 36.6	57 10.9	2.30
18.5	16 22.1	59 57.8	1.27	15 54.0	58 14.6	2.20	15 29.3	56 44.0	2.18
19.0	16 17.7	59 41.6	1.43	15 46.9	57 48.6	2.14	15 22.5	56 18.8	2.03
19.5	16 12.8	59 23.7	1.55	15 40.0	57 23.4	2.06	15 16.1	55 55.5	1.86
20.0	16 7.6	59 4.7	1.62	15 33.5	56 59.3	1.96	15 10.3	55 34.2	1.69
20.5	16 2.3	58 45.0	1.66	15 27.3	56 36.5	1.85	15 5.1	55 15.1	1.51
21.0	15 56.8	58 25.0	1.68	15 21.5	56 15.1	1.72	15 0.5	54 58.1	1.32
21.5	15 51.4	58 5.0	1.66	15 16.1	55 55.3	1.58	14 56.5	54 43.3	1.14
22.0	15 46.0	57 45.2	1.63	15 11.1	55 37.1	1.45	14 53.1	54 30.7	0.96
22.5	15 40.7	57 25.9	1.59	15 6.6	55 20.5	1.32	14 50.2	54 20.2	0.79
23.0	15 35.6	57 7.2	1.53	15 2.5	55 5.5	1.18	14 47.9	54 11.7	0.63
23.5	15 30.8	56 49.3	1.47	14 58.8	54 52.1	1.05	14 46.1	54 5.2	0.47
24.0	15 26.1	56 32.0	1.41	14 55.6	54 40.3	0.93	14 44.8	54 0.5	0.32
24.5	15 21.6	56 15.5	1.34	14 52.8	54 30.0	0.80	14 44.0	53 57.5	0.18
25.0	15 17.3	55 59.8	1.27	14 50.4	54 21.0	0.68	14 43.6	53 56.2	-0.05
25.5	15 13.2	55 45.0	1.20	14 48.4	54 13.5	0.57	14 43.6	53 56.3	+0.07
26.0	15 9.4	55 30.9	1.14	14 46.7	54 7.3	0.47	14 44.1	53 57.8	0.18
26.5	15 5.8	55 17.7	1.07	14 45.3	54 2.4	0.36	14 44.8	54 0.6	0.29
27.0	15 2.4	55 5.3	1.00	14 44.3	53 58.7	0.26	14 45.9	54 4.7	0.39
27.5	14 59.3	54 53.8	0.93	14 43.6	53 56.3	0.15	14 47.4	54 10.0	0.48
28.0	14 56.4	54 43.1	0.85	14 43.3	53 55.1	-0.05	14 49.1	54 16.4	0.58
28.5	14 53.8	54 33.4	0.77	14 43.4	53 55.3	+0.06	14 51.2	54 24.0	0.68
29.0	14 51.4	54 24.7	0.68	14 43.8	53 56.7	0.18	14 53.6	54 32.8	0.78
29.5	14 49.3	54 17.1	0.59	14 44.6	53 59.7	0.31	14 56.3	54 42.8	0.88
30.0	14 47.5	54 10.6	0.49	14 45.8	54 4.1	0.44	14 59.4	54 54.0	0.98
30.5	14 46.1	54 5.4	0.38	14 47.4	54 10.2	+0.57	15 2.8	55 6.5	1.09
31.0	14 45.1	54 1.7	0.25				15 6.5	55 20.3	1.20
31.5	14 44.5	53 59.5	-0.11				15 10.7	55 35.5	+1.32

$\Delta p = .272 \Delta \pi$

WASHINGTON MEAN TIME.

PHASES.

Month.	New Moon.	First Quarter.	Full Moon.	Last Quarter.	New Moon.
January	^d 7 ^h 0 ^m 0.0	^d 14 ^h 4 ^m 14.1	^d 21 ^h 0 ^m 32.8	^d 28 ^h 19 ^m 25.5	
February	5 14 46.7	12 12 12.2	19 14 53.1	27 16 43.3	
March	7 3 12.2	13 19 57.4	21 6 43.5	29 11 16.9	
April	5 13 28.0	12 4 25.2	19 23 21.9	28 2 9.2	
May	4 21 55.8	11 14 28.9	19 15 41.8	27 13 22.2	
June	3 5 13.1	10 2 47.2	18 6 47.7	25 21 31.4	
July	2 12 17.0	9 17 31.9	17 20 18.7	25 3 31.4	^d 31 ^h 20 ^m 19.6
August		8 10 21.8	16 8 25.7	23 8 31.2	30 6 33.1
September		7 4 29.6	14 19 33.7	21 13 52.7	28 19 46.9
October		6 22 57.1	14 6 6.5	20 21 5.3	28 12 4.5
November		5 16 43.8	12 16 21.9	19 7 29.2	27 6 35.4
December		5 8 47.9	12 2 37.3	18 21 47.7	27 1 56.1

APOGEE, PERIGEE, AND GREATEST LIBRATION.

Month.	Apogee.	Perigee.	Apogee.	GREATEST LIBRATION.					
				^d ^h ^m	^d ^h ^m	^d ^h ^m	^d ^h ^m	^d ^h ^m	^d ^h ^m
January	1 1.5	16 17.2	28 22.5	8 9 17.9 N.E.	22 19 7.0 N.W.				
February				4 3 8.8 N.E.	18 16 4.5 N.W.				
March		9 13.6	25 12.5	3 19 36.2 N.E.	16 20 36.6 N.W.	31 21 57.3 N.E.			
April		6 17.9	21 23.1		13 5 39.1 N.W.	29 3 24.6 N.E.			
May		5 3.5	19 1.2		11 6 59.1 N.W.	27 7 37.8 N.E.			
June		2 13.4	15 7.0		8 11 57.1 N.W.	24 1 20.5 N.E.			
June		30 19.7							
July	12 20.8	28 15.3			6 15 14.0 N.W.	20 21 12.9 N.E.			
August	9 14.2	23 19.2		3 12 30.8 N.W.	16 6 3.6 N.E.	30 21 40.0 N.W.			
September	6 9.0	18 9.2			12 11 7.2 N.E.	26 8 51.3 N.W.			
October	4 4.4	16 2.5	31 21.0		10 7 39.8 N.E.	22 22 45.0 N.W.			
November		13 10.3	28 4.8		7 12 46.3 N.E.	19 16 56.8 N.W.			
December		11 22.8	25 5.0		5 20 32.4 N.E.	17 22 47.8 N.W.			

MOON'S EQUATOR.

The moon's libration in latitude and longitude, at any time, may be found by means of the following formulas and tables:

I = the inclination to the ecliptic of the moon's equator = $1^{\circ} 28'.8$,

Ω = mean longitude of the moon's ascending node, (see page 248),

= mean longitude of the descending node of the moon's equator,

C = the angle at the centre of the moon's disc made by a meridian of the moon with the circle of declination, reckoned from north to east on the apparent disc,

$i, \Delta, \Omega',$ and ζ are defined on the next page, where their values for the year are given.

$\lambda, \beta, \alpha',$ and δ' the apparent longitude, latitude, right ascension, and declination of the moon affected with parallax.

λ' = the selenocentric longitude of the earth, reckoned on the moon's equator from its descending node, Ω .

$$\left. \begin{aligned} \Delta \lambda &= -0'.57 \sin 2(\Omega - \lambda) \\ \alpha &= \sin I \cos(\Omega - \lambda) \\ \tan B &= \tan I \sin(\Omega - \lambda) \\ \lambda' &= \lambda + \Delta \lambda + \alpha b \end{aligned} \right\} \text{See table, page 343.}$$

The libration in latitude = $b = B - \beta,$

" " longitude = $l = \lambda' - \zeta.$

$$\sin C = \sin i \frac{\cos(\lambda' + \Delta - \Omega)}{\cos \delta'} = -\sin i \frac{\cos(\alpha' - \Omega')}{\cos b}$$

WASHINGTON MEAN TIME.							
Mean Noon.	MOON'S EQUATOR.			☾ Moon's Mean Longitude.	Mean Solar Days.	Motion of ☾	
	i Inclination to the Earth's Equator.	Δ Ascend'g Node on Earth's Equator to Ascending Node on Ecliptic.	Ω' Ascend'g Node on Earth's Equator.				
Jan.	0	22° 5.9	204° 5.8	358° 29.0	199° 34.8	0.1	1° 19.06
	10	22 5.6	203 32.2	358 31.0	331 20.6	0.2	2 38.12
	20	22 5.3	202 58.5	358 33.0	103 6.5	0.3	3 57.18
	30	22 5.0	202 24.8	358 35.0	234 52.3	0.4	5 16.23
Feb.	9	22 4.7	201 51.3	358 37.0	6 38.1	0.5	6 35.29
						0.6	7 54.35
March	19	22 4.4	201 17.6	358 39.0	138 24.0	0.7	9 13.41
	1	22 4.1	200 44.0	358 41.0	270 9.8	0.8	10 32.47
	11	22 3.8	200 10.3	358 43.1	41 55.7	0.9	11 51.53
	21	22 3.6	199 36.7	358 45.2	173 41.5		13 10.58
	31	22 3.3	199 3.0	358 47.2	205 27.3	1.0	13 10.58
April	10	22 3.0	198 29.3	358 49.3	77 13.2	2.0	26 21.17
	20	22 2.7	197 55.6	358 51.4	208 59.0	3.0	39 31.75
	30	22 2.5	197 21.9	358 53.5	340 44.9	4.0	52 42.33
						5.0	65 52.92
May	10	22 2.2	196 48.2	358 55.5	112 30.7	6.0	79 3.50
	20	22 2.0	196 14.5	358 57.6	244 16.5	7.0	92 14.09
June	30	22 1.8	195 40.8	358 59.7	16 2.4	8.0	105 24.67
	9	22 1.6	195 7.1	359 1.8	147 48.2	9.0	118 35.25
	19	22 1.3	194 33.4	359 4.0	279 34.1	10.0	131 45.84
	29	22 1.1	193 59.6	359 6.1	51 19.9		
	9	22 0.9	193 25.9	359 8.2	183 5.7		
July	19	22 0.7	192 52.2	359 10.3	314 51.6	Hours.	
	29	22 0.5	192 18.4	359 12.5	86 37.4	1	0 32.94
	8	22 0.4	191 44.7	359 14.6	218 23.3	2	1 5.88
	18	22 0.2	191 10.9	359 16.8	250 9.1	3	1 38.82
	28	22 0.1	190 37.2	359 18.9	121 54.9	4	2 11.76
						5	2 44.70
						6	3 17.65
						7	3 50.59
Aug.	7	21 59.9	190 3.4	359 21.1	253 40.8	8	4 23.53
	17	21 59.8	189 29.6	359 23.2	25 26.6	9	4 56.47
	27	21 59.6	188 55.9	359 25.4	157 12.4	10	5 29.41
						11	6 2.35
Oct.	7	21 59.5	188 22.1	359 27.6	288 58.3	12	6 35.29
	17	21 59.4	187 48.3	359 29.7	60 44.1	13	7 8.23
						14	7 41.17
Nov.	27	21 59.3	187 14.5	359 31.9	192 30.0	15	8 14.11
	6	21 59.2	186 40.8	359 34.1	324 15.8	16	8 47.06
	16	21 59.2	186 7.0	359 36.2	96 1.6	17	9 20.00
	26	21 59.1	185 33.2	359 38.4	227 47.5	18	9 52.94
Dec.	6	21 59.0	184 59.5	359 40.6	359 33.3	19	10 25.88
	16	21 59.0	184 25.7	359 42.8	131 19.2	20	10 58.82
	26	21 58.9	183 51.9	359 45.0	263 5.0	21	11 31.76
	36	21 58.8	183 18.1	359 47.2	34 50.9	22	12 4.70
					23	12 37.64	

TABLE FOR THE LIBRATION OF THE MOON.

Argument, $(\Omega - \lambda)$ or $(\Omega - \lambda - 180^\circ)$.

$\Omega - \lambda$	$\Delta \lambda$	α^{-1}	B	$\Omega - \lambda$	$\Omega - \lambda$	$\Delta \lambda$	α^{-1}	B	$\Omega - \lambda$
0°	0.0	39	0 0.0	180°	46	0.6	56	1 3.9	134°
1	0.0	39	0 1.6	179	47	0.6	57	1 4.9	133
2	0.0	39	0 3.1	178	48	0.6	58	1 6.0	132
3	0.1	39	0 4.7	177	49	0.6	59	1 7.0	131
4	0.1	39	0 6.2	176	50	0.6	60	1 8.0	130
5	0.1	39	0 7.7	175	51	0.6	62	1 9.0	129
6	0.2	39	0 9.3	174	52	0.6	63	1 10.0	128
7	0.2	39	0 10.8	173	53	0.5	64	1 10.9	127
8	0.2	39	0 12.4	172	54	0.5	66	1 11.8	126
9	0.2	39	0 13.9	171	55	0.5	67	1 12.7	125
10	0.2	39	0 15.4	170	56	0.5	69	1 13.6	124
11	0.3	39	0 16.9	169	57	0.5	71	1 14.5	123
12	0.3	40	0 18.5	168	58	0.5	73	1 15.3	122
13	0.3	40	0 20.0	167	59	0.5	75	1 16.1	121
14	0.3	40	0 21.5	166	60	0.5	77	1 16.9	120
15	0.3	40	0 23.0	165	61	0.5	80	1 17.6	119
16	0.3	40	0 24.5	164	62	0.5	83	1 18.4	118
17	0.3	40	0 26.0	163	63	0.5	86	1 19.1	117
18	0.3	41	0 27.4	162	64	0.5	89	1 19.8	116
19	0.4	41	0 28.9	161	65	0.4	92	1 20.4	115
20	0.4	41	0 30.4	160	66	0.4	95	1 21.1	114
21	0.4	41	0 31.8	159	67	0.4	99	1 21.7	113
22	0.4	42	0 33.2	158	68	0.4	103	1 22.3	112
23	0.4	42	0 34.7	157	69	0.4	108	1 22.9	111
24	0.4	42	0 36.1	156	70	0.4	113	1 23.4	110
25	0.4	43	0 37.5	155	71	0.4	119	1 23.9	109
26	0.5	43	0 38.9	154	72	0.4	125	1 24.4	108
27	0.5	43	0 40.3	153	73	0.4	132	1 24.9	107
28	0.5	44	0 41.7	152	74	0.3	141	1 25.3	106
29	0.5	44	0 43.1	151	75	0.3	150	1 25.7	105
30	0.5	45	0 44.4	150	76	0.3	160	1 26.1	104
31	0.5	45	0 45.7	149	77	0.3	172	1 26.5	103
32	0.5	46	0 47.0	148	78	0.2	186	1 26.8	102
33	0.5	46	0 48.4	147	79	0.2	202	1 27.1	101
34	0.5	47	0 49.7	146	80	0.2	222	1 27.4	100
35	0.5	47	0 51.0	145	81	0.2	247	1 27.7	99
36	0.5	48	0 52.2	144	82	0.2	278	1 27.9	98
37	0.5	48	0 53.4	143	83	0.1	318	1 28.1	97
38	0.6	49	0 54.7	142	84	0.1	370	1 28.3	96
39	0.6	50	0 55.9	141	85	0.1	440	1 28.5	95
40	0.6	50	0 57.1	140	86	0.1	555	1 28.6	94
41	0.6	51	0 58.3	139	87	0.1	740	1 28.7	93
42	0.6	52	0 59.4	138	88	0.0	1110	1 28.7	92
43	0.6	53	1 0.6	137	89	0.0	2220	1 28.8	91
44	0.6	54	1 1.7	136	90	0.0	∞	1 28.8	90
45	0.6	55	1 2.8	135					

$\Delta \lambda$ has the sign of $\tan (\lambda - \Omega)$

α has the sign of $\cos (\Omega - \lambda)$

B has the sign of $\sin (\Omega - \lambda)$

Date.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Light Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Light Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
1875.	h m s	s	° ' "	"	d h m	h m s	s	° ' "	"
Jan. 0	18 5 26.27	17.105	-24 27 41.9	-12.35	0 23 28.5	18 12 8.75	17.918	-24 31 54.1	- 9.15
1	18 12 17.78	17.186	24 31 58.9	9.06	1 23 31.4	18 19 2.95	17.294	24 34 53.6	5.80
2	18 19 11.16	17.262	24 34 56.3	5.72	2 23 34.4	18 25 58.93	17.369	24 36 31.9	- 2.39
3	18 26 6.32	17.334	24 36 32.9	- 2.32	3 23 37.4	18 32 56.61	17.437	24 36 47.7	+ 1.07
4	18 33 3.15	17.401	24 36 47.3	+ 1.12	4 23 40.5	18 39 55.84	17.499	24 35 40.1	1.57
5	18 40 1.52	17.463	24 35 38.6	4.61	5 23 43.5	18 46 56.54	17.559	24 33 7.8	- 1.13
6	18 47 1.35	17.522	24 33 5.6	8.15	6 23 46.6	18 53 58.59	17.612	24 29 9.7	11.72
7	18 54 2.52	17.575	24 29 7.1	11.73	7 23 49.7	19 1 1.87	17.661	24 23 44.8	15.36
8	19 1 4.90	17.623	24 23 42.2	15.35	8 23 52.8	19 8 6.28	17.705	24 16 52.4	-19.03
9	19 8 8.39	17.667	24 16 50.1	19.01	9 23 56.0	19 15 11.68	17.745	24 8 31.0	22.75
10	19 15 12.87	17.706	24 8 29.5	22.71	10 23 59.1	19 22 17.98	17.779	23 58 40.1	26.50
11	19 22 18.24	17.740	23 58 39.7	26.44					
12	19 29 26.36	17.769	23 47 20.0	30.22	12 0 2.3	19 29 27.04	17.808	23 47 18.8	30.29
13	19 36 31.12	17.793	23 34 29.2	34.02	13 0 5.5	19 36 32.74	17.832	23 34 26.1	34.11
14	19 43 38.39	17.812	23 20 7.0	37.84	14 0 8.6	19 43 40.96	17.852	23 20 1.5	37.95
15	19 50 46.05	17.825	23 4 12.5	41.70	15 0 11.8	19 50 49.57	17.865	23 4 4.3	41.82
16	19 57 53.94	17.832	22 46 45.3	45.57	16 0 15.0	19 57 58.41	17.872	22 46 33.9	45.71
17	20 5 1.94	17.833	22 27 44.9	49.47	17 0 18.2	20 5 7.36	17.873	22 27 29.9	49.63
18	20 12 9.88	17.828	22 7 10.6	53.39	18 0 21.4	20 12 16.25	17.867	22 6 51.5	53.57
19	20 19 17.62	17.816	21 45 2.0	57.31	19 0 24.6	20 19 24.93	17.855	21 44 38.5	57.50
20	20 26 24.99	17.796	21 21 19.9	61.22	20 0 27.8	20 26 33.24	17.835	21 20 51.5	61.43
21	20 33 31.76	17.767	20 56 3.9	65.14	21 0 31.0	20 33 40.94	17.805	20 55 30.3	65.37
22	20 40 37.75	17.731	20 29 13.5	69.05	22 0 34.2	20 40 47.84	17.769	20 28 34.2	69.29
23	20 47 42.74	17.684	20 0 49.5	72.94	23 0 37.3	20 47 53.73	17.721	20 0 4.2	73.20
24	20 54 46.47	17.625	19 30 52.7	76.78	24 0 40.4	20 54 58.34	17.661	19 30 1.0	77.05
25	21 1 48.65	17.554	18 59 24.2	80.58	25 0 43.5	21 2 1.38	17.589	18 58 25.8	80.86
26	21 8 48.93	17.467	18 26 25.1	84.33	26 0 46.6	21 9 2.49	17.501	18 25 19.7	84.63
27	21 15 46.95	17.365	17 51 57.0	87.99	27 0 49.6	21 16 1.30	17.397	17 50 44.3	88.30
28	21 22 42.28	17.243	17 16 2.4	91.54	28 0 52.6	21 22 57.39	17.273	17 14 42.2	91.85
29	21 29 34.42	17.098	16 38 44.3	94.95	29 0 55.5	21 29 50.24	17.126	16 37 16.4	95.27
30	21 36 22.79	16.928	16 0 6.0	98.20	30 0 58.4	21 36 39.27	16.954	15 58 30.4	98.52
31	21 43 6.74	16.729	15 20 12.1	101.25	31 1 1.2	21 43 23.80	16.752	15 18 28.9	101.56
Feb. 1	21 49 45.50	16.496	14 39 7.9	104.06	1 1 3.9	21 50 3.06	16.515	14 37 17.1	104.37
2	21 56 18.21	16.224	13 56 59.8	106.56	2 1 6.5	21 56 36.17	16.238	13 55 1.7	106.86
3	22 2 43.87	15.907	13 13 55.7	108.72	3 1 9.0	22 3 2.14	15.917	13 11 50.7	109.00
4	22 9 1.33	15.539	12 30 4.5	110.47	4 1 11.3	22 9 19.79	15.544	12 27 53.2	110.72
5	22 15 9.29	15.116	11 45 37.0	111.74	5 1 13.5	22 15 27.79	15.115	11 43 20.1	111.96
6	22 21 6.30	14.626	11 0 45.2	112.47	6 1 15.5	22 21 24.69	14.618	10 58 23.6	112.64
7	22 26 50.75	14.066	10 15 43.4	112.57	7 1 17.3	22 27 8.85	14.050	10 13 18.3	112.69
8	22 32 20.83	13.428	9 30 47.4	111.97	8 1 18.8	22 32 38.44	13.404	9 28 20.4	112.02
9	22 37 34.62	12.706	8 46 15.2	110.57	9 1 20.1	22 37 51.55	12.673	8 43 47.7	110.55
10	22 42 30.02	11.894	8 2 26.8	108.33	10 1 21.1	22 42 46.06	11.852	8 0 0.6	108.24
11	22 47 4.80	10.988	7 19 42.5	105.20	11 1 21.7	22 47 19.73	10.937	7 17 19.5	105.03
12	22 51 16.70	9.987	6 38 25.2	101.07	12 1 21.9	22 51 30.31	9.928	6 36 7.5	100.81
13	22 55 3.39	8.885	5 58 59.4	95.91	13 1 21.7	22 55 15.47	8.818	5 56 49.0	95.56
14	22 58 22.53	7.693	5 21 49.9	89.71	14 1 21.1	22 58 32.89	7.619	5 19 48.9	89.28
15	23 1 11.96	6.412	4 47 21.8	82.46	15 1 19.9	23 1 20.46	6.333	4 45 32.2	81.95
16	23 3 29.68	5.052	4 16 0.0	74.19	16 1 18.2	23 3 36.23	4.970	4 14 23.5	73.62
17	23 5 13.96	3.627	3 48 8.4	64.95	17 1 16.0	23 5 18.52	3.544	3 46 46.4	64.33
18	23 6 23.41	2.154	3 24 9.4	54.82	18 1 13.2	23 6 26.00	2.074	3 23 2.8	54.17
19	23 6 57.12	+0.653	3 4 23.4	43.90	19 1 9.8	23 6 57.84	+0.579	3 3 32.4	43.25
20	23 6 54.76	-0.848	2 49 7.4	32.34	20 1 5.8	23 6 53.80	-0.913	2 48 32.2	31.71
21	23 6 16.65	2.322	2 38 34.8	20.32	21 1 1.2	23 6 14.25	2.375	2 38 14.3	19.74
22	23 5 3.80	3.736	2 32 53.8	+ 8.07	22 0 56.1	23 5 0.28	3.775	2 32 46.5	+ 7.57
23	23 3 18.08	5.058	2 32 7.8	- 4.19	23 0 50.4	23 3 13.80	5.081	2 32 11.2	- 4.59
24	23 1 2.04	6.255	2 36 12.6	16.17	24 0 44.2	23 0 57.42	6.262	2 36 24.6	16.46
25	22 58 19.11	7.294	2 44 59.4	27.61	25 0 37.5	22 58 14.53	7.284	2 45 16.8	27.77
26	22 55 13.40	8.148	2 58 11.1	38.21	26 0 30.5	22 55 9.25	8.124	2 58 30.6	38.23
27	22 51 49.63	8.796	3 15 24.6	47.71	27 0 23.2	22 51 46.22	8.760	3 15 43.1	47.61
28	22 48 12.93	9.223	3 36 10.7	55.89	28 0 15.7	22 48 10.52	9.178	3 36 25.3	55.68
29	22 44 28.72	-9.423	- 3 59 55.5	-62.58	29 0 8.4	22 44 27.45	-9.373	- 4 0 3.9	-62.28

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	^h ₂₂ ^m ₄₄ ^s _{23.72}	^s _{-0.423}	[°] ₋₃ ['] ₅₉ ["] _{55.5}	^s _{-62.58}	^d ₁ ^h ₀ ^m _{8.1}	^h ₂₂ ^m ₄₄ ^s _{27.45}	^s _{-0.373}	[°] ₋₄ ['] ₀ ["] _{3.9}	^s _{-62.28}
1	22 44 23.72	-0.423	3 59 55.5	-62.58	1 0 8.1	22 44 27.45	-0.373	4 0 3.9	-62.28
2	22 40 42.41	9.398	4 26 1.8	67.67	2 0 0.4	22 40 42.35	9.349	4 26 2.2	67.32
3	22 36 59.28	9.162	4 53 50.7	71.13	2 23 52.8	22 37 0.38	9.116	4 53 42.1	70.75
4	22 33 24.21	8.730	5 22 43.5	73.00	3 23 45.3	22 33 26.36	8.691	5 22 25.6	72.62
5	22 30 1.58	8.130	5 52 2.8	73.37	4 23 38.0	22 30 4.57	8.100	5 51 35.9	73.01
6	22 26 55.09	7.398	6 21 14.1	72.36	5 23 31.0	22 26 58.67	7.369	6 20 39.1	72.05
7	22 24 7.83	6.535	6 49 46.7	70.17	6 23 24.3	22 24 11.73	6.527	6 49 4.8	69.92
8	22 21 42.08	5.599	7 17 14.3	66.98	7 23 17.9	22 21 46.02	5.603	7 16 27.2	66.80
9	22 19 39.55	4.606	7 43 15.4	62.93	8 23 12.0	22 19 33.26	4.621	7 42 24.9	62.87
10	22 18 1.27	3.581	8 7 32.5	58.35	9 23 6.4	22 18 4.49	3.606	8 6 40.3	58.32
11	22 16 47.74	2.546	8 29 52.3	53.24	10 23 1.2	22 16 50.26	2.579	8 29 0.1	53.27
12	22 15 59.02	1.516	8 50 5.2	47.79	11 22 56.5	22 16 0.65	1.556	8 49 14.6	47.88
13	22 15 34.82	-0.507	9 8 4.5	42.13	12 22 52.1	22 15 35.41	-0.552	9 7 16.8	42.28
14	22 15 34.46	+0.472	9 23 46.6	36.36	13 22 48.1	22 15 33.91	+0.423	9 23 3.0	36.55
15	22 15 57.16	1.413	9 37 9.4	30.54	14 22 44.6	22 15 55.40	1.362	9 36 30.8	30.77
16	22 16 41.94	2.311	9 48 12.7	24.74	15 22 41.4	22 16 38.94	2.259	9 47 40.1	25.00
17	22 17 47.70	3.162	9 56 57.5	19.01	16 22 38.5	22 17 43.43	3.109	9 56 31.5	19.29
18	22 19 13.34	3.966	10 3 25.7	13.36	17 22 36.0	22 19 7.81	3.914	10 3 6.8	13.66
19	22 20 57.71	4.722	10 7 39.7	7.83	18 22 33.7	22 20 50.95	4.672	10 7 28.2	8.14
20	22 22 59.65	5.432	10 9 42.7	-2.44	19 22 31.8	22 22 51.70	5.384	10 9 39.9	-2.76
21	22 25 18.07	6.096	10 9 37.8	+2.82	20 22 30.2	22 25 8.97	6.050	10 9 41.8	+2.49
22	22 27 51.90	6.716	10 7 28.4	7.93	21 22 28.8	22 27 41.72	6.672	10 7 40.3	7.60
23	22 30 40.09	7.294	10 3 18.0	12.90	22 22 27.6	22 30 28.89	7.253	10 3 37.7	12.58
24	22 33 41.70	7.834	9 57 9.9	17.73	23 22 26.7	22 33 29.54	7.796	9 57 37.3	17.41
25	22 36 55.83	8.337	9 49 7.7	22.42	24 22 26.0	22 36 42.79	8.302	9 49 42.6	22.11
26	22 40 21.61	8.806	9 39 14.7	26.97	25 22 25.5	22 40 7.75	8.773	9 39 57.0	26.67
27	22 43 58.26	9.244	9 27 34.0	31.40	26 22 25.1	22 43 43.66	9.214	9 28 23.5	31.11
28	22 47 45.09	9.654	9 14 8.7	35.69	27 22 24.9	22 47 29.81	9.627	9 15 5.1	35.41
29	22 51 41.43	10.037	8 59 1.9	39.86	28 22 24.9	22 51 25.55	10.013	9 0 4.9	39.59
30	22 55 46.66	10.395	8 42 16.3	43.92	29 22 25.1	22 55 30.24	10.373	8 43 25.6	43.66
31	23 0 0.24	10.733	8 23 54.6	47.87	30 22 25.4	22 59 43.33	10.714	8 25 9.9	47.63
Apr. 1	23 4 21.70	11.052	8 3 59.3	51.72	31 22 25.8	23 4 4.36	11.035	8 5 20.3	51.49
2	23 8 50.57	11.352	7 42 33.0	55.46	1 22 26.3	23 8 32.85	11.338	7 43 59.4	55.24
3	23 13 26.47	11.637	7 19 38.0	59.10	2 22 27.0	23 13 8.43	11.625	7 21 9.5	58.90
4	23 18 9.03	11.908	6 55 16.8	62.66	3 22 27.8	23 17 50.72	11.898	6 56 52.8	62.47
5	23 22 57.96	12.168	6 29 31.2	66.13	4 22 28.6	23 22 39.42	12.160	6 31 11.8	65.96
6	23 27 52.99	12.417	6 2 23.4	69.51	5 22 29.5	23 27 34.26	12.410	6 4 8.0	69.35
7	23 32 53.90	12.657	5 33 55.4	72.81	6 22 30.6	23 32 35.03	12.652	5 35 43.7	72.66
8	23 38 0.49	12.891	5 4 9.1	76.03	7 22 31.8	23 37 41.53	12.848	5 6 0.8	75.90
9	23 43 12.62	13.118	4 33 6.3	79.14	8 22 33.0	23 42 43.61	13.116	4 35 1.0	79.06
10	23 48 30.16	13.342	4 0 49.0	82.26	9 22 34.3	23 48 11.13	13.342	4 2 46.3	82.16
11	23 53 53.03	13.563	3 27 18.6	85.26	10 22 35.8	23 53 34.01	13.564	3 29 18.2	85.18
12	23 59 21.20	13.782	2 52 37.3	88.18	11 22 37.3	23 59 2.22	13.784	2 54 38.7	88.11
13	0 4 54.58	14.001	2 16 46.4	91.04	12 22 38.9	0 4 35.68	14.005	2 18 49.3	90.99
14	0 10 33.23	14.220	1 39 47.8	93.83	13 22 40.6	0 10 14.44	14.225	1 41 51.8	93.79
15	0 16 17.17	14.441	1 1 43.2	96.55	14 22 42.4	0 15 58.51	14.447	1 3 47.9	96.53
16	0 22 6.43	14.665	-0 22 34.2	99.19	15 22 44.3	0 21 47.93	14.673	-0 24 39.2	99.18
17	0 28 1.13	14.894	+0 17 37.2	101.75	16 22 46.2	0 27 42.83	14.903	+0 15 32.2	101.76
18	0 34 1.36	15.127	0 58 49.3	104.24	17 22 48.3	0 33 43.30	15.137	0 56 44.8	104.27
19	0 40 7.27	15.366	1 41 0.1	106.64	18 22 50.5	0 39 49.47	15.378	1 38 56.6	106.69
20	0 46 18.99	15.612	2 24 7.4	108.95	19 22 52.8	0 46 1.49	15.628	2 22 5.3	109.02
21	0 52 36.71	15.866	3 8 9.0	111.17	20 22 55.1	0 52 19.55	15.881	3 6 8.8	111.26
22	0 59 0.62	16.128	3 53 2.7	113.24	21 22 57.5	0 58 43.83	16.144	3 51 4.7	113.39
23	1 5 30.93	16.399	4 38 45.8	115.28	22 23 0.1	1 5 14.56	16.417	4 36 50.6	115.41
24	1 12 7.85	16.679	5 25 15.3	117.15	23 23 2.8	1 11 51.95	16.699	5 23 23.5	117.30
25	1 18 51.62	16.970	6 12 28.0	118.88	24 23 5.6	1 17 36.23	16.992	6 10 40.1	119.05
26	1 25 42.46	17.268	7 0 20.2	120.45	25 23 8.5	1 23 27.62	17.293	6 58 36.7	120.65
27	1 32 40.62	17.579	7 48 48.1	121.85	26 23 11.5	1 32 26.40	17.606	7 47 9.6	122.07
28	1 39 46.35	17.899	8 37 47.2	123.04	27 23 14.6	1 39 32.81	17.929	8 36 14.2	123.28
29	1 46 59.87	18.224	9 27 12.2	124.01	28 23 17.9	1 46 47.08	18.261	9 25 45.2	124.27
30	1 54 21.35	18.563	+10 16 57.5	+124.72	29 23 21.3	1 54 9.38	18.599	10 15 37.1	125.01
					30 23 24.9	2 1 39.87	18.943	+11 5 43.6	+125.48

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s ° ' " "	s	° ' " "	" "	d h m	h m s ° ' " "	s	° ' " "	" "
May 1	2 1 50.93	18.904	+11° 6' 56.8"	+125.17	1 23 28.6	2 9 18.70	19.293	+11° 55' 57.4"	+125.62
2	2 9 28.78	19.250	11 57 3.0	125.29	2 23 32.4	2 17 5.95	19.644	12 46 10.6	125.42
3	2 17 14.96	19.597	12 47 8.1	125.07	3 23 36.4	2 25 1.57	19.990	13 36 14.2	124.82
4	2 25 9.41	19.940	13 37 3.2	124.46	4 23 40.5	2 33 5.44	20.331	14 25 58.8	123.81
5	2 33 12.03	20.277	14 26 38.9	123.44	5 23 44.7	2 41 17.39	20.662	15 15 13.8	122.35
6	2 41 22.63	20.604	15 15 44.8	121.97	6 23 49.1	2 49 37.08	20.976	16 3 47.7	120.40
7	2 49 40.87	20.914	16 4 9.5	120.02	7 23 53.6	2 58 4.08	21.269	16 51 29.0	117.95
8	2 58 6.33	21.203	16 51 41.5	117.57	8 23 58.2	3 6 37.76	21.533	17 38 5.2	114.97
9	3 6 38.39	21.464	17 38 8.6	114.60					
10	3 15 16.33	21.691	18 23 18.2	111.11	10 0 2.9	3 15 17.39	21.763	18 23 23.6	111.47
11	3 23 59.26	21.879	19 6 57.7	107.10	11 0 7.7	3 24 2.07	22.053	19 7 11.5	107.44
12	3 32 46.19	22.024	19 48 54.9	102.60	12 0 12.6	3 32 50.80	22.100	19 49 16.4	102.91
13	3 41 36.02	22.120	20 28 58.6	97.64	13 0 17.5	3 41 42.46	22.197	20 29 27.0	97.91
14	3 50 27.54	22.165	21 6 57.8	92.24	14 0 22.4	3 50 35.82	22.241	21 7 32.2	92.47
15	3 59 19.49	22.156	21 42 43.1	86.48	15 0 27.4	3 59 29.59	22.231	21 43 22.5	86.66
16	4 8 10.57	22.092	22 16 6.3	80.41	16 0 32.3	4 8 22.46	22.165	22 16 49.6	80.54
17	4 16 59.47	21.974	22 47 0.9	74.11	17 0 37.2	4 17 13.08	22.044	22 47 46.8	74.10
18	4 25 44.91	21.804	23 15 22.2	67.64	18 0 42.0	4 26 0.17	21.871	23 16 9.5	67.67
19	4 34 25.64	21.583	23 41 6.6	61.06	19 0 46.8	4 34 42.46	21.646	23 41 54.1	61.04
20	4 43 0.49	21.314	24 4 12.6	54.44	20 0 51.4	4 43 18.75	21.372	24 4 59.2	54.38
21	4 51 28.35	21.001	24 24 40.0	47.85	21 0 55.9	5 51 47.02	21.053	24 25 24.6	47.75
22	4 59 48.20	20.648	24 42 30.2	41.35	22 1 0.3	5 0 8.95	20.694	24 43 11.7	41.21
23	5 7 59.15	20.258	24 57 45.5	34.97	23 1 4.6	5 8 20.94	20.298	24 58 23.1	34.79
24	5 16 0.35	19.837	25 10 29.6	28.74	24 1 8.7	5 16 23.04	19.871	25 11 2.4	28.52
25	5 23 51.09	19.386	25 20 46.3	22.69	25 1 12.6	5 24 14.52	19.414	25 21 13.6	22.45
26	5 31 30.68	18.909	25 28 40.7	16.88	26 1 16.3	5 31 54.69	18.931	25 29 2.0	16.62
27	5 38 58.53	18.408	25 34 18.7	11.32	27 1 19.8	5 39 22.98	18.423	25 34 33.6	11.05
28	5 46 14.10	17.887	25 37 46.2	6.01	28 1 23.1	5 46 38.85	17.897	25 37 54.3	5.73
29	5 53 16.97	17.348	25 39 9.2	0.95	29 1 26.2	5 53 41.86	17.351	25 39 10.4	0.66
30	6 0 6.68	16.792	25 38 34.1	-3.84	30 1 29.1	6 0 31.57	16.789	25 38 28.2	-4.14
31	6 6 42.86	16.220	25 36 7.5	8.34	31 1 31.7	6 7 7.62	16.212	25 35 54.5	8.63
June 1	6 13 5.14	15.635	25 31 56.2	12.57	1 1 34.1	6 13 29.63	15.621	25 31 36.2	12.86
2	6 19 13.21	15.035	25 26 6.3	16.54	2 1 36.3	6 19 37.31	15.016	25 25 39.5	16.82
3	6 25 6.73	14.423	25 18 44.4	20.22	3 1 38.3	6 25 30.31	14.399	25 18 11.1	20.48
4	6 30 45.42	13.799	25 9 58.0	23.62	4 1 40.0	6 31 8.36	13.770	25 9 18.5	23.87
5	6 36 8.97	13.162	24 59 52.9	26.77	5 1 41.4	6 36 31.16	13.129	24 59 7.5	27.01
6	6 41 17.07	12.512	24 48 35.4	29.65	6 1 42.6	6 41 38.41	12.474	24 47 44.5	29.87
7	6 46 9.43	11.850	24 36 11.9	32.26	7 1 43.5	6 46 29.82	11.808	24 35 16.1	32.46
8	6 50 45.76	11.175	24 22 48.8	34.62	8 1 44.1	6 51 5.11	11.130	24 21 48.6	34.79
9	6 55 5.72	10.487	24 8 32.3	36.72	9 1 44.5	6 55 23.94	10.438	24 7 28.3	36.87
10	6 59 9.02	9.786	23 53 28.4	38.56	10 1 44.6	6 59 26.03	9.734	23 52 21.1	38.68
11	7 2 55.33	9.071	23 37 43.5	40.15	11 1 44.4	7 3 11.06	9.017	23 36 33.6	40.25
12	7 6 24.31	8.342	23 21 23.3	41.49	12 1 43.9	7 6 38.71	8.286	23 20 11.4	41.56
13	7 9 35.64	7.600	23 4 34.0	42.58	13 1 43.1	7 9 48.66	7.542	23 3 20.7	42.62
14	7 12 29.01	6.844	22 47 21.5	43.42	14 1 42.1	7 12 40.61	6.784	22 46 7.7	43.43
15	7 15 4.06	6.075	22 29 51.8	44.02	15 1 40.7	7 15 14.21	6.014	22 28 38.0	44.03
16	7 17 20.50	5.293	22 12 10.7	44.37	16 1 39.0	7 17 29.19	5.232	22 10 57.5	44.33
17	7 19 18.04	4.500	21 54 24.2	44.47	17 1 37.0	7 19 25.27	4.440	21 53 12.3	44.40
18	7 20 56.41	3.696	21 36 38.2	44.33	18 1 34.7	7 21 2.20	3.637	21 35 28.3	44.24
19	7 22 15.40	2.885	21 18 58.3	43.95	19 1 32.0	7 22 19.79	2.828	21 17 50.9	43.83
20	7 23 14.84	2.068	21 1 30.5	43.33	20 1 29.0	7 23 17.87	2.013	21 0 26.2	43.19
21	7 23 54.65	1.248	20 44 20.2	42.47	21 1 25.7	7 23 56.40	1.196	20 43 19.5	42.31
22	7 24 14.81	+0.432	20 27 33.8	41.37	22 1 22.1	7 24 15.37	+0.385	20 26 37.2	41.19
23	7 24 15.45	-0.376	20 11 16.6	40.04	23 1 18.2	7 24 14.93	-0.418	20 10 24.4	39.85
24	7 23 56.84	1.172	19 55 33.8	38.48	24 1 14.0	7 23 55.38	1.209	19 54 46.4	38.28
25	7 23 19.34	1.948	19 40 31.1	36.70	25 1 9.4	7 23 17.07	1.978	19 39 48.7	36.49
26	7 22 23.53	2.697	19 26 14.0	34.70	26 1 4.5	7 22 20.61	2.720	19 25 36.7	34.48
27	7 21 10.17	3.409	19 12 47.4	32.49	27 0 59.3	7 21 6.79	3.425	19 12 15.3	32.27
28	7 19 40.25	4.076	19 0 16.3	30.08	28 0 53.9	7 19 36.58	4.084	18 59 49.3	29.87
29	7 17 54.97	4.688	18 48 45.2	27.48	29 0 48.2	7 17 51.19	4.689	18 48 23.1	27.28
30	7 15 55.77	5.233	18 38 18.5	24.72	30 0 42.3	7 15 52.07	5.226	18 38 1.1	24.53
31	7 13 44.36	-5.705	+18 28 59.7	-21.81	31 0 36.2	7 13 40.91	-5.691	+18 28 46.6	-21.64

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	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	° ' "	"	d h m	h m s	s	° ' "	"
July 1	7 13 44.36	-5.705	+18 25 59.7	-21.81	1 0 36.2	7 13 40.91	-5.691	+18 28 46.6	-21.64
2	7 11 22.59	6.093	18 20 52.8	18.75	2 0 29.9	7 11 19.55	6.073	18 20 43.5	18.60
3	7 8 52.61	6.389	18 14 0.5	15.59	3 0 23.5	7 8 50.11	6.364	18 13 54.4	15.47
4	7 6 16.71	6.585	18 8 25.3	12.33	4 0 17.0	7 6 14.85	6.557	18 8 21.8	12.24
5	7 3 37.37	6.675	18 4 9.0	9.02	5 0 10.4	7 3 36.21	6.645	18 4 7.4	8.96
6	7 0 57.15	6.658	18 1 12.9	5.66	6 0 3.9	7 0 56.72	6.628	18 1 12.5	5.63
					6 23 57.3	6 58 18.97	6.500	17 59 37.6	-2.29
7	6 58 18.68	6.529	17 59 37.5	-2.29	7 23 50.8	6 55 45.60	6.263	17 59 22.5	+1.02
8	6 55 44.64	6.289	17 59 22.7	+1.05	8 23 44.5	6 53 19.18	5.921	18 0 26.3	4.29
9	6 53 17.64	5.943	18 0 27.4	4.34	9 23 38.3	6 51 2.17	5.479	18 2 47.9	7.46
10	6 51 0.18	5.495	18 2 50.1	7.54	10 23 32.3	6 48 56.98	4.939	18 6 23.4	10.50
11	6 48 54.68	4.948	18 6 28.3	10.60	11 23 26.5	6 47 5.79	4.312	18 11 11.2	13.42
12	6 47 3.37	4.313	18 11 18.8	13.54	12 23 20.9	6 45 30.64	3.604	18 17 7.1	16.19
13	6 45 28.29	3.597	18 17 17.7	16.32	13 23 15.7	6 44 13.36	2.825	18 24 6.5	18.74
14	6 44 11.28	2.810	18 24 20.4	18.88	14 23 10.8	6 43 15.53	1.985	18 32 4.5	21.06
15	6 43 13.90	1.962	18 32 21.9	21.20	15 23 6.3	6 42 38.51	1.091	18 40 55.2	23.12
16	6 42 37.54	1.060	18 41 16.0	23.26	16 23 2.1	6 42 23.51	-0.152	18 50 32.0	24.91
17	6 42 23.38	-0.114	18 50 56.1	25.04	17 22 58.3	6 42 31.49	+0.822	19 0 48.1	26.39
18	6 42 32.36	+0.867	19 1 15.3	26.51	18 22 54.9	6 43 3.21	1.825	19 11 36.0	27.55
19	6 43 5.22	1.875	19 12 6.0	27.65	19 22 51.8	6 43 50.27	2.849	19 22 47.4	28.36
20	6 44 2.53	2.904	19 23 19.7	28.44	20 22 49.3	6 45 20.09	3.888	19 34 14.2	28.81
21	6 45 24.71	3.946	19 34 48.2	28.87	21 22 47.1	6 47 6.00	4.939	19 45 47.2	28.88
22	6 47 12.04	4.998	19 46 22.3	28.91	22 22 45.4	6 49 17.20	5.995	19 57 17.1	28.55
23	6 49 24.70	6.056	19 57 52.6	28.55	23 22 44.0	6 51 53.74	7.050	20 8 34.0	27.80
24	6 52 2.71	7.111	20 9 9.2	27.77	24 22 43.1	6 54 55.56	8.101	20 19 27.7	26.61
25	6 55 5.98	8.160	20 20 1.8	26.55	25 22 42.7	6 58 22.50	9.144	20 29 47.4	24.07
26	6 58 34.33	9.201	20 30 19.5	24.87	26 22 42.6	7 2 14.35	10.174	20 39 22.2	22.86
27	7 2 27.51	10.228	20 39 51.6	22.73	27 22 42.9	7 6 30.74	11.189	20 48 0.8	20.28
28	7 6 45.14	11.238	20 48 26.7	20.12	28 22 43.6	7 11 11.21	12.181	20 55 31.7	17.21
29	7 11 26.74	12.225	20 55 53.5	17.03	29 22 44.7	7 16 15.23	13.149	21 1 43.3	13.67
30	7 16 31.74	13.186	21 2 0.3	13.46	30 22 46.2	7 21 42.09	14.084	21 6 23.9	9.64
31	7 21 59.41	14.114	21 6 35.6	9.41	31 22 48.1	7 27 30.94	14.981	21 9 22.1	5.13
Aug. 1	7 27 48.89	15.003	21 9 23.1	+4.89	1 22 50.3	7 33 40.80	15.834	21 10 26.8	+0.17
2	7 33 59.18	15.847	21 10 26.8	-0.08	2 22 52.9	7 40 10.54	16.636	21 9 26.7	-5.22
3	7 40 29.13	16.640	21 9 20.7	5.47	3 22 55.7	7 46 58.83	17.379	21 6 12.8	11.00
4	7 47 17.43	17.374	21 6 0.9	11.24	4 22 58.9	7 54 4.21	18.058	21 0 36.2	17.12
5	7 54 22.58	18.044	21 0 18.6	17.34	5 23 2.3	8 1 25.04	18.665	20 52 29.2	23.50
6	8 1 42.96	18.642	20 52 6.5	23.70	6 23 5.9	8 8 59.53	19.196	20 41 46.5	30.08
7	8 9 16.80	19.165	20 41 19.3	30.25	7 23 9.7	8 16 45.80	19.646	20 28 24.3	36.79
8	8 17 2.23	19.607	20 27 53.4	36.92	8 23 13.7	8 24 41.88	20.013	20 12 20.2	43.54
9	8 24 57.29	19.967	20 11 46.6	43.63	9 23 17.8	8 32 45.77	20.297	19 53 34.6	50.24
10	8 33 0.00	20.245	19 52 59.3	50.29	10 23 22.0	8 40 55.47	20.498	19 32 9.6	56.82
11	8 41 8.41	20.442	19 31 33.7	56.82	11 23 26.3	8 49 9.04	20.620	19 8 9.1	63.18
12	8 49 20.59	20.561	19 7 33.7	63.14	12 23 30.6	8 57 24.66	20.668	18 41 38.8	69.28
13	8 57 34.76	20.607	18 41 5.0	69.19	13 23 34.9	9 5 40.60	20.648	18 12 46.2	75.05
14	9 5 49.21	20.586	18 12 15.0	74.92	14 23 39.2	9 13 55.30	20.567	17 41 39.5	80.44
15	9 14 2.41	20.505	17 41 11.8	80.28	15 23 43.4	9 22 7.41	20.433	17 8 27.9	85.44
16	9 22 13.03	20.372	17 8 4.5	85.25	16 23 47.6	9 30 15.75	20.254	16 33 21.2	90.04
17	9 30 19.91	20.194	16 33 2.8	89.82	17 23 51.7	9 38 19.31	20.038	15 56 29.4	94.20
18	9 38 22.06	19.980	15 56 16.6	93.96	18 23 55.7	9 46 17.31	19.791	15 18 2.9	97.94
19	9 46 18.71	19.736	15 17 56.1	97.68	19 23 59.6	9 54 9.11	19.522	14 38 11.5	101.28
20	9 54 9.22	19.470	14 38 11.0	101.01					
21	10 1 53.13	19.187	13 57 10.9	103.94	21 0 3.4	10 1 54.23	19.236	13 57 4.8	104.22
22	10 9 30.11	18.893	13 15 5.0	106.50	22 0 7.1	10 9 32.35	18.939	13 14 52.2	106.78
23	10 16 59.93	18.592	12 32 1.7	108.72	23 0 10.7	10 17 3.24	18.635	12 31 42.3	109.00
24	10 24 22.50	18.288	11 48 9.3	110.60	24 0 14.1	10 24 26.81	18.328	11 47 43.3	110.87
25	10 31 37.78	17.986	11 3 35.3	112.19	25 0 17.4	10 31 43.01	18.023	11 3 2.7	112.46
26	10 39 45.83	17.685	10 18 26.4	113.50	26 0 20.6	10 38 51.91	17.719	10 17 47.4	113.76
27	10 45 46.72	17.390	9 32 49.3	114.55	27 0 23.7	10 45 53.60	17.422	9 32 4.0	114.81
28	10 52 40.61	17.102	8 46 49.7	115.38	28 0 26.7	10 52 48.22	17.131	8 45 58.4	115.63
29	10 59 27.68	16.822	8 0 32.9	115.99	29 0 29.6	10 59 35.96	16.849	7 59 35.8	116.22
30	11 6 8.11	16.549	7 14 3.9	116.39	30 0 32.3	11 6 17.01	16.574	7 13 1.3	116.61
31	11 12 42.12	16.287	+6 27 27.2	-116.63	31 0 34.9	11 12 51.59	16.310	+6 26 19.4	-116.84

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
May 1	2 1 50.93	18.904	+11 6 56.8	+125.17	1 23 28.6	2 9 18.70	19.293	+11 55 57.4	+125.62
2	2 9 28.78	19.250	11 57 3.0	125.29	2 23 32.4	2 17 5.95	19.644	12 46 10.6	125.42
3	2 17 14.96	19.597	12 47 8.1	125.07	3 23 36.4	2 25 1.57	19.990	13 36 14.2	124.82
4	2 25 9.41	19.940	13 37 3.2	124.46	4 23 40.5	2 33 5.44	20.331	14 25 58.8	123.81
5	2 33 12.03	20.277	14 26 38.9	123.44	5 23 44.7	2 41 17.39	20.662	15 15 13.8	122.35
6	2 41 22.63	20.604	15 15 44.8	121.97	6 23 49.1	2 49 37.08	20.976	16 3 47.7	120.40
7	2 49 40.87	20.914	16 4 9.5	120.02	7 23 53.6	2 58 4.08	21.269	16 51 29.0	117.95
8	2 58 6.33	21.203	16 51 41.5	117.57	8 23 58.2	3 6 37.76	21.533	17 38 5.2	114.97
9	3 6 38.39	21.464	17 38 8.6	114.60					
10	3 15 16.33	21.691	18 23 18.2	111.11	10 0 2.9	3 15 17.39	21.763	18 23 23.6	111.47
11	3 23 59.26	21.879	19 6 57.7	107.10	11 0 7.7	3 24 2.07	22.053	19 7 11.5	107.44
12	3 32 46.19	22.024	19 48 54.9	102.60	12 0 12.6	3 32 50.80	22.100	19 49 16.4	102.91
13	3 41 36.02	22.120	20 28 58.6	97.64	13 0 17.5	3 41 42.46	22.197	20 29 27.0	97.91
14	3 50 27.54	22.165	21 6 57.8	92.24	14 0 22.4	3 50 35.82	22.241	21 7 32.2	92.47
15	3 59 19.49	22.156	21 42 43.1	86.48	15 0 27.4	3 59 29.59	22.231	21 43 22.5	86.66
16	4 8 10.57	22.092	22 16 6.3	80.41	16 0 32.3	4 8 22.46	22.165	22 16 49.6	80.54
17	4 16 59.47	21.974	22 47 0.9	74.11	17 0 37.2	4 17 13.08	22.044	22 47 46.8	74.10
18	4 25 44.91	21.804	23 15 22.2	67.64	18 0 42.0	4 26 0.17	21.871	23 16 9.5	67.67
19	4 34 25.64	21.583	23 41 6.6	61.06	19 0 46.8	4 34 42.46	21.646	23 41 54.1	61.04
20	4 43 0.49	21.314	24 4 12.6	54.44	20 0 51.4	4 43 18.75	21.372	24 4 59.2	54.32
21	4 51 28.35	21.001	24 24 40.0	47.85	21 0 55.9	5 51 47.92	21.053	24 25 24.6	47.75
22	4 59 48.20	20.648	24 42 30.2	41.35	22 1 0.3	5 0 8.95	20.694	24 43 11.7	41.21
23	5 7 59.15	20.258	24 57 45.5	34.97	23 1 4.6	5 8 20.94	20.298	24 58 23.1	34.79
24	5 16 0.35	19.837	25 10 29.6	28.74	24 1 8.7	5 16 23.04	19.871	25 11 2.4	28.52
25	5 23 51.09	19.386	25 20 46.3	22.69	25 1 12.6	5 24 14.52	19.414	25 21 13.6	22.45
26	5 31 30.68	18.909	25 28 40.7	16.88	26 1 16.3	5 31 54.69	18.931	25 29 2.0	16.62
27	5 38 58.53	18.408	25 34 18.7	11.32	27 1 19.8	5 39 22.98	18.423	25 34 33.6	11.05
28	5 46 14.10	17.887	25 37 46.2	6.01	28 1 23.1	5 46 38.85	17.897	25 37 54.3	5.73
29	5 53 16.97	17.348	25 39 9.2	0.95	29 1 26.2	5 53 41.86	17.351	25 39 10.4	0.66
30	6 0 6.68	16.792	25 38 34.1	3.84	30 1 29.1	6 0 31.57	16.789	25 38 28.2	4.14
31	6 6 42.86	16.220	25 36 7.5	8.34	31 1 31.7	6 7 7.62	16.212	25 35 54.5	8.63
June 1	6 13 5.14	15.635	25 31 56.2	12.57	1 1 34.1	6 13 29.63	15.621	25 31 36.2	12.86
2	6 19 13.21	15.035	25 26 6.3	16.54	2 1 36.3	6 19 37.31	15.016	25 25 39.5	16.82
3	6 25 6.73	14.423	25 18 44.4	20.22	3 1 38.3	6 25 30.31	14.399	25 18 11.1	20.48
4	6 30 45.42	13.799	25 9 58.0	23.62	4 1 40.0	6 31 8.36	13.770	25 9 18.5	23.87
5	6 36 8.97	13.162	24 59 52.9	26.77	5 1 41.4	6 36 31.16	13.129	24 59 7.5	27.01
6	6 41 17.07	12.512	24 48 35.4	29.65	6 1 42.6	6 41 38.41	12.474	24 47 44.5	29.87
7	6 46 9.43	11.850	24 36 11.9	32.26	7 1 43.5	6 46 29.82	11.808	24 35 16.1	32.46
8	6 50 45.76	11.175	24 22 48.8	34.62	8 1 44.1	6 51 5.11	11.130	24 21 48.6	34.79
9	6 55 5.72	10.487	24 8 32.3	36.72	9 1 44.5	6 55 23.94	10.438	24 7 28.3	36.87
10	6 59 9.02	9.786	23 53 28.4	38.56	10 1 44.6	6 59 26.03	9.734	23 59 21.1	38.68
11	7 2 55.33	9.071	23 37 43.5	40.15	11 1 44.4	7 3 11.06	9.017	23 36 33.6	40.25
12	7 6 24.31	8.342	23 21 23.3	41.49	12 1 43.9	7 6 38.71	8.226	23 20 11.4	41.56
13	7 9 35.64	7.600	23 4 34.0	42.58	13 1 43.1	7 9 48.66	7.542	23 3 20.7	42.62
14	7 12 29.01	6.844	22 47 21.5	43.42	14 1 42.1	7 12 40.61	6.784	22 46 7.7	43.43
15	7 15 4.06	6.075	22 29 51.8	44.02	15 1 40.7	7 15 14.21	6.014	22 28 38.0	44.03
16	7 17 20.50	5.293	22 12 10.7	44.37	16 1 39.0	7 17 29.19	5.232	22 10 57.5	44.33
17	7 19 18.04	4.500	21 54 24.2	44.47	17 1 37.0	7 19 25.27	4.440	21 53 12.3	44.40
18	7 20 56.41	3.696	21 36 38.2	44.33	18 1 34.7	7 21 2.20	3.637	21 35 28.3	44.24
19	7 22 15.40	2.885	21 18 58.3	43.95	19 1 32.0	7 22 19.79	2.828	21 17 50.9	43.83
20	7 23 14.84	2.068	21 1 30.5	43.33	20 1 29.0	7 23 17.87	2.013	21 0 26.2	43.19
21	7 23 54.65	1.248	20 44 20.2	42.47	21 1 25.7	7 23 56.40	1.196	20 43 19.5	42.31
22	7 24 14.81	+0.432	20 27 33.8	41.37	22 1 22.1	7 24 15.37	+0.385	20 26 37.2	41.19
23	7 24 15.45	-0.376	20 11 16.6	40.04	23 1 18.2	7 24 14.93	-0.418	20 10 24.4	39.85
24	7 23 56.84	1.172	19 55 33.8	38.48	24 1 14.0	7 23 55.38	1.209	19 54 46.4	38.28
25	7 23 19.34	1.948	19 40 31.1	36.70	25 1 9.4	7 23 17.07	1.978	19 39 48.7	36.49
26	7 22 23.53	2.697	19 26 14.0	34.70	26 1 4.5	7 22 20.61	2.720	19 25 36.7	34.48
27	7 21 10.17	3.409	19 12 47.4	32.49	27 0 59.3	7 21 6.79	3.425	19 12 15.3	32.27
28	7 19 40.25	4.076	19 0 16.3	30.03	28 0 53.9	7 19 36.58	4.034	18 59 49.3	29.87
29	7 17 54.97	4.688	18 48 45.2	27.48	29 0 48.2	7 17 51.19	4.689	18 48 23.1	27.28
30	7 15 55.77	5.233	18 38 18.5	24.72	30 0 42.3	7 15 52.07	5.226	18 38 1.1	24.53
31	7 13 44.36	-5.705	+18 28 59.7	-21.81	31 0 36.2	7 13 40.91	-5.691	+18 28 46.6	-21.64

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s ° ' "	s	° ' "	"	d h m	h m s ° ' "	s	° ' "	"
July 1	7 13 44.36	-5.705	+18 28 59.7	-21.81	1 0 36.2	7 13 40.91	-5.691	+18 28 46.6	-21.64
2	7 11 22.59	6.093	18 20 52.8	18.75	2 0 29.9	7 11 19.55	6.073	18 20 43.5	18.60
3	7 8 52.61	6.389	18 14 0.5	15.59	3 0 23.5	7 8 50.11	6.364	18 13 54.4	15.47
4	7 6 16.71	6.585	18 8 25.3	12.33	4 0 17.0	7 6 14.85	6.557	18 8 21.8	12.24
5	7 3 37.37	6.675	18 4 9.0	9.02	5 0 10.4	7 3 36.21	6.645	18 4 7.4	8.96
6	7 0 57.15	6.658	18 1 12.9	5.66	6 0 3.9	7 0 56.72	6.628	18 1 12.5	5.63
					6 23 57.3	6 58 18.97	6.500	17 59 37.6	-2.29
7	6 58 18.68	6.529	17 59 37.5	-2.29	7 23 50.8	6 55 45.60	6.263	17 59 22.5	+1.02
8	6 55 44.64	6.289	17 59 22.7	+1.05	8 23 44.5	6 53 19.12	5.921	18 0 26.3	4.29
9	6 53 17.64	5.943	18 0 27.4	4.34	9 23 38.3	6 51 2.17	5.479	18 2 47.9	7.46
10	6 51 0.18	5.495	18 2 50.1	7.54	10 23 32.3	6 48 56.98	4.939	18 6 23.4	10.50
11	6 48 54.68	4.948	18 6 28.3	10.60	11 23 26.5	6 47 5.79	4.312	18 11 11.2	13.42
12	6 47 3.37	4.313	18 11 18.8	13.54	12 23 20.9	6 45 30.64	3.604	18 17 7.1	16.19
13	6 45 28.29	3.597	18 17 17.7	16.32	13 23 15.7	6 44 13.36	2.825	18 24 6.5	18.74
14	6 44 11.28	2.810	18 24 20.4	18.88	14 23 10.8	6 43 15.53	1.985	18 32 4.5	21.06
15	6 43 13.90	1.962	18 32 21.9	21.20	15 23 6.3	6 42 38.51	1.091	18 40 55.2	23.12
16	6 42 37.54	1.060	18 41 16.0	23.26	16 23 2.1	6 42 23.51	-0.159	18 50 32.0	24.91
17	6 42 23.38	-0.114	18 50 56.1	25.04	17 22 58.3	6 42 31.49	+0.822	19 0 48.1	26.30
18	6 42 32.36	+0.867	19 1 15.3	26.51	18 22 54.9	6 43 3.21	1.825	19 11 36.0	27.55
19	6 43 5.22	1.875	19 12 6.0	27.65	19 22 51.8	6 43 50.27	2.849	19 22 47.4	28.36
20	6 44 2.53	2.904	19 23 19.7	28.44	20 22 49.3	6 45 20.09	3.888	19 34 14.2	28.81
21	6 45 24.71	3.946	19 34 48.2	28.87	21 22 47.1	6 47 6.00	4.939	19 45 47.2	28.88
22	6 47 12.04	4.998	19 46 22.3	28.91	22 22 45.4	6 49 17.20	5.995	19 57 17.1	28.55
23	6 49 24.70	6.056	19 57 52.6	28.55	23 22 44.0	6 51 53.74	7.050	20 8 34.0	27.80
24	6 52 2.71	7.111	20 9 9.2	27.77	24 22 43.1	6 54 55.56	8.101	20 19 27.7	26.61
25	6 55 5.98	8.160	20 20 1.8	26.55	25 22 42.7	6 58 22.50	9.144	20 29 47.4	24.97
26	6 58 34.33	9.201	20 30 19.5	24.87	26 22 42.6	7 2 14.35	10.174	20 39 22.2	22.86
27	7 2 27.51	10.228	20 39 51.6	22.73	27 22 42.9	7 6 30.74	11.189	20 48 0.8	20.28
28	7 6 45.14	11.238	20 48 26.7	20.12	28 22 43.6	7 11 11.21	12.181	20 55 31.7	17.21
29	7 11 26.74	12.225	20 55 53.5	17.03	29 22 44.7	7 16 15.23	13.149	21 1 43.3	13.67
30	7 16 31.74	13.186	21 2 0.3	13.46	30 22 46.2	7 21 42.09	14.084	21 6 23.9	9.64
31	7 21 59.41	14.114	21 6 35.6	9.41	31 22 48.1	7 27 30.94	14.981	21 9 22.1	5.13
Aug. 1	7 27 48.89	15.003	21 9 28.1	+4.89	1 22 50.3	7 33 40.80	15.834	21 10 26.8	+0.17
2	7 33 59.18	15.847	21 10 26.8	0.08	2 22 52.9	7 40 10.54	16.636	21 9 26.7	-5.22
3	7 40 29.13	16.640	21 9 20.7	5.47	3 22 55.7	7 46 58.83	17.379	21 6 12.8	11.00
4	7 47 17.43	17.374	21 6 0.9	11.24	4 22 58.9	7 54 4.21	18.058	21 0 36.2	17.12
5	7 54 22.58	18.044	21 0 18.6	17.34	5 23 2.3	8 1 25.04	18.665	20 52 20.2	23.50
6	8 1 42.96	18.642	20 52 6.5	23.70	6 23 5.9	8 8 59.53	19.196	20 41 46.5	30.08
7	8 9 16.80	19.165	20 41 19.3	30.25	7 23 9.7	8 16 45.80	19.646	20 28 24.3	36.79
8	8 17 2.23	19.607	20 27 53.4	36.92	8 23 13.7	8 24 41.88	20.013	20 12 20.2	43.54
9	8 24 57.29	19.967	20 11 46.6	43.63	9 23 17.8	8 32 45.77	20.297	19 53 34.6	50.24
10	8 33 0.00	20.245	19 52 59.3	50.20	10 23 22.0	8 40 55.47	20.498	19 32 9.6	56.82
11	8 41 8.41	20.442	19 31 33.7	56.82	11 23 26.3	8 49 9.04	20.620	19 8 9.1	63.18
12	8 49 20.59	20.561	19 7 33.7	63.14	12 23 30.6	8 57 24.66	20.668	18 41 38.8	69.28
13	8 57 34.76	20.607	18 41 5.0	69.19	13 23 34.9	9 5 40.60	20.648	18 12 46.2	75.05
14	9 5 49.21	20.586	18 12 15.0	74.92	14 23 39.2	9 13 55.30	20.567	17 41 39.5	80.44
15	9 14 2.41	20.505	17 41 11.8	80.23	15 23 43.4	9 22 7.41	20.433	17 8 27.9	85.44
16	9 22 13.03	20.372	17 8 4.5	85.25	16 23 47.6	9 30 15.75	20.254	16 33 21.2	90.04
17	9 30 19.91	20.194	16 33 2.8	89.32	17 23 51.7	9 38 19.31	20.038	15 56 29.4	94.20
18	9 38 22.06	19.980	15 56 16.6	93.96	18 23 55.7	9 46 17.31	19.791	15 18 2.9	97.94
19	9 46 18.71	19.736	15 17 56.1	97.68	19 23 59.6	9 54 9.11	19.522	14 38 11.5	101.28
20	9 54 9.22	19.470	14 38 11.0	101.01					
21	10 1 53.13	19.187	13 57 10.9	103.94	21 0 3.4	10 1 54.23	19.236	13 57 4.8	104.22
22	10 9 30.11	18.893	13 15 5.0	106.50	22 0 7.1	10 9 32.35	18.939	13 14 52.2	106.78
23	10 16 59.93	18.592	12 32 1.7	108.72	23 0 10.7	10 17 3.24	18.635	12 31 42.3	109.00
24	10 24 22.50	18.288	11 48 9.3	110.60	24 0 14.1	10 24 26.81	18.328	11 47 43.3	110.87
25	10 31 37.78	17.986	11 3 35.3	112.19	25 0 17.4	10 31 43.01	18.023	11 3 2.7	112.46
26	10 38 45.83	17.685	10 18 26.4	113.50	26 0 20.6	10 38 51.91	17.719	10 17 47.4	113.76
27	10 45 46.72	17.390	9 32 49.3	114.55	27 0 23.7	10 45 53.60	17.422	9 32 4.0	114.81
28	10 52 40.61	17.102	8 46 49.7	115.38	28 0 26.7	10 52 48.22	17.131	8 45 58.4	115.63
29	10 59 27.68	16.822	8 0 32.9	115.99	29 0 29.6	10 59 35.96	16.849	7 59 35.8	116.22
30	11 6 8.11	16.549	7 14 3.9	116.39	30 0 32.3	11 6 17.01	16.574	7 13 1.3	116.61
31	11 12 42.12	16.287	+6 27 27.2	-116.63	31 0 34.9	11 12 51.59	16.310	+6 26 19.4	-116.84

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	o ' "	"	d h m	h m s	s	o ' "	"
Sept. 1	11 19 9.97	16.035	+ 5 40 46.9	-116.70	1 0 37.4	11 19 19.96	16.056	+ 5 39 34.1	-116.90
2	11 25 31.86	15.792	4 54 6.8	116.62	2 0 39.8	11 25 42.34	15.812	4 52 49.3	116.81
3	11 31 48.04	15.558	4 7 30.2	116.41	3 0 42.1	11 31 58.97	15.576	4 6 8.4	116.59
4	11 37 58.74	15.335	3 21 0.2	116.07	4 0 44.4	11 38 10.09	15.352	3 19 34.3	116.23
5	11 44 4.19	15.121	2 34 39.8	115.62	5 0 46.6	11 44 15.92	15.136	2 33 10.1	115.77
6	11 50 4.63	14.917	1 48 31.7	115.05	6 0 48.6	11 50 16.72	14.931	1 46 58.5	115.19
7	11 56 0.25	14.720	1 2 38.2	114.39	7 0 50.6	11 56 12.67	14.733	1 1 1.7	114.52
8	12 1 51.27	14.533	+ 0 17 1.6	113.64	8 0 52.5	12 2 3.99	14.545	+ 0 15 22.2	113.76
9	12 7 37.90	14.354	- 0 28 15.8	112.79	9 0 54.3	12 7 50.90	14.365	- 0 29 57.9	112.90
10	12 13 20.31	14.182	1 13 11.9	111.87	10 0 56.1	12 13 33.57	14.192	1 14 56.5	111.97
11	12 18 58.66	14.016	1 57 44.9	110.87	11 0 57.8	12 19 12.16	14.026	1 59 31.7	110.95
12	12 24 33.13	13.857	2 41 53.2	109.80	12 0 59.4	12 24 46.85	13.866	2 43 41.9	109.87
13	12 30 3.85	13.703	3 25 34.9	108.65	13 1 1.0	12 30 17.78	13.711	3 27 25.3	108.72
14	12 35 30.94	13.555	4 8 48.1	107.44	14 1 2.5	12 35 45.06	13.563	4 10 40.0	107.50
15	12 40 54.54	13.412	4 51 31.6	106.16	15 1 4.0	12 41 8.84	13.419	4 53 24.7	106.21
16	12 46 14.73	13.272	5 33 43.4	104.82	16 1 5.4	12 46 29.19	13.278	5 35 37.5	104.86
17	12 51 31.59	13.133	6 15 22.3	103.41	17 1 6.7	12 51 46.19	13.138	6 17 17.2	103.44
18	12 56 45.15	12.998	6 56 26.5	101.92	18 1 8.0	12 56 59.87	13.003	6 58 21.9	101.94
19	13 1 55.50	12.865	7 36 54.1	100.37	19 1 9.2	13 2 10.34	12.869	7 38 49.8	100.38
20	13 7 2.65	12.730	8 16 43.8	98.76	20 1 10.4	13 7 17.59	12.734	8 18 39.5	98.76
21	13 12 6.55	12.595	8 55 54.0	97.08	21 1 11.5	13 12 21.57	12.598	8 57 49.6	97.07
22	13 17 7.19	12.458	9 34 22.8	95.32	22 1 12.6	13 17 22.26	12.460	9 36 18.0	95.30
23	13 22 4.49	12.317	10 12 8.6	93.48	23 1 13.6	13 22 19.59	12.318	10 14 3.2	93.45
24	13 26 58.39	12.173	10 49 9.3	91.56	24 1 14.5	13 27 13.50	12.173	10 51 3.1	91.52
25	13 31 48.74	12.022	11 25 23.0	89.56	25 1 15.4	13 32 3.84	12.021	11 27 15.6	89.50
26	13 36 35.36	11.862	12 0 47.5	87.47	26 1 16.2	13 36 50.43	11.862	12 2 38.6	87.40
27	13 41 18.07	11.695	12 35 20.7	85.28	27 1 17.0	13 41 33.07	11.692	12 37 10.0	85.20
28	13 45 56.63	11.517	13 9 0.2	82.99	28 1 17.7	13 46 11.54	11.513	13 10 47.5	82.90
29	13 50 30.75	11.324	13 41 43.4	80.59	29 1 18.4	13 50 45.53	11.316	13 43 28.5	80.49
30	13 55 0.06	11.115	14 13 27.5	78.06	30 1 18.9	13 55 14.66	11.107	14 15 10.1	77.94
Oct. 1	13 59 24.18	10.889	14 44 9.4	75.41	1 1 19.3	13 59 38.57	10.879	14 46 49.0	75.28
2	14 3 42.60	10.642	15 13 46.1	72.62	2 1 19.7	14 3 56.72	10.630	15 15 22.4	72.48
3	14 7 54.80	10.371	15 42 14.0	69.67	3 1 20.0	14 8 8.60	10.356	15 43 46.7	69.51
4	14 12 0.17	10.072	16 9 28.8	66.54	4 1 20.1	14 12 13.59	10.055	16 10 57.5	66.37
5	14 15 57.98	9.740	16 35 26.6	63.24	5 1 20.1	14 16 10.96	9.720	16 36 50.9	63.05
6	14 19 47.42	9.373	17 0 2.7	59.73	6 1 20.0	14 19 59.89	9.350	17 1 22.2	59.52
7	14 23 27.59	8.967	17 23 11.9	55.99	7 1 19.7	14 23 39.48	8.941	17 24 26.2	55.76
8	14 26 57.47	8.515	17 44 48.3	52.00	8 1 19.2	14 27 8.70	8.486	17 45 56.9	51.75
9	14 30 15.91	8.012	18 4 45.5	47.72	9 1 18.6	14 30 26.39	7.979	18 5 47.9	47.45
10	14 33 21.62	7.454	18 22 56.5	43.14	10 1 17.7	14 33 31.26	7.417	18 23 52.1	42.86
11	14 36 13.19	6.833	18 39 13.3	38.20	11 1 16.6	14 36 21.90	6.792	18 40 1.9	37.90
12	14 38 49.06	6.144	18 53 27.2	32.88	12 1 15.3	14 38 56.75	6.100	18 54 8.3	32.56
13	14 41 7.52	5.382	19 5 28.4	27.14	13 1 13.7	14 41 14.10	5.334	19 6 1.5	26.80
14	14 43 6.75	4.540	19 15 6.0	20.92	14 1 11.7	14 43 12.15	4.489	19 15 30.8	20.57
15	14 44 44.75	3.612	19 22 8.1	14.17	15 1 9.3	14 44 48.89	3.559	19 22 24.3	13.81
16	14 45 59.45	2.598	19 26 21.4	- 6.85	16 1 6.6	14 46 2.30	2.544	19 26 28.8	- 6.49
17	14 46 48.76	1.496	19 27 31.8	+ 1.08	17 1 3.5	14 46 50.31	1.442	19 27 30.5	+ 1.44
18	14 47 10.55	+0.306	19 25 24.2	- 9.66	18 0 59.9	14 47 10.83	+0.252	19 25 14.4	- 10.00
19	14 47 2.81	-0.964	19 19 42.8	18.90	19 0 55.8	14 47 1.89	-1.012	19 19 25.1	19.21
20	14 46 23.75	2.304	19 10 11.8	28.79	20 0 51.2	14 46 21.76	2.344	19 9 47.1	29.05
21	14 45 11.97	3.688	18 56 36.3	39.26	21 0 46.1	14 45 9.12	3.718	18 56 6.0	39.45
22	14 43 26.60	5.096	18 38 43.5	50.21	22 0 40.4	14 43 23.15	5.114	18 38 9.6	50.31
23	14 41 7.62	6.483	18 16 24.4	61.42	23 0 34.1	14 41 3.92	6.486	18 15 49.5	61.41
24	14 38 15.95	7.808	17 49 35.8	72.61	24 0 27.3	14 38 12.38	7.794	17 49 2.7	72.46
25	14 34 53.78	9.015	17 18 22.4	83.40	25 0 20.1	14 34 50.75	8.984	17 17 54.5	83.11
26	14 31 4.68	10.041	16 42 59.8	93.29	26 0 12.4	14 31 2.61	9.994	16 42 40.6	92.86
27	14 26 53.71	10.828	16 3 56.2	101.72	27 0 4.3	14 26 52.94	10.769	16 3 49.0	101.17
28	14 22 27.27	11.320	15 21 53.4	108.12	27 23 56.0	14 22 28.04	11.254	15 22 0.7	107.43
29	14 17 53.01	11.474	14 37 46.7	111.96	28 23 47.5	14 17 55.42	11.408	14 38 10.2	111.29
30	14 13 19.37	11.268	13 52 42.6	112.84	29 23 39.0	14 13 23.32	11.209	13 53 22.2	112.20
31	14 8 55.03	10.700	-13 7 55.5	+110.53	30 23 30.7	14 9 0.27	10.655	13 8 49.6	109.99
					31 23 22.7	14 4 54.58	-9.768	-12 25 47.5	+104.68

Table with columns: Date, Apparent Right Ascension, Diff for 1 hour, Apparent Declination, Diff. for 1 hour, Mean Time of Transit, Apparent Right Ascension, Diff. for 1 h. of Long., Apparent Declination, Diff. for 1 hour of Long. Rows are organized by date (Nov. 1-30, Dec. 1-32).

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	° ' "	"	d h m	h m s	s	° ' "	"
Jan. 0	16 33 56.70	+1.027	-17 24 58.3	+11.65	0 21 51.0	16 34 23.04	+1.379	-17 21 4.5	+ 9.72
1	16 34 26.06	1.417	17 20 43.9	9.57	1 21 47.7	16 35 0.72	1.759	17 17 35.5	7.72
2	16 35 4.64	1.797	17 17 18.8	7.56	2 21 44.5	16 35 47.37	2.128	17 14 53.6	5.80
3	16 35 52.22	2.167	17 14 40.8	5.64	3 21 41.5	16 36 42.78	2.488	17 12 56.9	3.96
4	16 36 48.57	2.527	17 12 48.1	3.80	4 21 38.6	16 37 46.71	2.838	17 11 43.4	2.22
5	16 37 53.44	2.877	17 11 38.5	2.06	5 21 35.9	16 38 58.89	3.177	17 11 10.6	+ 0.57
6	16 39 6.57	3.216	17 11 9.6	+ 0.41	6 21 33.3	16 40 19.08	3.505	17 11 16.4	- 1.00
7	16 40 27.70	3.544	17 11 19.2	- 1.15	7 21 30.8	16 41 47.03	3.822	17 11 58.4	2.46
8	16 41 56.59	3.861	17 12 4.9	2.61	8 21 28.5	16 43 22.48	4.130	17 13 14.4	3.83
9	16 43 32.17	4.168	17 13 24.4	3.97	9 21 26.3	16 45 5.20	4.428	17 15 2.1	5.10
10	16 45 16.60	4.466	17 15 15.5	5.24	10 21 24.2	16 46 54.97	4.716	17 17 19.5	6.29
11	16 47 7.27	4.754	17 17 36.1	6.42	11 21 22.2	16 48 51.55	4.996	17 20 4.0	7.38
12	16 49 4.74	5.033	17 20 23.7	7.50	12 21 20.3	16 50 54.72	5.267	17 23 13.6	8.37
13	16 51 8.79	5.303	17 23 36.2	8.49	13 21 18.5	16 53 4.28	5.528	17 26 46.0	9.28
14	16 53 19.21	5.563	17 27 11.3	9.39	14 21 16.8	16 55 20.02	5.781	17 30 39.1	10.10
15	16 55 35.79	5.816	17 31 6.9	10.20	15 21 15.2	16 57 41.73	6.026	17 34 50.8	10.84
16	16 57 58.33	6.060	17 35 20.8	10.93	16 21 13.8	17 0 9.23	6.264	17 39 18.9	11.48
17	17 0 26.63	6.297	17 39 50.9	11.56	17 21 12.4	17 2 42.34	6.494	17 44 1.5	12.04
18	17 3 0.51	6.526	17 44 35.3	12.11	18 21 11.1	17 5 20.84	6.715	17 48 56.5	12.51
19	17 5 39.80	6.747	17 49 31.9	12.57	19 21 9.9	17 8 4.60	6.930	17 54 1.9	12.90
20	17 8 24.31	6.961	17 54 38.6	12.95	20 21 8.8	17 10 53.46	7.139	17 59 15.8	13.22
21	17 11 13.89	7.169	17 59 53.6	13.26	21 21 7.8	17 13 47.23	7.341	18 4 36.3	13.46
22	17 14 8.36	7.370	18 5 15.0	13.49	22 21 6.8	17 16 45.76	7.536	18 10 1.6	13.62
23	17 17 7.57	7.564	18 10 41.0	13.64	23 21 5.9	17 19 48.90	7.724	18 15 28.8	13.70
24	17 20 11.36	7.751	18 16 9.6	13.71	24 21 5.1	17 22 56.48	7.906	18 20 59.3	13.72
25	17 23 19.57	7.932	18 21 39.3	13.72	25 21 4.3	17 26 8.35	8.082	18 26 28.2	13.66
26	17 26 32.05	8.107	18 27 8.2	13.66	26 21 3.6	17 29 24.36	8.252	18 31 55.1	13.54
27	17 29 48.65	8.276	18 32 34.9	13.53	27 21 3.0	17 32 44.37	8.416	18 37 18.3	13.35
28	17 33 9.23	8.439	18 37 57.6	13.33	28 21 2.5	17 36 8.26	8.574	18 42 36.3	13.10
29	17 36 33.66	8.596	18 43 14.9	13.07	29 21 2.0	17 39 35.87	8.726	18 47 47.3	12.79
30	17 40 1.79	8.747	18 48 25.1	12.75	30 21 1.6	17 43 7.07	8.873	18 52 50.2	12.42
31	17 43 33.49	8.893	18 53 27.0	12.37	31 21 1.2	17 46 41.71	9.014	18 57 43.5	11.99
Feb. 1	17 47 8.61	9.033	18 58 19.1	11.94	1 21 0.9	17 50 19.68	9.150	19 2 25.9	11.51
2	17 50 47.03	9.168	19 3 0.2	11.45	2 21 0.6	17 54 0.84	9.281	19 6 56.3	10.98
3	17 54 28.62	9.298	19 7 23.9	10.91	3 21 0.4	17 57 45.08	9.406	19 11 13.3	10.39
4	17 58 13.26	9.422	19 11 44.2	10.32	4 21 0.2	18 1 32.27	9.526	19 15 15.7	9.77
5	18 2 0.83	9.541	19 15 44.7	9.69	5 21 0.1	18 5 22.30	9.641	19 19 2.5	9.11
6	18 5 51.22	9.656	19 19 29.5	9.02	6 21 0.1	18 9 15.04	9.752	19 22 32.5	8.39
7	18 9 44.30	9.766	19 22 57.4	8.30	7 21 0.1	18 13 10.39	9.859	19 25 44.9	7.63
8	18 13 39.97	9.872	19 26 7.5	7.53	8 21 0.1	18 17 8.25	9.962	19 28 38.6	6.83
9	18 17 38.13	9.974	19 29 58.8	6.73	9 21 0.2	18 21 8.53	10.061	19 21 12.8	6.00
10	18 21 38.69	10.072	19 31 30.4	5.89	10 21 0.3	18 25 11.12	10.155	19 33 26.5	5.13
11	18 25 41.55	10.165	19 33 41.5	5.02	11 21 0.4	18 29 15.93	10.245	19 35 18.9	4.23
12	18 29 46.61	10.255	19 35 31.2	4.11	12 21 0.5	18 33 22.87	10.332	19 36 49.2	3.29
13	18 33 53.78	10.341	19 36 58.7	3.17	13 21 0.7	18 37 31.85	10.416	19 37 56.8	2.32
14	18 38 2.97	10.424	19 38 3.3	2.20	14 21 1.0	18 41 42.78	10.495	19 38 40.7	1.32
15	18 42 14.10	10.503	19 38 44.2	1.19	15 21 1.3	18 45 55.58	10.571	19 39 0.3	- 0.29
16	18 46 27.08	10.578	19 39 0.7	- 0.16	16 21 1.6	18 50 10.16	10.644	19 38 54.8	+ 0.76
17	18 50 41.82	10.650	19 38 52.1	+ 0.89	17 21 1.9	18 54 26.45	10.712	19 38 23.8	1.84
18	18 54 58.25	10.718	19 38 17.9	1.97	18 21 2.3	18 57 44.34	10.778	19 37 26.7	2.93
19	18 59 16.27	10.783	19 37 17.6	3.07	19 21 2.7	19 3 3.76	10.840	19 36 3.0	4.05
20	19 3 35.81	10.845	19 35 50.6	4.19	20 21 3.1	19 7 24.66	10.900	19 34 12.0	5.20
21	19 7 56.81	10.904	19 33 56.3	5.34	21 21 3.5	19 11 46.95	10.956	19 31 53.5	6.56
22	19 12 19.18	10.959	19 31 34.3	6.50	22 21 4.0	19 16 10.54	11.009	19 29 6.6	7.54
23	19 16 42.84	11.011	19 28 44.1	7.68	23 21 4.4	19 20 35.35	11.058	19 25 51.3	8.74
24	19 21 7.70	11.060	19 25 25.4	8.88	24 21 4.9	19 25 1.31	11.104	19 22 7.1	9.95
25	19 25 33.70	11.106	19 21 37.6	10.10	25 21 5.4	19 29 28.34	11.147	19 17 53.6	11.17
26	19 30 0.76	11.148	19 17 20.6	11.32	26 21 5.9	19 33 56.34	11.186	19 13 10.6	12.41
27	19 34 28.78	11.187	19 12 34.1	12.55	27 21 6.4	19 38 25.25	11.223	19 7 57.9	13.65
28	19 38 57.70	11.223	19 7 18.0	13.79	28 21 7.0	19 42 55.01	11.256	19 2 15.3	14.90
29	19 43 27.45	11.256	-19 1 32.0	+15.04	29 21 7.6	19 47 25.54	11.287	-18 56 2.7	+16.16

Date. 1875.	FOR WASHINGTON MEAN NOON.					FOR MERIDIAN TRANSIT.													
	Apparent Right Ascension.			Diff. for 1 hour.		Apparent Declination.			Diff. for 1 hour.		Mean Time of Transit.	Apparent Right Ascension.		Diff. for 1 h. of Long.		Apparent Declination.	Diff. for 1 hour of Long		
	h	m	s	°	'	°	'	d	h	m		h	m	s	°		'	°	'
Mar. 1	19	43	27.45	11.256	-19	1	32.0	+15.04	1	21	7.6	19	47	25.54	11.287	-18	56	2.7	+16.16
2	19	47	57.96	11.286	18	55	15.9	16.30	2	21	8.2	19	51	56.75	11.313	18	49	19.9	17.42
3	19	52	29.14	11.312	18	48	29.7	17.56	3	21	8.8	19	56	28.57	11.338	18	42	7.0	18.68
4	19	57	0.93	11.336	18	41	13.3	18.82	4	21	9.4	20	1	0.93	11.359	18	34	23.6	19.94
5	20	1	33.24	11.357	18	33	26.5	20.08	5	21	10.0	20	5	33.77	11.378	18	26	9.9	21.20
6	20	6	6.02	11.375	18	25	9.4	21.34	6	21	10.6	20	10	7.03	11.394	18	17	25.9	22.46
7	20	10	39.21	11.391	18	16	22.1	22.60	7	21	11.2	20	14	40.66	11.408	18	8	11.8	23.71
8	20	15	12.75	11.404	18	7	4.7	23.85	8	21	11.8	20	19	14.57	11.419	17	58	27.5	24.97
9	20	19	46.57	11.415	17	57	17.1	25.10	9	21	12.4	20	23	48.73	11.427	17	48	13.2	26.22
10	20	24	20.63	11.423	17	46	59.6	26.35	10	21	13.0	20	28	23.06	11.433	17	37	29.1	27.46
11	20	28	54.86	11.429	17	36	12.3	27.59	11	21	13.6	20	32	57.53	11.438	17	26	15.2	28.69
12	20	33	29.22	11.433	17	24	55.3	28.82	12	21	14.3	20	37	32.07	11.441	17	14	31.9	29.92
13	20	38	3.65	11.436	17	13	8.9	30.05	13	21	14.9	20	42	6.67	11.442	17	2	19.2	31.14
14	20	42	38.13	11.437	17	0	53.2	31.26	14	21	15.6	20	46	41.27	11.441	16	49	37.5	32.35
15	20	47	12.61	11.436	16	48	8.5	32.47	15	21	16.2	20	51	15.85	11.439	16	36	26.9	33.54
16	20	51	47.06	11.434	16	34	55.0	33.66	16	21	16.8	20	55	50.35	11.435	16	22	47.6	34.72
17	20	56	21.43	11.430	16	21	12.9	34.84	17	21	17.4	21	0	24.75	11.431	16	8	40.1	35.89
18	21	0	55.70	11.425	16	7	2.6	36.01	18	21	18.1	21	4	59.02	11.425	15	54	4.6	37.06
19	21	5	29.83	11.419	15	52	24.4	37.17	19	21	18.7	21	9	33.13	11.418	15	39	11.5	38.21
20	21	10	3.80	11.412	15	37	18.5	38.32	20	21	19.3	21	14	7.05	11.409	15	23	30.9	39.34
21	21	14	37.58	11.403	15	21	45.3	39.45	21	21	19.9	21	18	40.75	11.400	15	7	33.2	40.45
22	21	19	11.14	11.394	15	5	45.0	40.56	22	21	20.6	21	23	14.22	11.389	14	51	8.9	41.56
23	21	23	44.46	11.383	14	49	18.2	41.66	23	21	21.2	21	27	47.42	11.378	14	34	18.4	42.64
24	21	28	17.52	11.372	14	32	25.3	42.74	24	21	21.8	21	32	20.35	11.365	14	17	2.0	43.71
25	21	32	50.30	11.359	14	15	6.5	43.81	25	21	22.4	21	36	52.96	11.352	13	59	20.1	44.77
26	21	37	22.77	11.346	13	57	22.3	44.86	26	21	23.0	21	41	25.26	11.336	13	41	13.3	45.80
27	21	41	54.92	11.332	13	39	13.2	45.89	27	21	23.6	21	45	57.22	11.324	13	22	41.9	46.81
28	21	46	26.73	11.318	13	20	39.6	46.90	28	21	24.2	21	50	28.83	11.309	13	3	46.6	47.80
29	21	50	58.19	11.303	13	1	42.2	47.89	29	21	24.8	21	55	0.07	11.293	12	44	27.9	48.77
30	21	55	29.28	11.287	12	42	21.5	48.85	30	21	25.3	21	59	30.92	11.277	12	24	46.2	49.71
31	21	59	59.98	11.271	12	22	37.8	49.79	31	21	25.9	22	4	1.39	11.261	12	4	42.0	50.64
Apr. 1	22	4	30.30	11.255	12	2	31.7	50.71	1	21	26.4	22	8	31.45	11.244	11	44	15.8	51.54
2	22	9	0.21	11.238	11	42	3.7	51.61	2	21	27.0	22	13	1.10	11.226	11	23	28.2	52.41
3	22	13	29.71	11.220	11	21	14.4	52.48	3	21	27.5	22	17	30.33	11.209	11	2	20.0	53.26
4	22	17	58.79	11.203	11	0	4.5	53.33	4	21	28.1	22	22	59.15	11.192	10	40	51.6	54.09
5	22	22	27.46	11.186	10	38	34.5	54.16	5	21	28.6	22	26	27.54	11.175	10	19	3.7	54.90
6	22	26	55.71	11.169	10	16	45.0	54.96	6	21	29.1	22	30	55.52	11.157	9	56	56.8	55.67
7	22	31	23.55	11.151	9	54	36.6	55.73	7	21	29.6	22	35	23.06	11.140	9	34	31.5	56.42
8	22	35	50.96	11.134	9	32	9.9	56.48	8	21	30.1	22	39	50.20	11.122	9	11	48.4	57.15
9	22	40	17.96	11.116	9	9	25.5	57.21	9	21	30.6	22	44	16.93	11.106	8	48	48.1	57.96
10	22	44	44.56	11.100	8	46	23.9	57.91	10	21	31.1	22	48	43.27	11.089	8	25	31.2	58.54
11	22	49	10.77	11.084	8	23	5.8	58.59	11	21	31.6	22	53	9.23	11.074	8	1	58.3	59.19
12	22	53	36.60	11.069	7	59	31.7	59.24	12	21	32.1	22	57	34.82	11.059	7	38	9.9	59.83
13	22	58	2.07	11.054	7	35	42.3	59.87	13	21	32.6	22	2	0.07	11.045	7	14	6.7	60.43
14	23	2	27.20	11.040	7	11	38.1	60.47	14	21	33.1	23	6	24.99	11.032	6	49	49.3	61.01
15	23	6	52.00	11.027	6	47	19.8	61.05	15	21	33.5	23	10	49.59	11.019	6	25	18.3	61.57
16	23	11	16.48	11.014	6	22	47.9	61.60	16	21	34.1	23	15	13.88	11.007	6	0	34.2	62.10
17	23	15	40.66	11.002	5	58	3.0	62.13	17	21	34.4	23	19	37.91	10.996	5	35	37.9	62.60
18	23	20	4.58	10.992	5	33	5.7	62.63	18	21	34.9	23	24	1.70	10.986	5	10	29.4	63.09
19	23	24	28.26	10.982	5	7	56.7	63.11	19	21	35.3	23	28	25.25	10.977	4	45	9.8	63.54
20	23	28	51.71	10.973	4	42	36.5	63.56	20	21	35.8	23	32	48.61	10.969	4	19	39.5	63.97
21	23	33	14.97	10.965	4	17	5.7	63.99	21	21	36.2	23	37	11.79	10.963	3	53	59.2	64.37
22	23	37	38.05	10.959	3	51	24.9	64.39	22	21	36.7	23	41	34.83	10.957	3	28	9.4	64.76
23	23	42	0.99	10.953	3	25	34.7	64.77	23	21	37.1	23	45	57.72	10.952	3	2	10.8	65.11
24	23	46	23.79	10.948	2	59	35.8	65.12	24	21	37.6	23	50	20.50	10.947	2	36	4.1	65.44
25	23	50	46.48	10.944	2	33	28.8	65.45	25	21	38.0	23	54	43.21	10.945	2	9	49.9	65.74
26	23	55	9.11	10.942	2	7	14.3	65.75	26	21	38.4	23	59	5.89	10.944	1	43	28.8	66.01
27	23	59	31.70	10.941	1	40	53.0	66.02	27	21	38.8	0	3	29.52	10.943	1	17	1.5	66.26
28	0	3	54.25	10.940	1	14	25.6	66.26	28	21	39.3	0	7	51.15	10.943	0	50	28.7	66.47
29	0	8	16.80	10.940	0	47	52.8	66.47	29	21	39.7	0	12	13.81	10.945	-0	23	50.9	66.66
30	0	12	39.39	10.942	-0	21	15.0	66.66	30	21	40.2	0	16	36.52	10.948	+0	2	51.2	66.83
31	0	17	2.03	10.945	+0	5	27.0	+66.82	31	21	40.6	0	20	59.32	10.952	+0	29	36.8	+66.96

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Light Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long
	h m s	"	° ' "	"	d h m	h m s	"	° ' "	"
Sept. 1	10 21 42.17	11.850	+11 39 21.6	-65.44	1 23 40.7	10 26 22.36	11.822	+11 13 22.8	-66.26
2	10 26 26.16	11.815	11 13 1.5	66.23	2 23 41.5	10 31 5.68	11.788	10 46 43.4	67.02
3	10 31 9.32	11.781	10 46 22.7	66.99	3 23 42.3	10 35 48.19	11.755	10 19 46.3	67.75
4	10 35 51.67	11.748	10 19 26.2	67.72	4 23 43.0	10 40 29.91	11.722	9 52 32.0	68.45
5	10 40 33.24	11.716	9 52 12.6	68.42	5 23 43.7	10 45 10.89	11.692	9 25 1.4	69.11
6	10 45 14.07	11.686	9 24 42.6	69.08	6 23 44.4	10 49 51.15	11.663	8 57 15.1	69.74
7	10 49 54.17	11.657	8 56 57.0	69.71	7 23 45.1	10 54 30.72	11.635	8 29 13.9	70.34
8	10 54 33.60	11.629	8 28 56.5	70.31	8 23 45.8	10 59 9.63	11.608	8 0 58.6	70.92
9	10 59 12.37	11.602	8 0 41.9	70.89	9 23 46.5	11 3 47.92	11.583	7 32 29.8	71.47
10	11 3 50.52	11.577	7 32 13.8	71.44	10 23 47.2	11 8 25.62	11.559	7 3 48.3	71.98
11	11 8 28.08	11.553	7 3 33.0	71.95	11 23 47.9	11 13 2.76	11.537	6 34 54.7	72.47
12	11 13 5.08	11.531	6 34 40.1	72.44	12 23 48.6	11 17 39.37	11.515	6 5 49.9	72.92
13	11 17 41.56	11.510	6 5 36.0	72.89	13 23 49.3	11 22 15.51	11.496	5 36 34.6	73.35
14	11 22 17.57	11.491	5 36 21.4	73.32	14 23 49.9	11 26 51.21	11.479	5 7 9.4	73.74
15	11 26 53.15	11.474	5 6 56.9	73.71	15 23 50.5	11 31 26.52	11.463	4 37 35.0	74.11
16	11 31 28.33	11.458	4 37 23.2	74.08	16 23 51.2	11 36 1.47	11.449	4 7 52.1	74.44
17	11 36 3.16	11.444	4 7 41.1	74.41	17 23 51.8	11 40 36.09	11.437	3 38 1.6	74.75
18	11 40 37.66	11.432	3 37 51.3	74.72	18 23 52.5	11 45 10.44	11.426	3 8 4.1	75.03
19	11 45 11.89	11.421	3 7 54.6	75.00	19 23 53.1	11 49 44.56	11.417	2 38 0.4	75.28
20	11 49 45.89	11.412	2 37 51.6	75.25	20 23 53.7	11 54 18.48	11.410	2 7 51.0	74.50
21	11 54 19.69	11.405	2 7 43.0	75.47	21 23 54.3	11 58 52.26	11.404	1 37 36.8	75.68
22	11 58 53.35	11.399	1 37 29.6	75.65	22 23 54.9	12 3 25.92	11.400	1 7 18.6	75.83
23	12 3 26.89	11.395	1 7 12.2	75.80	23 23 55.5	12 7 59.50	11.398	0 36 57.0	75.95
24	12 8 0.35	11.393	0 36 51.4	75.92	24 23 56.1	12 12 33.05	11.398	+ 0 6 32.8	76.05
25	12 12 33.78	11.393	+ 0 6 28.1	76.02	25 23 56.7	12 17 6.61	11.399	- 0 23 53.1	76.11
26	12 17 7.22	11.394	- 0 23 57.2	76.08	26 23 57.4	12 21 40.22	11.402	0 54 20.1	76.14
27	12 21 40.72	11.397	0 54 23.5	76.11	27 23 58.0	12 26 13.93	11.407	1 24 47.6	76.14
28	12 26 14.32	11.402	1 24 50.2	76.11	28 23 58.6	12 30 47.78	11.414	1 55 14.6	76.11
29	12 30 48.05	11.409	1 55 16.4	76.08	29 23 59.2	12 35 21.81	11.422	2 25 40.5	76.04
30	12 35 21.96	11.417	2 25 41.5	76.01	30 23 59.8	12 39 56.05	11.432	2 56 4.4	75.95
Oct. 1	12 39 56.08	11.427	2 56 4.6	75.92					
2	12 44 30.45	11.438	3 26 25.1	75.79	2 0 0.5	12 44 30.54	11.443	3 26 25.7	75.82
3	12 49 5.11	11.451	3 56 42.0	75.63	3 0 1.1	12 49 5.32	11.456	3 56 43.4	75.66
4	12 53 40.11	11.466	4 26 54.7	75.43	4 0 1.7	12 53 40.44	11.471	4 26 56.9	75.46
5	12 58 15.48	11.482	4 57 2.3	75.21	5 0 2.4	12 58 15.94	11.487	4 57 5.3	75.24
6	13 2 51.27	11.500	5 27 4.2	74.95	6 0 3.0	13 2 51.86	11.505	5 27 8.0	74.98
7	13 7 27.57	11.520	5 56 59.5	74.66	7 0 3.7	13 7 28.23	11.526	5 57 4.1	74.69
8	13 12 4.24	11.541	6 26 47.5	74.34	8 0 4.4	13 12 5.09	11.547	6 26 52.9	74.37
9	13 16 41.51	11.564	6 56 27.5	73.98	9 0 5.1	13 16 42.49	11.570	6 56 33.7	74.01
10	13 21 19.35	11.589	7 25 58.7	73.60	10 0 5.8	13 21 20.47	11.595	7 26 5.7	73.63
11	13 25 57.82	11.616	7 55 20.3	73.19	11 0 6.5	13 25 59.07	11.622	7 55 28.2	73.22
12	13 30 36.94	11.644	8 24 31.5	72.74	12 0 7.2	13 30 38.33	11.650	8 24 40.2	72.77
13	13 35 16.76	11.674	8 53 31.6	72.26	13 0 7.9	13 35 18.20	11.680	8 53 41.1	72.29
14	13 39 57.31	11.706	9 22 19.9	71.75	14 0 8.6	13 39 58.99	11.712	9 22 30.2	71.78
15	13 44 38.64	11.739	9 50 55.5	71.21	15 0 9.4	13 44 40.47	11.745	9 51 6.6	71.24
16	13 49 20.78	11.773	10 19 17.8	70.64	16 0 10.2	13 49 22.76	11.780	10 19 29.7	70.67
17	13 54 3.77	11.809	10 47 25.8	70.03	17 0 10.9	13 54 5.91	11.817	10 47 38.5	70.06
18	13 58 47.64	11.847	11 15 18.9	69.39	18 0 11.7	13 58 49.94	11.854	11 15 32.4	69.42
19	14 3 32.43	11.886	11 42 56.1	68.72	19 0 12.5	14 3 34.90	11.893	11 43 10.4	68.75
20	14 8 18.17	11.926	12 10 16.9	68.01	20 0 13.3	14 8 20.81	11.933	12 10 32.0	68.04
21	14 13 4.90	11.968	12 37 20.3	67.27	21 0 14.2	14 13 7.72	11.976	12 37 36.3	67.30
22	14 17 52.65	12.011	13 4 5.6	66.50	22 0 15.0	14 17 55.65	12.019	13 4 22.3	66.53
23	14 22 41.45	12.055	13 30 32.1	65.69	23 0 15.9	14 22 44.64	12.063	13 30 49.5	65.72
24	14 27 31.32	12.100	13 56 38.7	64.85	24 0 16.8	14 27 34.70	12.108	13 56 56.8	64.88
25	14 32 22.25	12.146	14 22 24.8	63.98	25 0 17.7	14 32 25.86	12.154	14 22 43.6	64.01
26	14 37 14.36	12.193	14 47 49.5	63.07	26 0 18.6	14 37 18.14	12.201	14 48 9.0	63.10
27	14 42 7.58	12.241	15 12 52.1	62.13	27 0 19.6	14 42 11.57	12.250	15 13 12.3	62.16
28	14 47 1.96	12.290	15 37 31.6	61.15	28 0 20.5	14 47 6.16	12.299	15 37 52.5	61.18
29	14 51 57.52	12.340	16 1 47.2	60.14	29 0 21.5	14 52 1.94	12.349	16 2 8.7	60.17
30	14 56 54.27	12.390	16 25 38.3	59.10	30 0 22.5	14 56 58.91	12.399	16 26 0.4	59.13
31	15 1 52.23	12.440	16 49 3.9	58.02	31 0 23.5	15 1 57.10	12.480	16 49 26.6	58.04
32	15 6 51.40	12.491	-17 12 3.3	-56.91	32 0 24.6	15 6 56.51	12.501	-17 12 26.6	-56.93

VENUS, 1875.

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Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.		Diff. for 1 hour.		Mean Time of Transit.	Apparent Right Ascension.		Diff. for 1 h. of Long.	
	<small>h m s</small>	<small>s</small>	<small>° ' "</small>	<small>"</small>		<small>d h m</small>	<small>h m s</small>	<small>s</small>	<small>° ' "</small>
July 1	5 3 46.77	12.960	+22 0 30.7	+23.59	1 22 27.6	5 8 38.20	13.002	+22 9 4.5	+22.18
2	5 8 58.20	12.993	22 9 38.5	22.06	2 22 28.8	5 13 50.64	13.033	22 17 38.3	20.63
3	5 14 10.43	13.024	22 18 9.5	20.51	3 22 30.1	5 19 3.82	13.064	22 25 34.8	19.07
4	5 19 23.38	13.054	22 26 3.2	18.95	4 22 31.4	5 24 17.69	13.092	22 32 53.6	17.49
5	5 24 37.01	13.082	22 33 19.2	17.37	5 22 32.7	5 29 32.22	13.118	22 39 34.2	15.89
6	5 29 51.29	13.108	22 39 57.1	15.78	6 22 34.0	5 34 47.35	13.143	22 45 36.3	14.28
7	5 35 6.17	13.132	22 45 56.6	14.17	7 22 35.3	5 40 3.05	13.165	22 50 59.7	12.66
8	5 40 21.61	13.154	22 51 17.4	12.55	8 22 36.6	5 45 19.24	13.185	22 55 43.9	11.02
9	5 45 37.54	13.174	22 55 59.1	10.91	9 22 37.9	5 50 35.89	13.202	22 59 48.7	9.37
10	5 50 53.92	13.191	23 0 1.4	9.27	10 22 39.3	5 55 52.95	13.218	23 3 14.0	7.72
11	5 56 10.71	13.207	23 3 24.2	7.62	11 22 40.6	6 1 10.37	13.233	23 5 59.4	6.06
12	6 1 27.85	13.221	23 6 7.3	5.96	12 22 42.0	6 6 28.11	13.245	23 8 4.8	4.38
13	6 6 45.31	13.233	23 8 10.4	4.29	13 22 43.3	6 11 46.11	13.254	23 9 30.0	2.71
14	6 12 3.02	13.242	23 9 33.4	2.62	14 22 44.7	6 17 4.31	13.261	23 10 14.9	+ 1.03
15	6 17 20.94	13.249	23 10 16.1	+ 0.94	15 22 46.0	6 22 22.66	13.267	23 10 19.3	- 0.65
16	6 22 39.00	13.255	23 10 18.4	- 0.74	16 22 47.4	6 27 41.12	13.270	23 9 43.2	2.35
17	6 27 57.17	13.258	23 9 40.3	2.43	17 22 48.8	6 32 59.64	13.272	23 8 26.6	4.04
18	6 33 15.38	13.260	23 8 21.7	4.12	18 22 50.1	6 38 18.17	13.271	23 6 29.3	5.73
19	6 38 33.61	13.259	23 6 22.5	5.81	19 22 51.5	6 43 36.66	13.269	23 3 51.4	7.42
20	6 43 51.78	13.256	23 3 42.8	7.50	20 22 52.9	6 48 55.04	13.264	23 0 32.9	9.12
21	6 49 9.87	13.251	23 0 22.6	9.19	21 22 54.2	6 54 13.27	13.256	22 56 33.8	10.80
22	6 54 27.79	13.243	22 56 21.9	10.87	22 22 55.6	6 59 31.29	13.246	22 51 54.2	12.49
23	6 59 45.49	13.233	22 51 40.7	12.55	23 22 57.0	7 4 49.04	13.234	22 46 34.2	14.17
24	7 5 2.93	13.221	22 46 19.2	14.23	24 22 58.3	7 10 6.49	13.220	22 40 34.1	15.84
25	7 10 20.07	13.207	22 40 17.7	15.90	25 22 59.6	7 15 23.59	13.204	22 33 53.9	17.50
26	7 15 36.86	13.191	22 33 36.2	17.56	26 23 1.0	7 20 40.28	13.186	22 26 33.8	19.16
27	7 20 53.24	13.173	22 26 14.9	19.21	27 23 2.3	7 25 56.51	13.166	22 18 34.0	20.80
28	7 26 9.16	13.153	22 18 14.0	20.85	28 23 3.6	7 31 12.23	13.144	22 9 54.9	22.44
29	7 31 24.57	13.131	22 9 33.8	22.49	29 23 4.9	7 36 27.40	13.120	22 0 36.7	24.07
30	7 36 39.43	13.107	22 0 14.6	24.11	30 23 6.2	7 41 41.97	13.094	21 50 39.7	25.68
31	7 41 53.69	13.081	21 50 16.6	25.72	31 23 7.5	7 46 55.90	13.067	21 40 4.2	27.27
Aug. 1	7 47 7.32	13.054	21 39 40.3	27.31	1 23 8.8	7 52 9.13	13.037	21 28 50.7	28.85
2	7 52 20.25	13.024	21 28 26.0	28.89	2 23 10.0	7 57 21.64	13.005	21 16 59.5	30.41
3	7 57 32.46	12.993	21 16 34.1	30.44	3 23 11.3	8 2 33.39	12.973	21 4 31.1	31.95
4	8 2 43.91	12.961	21 4 5.1	31.98	4 23 12.5	8 7 44.33	12.939	20 51 25.9	33.48
5	8 7 54.56	12.927	20 50 59.4	33.50	5 23 13.7	8 12 54.44	12.903	20 37 44.4	34.99
6	8 13 4.38	12.891	20 37 17.4	35.01	6 23 14.9	8 18 3.70	12.867	20 23 26.9	36.47
7	8 18 13.35	12.855	20 22 59.5	36.49	7 23 16.1	8 23 12.06	12.830	20 8 33.9	37.94
8	8 23 21.43	12.818	20 8 6.2	37.95	8 23 17.3	8 28 19.52	12.792	19 53 6.1	39.38
9	8 28 28.61	12.780	19 52 38.1	39.39	9 23 18.5	8 33 26.03	12.751	19 37 4.0	40.80
10	8 33 34.85	12.740	19 36 35.8	40.81	10 23 19.6	8 38 31.59	12.711	19 20 28.1	42.20
11	8 38 40.14	12.700	19 19 59.7	42.20	11 23 20.8	8 43 36.17	12.670	19 3 18.9	43.57
12	8 43 44.45	12.659	19 2 50.4	43.57	12 23 21.9	8 48 39.76	12.629	18 45 37.0	44.92
13	8 48 47.78	12.618	18 45 8.5	44.92	13 23 23.0	8 53 42.36	12.588	18 27 23.1	46.24
14	8 53 50.12	12.577	18 26 54.6	46.24	14 23 24.1	8 58 43.96	12.545	18 8 37.6	47.54
15	8 58 51.47	12.535	18 8 9.2	47.54	15 23 25.1	9 3 44.55	12.503	17 49 21.2	48.82
16	9 3 51.81	12.493	17 48 52.9	49.81	16 23 26.1	9 8 44.12	12.461	17 29 34.5	50.07
17	9 8 51.14	12.451	17 29 6.3	50.06	17 23 27.2	9 13 42.66	12.419	17 9 18.1	51.29
18	9 13 49.45	12.409	17 8 50.1	51.38	18 23 28.2	9 18 40.18	12.376	16 48 32.7	52.49
19	9 18 46.74	12.366	16 48 4.9	52.18	19 23 29.2	9 23 36.69	12.333	16 27 19.1	53.66
20	9 23 43.02	12.324	16 26 51.5	53.65	20 23 30.2	9 28 32.19	12.291	16 5 37.6	54.81
21	9 28 38.30	12.282	16 5 10.3	54.79	21 23 31.1	9 33 26.67	12.250	15 43 28.9	55.93
22	9 33 32.56	12.241	15 43 2.0	55.91	22 23 32.1	9 38 20.15	12.208	15 20 53.8	57.01
23	9 38 25.83	12.199	15 20 27.3	56.99	23 23 33.0	9 43 12.63	12.166	14 57 53.0	58.06
24	9 43 18.10	12.158	14 57 26.9	58.04	24 23 33.9	9 48 4.13	12.125	14 34 27.2	59.09
25	9 48 9.40	12.117	14 34 1.5	59.07	25 23 34.8	9 52 54.66	12.085	14 10 37.0	60.09
26	9 52 59.73	12.077	14 10 11.8	60.07	26 23 35.7	9 57 44.23	12.045	13 46 23.0	61.06
27	9 57 49.11	12.037	13 45 58.3	61.04	27 23 36.6	10 2 32.86	12.006	13 21 46.1	62.00
28	10 2 37.55	11.998	13 21 21.9	61.98	28 23 37.5	10 7 20.55	11.968	12 56 47.0	62.91
29	10 7 25.05	11.960	12 56 23.3	62.89	29 23 38.3	10 12 7.32	11.930	12 31 26.3	63.79
30	10 12 11.64	11.923	12 31 3.2	63.77	30 23 39.1	10 16 53.20	11.893	12 5 44.9	64.64
31	10 16 57.34	11.886	+12 5 22.4	-64.62	31 23 39.9	10 21 38.20	11.857	+11 39 43.5	-65.46

Date.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.														
	Apparent Right Ascension.		Diff. for 1 hour.	Apparent Declination.		Mean Time of Transit.	Apparent Right Ascension.		Diff. for 1 h. of Long.	Apparent Declination.		Diff. for 1 hour of Long.							
	h	m		s	°		'	''		d	h		m	s	°	'	''		
1875.																			
Jan. 0	14	14	55.74	+5.718	-12	16	37.4	-29.96	0	19	33.8	14	16	47.62	+5.713	-12	26	21.8	-29.75
1	14	17	13.00	5.720	12	28	33.9	29.74	1	19	32.1	14	19	4.75	5.715	12	38	13.2	29.53
2	14	19	30.31	5.721	12	40	25.2	29.52	2	19	30.5	14	21	21.93	5.717	12	49	59.1	29.30
3	14	21	47.65	5.722	12	52	10.9	29.29	3	19	28.8	14	23	39.15	5.718	13	1	39.6	29.07
4	14	24	5.03	5.724	13	3	51.2	29.06	4	19	27.2	14	25	56.40	5.719	13	13	14.6	28.84
5	14	26	22.44	5.726	13	15	26.0	28.82	5	19	25.5	14	28	13.67	5.720	13	24	44.0	28.61
6	14	28	39.88	5.727	13	26	55.2	28.58	6	19	23.9	14	30	30.96	5.721	13	36	7.8	28.37
7	14	30	57.34	5.727	13	38	18.6	28.35	7	19	22.2	14	32	48.28	5.722	13	47	25.8	28.13
8	14	33	14.82	5.728	13	49	36.2	28.11	8	19	20.5	14	35	5.61	5.723	13	58	38.0	27.88
9	14	35	32.31	5.729	14	0	47.9	27.86	9	19	18.9	14	37	22.95	5.723	14	9	44.2	27.64
10	14	37	49.82	5.729	14	11	53.7	27.61	10	19	17.3	14	39	40.31	5.723	14	20	44.5	27.39
11	14	40	7.34	5.729	14	22	53.6	27.37	11	19	15.6	14	41	57.68	5.723	14	31	38.9	27.14
12	14	42	24.85	5.729	14	33	47.5	27.12	12	19	14.0	14	44	15.03	5.723	14	42	27.2	26.89
13	14	44	42.35	5.729	14	44	35.4	26.86	13	19	12.3	14	46	32.38	5.723	14	53	9.5	26.63
14	14	46	59.86	5.729	14	55	17.1	26.61	14	19	10.7	14	48	49.73	5.723	15	3	45.5	26.37
15	14	49	17.37	5.729	15	5	52.7	26.35	15	19	9.0	14	51	7.09	5.723	15	14	15.5	26.12
16	14	51	34.80	5.729	15	16	22.1	26.09	16	19	7.4	14	53	24.45	5.723	15	24	39.2	25.85
17	14	53	52.40	5.729	15	26	45.3	25.83	17	19	5.7	14	55	41.80	5.722	15	34	56.5	25.59
18	14	56	9.89	5.728	15	37	2.3	25.57	18	19	4.1	14	57	59.12	5.722	15	45	7.6	25.35
19	14	58	27.38	5.728	15	47	13.0	25.31	19	19	2.4	15	0	16.44	5.722	15	55	12.8	25.08
20	15	0	44.87	5.727	15	57	17.3	25.04	20	19	0.8	15	2	33.76	5.721	16	5	11.3	24.81
21	15	3	2.34	5.727	16	7	14.9	24.77	21	18	59.1	15	4	51.06	5.720	16	15	3.1	24.53
22	15	5	19.78	5.726	16	17	6.2	24.51	22	18	57.5	15	7	8.33	5.719	16	24	48.8	24.27
23	15	7	37.18	5.725	16	26	51.5	24.24	23	18	55.8	15	9	25.56	5.717	16	34	28.2	24.00
24	15	9	54.56	5.723	16	36	30.2	23.96	24	18	54.2	15	11	42.74	5.715	16	44	1.0	23.73
25	15	12	11.91	5.722	16	46	2.0	23.68	25	18	52.5	15	13	59.89	5.713	16	53	27.1	23.44
26	15	14	29.21	5.720	16	55	27.2	23.41	26	18	50.9	15	16	16.99	5.711	17	2	46.3	23.17
27	15	16	46.46	5.717	17	4	45.8	23.13	27	18	49.2	15	18	34.03	5.708	17	11	59.0	22.89
28	15	19	3.64	5.714	17	13	57.7	22.85	28	18	47.5	15	20	51.00	5.705	17	21	5.0	22.61
29	15	21	20.76	5.711	17	23	2.9	22.57	29	18	45.9	15	23	7.90	5.702	17	30	4.3	22.33
30	15	23	37.79	5.708	17	32	1.5	22.28	30	18	44.2	15	25	24.70	5.698	17	38	57.0	22.05
31	15	25	54.73	5.704	17	40	53.1	21.98	31	18	42.6	15	27	41.40	5.694	17	47	42.6	21.75
Feb. 1	15	28	11.57	5.699	17	49	37.5	21.69	1	18	40.9	15	29	58.00	5.689	17	56	21.0	21.46
2	15	30	28.30	5.694	17	58	15.0	21.41	2	18	39.3	15	32	14.48	5.684	18	4	52.5	21.17
3	15	32	44.89	5.689	18	6	45.8	21.13	3	18	37.6	15	34	30.83	5.679	18	13	17.3	20.89
4	15	35	1.35	5.683	18	15	9.8	20.84	4	18	36.0	15	36	47.04	5.672	18	21	35.3	20.60
5	15	37	17.67	5.677	18	23	26.5	20.55	5	18	34.3	15	39	3.09	5.664	18	29	46.1	20.30
6	15	39	33.84	5.670	18	31	36.3	20.25	6	18	32.6	15	41	18.95	5.656	18	37	49.7	20.00
7	15	41	49.82	5.662	18	39	38.9	19.96	7	18	31.0	15	43	34.63	5.649	18	45	46.3	19.71
8	15	44	5.62	5.654	18	47	34.4	19.66	8	18	29.3	15	45	50.13	5.641	18	53	35.9	19.42
9	15	46	21.23	5.646	18	55	22.0	19.38	9	18	27.6	15	48	5.43	5.633	19	1	18.4	19.13
10	15	48	36.63	5.637	19	3	4.5	19.08	10	18	25.9	15	50	20.51	5.624	19	8	53.8	18.82
11	15	50	51.83	5.628	19	10	30.0	18.78	11	18	24.2	15	52	35.38	5.615	19	16	22.2	18.53
12	15	53	6.81	5.620	19	18	6.4	18.49	12	18	22.6	15	54	50.03	5.606	19	23	43.7	18.25
13	15	55	21.60	5.611	19	25	26.7	18.20	13	18	20.8	15	57	4.47	5.597	19	30	58.4	17.95
14	15	57	36.15	5.602	19	32	40.0	17.90	14	18	19.1	15	59	18.68	5.587	19	38	5.8	17.66
15	15	59	50.47	5.591	19	39	46.2	17.61	15	18	17.3	16	1	32.65	5.577	19	45	6.2	17.35
16	16	2	4.53	5.580	19	46	45.4	17.32	16	18	15.6	16	3	46.35	5.566	19	51	59.5	17.07
17	16	4	18.32	5.568	19	53	37.7	17.03	17	18	13.9	16	5	59.77	5.554	19	58	46.0	16.79
18	16	6	31.84	5.558	20	0	23.0	16.74	18	18	12.3	16	8	12.91	5.542	20	5	25.6	16.51
19	16	8	45.07	5.547	20	7	1.5	16.45	19	18	10.5	16	10	25.75	5.529	20	11	58.4	16.23
20	16	10	58.01	5.532	20	13	33.0	16.17	20	18	8.7	16	12	38.29	5.516	20	18	24.2	15.93
21	16	13	10.64	5.519	20	19	57.7	15.88	21	18	7.0	16	14	50.52	5.503	20	24	43.2	15.65
22	16	15	22.96	5.506	20	26	15.4	15.59	22	18	5.3	16	17	2.43	5.489	20	30	55.3	15.37
23	16	17	34.94	5.492	20	32	26.4	15.31	23	18	3.5	16	19	13.99	5.474	20	37	0.7	15.08
24	16	19	46.57	5.477	20	38	30.4	15.02	24	18	1.8	16	21	25.18	5.458	20	42	59.1	14.79
25	16	21	57.83	5.460	20	44	27.6	14.74	25	18	0.0	16	23	35.99	5.442	20	48	50.8	14.51
26	16	24	8.69	5.444	20	50	17.9	14.45	26	17	58.2	16	25	46.40	5.425	20	54	35.6	14.23
27	16	26	19.15	5.427	20	56	1.6	14.18	27	17	56.5	16	27	56.39	5.407	21	0	13.9	13.95
28	16	28	29.19	5.408	21	1	38.6	13.90	28	17	54.7	16	30	5.95	5.389	21	5	45.5	13.68
29	16	30	38.79	+5.390	-21	7	8.9	-13.62	29	17	52.8	16	32	15.05	+5.370	-21	11	10.5	-13.40

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	<small>h m s</small>	<small>s</small>	<small>° ' "</small>	<small>"</small>	<small>d h m</small>	<small>h m s</small>	<small>s</small>	<small>° ' "</small>	<small>"</small>
Mar. 1	16 30 38.79	+5.390	-21 7 8.9	-13.62	1 17 52.8	16 32 15.05	+5.370	-21 11 10.5	-13.40
2	16 32 47.92	5.370	21 12 32.5	13.34	2 17 51.1	16 34 23.66	5.349	21 16 29.7	13.13
3	16 34 56.56	5.349	21 17 49.4	13.06	3 17 49.3	16 36 31.76	5.327	21 21 40.4	12.85
4	16 37 4.70	5.327	21 22 59.7	12.79	4 17 47.5	16 38 39.35	5.305	21 26 45.5	12.58
5	16 39 12.30	5.305	21 28 3.6	12.52	5 17 45.7	16 40 46.38	5.282	21 31 44.2	12.31
6	16 41 19.36	5.281	21 33 1.0	12.25	6 17 43.9	16 42 52.85	5.257	21 36 36.5	12.04
7	16 43 25.83	5.257	21 37 52.0	11.99	7 17 42.1	16 44 58.72	5.232	21 41 22.4	11.77
8	16 45 31.70	5.232	21 42 36.5	11.73	8 17 40.2	16 47 3.98	5.206	21 46 2.0	11.52
9	16 47 36.97	5.206	21 47 14.9	11.47	9 17 38.4	16 49 8.62	5.180	21 50 35.4	11.26
10	16 49 41.61	5.179	21 51 47.0	11.21	10 17 36.5	16 51 12.63	5.154	21 55 2.7	11.01
11	16 51 45.61	5.153	21 56 13.2	10.95	11 17 34.6	16 53 15.99	5.127	21 59 24.2	10.76
12	16 53 48.94	5.124	22 0 33.3	10.72	12 17 32.7	16 55 18.67	5.098	22 3 39.7	10.53
13	16 55 51.59	5.095	22 4 47.7	10.48	13 17 30.8	16 57 20.65	5.068	22 7 49.5	10.29
14	16 57 53.54	5.066	22 8 56.4	10.24	14 17 28.9	16 59 21.92	5.038	22 11 53.7	10.05
15	16 59 54.78	5.035	22 12 59.3	10.01	15 17 27.0	17 1 22.46	5.007	22 15 52.2	9.83
16	17 1 55.26	5.004	22 16 56.8	9.78	16 17 25.0	17 3 22.24	4.975	22 19 45.4	9.60
17	17 3 54.99	4.973	22 20 48.8	9.56	17 17 23.1	17 5 21.25	4.942	22 23 33.2	9.38
18	17 5 53.95	4.939	22 24 35.5	9.34	18 17 21.1	17 7 19.47	4.909	22 27 15.8	9.17
19	17 7 52.11	4.905	22 28 16.9	9.12	19 17 19.1	17 9 16.88	4.874	22 30 53.2	8.96
20	17 9 49.44	4.871	22 31 53.3	8.91	20 17 17.1	17 11 13.44	4.839	22 34 25.7	8.75
21	17 11 45.94	4.836	22 35 24.8	8.70	21 17 15.1	17 13 9.15	4.803	22 37 53.4	8.55
22	17 13 41.58	4.799	22 38 51.3	8.51	22 17 13.1	17 15 3.98	4.765	22 41 16.3	8.35
23	17 15 36.32	4.761	22 42 13.1	8.31	23 17 11.0	17 16 57.90	4.727	22 44 34.5	8.17
24	17 17 30.14	4.722	22 45 33.3	8.12	24 17 9.0	17 18 50.87	4.688	22 47 48.2	7.98
25	17 19 23.00	4.682	22 48 42.9	7.93	25 17 6.9	17 20 42.87	4.648	22 50 57.4	7.79
26	17 21 14.88	4.640	22 51 51.2	7.75	26 17 4.8	17 22 33.87	4.604	22 54 2.4	7.62
27	17 23 5.76	4.598	22 54 55.2	7.58	27 17 2.7	17 24 23.84	4.560	22 57 3.2	7.45
28	17 24 55.58	4.553	22 57 55.2	7.41	28 17 0.6	17 26 12.74	4.514	23 0 0.2	7.29
29	17 26 44.31	4.507	23 0 51.2	7.25	29 16 58.5	17 28 0.52	4.467	23 2 53.2	7.13
30	17 28 31.92	4.460	23 3 43.4	7.09	30 16 56.3	17 29 47.16	4.419	23 5 42.6	6.98
31	17 30 18.38	4.410	23 6 31.9	6.94	31 16 54.1	17 31 32.62	4.369	23 8 28.4	6.83
Apr. 1	17 32 3.65	4.360	23 9 16.7	6.80	1 16 51.8	17 33 16.88	4.318	23 11 10.7	6.69
2	17 33 47.69	4.308	23 11 58.6	6.67	2 16 49.6	17 34 59.88	4.265	23 13 50.0	6.57
3	17 35 30.47	4.255	23 14 37.1	6.54	3 16 47.4	17 36 41.59	4.210	23 16 26.2	6.45
4	17 37 11.95	4.200	23 17 12.7	6.42	4 16 45.2	17 38 21.98	4.155	23 18 59.6	6.33
5	17 38 52.09	4.143	23 19 45.5	6.31	5 16 42.9	17 40 1.03	4.098	23 21 30.3	6.23
6	17 40 30.86	4.086	23 22 15.7	6.21	6 16 40.6	17 41 38.68	4.039	23 23 58.6	6.14
7	17 42 8.24	4.027	23 24 43.6	6.11	7 16 38.3	17 43 14.90	3.978	23 26 24.1	6.04
8	17 43 44.17	3.966	23 27 9.2	6.02	8 16 35.9	17 44 49.66	3.917	23 28 48.8	5.95
9	17 45 18.62	3.903	23 29 32.7	5.94	9 16 33.5	17 46 22.93	3.854	23 31 10.8	5.88
10	17 46 51.57	3.840	23 31 54.5	5.88	10 16 31.1	17 47 54.67	3.790	23 33 31.3	5.82
11	17 48 23.00	3.776	23 34 14.8	5.81	11 16 28.7	17 49 24.86	3.725	23 35 50.4	5.77
12	17 49 52.85	3.710	23 36 33.7	5.76	12 16 26.2	17 50 53.47	3.658	23 38 8.2	5.72
13	17 51 21.10	3.642	23 38 51.4	5.72	13 16 23.7	17 52 20.45	3.589	23 40 24.9	5.68
14	17 52 47.71	3.573	23 41 8.1	5.65	14 16 21.2	17 53 45.77	3.519	23 42 40.8	5.65
15	17 54 12.65	3.503	23 43 24.2	5.66	15 16 18.7	17 55 9.40	3.448	23 44 56.2	5.63
16	17 55 35.89	3.431	23 45 39.7	5.64	16 16 16.1	17 56 31.32	3.376	23 47 11.2	5.62
17	17 56 57.37	3.357	23 47 54.8	5.62	17 16 13.5	17 57 51.46	3.301	23 49 26.0	5.61
18	17 58 17.06	3.282	23 50 9.6	5.62	18 16 10.9	17 59 9.77	3.226	23 51 40.7	5.62
19	17 59 34.92	3.205	23 52 24.6	5.63	19 16 8.2	18 0 26.92	3.146	23 53 55.6	5.63
20	18 0 50.91	3.126	23 54 40.0	5.65	20 16 5.5	18 1 40.78	3.063	23 56 11.0	5.65
21	18 2 4.97	3.044	23 56 55.8	5.67	21 16 2.8	18 2 53.39	2.983	23 58 28.9	5.68
22	18 3 17.06	2.961	23 59 12.3	5.70	22 16 0.1	18 4 3.99	2.899	24 0 43.8	5.73
23	18 4 27.13	2.876	24 1 29.8	5.75	23 15 57.3	18 5 12.53	2.812	24 3 1.8	5.78
24	18 5 35.11	2.788	24 3 48.3	5.80	24 15 54.4	18 6 18.96	2.722	24 5 20.9	5.83
25	18 6 40.96	2.697	24 6 8.2	5.86	25 15 51.6	18 7 23.23	2.631	24 7 41.5	5.89
26	18 7 44.62	2.605	24 8 29.6	5.93	26 15 48.7	18 8 25.29	2.549	24 10 3.7	5.96
27	18 8 46.04	2.511	24 10 52.8	6.01	27 15 45.7	18 9 25.08	2.464	24 12 27.8	6.05
28	18 9 45.17	2.413	24 13 18.0	6.08	28 15 42.7	18 10 22.56	2.346	24 14 54.0	6.14
29	18 10 41.93	2.313	24 15 45.5	6.18	29 15 39.7	18 11 17.63	2.245	24 17 22.4	6.23
30	18 11 36.26	2.211	24 18 15.1	6.28	30 15 36.7	18 12 10.26	2.140	24 19 53.2	6.35
31	18 12 28.13	+2.108	-24 20 47.2	-6.39	31 15 33.6	18 13 0.38	+2.035	-24 22 27.4	-6.48

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	° ' "	"	d h m	h m s	"	° ' "	"
Jan. 0	14 14 55.74	+5.718	-12 16 37.4	-29.96	0 19 33.8	14 16 47.62	+5.713	-12 26 21.8	-29.75
1	14 17 13.00	5.720	12 28 33.9	29.74	1 19 32.1	14 19 4.75	5.715	12 38 13.2	29.53
2	14 19 30.31	5.721	12 40 25.2	29.52	2 19 30.5	14 21 21.93	5.717	12 49 59.1	29.30
3	14 21 47.65	5.722	12 52 10.9	29.29	3 19 28.8	14 23 39.15	5.718	13 1 39.6	29.07
4	14 24 5.03	5.724	13 3 51.2	29.06	4 19 27.2	14 25 56.40	5.719	13 13 14.6	28.84
5	14 26 22.44	5.726	13 15 26.0	28.82	5 19 25.5	14 28 13.67	5.720	13 24 44.0	28.61
6	14 28 39.88	5.727	13 26 55.2	28.58	6 19 23.9	14 30 30.96	5.721	13 36 7.8	28.37
7	14 30 57.34	5.727	13 38 18.6	28.35	7 19 22.2	14 32 48.28	5.722	13 47 25.8	28.13
8	14 33 14.82	5.728	13 49 36.2	28.11	8 19 20.5	14 35 5.61	5.723	13 58 39.0	27.88
9	14 35 32.31	5.729	14 0 47.9	27.86	9 19 18.9	14 37 22.95	5.723	14 9 44.2	27.64
10	14 37 49.82	5.729	14 11 53.7	27.61	10 19 17.3	14 39 40.31	5.723	14 20 44.5	27.39
11	14 40 7.34	5.729	14 22 53.6	27.37	11 19 15.6	14 41 57.68	5.723	14 31 38.9	27.14
12	14 42 24.85	5.729	14 33 47.5	27.12	12 19 14.0	14 44 15.03	5.723	14 42 27.2	26.89
13	14 44 42.35	5.729	14 44 35.4	26.86	13 19 12.3	14 46 32.38	5.723	14 53 9.5	26.63
14	14 46 59.86	5.729	14 55 17.1	26.61	14 19 10.7	14 48 49.73	5.723	15 3 45.5	26.37
15	14 49 17.37	5.729	15 5 52.7	26.35	15 19 9.0	14 51 7.09	5.723	15 14 15.5	26.12
16	14 51 34.89	5.729	15 16 22.1	26.09	16 19 7.4	14 53 24.45	5.723	15 24 39.2	25.85
17	14 53 52.40	5.729	15 26 45.3	25.83	17 19 5.7	14 55 41.80	5.722	15 34 56.5	25.59
18	14 56 9.89	5.728	15 37 2.3	25.57	18 19 4.1	14 57 59.12	5.722	15 45 7.6	25.35
19	14 58 27.38	5.728	15 47 13.0	25.31	19 19 2.4	15 0 16.44	5.722	15 55 12.8	25.08
20	15 0 44.87	5.727	15 57 17.3	25.04	20 19 0.8	15 2 33.76	5.721	16 5 11.3	24.81
21	15 3 2.34	5.727	16 7 14.9	24.77	21 18 59.1	15 4 51.06	5.720	16 15 3.1	24.53
22	15 5 19.78	5.726	16 17 6.2	24.51	22 18 57.5	15 7 8.33	5.719	16 24 48.8	24.27
23	15 7 37.18	5.725	16 26 51.5	24.24	23 18 55.8	15 9 25.56	5.717	16 34 28.2	24.00
24	15 9 54.56	5.723	16 36 30.2	23.96	24 18 54.2	15 11 42.74	5.715	16 44 1.0	23.73
25	15 12 11.91	5.722	16 46 2.0	23.68	25 18 52.5	15 13 59.89	5.713	16 53 27.1	23.44
26	15 14 29.21	5.720	16 55 27.2	23.41	26 18 50.9	15 16 16.99	5.711	17 2 46.3	23.17
27	15 16 46.46	5.717	17 4 45.8	23.13	27 18 49.2	15 18 34.03	5.708	17 11 59.0	22.89
28	15 19 3.64	5.714	17 13 57.7	22.85	28 18 47.5	15 20 51.00	5.705	17 21 5.0	22.61
29	15 21 20.76	5.711	17 23 2.9	22.57	29 18 45.9	15 23 7.90	5.702	17 30 4.3	22.33
30	15 23 37.79	5.708	17 32 1.5	22.28	30 18 44.2	15 25 24.70	5.698	17 38 57.0	22.05
31	15 25 54.73	5.704	17 40 53.1	21.98	31 18 42.6	15 27 41.40	5.694	17 47 42.6	21.75
Feb. 1	15 28 11.57	5.699	17 49 37.5	21.69	1 18 40.9	15 29 58.00	5.689	17 56 21.0	21.46
2	15 30 28.30	5.694	17 58 15.0	21.41	2 18 39.3	15 32 14.48	5.684	18 4 52.5	21.17
3	15 32 44.89	5.689	18 6 45.8	21.13	3 18 37.6	15 34 30.83	5.679	18 13 17.3	20.89
4	15 35 1.35	5.683	18 15 9.8	20.84	4 18 36.0	15 36 47.04	5.672	18 21 35.3	20.60
5	15 37 17.67	5.677	18 23 26.5	20.55	5 18 34.3	15 39 3.09	5.664	18 29 46.1	20.30
6	15 39 33.84	5.670	18 31 36.3	20.25	6 18 32.6	15 41 18.95	5.656	18 37 49.7	20.00
7	15 41 49.82	5.662	18 39 38.9	19.96	7 18 31.0	15 43 34.63	5.649	18 45 46.3	19.71
8	15 44 5.62	5.654	18 47 34.4	19.66	8 18 29.3	15 45 50.13	5.641	18 53 35.9	19.42
9	15 46 21.23	5.646	18 55 22.9	19.38	9 18 27.6	15 48 5.43	5.633	19 1 18.4	19.13
10	15 48 36.63	5.637	19 3 4.5	19.08	10 18 25.9	15 50 20.51	5.624	19 8 53.8	18.82
11	15 50 51.83	5.628	19 10 39.0	18.78	11 18 24.2	15 52 35.38	5.615	19 16 22.2	18.53
12	15 53 6.81	5.620	19 18 6.4	18.49	12 18 22.6	15 54 50.03	5.606	19 23 43.7	18.25
13	15 55 21.60	5.611	19 25 26.7	18.20	13 18 20.8	15 57 4.47	5.597	19 30 58.4	17.95
14	15 57 36.15	5.602	19 32 40.0	17.90	14 18 19.1	15 59 18.68	5.587	19 38 5.8	17.66
15	15 59 50.47	5.591	19 39 46.2	17.61	15 18 17.3	16 1 32.65	5.577	19 45 6.2	17.35
16	16 2 4.53	5.580	19 46 45.4	17.32	16 18 15.6	16 3 46.35	5.566	19 51 59.5	17.07
17	16 4 18.32	5.568	19 53 37.7	17.03	17 18 13.9	16 5 50.77	5.554	19 58 46.0	16.79
18	16 6 31.84	5.555	20 0 23.0	16.74	18 18 12.3	16 8 12.91	5.542	20 5 25.6	16.51
19	16 8 45.07	5.547	20 7 1.5	16.45	19 18 10.5	16 10 25.75	5.529	20 11 58.4	16.23
20	16 10 58.01	5.532	20 13 33.0	16.17	20 18 8.7	16 12 38.29	5.516	20 18 24.2	15.93
21	16 13 10.64	5.519	20 19 57.7	15.88	21 18 7.0	16 14 50.52	5.503	20 24 43.2	15.65
22	16 15 22.96	5.506	20 26 15.4	15.59	22 18 5.3	16 17 2.43	5.489	20 30 55.3	15.37
23	16 17 34.94	5.492	20 32 26.4	15.31	23 18 3.5	16 19 13.99	5.474	20 37 0.7	15.08
24	16 19 46.57	5.477	20 38 30.4	15.02	24 18 1.8	16 21 25.18	5.458	20 42 59.1	14.79
25	16 21 57.83	5.460	20 44 27.6	14.74	25 18 0.0	16 23 35.99	5.442	20 48 50.8	14.51
26	16 24 8.69	5.444	20 50 17.9	14.45	26 17 58.2	16 25 46.40	5.425	20 54 35.6	14.23
27	16 26 19.15	5.427	20 56 1.6	14.18	27 17 56.5	16 27 56.39	5.407	21 0 13.9	13.95
28	16 28 29.19	5.408	21 1 38.6	13.90	28 17 54.7	16 30 5.95	5.389	21 5 45.5	13.68
29	16 30 38.79	+5.390	-21 7 8.9	-13.62	29 17 52.8	16 32 15.05	+5.370	-21 11 10.5	-13.40

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Light Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Light Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	° ' "	"	d h m	h m s	s	° ' "	"
Mar. 1	16 30 38.79	+5.390	-21° 7' 8.9"	-13.62	1 17 52.8	16 32 15.05	+5.370	-21° 11' 10.5"	-13.40
2	16 32 47.92	5.370	21 12 32.5	13.34	2 17 51.1	16 34 23.66	5.349	21 16 28.7	13.13
3	16 34 56.56	5.349	21 17 49.4	13.06	3 17 49.3	16 36 31.76	5.327	21 21 40.4	12.85
4	16 37 4.70	5.327	21 22 59.7	12.79	4 17 47.5	16 38 39.35	5.305	21 26 45.5	12.58
5	16 39 12.30	5.305	21 28 3.6	12.52	5 17 45.7	16 40 46.38	5.282	21 31 44.2	12.31
6	16 41 19.36	5.281	21 33 1.0	12.25	6 17 43.9	16 42 52.85	5.257	21 36 36.5	12.04
7	16 43 25.83	5.257	21 37 52.0	11.99	7 17 42.1	16 44 58.72	5.232	21 41 22.4	11.77
8	16 45 31.70	5.232	21 42 36.5	11.73	8 17 40.2	16 47 3.98	5.206	21 46 2.0	11.52
9	16 47 36.97	5.206	21 47 14.9	11.47	9 17 38.4	16 49 8.62	5.180	21 50 35.4	11.26
10	16 49 41.61	5.179	21 51 47.0	11.21	10 17 36.5	16 51 12.63	5.154	21 55 2.7	11.01
11	16 51 45.61	5.153	21 56 13.2	10.95	11 17 34.6	16 53 15.99	5.127	21 59 24.2	10.76
12	16 53 48.94	5.124	22 0 33.3	10.72	12 17 32.7	16 55 18.67	5.098	22 3 39.7	10.53
13	16 55 51.59	5.095	22 4 47.7	10.48	13 17 30.8	16 57 20.65	5.068	22 7 49.5	10.29
14	16 57 53.54	5.066	22 8 56.4	10.24	14 17 28.9	16 59 21.92	5.038	22 11 53.7	10.05
15	16 59 54.78	5.035	22 12 59.3	10.01	15 17 27.0	17 1 22.46	5.007	22 15 52.2	9.83
16	17 1 55.26	5.004	22 16 56.8	9.78	16 17 25.0	17 3 22.24	4.975	22 19 45.4	9.60
17	17 3 54.99	4.973	22 20 48.8	9.56	17 17 23.1	17 5 21.25	4.942	22 23 33.2	9.38
18	17 5 53.95	4.939	22 24 35.5	9.34	18 17 21.1	17 7 19.47	4.909	22 27 15.8	9.17
19	17 7 52.11	4.905	22 28 16.9	9.12	19 17 19.1	17 9 16.88	4.874	22 30 53.2	8.96
20	17 9 49.44	4.871	22 31 53.3	8.91	20 17 17.1	17 11 13.44	4.839	22 34 25.7	8.75
21	17 11 45.94	4.836	22 35 24.8	8.70	21 17 15.1	17 13 9.15	4.803	22 37 53.4	8.55
22	17 13 41.58	4.799	22 38 51.3	8.51	22 17 13.1	17 15 3.98	4.765	22 41 16.3	8.35
23	17 15 36.32	4.761	22 42 13.1	8.31	23 17 11.0	17 16 57.90	4.727	22 44 34.5	8.17
24	17 17 30.14	4.722	22 45 30.3	8.12	24 17 9.0	17 18 50.87	4.688	22 47 48.2	7.98
25	17 19 23.00	4.682	22 48 42.9	7.93	25 17 6.9	17 20 42.87	4.648	22 50 57.4	7.79
26	17 21 14.88	4.640	22 51 51.2	7.75	26 17 4.8	17 22 33.87	4.604	22 54 2.4	7.62
27	17 23 5.76	4.598	22 54 55.2	7.58	27 17 2.7	17 24 23.84	4.560	22 57 3.2	7.45
28	17 24 55.58	4.553	22 57 55.2	7.41	28 17 0.6	17 26 12.74	4.514	23 0 0.2	7.29
29	17 26 44.31	4.507	23 0 51.2	7.25	29 16 58.5	17 28 0.52	4.467	23 2 53.2	7.13
30	17 28 31.92	4.460	23 3 43.4	7.09	30 16 56.3	17 29 47.16	4.419	23 5 42.6	6.98
31	17 30 18.38	4.410	23 6 31.9	6.94	31 16 54.1	17 31 32.62	4.369	23 8 29.4	6.83
Apr. 1	17 32 3.65	4.360	23 9 16.7	6.80	1 16 51.8	17 33 16.88	4.318	23 11 10.7	6.69
2	17 33 47.69	4.308	23 11 58.6	6.67	2 16 49.6	17 34 59.88	4.265	23 13 50.0	6.57
3	17 35 30.47	4.255	23 14 37.1	6.54	3 16 47.4	17 36 41.59	4.210	23 16 26.2	6.45
4	17 37 11.95	4.200	23 17 12.7	6.42	4 16 45.2	17 38 21.98	4.155	23 18 59.6	6.33
5	17 38 52.09	4.143	23 19 45.5	6.31	5 16 42.9	17 40 1.03	4.098	23 21 30.3	6.23
6	17 40 30.86	4.086	23 22 15.7	6.21	6 16 40.6	17 41 38.68	4.039	23 23 58.6	6.14
7	17 42 8.34	4.027	23 24 43.6	6.11	7 16 38.3	17 43 14.90	3.978	23 26 24.8	6.04
8	17 43 44.17	3.966	23 27 9.2	6.02	8 16 35.9	17 44 49.66	3.917	23 28 48.8	5.95
9	17 45 18.62	3.903	23 29 32.7	5.94	9 16 33.5	17 46 22.93	3.854	23 31 10.8	5.88
10	17 46 51.57	3.840	23 31 54.5	5.88	10 16 31.1	17 47 54.67	3.790	23 33 31.3	5.82
11	17 48 23.00	3.776	23 34 14.8	5.81	11 16 28.7	17 49 24.86	3.725	23 35 50.4	5.77
12	17 49 52.85	3.710	23 36 33.7	5.76	12 16 26.2	17 50 53.47	3.658	23 38 8.2	5.72
13	17 51 21.10	3.642	23 38 51.4	5.72	13 16 23.7	17 52 20.45	3.589	23 40 24.9	5.68
14	17 52 47.71	3.573	23 41 8.1	5.68	14 16 21.2	17 53 45.77	3.519	23 42 40.8	5.65
15	17 54 12.65	3.503	23 43 24.2	5.66	15 16 18.7	17 55 9.40	3.448	23 44 56.2	5.63
16	17 55 35.89	3.431	23 45 39.7	5.64	16 16 16.1	17 56 31.32	3.376	23 47 11.2	5.62
17	17 56 57.37	3.357	23 47 54.8	5.62	17 16 13.5	17 57 11.46	3.301	23 49 26.0	5.61
18	17 58 17.06	3.282	23 50 9.6	5.62	18 16 10.9	17 59 0.77	3.226	23 51 40.7	5.62
19	17 59 34.92	3.205	23 52 24.6	5.63	19 16 8.2	18 0 26.22	3.146	23 53 55.6	5.63
20	18 0 50.91	3.126	23 54 40.0	5.65	20 16 5.5	18 1 40.78	3.063	23 56 11.0	5.65
21	18 2 4.97	3.044	23 56 55.8	5.67	21 16 2.8	18 2 53.39	2.963	23 58 26.9	5.68
22	18 3 17.06	2.961	23 59 12.3	5.70	22 16 0.1	18 4 3.99	2.899	24 0 43.8	5.73
23	18 4 27.13	2.876	24 1 29.8	5.75	23 15 57.3	18 5 12.53	2.812	24 3 1.8	5.78
24	18 5 35.11	2.788	24 3 48.3	5.80	24 15 54.4	18 6 18.96	2.722	24 5 20.9	5.83
25	18 6 40.96	2.697	24 6 8.2	5.86	25 15 51.6	18 7 23.23	2.631	24 7 41.5	5.89
26	18 7 44.62	2.605	24 8 29.6	5.93	26 15 48.7	18 8 25.29	2.539	24 10 3.7	5.96
27	18 8 46.04	2.511	24 10 52.8	6.01	27 15 45.7	18 9 25.08	2.444	24 12 27.8	6.05
28	18 9 45.17	2.413	24 13 18.0	6.08	28 15 42.7	18 10 22.56	2.346	24 14 54.0	6.14
29	18 10 41.93	2.313	24 15 45.5	6.18	29 15 39.7	18 11 17.63	2.245	24 17 22.4	6.23
30	18 11 36.26	2.211	24 18 15.1	6.28	30 15 36.7	18 12 10.26	2.140	24 19 53.2	6.35
31	18 12 28.13	+2.108	-24 20 47.2	-6.39	31 15 33.6	18 13 0.38	+2.035	-24 23 27.4	-6.48

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
May 1	18 12 28.13	+2.108	24 20 47.2	- 6.39	1 15 33.6	18 13 0.38	+2.035	24 22 27.4	- 6.48
2	18 13 17.47	2.002	24 23 22.3	6.53	2 15 30.5	18 13 47.96	1.928	24 25 4.2	6.60
3	18 14 4.23	1.893	24 26 0.6	6.67	3 15 27.3	18 14 32.92	1.818	24 27 44.1	6.73
4	18 14 48.34	1.782	24 28 42.1	6.80	4 15 24.0	18 15 15.22	1.706	24 30 27.3	6.87
5	18 15 29.78	1.670	24 31 26.8	6.92	5 15 20.7	18 15 54.83	1.593	24 33 13.7	7.00
6	18 16 8.49	1.555	24 34 14.5	7.07	6 15 17.4	18 16 31.69	1.478	24 36 3.5	7.15
7	18 16 44.43	1.438	24 37 6.1	7.23	7 15 14.1	18 17 5.76	1.361	24 38 57.0	7.31
8	18 17 17.55	1.320	24 40 1.6	7.38	8 15 10.7	18 17 37.00	1.242	24 41 54.5	7.48
9	18 17 47.81	1.200	24 43 0.9	7.55	9 15 7.2	18 18 5.38	1.122	24 44 55.9	7.64
10	18 18 15.18	1.079	24 46 4.3	7.73	10 15 3.7	18 18 30.86	1.000	24 48 1.4	7.82
11	18 18 39.61	0.957	24 49 11.9	7.90	11 15 0.1	18 18 53.38	0.876	24 51 11.2	8.00
12	18 19 1.07	0.832	24 52 23.7	8.08	12 14 56.5	18 19 12.92	0.751	24 54 25.3	8.18
13	18 19 19.52	0.705	24 55 39.9	8.27	13 14 52.9	18 19 29.43	0.625	24 57 43.8	8.36
14	18 19 34.92	0.578	24 59 0.5	8.45	14 14 49.2	18 19 42.89	0.497	25 1 6.6	8.54
15	18 19 47.25	0.448	25 2 25.4	8.63	15 14 45.4	18 19 53.27	0.367	25 4 33.7	8.72
16	18 19 56.46	0.317	25 5 54.8	8.82	16 14 41.6	18 20 0.53	0.236	25 8 5.3	8.91
17	18 20 2.49	0.185	25 9 28.7	9.00	17 14 37.7	18 20 4.61	+0.103	25 11 41.2	9.08
18	18 20 5.31	+0.051	25 13 6.7	9.17	18 14 33.8	18 20 5.47	-0.031	25 15 21.1	9.25
19	18 20 4.91	-0.084	25 16 48.8	9.34	19 14 29.8	18 20 3.11	0.166	25 19 5.0	9.41
20	18 20 1.27	0.220	25 20 35.0	9.51	20 14 25.8	18 19 57.51	0.302	25 22 53.0	9.58
21	18 19 54.34	0.357	25 24 25.3	9.68	21 14 21.7	18 19 48.63	0.439	25 26 44.9	9.74
22	18 19 44.11	0.495	25 28 19.5	9.83	22 14 17.6	18 19 36.44	0.577	25 30 40.6	9.90
23	18 19 30.54	0.635	25 32 17.5	9.98	23 14 13.4	18 19 20.92	0.717	25 34 40.0	10.05
24	18 19 13.61	0.776	25 36 19.1	10.13	24 14 9.1	18 19 2.05	0.857	25 38 43.1	10.19
25	18 18 53.30	0.917	25 40 24.1	10.27	25 14 4.9	18 18 39.81	0.997	25 42 49.3	10.32
26	18 18 29.59	1.058	25 44 32.1	10.40	26 14 0.5	18 18 14.19	1.138	25 46 58.3	10.43
27	18 18 2.48	1.199	25 48 42.9	10.50	27 13 56.1	18 17 45.20	1.277	25 51 9.8	10.53
28	18 17 32.00	1.340	25 52 56.3	10.60	28 13 51.6	18 17 12.87	1.416	25 55 23.6	10.62
29	18 16 58.15	1.480	25 57 12.0	10.68	29 13 47.1	18 16 37.22	1.554	25 59 39.5	10.70
30	18 16 20.96	1.618	26 1 29.5	10.76	30 13 42.5	18 15 58.26	1.691	26 3 57.2	10.77
31	18 15 40.46	1.755	26 5 48.6	10.82	31 13 37.8	18 15 16.03	1.826	26 8 16.2	10.81
June 1	18 14 56.71	1.890	26 10 8.7	10.85	1 13 33.1	18 14 30.60	1.958	26 12 35.9	10.83
2	18 14 9.75	2.022	26 14 29.5	10.87	2 13 28.4	18 13 42.02	2.088	26 16 55.9	10.83
3	18 13 19.65	2.152	26 18 50.5	10.87	3 13 23.6	18 12 50.37	2.214	26 21 15.9	10.83
4	18 12 26.49	2.277	26 23 11.2	10.85	4 13 18.8	18 11 55.73	2.337	26 25 35.5	10.79
5	18 11 30.36	2.398	26 27 31.2	10.80	5 13 13.9	18 10 58.20	2.455	26 29 54.0	10.73
6	18 10 31.37	2.515	26 31 49.8	10.73	6 13 9.0	18 9 57.88	2.569	26 34 10.7	10.65
7	18 9 29.61	2.629	26 36 6.5	10.65	7 13 4.0	18 8 54.88	2.678	26 38 25.3	10.55
8	18 8 25.22	2.736	26 40 20.9	10.55	8 12 59.0	18 7 49.34	2.781	26 42 37.3	10.44
9	18 7 18.34	2.837	26 44 32.5	10.42	9 12 53.9	18 6 41.41	2.876	26 46 46.4	10.31
10	18 6 9.09	2.932	26 48 40.9	10.27	10 12 48.8	18 5 31.21	2.960	26 50 52.0	10.15
11	18 4 57.63	3.022	26 52 45.5	10.10	11 12 43.7	18 4 18.88	3.055	26 54 53.4	9.96
12	18 3 44.08	3.105	26 56 45.5	9.90	12 12 38.5	18 3 4.58	3.134	26 58 49.9	9.74
13	18 2 28.62	3.182	27 0 40.4	9.67	13 12 33.3	18 2 48.46	3.207	27 2 41.0	9.51
14	18 1 11.39	3.252	27 4 29.6	9.42	14 12 28.1	18 1 30.67	3.273	27 6 26.2	9.25
15	17 59 52.56	3.313	27 8 12.7	9.15	15 12 22.8	17 59 11.38	3.331	27 10 5.1	8.98
16	17 58 32.31	3.370	27 11 49.3	8.88	16 12 17.6	17 57 50.76	3.383	27 13 37.4	8.70
17	17 57 10.81	3.418	27 15 18.9	8.58	17 12 12.3	17 56 28.96	3.427	27 17 2.6	8.39
18	17 55 48.24	3.458	27 18 41.1	8.27	18 12 7.0	17 55 6.25	3.463	27 20 20.3	8.07
19	17 54 24.82	3.490	27 21 55.6	7.94	19 12 1.7	17 53 42.77	3.490	27 23 30.1	7.74
20	17 53 0.72	3.513	27 25 2.2	7.60	20 11 56.3	17 52 18.73	3.510	27 26 31.8	7.40
21	17 51 36.14	3.530	27 28 0.6	7.25	21 11 50.9	17 50 54.30	3.522	27 29 25.4	7.06
22	17 50 11.26	3.538	27 30 50.5	6.90	22 11 45.6	17 49 29.65	3.527	27 32 10.6	6.70
23	17 48 46.28	3.538	27 33 31.6	6.53	23 11 40.3	17 48 5.01	3.522	27 34 46.8	6.32
24	17 47 21.42	3.528	27 36 3.7	6.14	24 11 35.0	17 46 40.60	3.508	27 37 13.8	5.93
25	17 45 56.89	3.512	27 38 26.5	5.75	25 11 29.7	17 45 16.60	3.487	27 39 31.5	5.54
26	17 44 32.89	3.485	27 40 39.8	5.37	26 11 24.3	17 43 53.23	3.456	27 41 39.9	5.16
27	17 43 9.63	3.450	27 42 43.9	4.98	27 11 19.0	17 42 30.71	3.417	27 43 39.2	4.78
28	17 41 47.32	3.405	27 44 38.8	4.60	28 11 13.8	17 41 9.22	3.368	27 45 29.5	4.41
29	17 40 26.19	3.352	27 46 24.8	4.23	29 11 8.5	17 39 49.02	3.311	27 47 10.9	4.04
30	17 39 6.47	3.288	27 48 1.7	3.85	30 11 3.2	17 38 30.31	3.244	27 48 43.3	3.67
31	17 37 48.36	-3.218	27 49 29.6	- 3.48	31 10 58.0	17 37 13.29	-3.170	27 50 6.9	- 3.31

Date.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.														
	Apparent Right Ascension.			Diff. for 1 hour.	Apparent Declination.		Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.		Diff. for 1 h. of Long.	Apparent Declination.		Diff. for 1 hour of Long.					
1875.	h	m	s	s	°	'	"	"	d	h	m	h	m	s	s	°	'	"	"
July 1	17	37	48.36	-3.218	-27	49	29.6	-3.48	1	10	58.0	17	37	13.29	-3.170	-27	50	6.9	-3.31
2	17	36	32.06	3.137	27	50	48.9	3.13	2	10	52.8	17	35	58.15	3.088	27	51	22.0	2.96
3	17	35	17.77	3.050	27	51	59.8	2.78	3	10	47.7	17	34	45.08	2.997	27	52	29.0	2.63
4	17	34	5.67	2.955	27	53	2.6	2.45	4	10	42.6	17	33	34.28	2.899	27	53	28.1	2.30
5	17	32	55.96	2.852	27	53	57.5	2.13	5	10	37.5	17	32	25.92	2.794	27	54	19.4	1.98
6	17	31	48.79	2.742	27	54	44.7	1.82	6	10	32.5	17	31	20.15	2.683	27	55	3.2	1.67
7	17	30	44.33	2.627	27	55	24.5	1.52	7	10	27.5	17	30	17.13	2.565	27	55	39.8	1.39
8	17	29	42.72	2.505	27	55	57.5	1.24	8	10	22.6	17	29	17.01	2.441	27	56	9.8	1.12
9	17	28	44.12	2.377	27	56	24.3	0.98	9	10	17.7	17	28	19.94	2.312	27	56	33.8	0.88
10	17	27	48.64	2.245	27	56	44.9	0.74	10	10	12.9	17	27	26.01	2.180	27	56	51.9	0.64
11	17	26	56.38	2.108	27	56	59.9	0.52	11	10	8.1	17	26	35.31	2.043	27	57	4.6	0.42
12	17	26	7.44	1.968	27	57	9.7	0.31	12	10	3.4	17	25	47.94	1.902	27	57	12.3	0.22
13	17	25	21.91	1.823	27	57	14.6	-0.11	13	9	58.7	17	25	4.01	1.757	27	57	15.3	-0.03
14	17	24	39.86	1.677	27	57	15.0	+0.07	14	9	64.1	17	24	23.55	1.611	27	57	14.0	+0.14
15	17	24	1.35	1.529	27	57	11.3	0.23	15	9	49.6	17	23	46.63	1.464	27	57	8.7	0.30
16	17	23	26.43	1.379	27	57	3.8	0.38	16	9	45.1	17	23	13.29	1.314	27	56	59.8	0.44
17	17	22	55.14	1.227	27	56	52.8	0.52	17	9	40.6	17	22	43.57	1.162	27	56	47.6	0.57
18	17	22	27.52	1.073	27	56	38.8	0.64	18	9	36.3	17	22	17.52	1.008	27	56	32.5	0.68
19	17	22	3.62	0.918	27	56	22.0	0.75	19	9	32.0	17	21	55.17	0.854	27	56	14.7	0.79
20	17	21	43.45	0.762	27	56	2.7	0.85	20	9	27.8	17	21	36.53	0.699	27	55	54.6	0.89
21	17	21	27.03	0.605	27	55	41.1	0.94	21	9	23.6	17	21	21.63	0.543	27	55	32.2	0.97
22	17	21	14.38	0.448	27	55	17.5	1.02	22	9	19.5	17	21	10.48	0.386	27	55	7.9	1.04
23	17	21	5.50	0.292	27	54	52.2	1.08	23	9	15.4	17	21	3.10	0.229	27	54	42.1	1.10
24	17	21	0.40	-0.135	27	54	25.4	1.14	24	9	11.4	17	20	59.48	-0.073	27	54	14.9	1.16
25	17	20	59.08	+0.023	27	53	57.4	1.18	25	9	7.5	17	20	59.60	+0.083	27	53	46.6	1.20
26	17	21	1.54	0.182	27	53	28.5	1.22	26	9	3.6	17	21	3.46	0.240	27	53	17.5	1.23
27	17	21	7.79	0.338	27	52	58.8	1.25	27	8	59.8	17	21	11.09	0.396	27	52	47.6	1.26
28	17	21	17.81	0.495	27	52	28.5	1.27	28	8	56.1	17	21	22.49	0.553	27	52	17.1	1.28
29	17	21	31.60	0.652	27	51	57.6	1.30	29	8	52.4	17	21	37.64	0.708	27	51	46.1	1.30
30	17	21	49.13	0.808	27	51	26.1	1.32	30	8	48.8	17	21	56.50	0.863	27	51	14.5	1.33
31	17	22	10.38	0.963	27	50	54.1	1.34	31	8	45.2	17	22	19.06	1.017	27	50	42.4	1.35
Aug. 1	17	22	35.35	1.117	27	50	21.6	1.36	1	8	41.7	17	22	45.30	1.169	27	50	9.8	1.36
2	17	23	3.99	1.268	27	49	48.8	1.37	2	8	38.3	17	23	15.18	1.320	27	49	36.9	1.37
3	17	23	36.26	1.418	27	49	15.8	1.38	3	8	34.9	17	23	48.67	1.470	27	49	3.9	1.38
4	17	24	12.14	1.568	27	48	42.5	1.39	4	8	31.6	17	24	25.74	1.618	27	48	30.6	1.39
5	17	24	51.56	1.717	27	48	9.0	1.40	5	8	28.3	17	25	6.33	1.764	27	47	57.1	1.40
6	17	25	34.50	1.862	27	47	35.1	1.42	6	8	25.1	17	25	50.40	1.908	27	47	23.2	1.43
7	17	26	20.91	2.005	27	47	0.7	1.45	7	8	22.0	17	26	37.89	2.049	27	46	48.6	1.46
8	17	27	10.71	2.145	27	46	25.6	1.48	8	8	18.9	17	27	28.74	2.188	27	46	13.3	1.49
9	17	28	3.86	2.283	27	45	49.8	1.51	9	8	15.9	17	28	22.91	2.325	27	45	37.3	1.52
10	17	29	0.29	2.418	27	45	13.1	1.55	10	8	12.9	17	29	20.33	2.459	27	45	0.3	1.56
11	17	29	59.94	2.550	27	44	35.4	1.60	11	8	10.0	17	30	20.93	2.591	27	44	22.3	1.61
12	17	31	2.73	2.680	27	43	56.5	1.65	12	8	7.1	17	31	24.66	2.720	27	43	43.0	1.66
13	17	32	8.62	2.808	27	43	16.3	1.71	13	8	4.3	17	32	31.45	2.845	27	43	2.4	1.72
14	17	33	17.53	2.933	27	42	34.6	1.77	14	8	1.5	17	33	41.23	2.968	27	42	20.3	1.79
15	17	34	29.40	3.055	27	41	51.3	1.84	15	7	58.8	17	34	53.93	3.089	27	41	36.5	1.87
16	17	35	44.16	3.173	27	41	6.1	1.93	16	7	56.1	17	35	9.50	3.207	27	40	50.7	1.95
17	17	37	1.75	3.292	27	40	18.8	2.02	17	7	53.5	17	37	27.88	3.323	27	40	2.7	2.05
18	17	38	22.13	3.407	27	39	29.2	2.12	18	7	50.9	17	38	49.00	3.437	27	39	12.4	2.15
19	17	39	45.24	3.518	27	38	37.1	2.23	19	7	48.4	17	40	12.83	3.549	27	38	19.5	2.26
20	17	41	11.02	3.628	27	37	42.2	2.35	20	7	45.9	17	41	39.32	3.658	27	37	23.8	2.38
21	17	42	39.42	3.737	27	36	44.4	2.47	21	7	43.4	17	43	8.40	3.764	27	36	25.1	2.51
22	17	44	10.37	3.842	27	35	43.6	2.60	22	7	41.0	17	44	40.01	3.869	27	35	23.4	2.64
23	17	45	43.83	3.945	27	34	39.5	2.75	23	7	38.6	17	46	14.11	3.972	27	34	18.3	2.79
24	17	47	19.77	4.048	27	33	31.7	2.90	24	7	36.3	17	47	50.67	4.073	27	33	9.4	2.95
25	17	48	58.14	4.148	27	32	20.1	3.07	25	7	34.0	17	49	29.64	4.173	27	31	56.6	3.12
26	17	50	38.88	4.247	27	31	4.5	3.24	26	7	31.8	17	51	10.97	4.271	27	30	39.8	3.29
27	17	52	21.97	4.343	27	29	44.5	3.43	27	7	29.6	17	52	54.63	4.366	27	29	18.5	3.48
28	17	54	7.36	4.438	27	28	20.0	3.62	28	7	27.4	17	54	40.56	4.460	27	27	52.6	3.67
29	17	55	54.98	4.530	27	26	50.9	3.81	29	7	25.3	17	56	28.71	4.551	27	26	22.1	3.87
30	17	57	44.79	4.620	27	25	16.9	4.02	30	7	23.2	17	58	19.01	4.640	27	24	46.7	4.08
31	17	59	36.74	+4.708	-27	23	37.7	+4.25	31	7	21.1	18	0	11.44	+4.728	-27	23	6.0	+4.31

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.						
	Apparent Right Ascension.		Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.		Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	° ' "	° ' "	° ' "	d h m	h m s	° ' "	° ' "	° ' "	° ' "	
Sept. 1	18 1 30.80	+4.795	-27 21 52.9	+ 4.48	1 7 19.1	18 2 5.98	+4.815	-27 21 19.7	+ 4.55		
2	18 3 26.93	4.890	27 20 2.6	4.71	2 7 17.1	18 4 2.57	4.899	27 19 27.8	4.78		
3	18 5 25.06	4.962	27 18 6.6	4.97	3 7 15.1	18 6 1.14	4.981	27 17 30.1	5.04		
4	18 7 25.14	5.043	27 16 4.2	5.24	4 7 13.2	18 8 1.64	5.060	27 15 25.9	5.31		
5	18 9 27.11	5.121	27 13 55.2	5.51	5 7 11.3	18 10 4.01	5.136	27 13 15.1	5.59		
6	18 11 30.92	5.197	27 11 39.6	5.80	6 7 9.4	18 12 8.19	5.211	27 10 57.5	5.88		
7	18 13 36.52	5.270	27 9 17.0	6.09	7 7 7.6	18 14 14.15	5.284	27 8 32.8	6.18		
8	18 15 43.87	5.341	27 6 47.3	6.38	8 7 5.8	18 16 21.84	5.354	27 6 1.3	6.46		
9	18 17 52.91	5.410	27 4 10.5	6.68	9 7 4.0	18 18 31.19	5.423	27 3 22.6	6.76		
10	18 20 3.58	5.477	27 1 26.3	7.00	10 7 2.2	18 20 42.17	5.489	27 0 36.5	7.08		
11	18 22 15.83	5.542	26 58 34.5	7.33	11 7 0.5	18 22 54.73	5.553	26 57 42.6	7.41		
12	18 24 29.60	5.604	26 55 34.7	7.67	12 6 58.8	18 25 8.79	5.616	26 54 40.6	7.76		
13	18 26 44.84	5.665	26 52 26.6	8.01	13 6 57.1	18 27 24.29	5.676	26 51 30.3	8.11		
14	18 29 1.52	5.724	26 49 10.0	8.36	14 6 55.4	18 29 41.21	5.734	26 48 11.6	8.46		
15	18 31 19.59	5.781	26 45 44.9	8.72	15 6 53.8	18 31 59.51	5.791	26 44 44.3	8.82		
16	18 33 39.01	5.830	26 42 11.3	9.08	16 6 52.2	18 34 19.15	5.845	26 41 8.5	9.18		
17	18 35 59.72	5.880	26 38 29.0	9.45	17 6 50.6	18 36 40.08	5.898	26 37 24.0	9.55		
18	18 38 21.70	5.941	26 34 37.8	9.83	18 6 49.0	18 39 2.26	5.949	26 33 30.5	9.93		
19	18 40 44.91	5.992	26 30 37.4	10.21	19 6 47.5	18 41 25.66	5.999	26 29 27.7	10.31		
20	18 43 9.31	6.041	26 26 27.7	10.60	20 6 46.0	18 43 50.24	6.048	26 25 15.6	10.70		
21	18 45 34.87	6.188	26 22 8.6	10.99	21 6 44.5	18 46 15.96	6.095	26 20 54.1	11.10		
22	18 48 1.55	6.135	26 17 39.9	11.40	22 6 43.0	18 48 42.79	6.141	26 16 23.0	11.50		
23	18 50 29.32	6.180	26 13 1.5	11.81	23 6 41.5	18 51 10.71	6.185	26 11 42.1	11.91		
24	18 52 58.16	6.223	26 8 13.2	12.22	24 6 40.0	18 53 39.69	6.228	26 6 51.3	12.32		
25	18 55 28.03	6.265	26 3 14.9	12.64	25 6 38.6	18 56 9.69	6.270	26 1 50.5	12.74		
26	18 57 58.89	6.306	25 58 6.5	13.06	26 6 37.2	18 58 40.67	6.311	25 56 39.6	13.17		
27	19 0 30.72	6.346	25 52 47.9	13.49	27 6 35.8	19 1 12.61	6.350	25 51 18.5	13.60		
28	19 3 3.50	6.384	25 47 18.9	13.93	28 6 34.4	19 3 45.49	6.388	25 45 47.0	14.04		
29	19 5 37.19	6.421	25 41 39.3	14.37	29 6 33.0	19 6 19.27	6.425	25 40 4.8	14.48		
30	19 8 11.74	6.457	25 35 49.1	14.81	30 6 31.6	19 8 53.91	6.460	25 34 12.0	14.92		
Oct. 1	19 10 47.13	6.491	25 29 48.2	15.26	1 6 30.3	19 11 29.38	6.494	25 28 8.5	15.37		
2	19 13 23.33	6.524	25 23 36.5	15.71	2 6 29.0	19 14 5.65	6.526	25 21 54.2	15.82		
3	19 16 0.31	6.555	25 17 13.9	16.17	3 6 27.7	19 16 42.68	6.557	25 15 29.0	16.28		
4	19 18 38.02	6.585	25 10 40.3	16.63	4 6 26.4	19 19 20.44	6.587	25 8 52.8	16.74		
5	19 21 16.42	6.613	25 3 55.7	17.09	5 6 25.1	19 21 58.89	6.615	25 2 5.6	17.20		
6	19 23 55.49	6.640	24 57 0.0	17.55	6 6 23.8	19 24 37.99	6.641	24 55 7.4	17.66		
7	19 26 35.18	6.665	24 49 53.3	18.01	7 6 22.5	19 27 17.70	6.666	24 47 58.1	18.12		
8	19 29 15.46	6.689	24 42 35.4	18.47	8 6 21.2	19 29 57.98	6.690	24 40 37.6	18.58		
9	19 31 56.30	6.712	24 35 6.3	18.94	9 6 20.0	19 32 38.82	6.712	24 33 5.9	19.05		
10	19 34 37.66	6.734	24 27 26.0	19.40	10 6 18.7	19 35 20.17	6.733	24 25 23.0	19.51		
11	19 37 19.50	6.753	24 19 34.6	19.87	11 6 17.5	19 38 2.00	6.753	24 17 29.1	19.98		
12	19 40 1.81	6.772	24 11 32.0	20.34	12 6 16.3	19 40 44.30	6.771	24 9 24.0	20.44		
13	19 42 44.55	6.789	24 3 18.2	20.81	13 6 15.1	19 43 27.01	6.788	24 1 7.7	20.91		
14	19 45 27.69	6.805	23 54 53.1	21.27	14 6 13.9	19 46 10.11	6.803	23 52 40.1	21.37		
15	19 48 11.21	6.820	23 46 16.9	21.74	15 6 12.6	19 48 53.59	6.818	23 44 1.4	21.84		
16	19 50 55.09	6.834	23 37 29.6	22.20	16 6 11.4	19 51 37.42	6.832	23 35 11.7	22.30		
17	19 53 39.29	6.848	23 28 31.1	22.67	17 6 10.2	19 54 21.56	6.845	23 26 10.8	22.77		
18	19 56 23.81	6.860	23 19 21.4	23.13	18 6 9.0	19 57 6.02	6.857	23 16 58.7	23.23		
19	19 59 8.61	6.872	23 10 0.5	23.60	19 6 7.8	19 59 50.75	6.869	23 7 35.4	23.70		
20	20 1 53.67	6.883	23 0 28.6	24.06	20 6 6.6	20 2 35.74	6.880	22 58 1.0	24.16		
21	20 4 38.99	6.893	22 50 45.3	24.53	21 6 5.4	20 5 20.98	6.890	22 48 15.6	24.62		
22	20 7 24.54	6.903	22 40 51.1	24.99	22 6 4.2	20 8 6.45	6.899	22 38 19.1	25.08		
23	20 10 10.32	6.912	22 30 45.9	25.46	23 6 3.0	20 10 52.15	6.908	22 28 11.6	25.54		
24	20 12 56.30	6.920	22 20 29.7	25.91	24 6 1.8	20 13 38.04	6.916	22 17 53.1	26.00		
25	20 15 42.47	6.928	22 10 2.5	26.36	25 6 0.7	20 16 24.12	6.924	22 7 23.7	26.45		
26	20 18 28.81	6.934	21 59 24.4	26.81	26 5 59.5	20 19 10.36	6.931	21 56 43.4	26.91		
27	20 21 15.32	6.940	21 48 35.4	27.27	27 5 58.3	20 21 56.77	6.937	21 45 52.2	27.36		
28	20 24 1.97	6.945	21 37 35.4	27.72	28 5 57.1	20 24 43.31	6.942	21 34 50.1	27.81		
29	20 26 48.73	6.950	21 26 24.5	28.17	29 5 56.0	20 27 29.96	6.947	21 23 37.1	28.26		
30	20 29 35.59	6.954	21 15 3.0	28.62	30 5 54.8	20 30 16.71	6.950	21 12 13.5	28.70		
31	20 32 22.55	6.958	21 3 30.9	29.06	31 5 53.7	20 33 3.56	6.953	21 0 39.3	29.14		
32	20 35 9.58	+6.960	-20 51 48.2	+29.50	32 5 52.5	20 35 50.47	+6.955	-20 48 54.6	+29.58		

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s s	s	° ′ ″	″	d h m	h m s s	s	° ′ ″	″
Mar. 1	13 58 50.26	-0.410	-10 35 20.0	+2.76	1 15 19.8	13 58 43.83	-0.428	-10 34 36.9	+2.85
2	13 58 40.07	0.439	10 34 11.9	2.92	2 15 15.7	13 58 33.23	0.456	10 33 26.6	3.00
3	13 58 29.19	0.467	10 33 0.1	3.07	3 15 11.6	13 58 21.95	0.484	10 32 12.8	3.15
4	13 58 17.63	0.496	10 31 44.7	3.22	4 15 7.5	13 58 9.99	0.512	10 30 55.4	3.30
5	13 58 5.38	0.524	10 30 25.8	3.36	5 15 3.4	13 57 57.36	0.540	10 29 34.5	3.45
6	13 57 52.46	0.552	10 29 3.3	3.51	6 14 59.2	13 57 44.06	0.568	10 28 10.0	3.59
7	13 57 38.88	0.580	10 27 37.3	3.65	7 14 55.1	13 57 30.11	0.595	10 26 42.1	3.73
8	13 57 24.64	0.607	10 26 7.9	3.80	8 14 50.9	13 57 15.50	0.622	10 25 10.9	3.87
9	13 57 9.74	0.634	10 24 35.1	3.94	9 14 46.7	13 57 0.25	0.648	10 23 36.3	4.01
10	13 56 54.21	0.660	10 22 59.0	4.08	10 14 42.5	13 56 44.38	0.674	10 21 58.5	4.15
11	13 56 38.05	0.686	10 21 19.6	4.21	11 14 38.3	13 56 27.89	0.700	10 20 17.4	4.28
12	13 56 21.27	0.712	10 19 37.0	4.34	12 14 34.1	13 56 10.80	0.725	10 18 33.1	4.41
13	13 56 3.89	0.737	10 17 51.2	4.47	13 14 29.9	13 55 53.11	0.750	10 16 45.8	4.53
14	13 55 45.91	0.761	10 16 2.4	4.60	14 14 25.6	13 55 34.83	0.774	10 14 55.5	4.66
15	13 55 27.35	0.785	10 14 10.6	4.72	15 14 21.4	13 55 15.98	0.797	10 13 2.3	4.78
16	13 55 8.23	0.808	10 12 15.9	4.84	16 14 17.2	13 54 56.58	0.820	10 11 6.2	4.90
17	13 54 48.55	0.831	10 10 18.2	4.96	17 14 12.9	13 54 36.64	0.842	10 9 7.2	5.02
18	13 54 28.33	0.853	10 8 17.7	5.08	18 14 8.6	13 54 16.16	0.864	10 7 5.4	5.13
19	13 54 7.57	0.875	10 6 14.5	5.19	19 14 4.3	13 53 55.16	0.885	10 5 1.0	5.24
20	13 53 46.30	0.897	10 4 8.6	5.30	20 14 0.0	13 53 33.65	0.906	10 2 54.0	5.35
21	13 53 24.52	0.918	10 2 0.1	5.41	21 13 55.7	13 53 11.65	0.926	10 0 44.4	5.45
22	13 53 2.25	0.938	9 59 49.0	5.51	22 13 51.4	13 52 49.17	0.946	9 58 32.3	5.55
23	13 52 39.50	0.958	9 57 35.5	5.61	23 13 47.1	13 52 26.22	0.966	9 56 17.8	5.65
24	13 52 16.28	0.977	9 55 19.6	5.71	24 13 42.8	13 52 2.81	0.985	9 54 0.9	5.75
25	13 51 52.60	0.995	9 53 1.3	5.81	25 13 38.5	13 51 38.96	1.003	9 51 41.7	5.84
26	13 51 28.50	1.013	9 50 40.8	5.90	26 13 34.1	13 51 14.69	1.020	9 49 20.4	5.93
27	13 51 3.98	1.030	9 48 18.2	5.99	27 13 29.8	13 50 50.02	1.036	9 46 57.1	6.01
28	13 50 39.05	1.046	9 45 53.5	6.07	28 13 25.4	13 50 24.95	1.052	9 44 31.7	6.10
29	13 50 13.74	1.062	9 43 26.8	6.15	29 13 21.1	13 49 59.50	1.067	9 42 4.4	6.18
30	13 49 48.05	1.077	9 40 58.3	6.23	30 13 16.7	13 49 33.69	1.082	9 39 35.3	6.25
31	13 49 22.01	1.092	9 38 28.0	6.30	31 13 12.4	13 49 7.54	1.096	9 37 4.5	6.32
Apr. 1	13 48 55.63	1.106	9 35 56.0	6.37	1 13 8.0	13 48 41.07	1.109	9 34 32.1	6.39
2	13 48 28.93	1.119	9 33 22.3	6.44	2 13 3.6	13 48 14.29	1.121	9 31 58.1	6.45
3	13 48 1.94	1.131	9 30 47.1	6.50	3 12 59.2	13 47 47.22	1.133	9 29 22.6	6.51
4	13 47 34.67	1.142	9 28 10.6	6.55	4 12 54.8	13 47 19.89	1.144	9 26 45.8	6.56
5	13 47 7.13	1.152	9 25 32.8	6.60	5 12 50.4	13 46 52.30	1.154	9 24 7.9	6.61
6	13 46 39.35	1.162	9 22 53.9	6.64	6 12 46.0	13 46 24.48	1.163	9 21 28.9	6.65
7	13 46 11.36	1.170	9 20 13.9	6.68	7 12 41.6	13 45 56.47	1.171	9 18 48.9	6.68
8	13 45 43.17	1.178	9 17 33.1	6.72	8 12 37.2	13 45 28.27	1.178	9 16 8.1	6.71
9	13 45 14.80	1.185	9 14 51.5	6.75	9 12 32.8	13 44 59.91	1.185	9 13 26.6	6.74
10	13 44 46.27	1.191	9 12 9.1	6.78	10 12 28.4	13 44 31.40	1.190	9 10 44.5	6.76
11	13 44 17.61	1.196	9 9 26.2	6.80	11 12 24.0	13 44 2.76	1.195	9 8 1.9	6.78
12	13 43 48.84	1.201	9 6 42.9	6.81	12 12 19.6	13 43 34.02	1.199	9 5 18.9	6.80
13	13 43 19.97	1.204	9 3 59.3	6.82	13 12 15.2	13 43 5.20	1.202	9 2 35.6	6.81
14	13 42 51.03	1.207	9 1 15.4	6.83	14 12 10.8	13 42 36.32	1.204	8 59 52.2	6.81
15	13 42 22.04	1.209	8 58 31.5	6.83	15 12 6.4	13 42 7.40	1.206	8 57 8.8	6.81
16	13 41 53.01	1.210	8 55 47.6	6.83	16 12 2.0	13 41 38.45	1.206	8 54 25.4	6.80
17	13 41 23.97	1.210	8 53 3.8	6.82	17 11 57.6	13 41 9.50	1.206	8 51 42.2	6.79
18	13 40 54.94	1.200	8 50 20.3	6.81	18 11 53.2	13 40 40.57	1.205	8 48 59.4	6.78
19	13 40 25.93	1.207	8 47 37.1	6.79	19 11 48.8	13 40 11.67	1.203	8 46 16.9	6.76
20	13 39 56.97	1.205	8 44 54.3	6.77	20 11 44.4	13 39 42.82	1.200	8 43 34.9	6.74
21	13 39 28.07	1.202	8 42 12.1	6.74	21 11 40.0	13 39 14.04	1.197	8 40 53.6	6.71
22	13 38 59.25	1.199	8 39 30.7	6.71	22 11 35.6	13 38 45.36	1.192	8 38 13.0	6.68
23	13 38 30.54	1.194	8 36 50.0	6.68	23 11 31.1	13 38 16.80	1.187	8 35 33.2	6.64
24	13 38 1.95	1.189	8 34 10.2	6.64	24 11 26.7	13 37 48.37	1.182	8 32 54.4	6.60
25	13 37 33.49	1.183	8 31 31.4	6.59	25 11 22.3	13 37 20.07	1.176	8 30 16.6	6.55
26	13 37 5.19	1.175	8 28 53.7	6.54	26 11 17.9	13 36 51.94	1.169	8 27 40.0	6.50
27	13 36 37.07	1.167	8 26 17.3	6.49	27 11 13.5	13 36 23.99	1.161	8 25 4.6	6.45
28	13 36 9.15	1.159	8 23 42.2	6.43	28 11 9.1	13 35 56.25	1.151	8 22 30.6	6.39
29	13 35 41.44	1.149	8 21 8.5	6.37	29 11 4.7	13 35 28.73	1.141	8 19 58.1	6.32
30	13 35 13.97	1.139	8 18 36.4	6.30	30 11 0.3	13 35 1.46	1.131	8 17 27.2	6.25
31	13 34 46.76	-1.128	8 16 6.0	+6.23	31 10 55.9	13 34 34.45	-1.120	8 14 58.1	+6.18

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	^h ^m ^s	^s	[°] ['] ^{''}		^d ^h ^m	^h ^m ^s	^s	[°] ['] ^{''}	^{''}
Jan. 0	13 47 56.47	+1.224	- 9 48 50.6	-6.37	0 19 5.4	13 48 19.68	+1.205	- 9 50 51.4	-6.25
1	13 48 25.60	1.203	9 51 22.1	6.24	1 19 1.9	13 48 48.34	1.184	9 53 20.0	6.12
2	13 48 54.23	1.182	9 53 50.4	6.11	2 18 58.5	13 49 16.50	1.163	9 55 45.4	5.99
3	13 49 22.35	1.161	9 56 15.5	5.98	3 18 55.0	13 49 44.15	1.141	9 58 7.6	5.86
4	13 49 49.95	1.139	9 58 37.5	5.85	4 18 51.5	13 50 11.27	1.119	10 0 26.7	5.73
5	13 50 17.03	1.117	10 0 56.2	5.71	5 18 48.0	13 50 37.87	1.097	10 2 42.5	5.59
6	13 50 43.58	1.095	10 3 11.6	5.57	6 18 44.5	13 51 3.94	1.075	10 4 55.0	5.45
7	13 51 9.59	1.073	10 5 23.7	5.44	7 18 41.0	13 51 29.46	1.052	10 7 4.2	5.31
8	13 51 35.05	1.050	10 7 32.5	5.30	8 18 37.5	13 51 54.43	1.029	10 9 10.1	5.17
9	13 51 59.96	1.027	10 9 37.9	5.16	9 18 34.0	13 52 18.84	1.006	10 11 12.6	5.03
10	13 52 24.31	1.003	10 11 39.9	-5.01	10 18 30.5	13 52 42.70	0.982	10 13 11.7	4.89
11	13 52 48.10	0.979	10 13 38.5	4.87	11 18 27.0	13 53 5.99	0.958	10 15 7.4	4.75
12	13 53 11.31	0.955	10 15 33.8	4.73	12 18 23.4	13 53 28.70	0.934	10 16 59.8	4.61
13	13 53 33.94	0.931	10 17 25.6	4.59	13 18 19.8	13 53 50.83	0.910	10 18 48.7	4.47
14	13 53 55.98	0.906	10 19 13.9	4.44	14 18 16.2	13 54 12.37	0.885	10 20 34.0	4.32
15	13 54 17.43	0.881	10 20 58.7	4.30	15 18 12.6	13 54 33.31	0.860	10 22 15.9	4.18
16	13 54 38.28	0.856	10 22 40.1	4.15	16 18 9.0	13 54 53.65	0.835	10 23 54.4	4.03
17	13 54 58.52	0.831	10 24 17.9	4.00	17 18 5.4	13 55 13.38	0.810	10 25 29.3	3.88
18	13 55 18.15	0.805	10 25 52.2	3.85	18 18 1.8	13 55 32.50	0.784	10 27 0.7	3.73
19	13 55 37.17	0.779	10 27 22.9	3.71	19 17 58.2	13 55 51.01	0.759	10 28 28.5	3.59
20	13 55 55.58	0.753	10 28 50.0	3.56	20 17 54.6	13 56 8.91	0.733	10 29 52.7	3.44
21	13 56 13.36	0.727	10 30 13.6	3.41	21 17 50.9	13 56 26.18	0.707	10 31 13.4	3.29
22	13 56 30.51	0.701	10 31 33.6	3.26	22 17 47.3	13 56 42.81	0.680	10 32 30.5	3.14
23	13 56 47.02	0.674	10 32 49.9	3.11	23 17 43.6	13 56 58.80	0.653	10 33 43.9	2.99
24	13 57 2.89	0.647	10 34 2.6	2.95	24 17 39.9	13 57 14.15	0.626	10 34 53.7	2.83
25	13 57 18.10	0.620	10 35 11.6	2.80	25 17 36.2	13 57 28.84	0.599	10 35 59.9	2.68
26	13 57 32.66	0.593	10 36 16.9	2.64	26 17 32.5	13 57 42.88	0.571	10 37 2.3	2.52
27	13 57 46.56	0.565	10 37 18.5	2.49	27 17 28.8	13 57 56.26	0.543	10 38 1.0	2.37
28	13 57 59.78	0.537	10 38 16.3	2.33	28 17 25.1	13 58 8.96	0.515	10 38 56.0	2.21
29	13 58 12.33	0.509	10 39 10.4	2.18	29 17 21.3	13 58 20.99	0.487	10 39 47.2	2.06
30	13 58 24.21	0.480	10 40 0.7	2.02	30 17 17.6	13 58 32.35	0.459	10 40 34.6	1.90
31	13 58 35.41	0.452	10 40 47.2	1.86	31 17 13.9	13 58 43.03	0.431	10 41 18.2	1.74
Feb. 1	13 58 45.92	0.423	10 41 29.9	1.70	1 17 10.1	13 58 53.02	0.402	10 41 58.1	1.58
2	13 58 55.74	0.394	10 42 8.8	1.54	2 17 6.3	13 59 2.31	0.373	10 42 34.2	1.42
3	13 59 4.86	0.365	10 42 43.8	1.38	3 17 2.5	13 59 10.90	0.343	10 43 6.3	1.26
4	13 59 13.27	0.336	10 43 14.9	1.22	4 16 58.7	13 59 18.79	0.314	10 43 34.6	1.10
5	13 59 20.96	0.307	10 43 42.2	1.06	5 16 54.9	13 59 25.96	0.284	10 43 59.1	0.94
6	13 59 27.94	0.277	10 44 5.6	0.90	6 16 51.1	13 59 32.42	0.255	10 44 19.7	0.78
7	13 59 34.22	0.247	10 44 25.1	0.73	7 16 47.3	13 59 38.18	0.225	10 44 36.4	0.62
8	13 59 39.78	0.217	10 44 40.7	0.57	8 16 43.5	13 59 43.23	0.195	10 44 49.3	0.46
9	13 59 44.62	0.187	10 44 52.5	0.41	9 16 39.6	13 59 47.56	0.165	10 44 58.4	0.30
10	13 59 48.74	0.157	10 45 0.4	0.25	10 16 35.7	13 59 51.17	0.135	10 45 3.6	-0.14
11	13 59 52.14	0.127	10 45 4.4	-0.09	11 16 31.8	13 59 54.06	0.105	10 45 4.9	+0.03
12	13 59 54.82	0.097	10 45 4.5	+0.08	12 16 27.9	13 59 56.23	0.076	10 45 2.3	0.19
13	13 59 56.77	0.067	10 45 0.7	0.24	13 16 24.0	13 59 57.69	0.046	10 44 55.9	0.35
14	13 59 58.00	0.037	10 44 53.0	0.40	14 16 20.1	13 59 58.43	+0.016	10 44 45.6	0.51
15	13 59 58.51	+0.006	10 44 41.5	0.56	15 16 16.2	13 59 58.45	-0.014	10 44 31.5	0.67
16	13 59 58.30	-0.024	10 44 26.1	0.72	16 16 12.3	13 59 57.75	0.044	10 44 13.6	0.83
17	13 59 57.36	0.054	10 44 6.9	0.88	17 16 8.3	13 59 56.33	0.074	10 43 51.8	0.99
18	13 59 55.71	0.084	10 43 43.8	1.04	18 16 4.3	13 59 54.20	0.104	10 43 26.2	1.15
19	13 59 53.34	0.114	10 43 16.9	1.20	19 16 0.3	13 59 51.36	0.133	10 42 56.8	1.30
20	13 59 50.25	0.144	10 42 46.2	1.36	20 15 56.3	13 59 47.80	0.163	10 42 23.7	1.46
21	13 59 46.43	0.174	10 42 11.7	1.52	21 15 52.3	13 59 43.52	0.193	10 41 46.8	1.62
22	13 59 41.90	0.204	10 41 33.4	1.68	22 15 48.3	13 59 38.53	0.223	10 41 6.1	1.78
23	13 59 36.65	0.234	10 40 51.3	1.83	23 15 44.3	13 59 32.83	0.252	10 40 21.6	1.93
24	13 59 30.69	0.264	10 40 5.4	1.99	24 15 40.2	13 59 26.42	0.282	10 39 33.4	2.09
25	13 59 24.02	0.294	10 39 15.8	2.15	25 15 36.2	13 59 19.31	0.311	10 38 41.5	2.24
26	13 59 16.64	0.323	10 38 22.4	2.31	26 15 32.1	13 59 11.49	0.341	10 37 45.9	2.40
27	13 59 8.55	0.352	10 37 25.3	2.46	27 15 28.0	13 59 2.97	0.370	10 36 46.6	2.55
28	13 58 59.76	0.381	10 36 24.5	2.61	28 15 23.9	13 58 53.75	0.399	10 35 43.6	2.70
29	13 58 50.26	-0.410	-10 35 20.0	+2.76	29 15 19.8	13 58 43.83	-0.428	-10 34 36.9	+2.85

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	Apparent Right Ascension.		Diff. for 1 hour.	Apparent Declination.		Diff. for 1 hour.	Mean Time of Transit.		Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.		Diff. for 1 hour of Long.						
	h	m		s	°		'	''			d	h		m	h	m	s	°	'
Mar. 1	13	58	50.26	-0.410	-10	35	20.0	+2.76	1	15	19.8	13	58	43.83	-0.428	-10	34	36.9	+2.85
2	13	58	40.07	0.439	10	34	11.9	2.92	2	15	15.7	13	58	33.23	0.456	10	33	26.6	3.00
3	13	58	29.19	0.467	10	33	0.1	3.07	3	15	11.6	13	58	21.95	0.484	10	32	12.8	3.15
4	13	58	17.63	0.496	10	31	44.7	3.22	4	15	7.5	13	58	9.99	0.512	10	30	55.4	3.30
5	13	58	5.38	0.524	10	30	25.8	3.36	5	15	3.4	13	57	57.36	0.540	10	29	34.5	3.45
6	13	57	52.46	0.552	10	29	3.3	3.51	6	14	59.2	13	57	44.06	0.568	10	28	10.0	3.59
7	13	57	38.88	0.580	10	27	37.3	3.65	7	14	55.1	13	57	30.11	0.595	10	26	42.1	3.73
8	13	57	24.64	0.607	10	26	7.9	3.80	8	14	50.9	13	57	15.50	0.622	10	25	10.9	3.87
9	13	57	9.74	0.634	10	24	35.1	3.94	9	14	46.7	13	57	0.25	0.648	10	23	36.3	4.01
10	13	56	54.21	0.660	10	22	59.0	4.08	10	14	42.5	13	56	44.38	0.674	10	21	58.5	4.15
11	13	56	39.05	0.686	10	21	19.6	4.21	11	14	38.3	13	56	27.89	0.700	10	20	17.4	4.28
12	13	56	21.27	0.712	10	19	37.0	4.34	12	14	34.1	13	56	10.80	0.725	10	18	33.1	4.41
13	13	56	3.89	0.737	10	17	51.2	4.47	13	14	29.9	13	55	53.11	0.750	10	16	45.8	4.53
14	13	55	45.91	0.761	10	16	2.4	4.60	14	14	25.6	13	55	34.83	0.774	10	14	55.5	4.66
15	13	55	27.35	0.785	10	14	10.6	4.72	15	14	21.4	13	55	15.98	0.797	10	13	2.3	4.78
16	13	55	8.23	0.808	10	12	15.9	4.84	16	14	17.2	13	54	56.58	0.820	10	11	6.2	4.90
17	13	54	48.55	0.831	10	10	18.2	4.96	17	14	12.9	13	54	36.64	0.842	10	9	7.2	5.02
18	13	54	28.33	0.853	10	8	17.7	5.08	18	14	8.6	13	54	16.16	0.864	10	7	5.4	5.13
19	13	54	7.57	0.875	10	6	14.5	5.19	19	14	4.3	13	53	55.16	0.885	10	5	1.0	5.24
20	13	53	46.30	0.897	10	4	8.6	5.30	20	14	0.0	13	53	33.65	0.906	10	2	54.0	5.35
21	13	53	24.52	0.918	10	2	0.1	5.41	21	13	55.7	13	53	11.65	0.926	10	0	44.4	5.45
22	13	53	8.25	0.938	9	59	49.0	5.51	22	13	51.4	13	52	49.17	0.946	9	58	32.3	5.55
23	13	52	39.50	0.958	9	57	35.5	5.61	23	13	47.1	13	52	26.22	0.966	9	56	17.8	5.65
24	13	52	16.28	0.977	9	55	19.6	5.71	24	13	42.8	13	52	2.81	0.985	9	54	0.9	5.75
25	13	51	52.60	0.995	9	53	1.3	5.81	25	13	38.5	13	51	38.96	1.003	9	51	41.7	5.84
26	13	51	28.50	1.013	9	50	40.8	5.90	26	13	34.1	13	51	14.69	1.020	9	49	20.4	5.93
27	13	51	3.98	1.030	9	48	18.2	5.99	27	13	29.8	13	50	50.02	1.036	9	46	57.1	6.01
28	13	50	39.05	1.046	9	45	53.5	6.07	28	13	25.4	13	50	24.95	1.052	9	44	31.7	6.10
29	13	50	13.74	1.062	9	43	26.8	6.15	29	13	21.1	13	49	59.50	1.067	9	42	4.4	6.18
30	13	49	48.05	1.077	9	40	58.3	6.23	30	13	16.7	13	49	33.69	1.082	9	39	35.3	6.25
31	13	49	22.01	1.092	9	38	28.0	6.30	31	13	12.4	13	49	7.54	1.096	9	37	4.5	6.32
Apr. 1	13	48	55.63	1.106	9	35	56.0	6.37	1	13	8.0	13	48	41.07	1.109	9	34	32.1	6.39
2	13	48	28.93	1.119	9	33	22.3	6.44	2	13	3.6	13	48	14.29	1.121	9	31	58.1	6.45
3	13	48	1.94	1.131	9	30	47.1	6.50	3	12	59.2	13	47	47.22	1.133	9	29	22.6	6.51
4	13	47	34.67	1.142	9	28	10.6	6.55	4	12	54.8	13	47	19.89	1.144	9	26	45.8	6.56
5	13	47	7.13	1.152	9	25	32.8	6.60	5	12	50.4	13	46	52.30	1.154	9	24	7.9	6.61
6	13	46	39.35	1.162	9	22	53.9	6.64	6	12	46.0	13	46	24.48	1.163	9	21	28.9	6.65
7	13	46	11.36	1.170	9	20	13.9	6.68	7	12	41.6	13	45	56.47	1.171	9	18	48.9	6.68
8	13	45	43.17	1.178	9	17	33.1	6.72	8	12	37.2	13	45	28.27	1.178	9	16	8.1	6.71
9	13	45	14.80	1.185	9	14	51.5	6.75	9	12	32.8	13	44	59.91	1.185	9	13	26.6	6.74
10	13	44	46.27	1.191	9	12	9.1	6.78	10	12	28.4	13	44	31.40	1.190	9	10	44.5	6.76
11	13	44	17.61	1.196	9	9	26.2	6.80	11	12	24.0	13	44	2.76	1.195	9	8	1.0	6.78
12	13	43	48.84	1.201	9	6	42.9	6.81	12	12	19.6	13	43	34.02	1.199	9	5	18.9	6.80
13	13	43	19.97	1.204	9	3	59.3	6.82	13	12	15.2	13	43	5.20	1.202	9	2	35.6	6.81
14	13	42	51.03	1.207	9	1	15.4	6.83	14	12	10.8	13	42	36.32	1.204	8	59	52.2	6.81
15	13	42	22.04	1.209	8	58	31.5	6.83	15	12	6.4	13	42	7.40	1.206	8	57	8.8	6.81
16	13	41	53.01	1.210	8	55	47.6	6.83	16	12	2.0	13	41	38.45	1.206	8	54	25.4	6.80
17	13	41	23.97	1.210	8	53	3.8	6.82	17	11	57.6	13	41	9.50	1.206	8	51	42.2	6.79
18	13	40	54.94	1.200	8	50	20.3	6.81	18	11	53.2	13	40	40.57	1.205	8	48	59.4	6.78
19	13	40	25.93	1.207	8	47	37.1	6.79	19	11	48.8	13	40	11.67	1.203	8	46	16.9	6.76
20	13	39	56.97	1.205	8	44	54.3	6.77	20	11	44.4	13	39	42.82	1.200	8	43	34.9	6.74
21	13	39	28.07	1.202	8	42	12.1	6.74	21	11	40.0	13	39	14.04	1.197	8	40	53.6	6.71
22	13	38	59.25	1.199	8	39	30.7	6.71	22	11	35.6	13	38	45.36	1.192	8	38	13.0	6.68
23	13	38	30.54	1.194	8	36	50.0	6.68	23	11	31.1	13	38	16.80	1.187	8	35	33.2	6.64
24	13	38	1.95	1.189	8	34	10.2	6.64	24	11	26.7	13	37	48.37	1.182	8	32	54.4	6.60
25	13	37	33.49	1.183	8	31	31.4	6.59	25	11	22.3	13	37	20.07	1.176	8	30	16.6	6.55
26	13	37	5.19	1.175	8	28	53.7	6.54	26	11	17.9	13	36	51.94	1.169	8	27	40.0	6.50
27	13	36	37.07	1.167	8	26	17.3	6.49	27	11	13.5	13	36	23.90	1.161	8	25	4.6	6.45
28	13	36	9.15	1.159	8	23	42.2	6.43	28	11	9.1	13	35	56.25	1.151	8	22	30.6	6.39
29	13	35	41.44	1.149	8	21	8.5	6.37	29	11	4.7	13	35	28.73	1.141	8	19	58.1	6.32
30	13	35	13.97	1.139	8	18	36.4	6.30	30	11	0.3	13	35	1.46	1.131	8	17	27.2	6.25
31	13	34	46.76	-1.128	-8	16	6.0	+6.23	31	10	55.9	13	34	34.45	-1.120	-8	14	58.1	+6.18

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	° ′ ″	″	d h m	h m s	s	° ′ ″	″
May 1	13 34 46.76	-1.128	8 16 6.0	+6.23	1 10 55.9	13 34 34.45	-1.120	8 14 58.1	+6.18
2	13 34 19.82	1.116	8 13 37.4	6.15	2 10 51.5	13 34 7.72	1.108	8 12 30.8	6.10
3	13 33 53.17	1.104	8 11 10.7	6.07	3 10 47.1	13 33 41.29	1.095	8 10 5.4	6.02
4	13 33 26.83	1.091	8 8 45.9	5.99	4 10 42.7	13 33 15.18	1.081	8 7 42.0	5.93
5	13 33 0.81	1.077	8 6 23.3	5.90	5 10 38.4	13 32 49.39	1.067	8 5 20.8	5.84
6	13 32 35.14	1.062	8 4 2.9	5.80	6 10 34.0	13 32 23.96	1.052	8 3 1.8	5.74
7	13 32 9.83	1.046	8 1 44.8	5.70	7 10 29.7	13 31 58.89	1.036	8 0 45.2	5.64
8	13 31 44.91	1.030	7 59 29.1	5.60	8 10 25.3	13 31 34.21	1.020	7 58 31.0	5.54
9	13 31 20.38	1.014	7 57 16.0	5.49	9 10 21.0	13 31 9.93	1.003	7 56 19.4	5.43
10	13 30 56.26	0.996	7 55 5.5	5.38	10 10 16.6	13 30 46.06	0.985	7 54 10.4	5.32
11	13 30 32.57	0.978	7 52 57.7	5.27	11 10 12.3	13 30 22.63	0.967	7 52 4.1	5.21
12	13 30 9.32	0.959	7 50 52.6	5.15	12 10 8.0	13 29 59.64	0.948	7 50 0.6	5.09
13	13 29 46.52	0.940	7 48 50.4	5.03	13 10 3.7	13 29 37.10	0.929	7 48 0.0	4.96
14	13 29 24.19	0.920	7 46 51.1	4.91	14 9 59.4	13 29 15.03	0.909	7 46 2.3	4.84
15	13 29 2.34	0.900	7 44 54.9	4.78	15 9 55.1	13 28 53.44	0.889	7 44 7.7	4.71
16	13 28 40.97	0.880	7 43 1.8	4.65	16 9 50.8	13 28 32.35	0.868	7 42 16.2	4.58
17	13 28 20.11	0.859	7 41 11.7	4.52	17 9 46.6	13 28 11.76	0.847	7 40 27.8	4.45
18	13 27 59.76	0.837	7 39 24.8	4.39	18 9 42.3	13 27 51.68	0.826	7 38 42.5	4.32
19	13 27 39.94	0.815	7 37 41.2	4.25	19 9 38.0	13 27 32.13	0.804	7 37 0.5	4.18
20	13 27 20.65	0.793	7 36 0.9	4.11	20 9 33.8	13 27 13.11	0.781	7 35 21.9	4.04
21	13 27 1.90	0.770	7 34 24.0	3.97	21 9 29.6	13 26 54.63	0.758	7 33 46.6	3.90
22	13 26 43.70	0.747	7 32 50.5	3.82	22 9 25.3	13 26 36.71	0.735	7 32 14.7	3.76
23	13 26 26.06	0.723	7 31 20.4	3.68	23 9 21.1	13 26 19.35	0.712	7 30 46.2	3.61
24	13 26 8.99	0.699	7 29 53.9	3.53	24 9 16.9	13 26 2.55	0.688	7 29 21.3	3.46
25	13 25 52.50	0.675	7 28 31.0	3.38	25 9 12.7	13 25 46.33	0.664	7 28 0.0	3.31
26	13 25 36.60	0.650	7 27 11.7	3.23	26 9 8.5	13 25 30.69	0.639	7 26 42.4	3.16
27	13 25 21.29	0.625	7 25 56.0	3.08	27 9 4.3	13 25 15.55	0.614	7 25 28.4	3.01
28	13 25 6.58	0.600	7 24 44.1	2.92	28 9 0.1	13 25 1.22	0.589	7 24 18.1	2.85
29	13 24 52.49	0.574	7 23 36.0	2.76	29 8 56.0	13 24 47.40	0.563	7 23 11.6	2.69
30	13 24 39.02	0.548	7 22 31.7	2.60	30 8 51.8	13 24 34.20	0.537	7 22 8.9	2.53
31	13 24 26.17	0.522	7 21 31.3	2.44	31 8 47.7	13 24 21.62	0.511	7 21 10.1	2.37
June 1	13 24 13.95	0.496	7 20 34.7	2.28	1 8 43.6	13 24 9.67	0.485	7 20 15.1	2.21
2	13 24 2.37	0.469	7 19 42.0	2.12	2 8 39.5	13 23 58.35	0.458	7 19 24.0	2.05
3	13 23 51.44	0.442	7 18 53.3	1.95	3 8 35.4	13 23 47.68	0.431	7 18 36.8	1.89
4	13 23 41.16	0.415	7 18 8.5	1.79	4 8 31.3	13 23 37.66	0.404	7 17 53.6	1.72
5	13 23 31.53	0.388	7 17 27.7	1.62	5 8 27.2	13 23 28.29	0.377	7 17 14.3	1.56
6	13 23 22.56	0.360	7 16 50.9	1.45	6 8 23.1	13 23 19.58	0.349	7 16 39.0	1.39
7	13 23 14.25	0.332	7 16 18.2	1.28	7 8 19.0	13 23 11.53	0.322	7 16 7.8	1.22
8	13 23 6.61	0.304	7 15 49.5	1.11	8 8 14.9	13 23 4.14	0.294	7 15 40.6	1.05
9	13 22 59.64	0.276	7 15 24.9	0.94	9 8 10.9	13 22 57.42	0.267	7 15 17.5	0.88
10	13 22 53.34	0.248	7 15 4.5	0.77	10 8 6.9	13 22 51.36	0.239	7 14 58.5	0.71
11	13 22 47.71	0.220	7 14 48.2	0.59	11 8 2.9	13 22 45.97	0.211	7 14 43.7	0.54
12	13 22 42.75	0.192	7 14 36.0	0.42	12 7 58.9	13 22 41.25	0.183	7 14 32.9	0.37
13	13 22 38.47	0.165	7 14 27.9	0.25	13 7 54.9	13 22 37.20	0.155	7 14 26.1	0.20
14	13 22 34.85	0.137	7 14 23.8	+0.08	14 7 50.9	13 22 33.82	0.127	7 14 23.4	+0.03
15	13 22 31.91	0.109	7 14 23.8	-0.09	15 7 46.9	13 22 31.10	0.099	7 14 24.7	-0.14
16	13 22 29.64	0.081	7 14 27.9	0.36	16 7 42.9	13 22 29.05	0.071	7 14 30.1	0.31
17	13 22 28.04	0.053	7 14 36.1	0.42	17 7 39.0	13 22 27.67	0.044	7 14 39.5	0.48
18	13 22 27.11	-0.025	7 14 48.2	0.59	18 7 35.1	13 22 26.96	-0.016	7 14 52.9	0.64
19	13 22 26.85	+0.003	7 15 4.3	0.75	19 7 31.2	13 22 26.91	+0.012	7 15 10.2	0.81
20	13 22 27.26	0.031	7 15 24.4	0.92	20 7 27.3	13 22 27.52	0.039	7 15 31.5	0.97
21	13 22 28.34	0.059	7 15 48.6	1.09	21 7 23.4	13 22 28.80	0.067	7 15 56.8	1.14
22	13 22 30.09	0.087	7 16 16.7	1.26	22 7 19.5	13 22 30.75	0.095	7 16 26.1	1.30
23	13 22 32.51	0.115	7 16 48.8	1.42	23 7 15.6	13 22 33.37	0.123	7 16 59.3	1.47
24	13 22 35.59	0.143	7 17 24.8	1.59	24 7 11.7	13 22 36.64	0.150	7 17 36.4	1.63
25	13 22 39.33	0.170	7 18 4.8	1.75	25 7 7.8	13 22 40.57	0.178	7 18 17.5	1.79
26	13 22 43.74	0.198	7 18 48.7	1.91	26 7 4.0	13 22 45.16	0.205	7 19 2.4	1.95
27	13 22 48.81	0.225	7 19 36.5	2.07	27 7 0.1	13 22 50.41	0.233	7 19 51.2	2.12
28	13 22 54.54	0.253	7 20 28.2	2.24	28 6 56.3	13 22 56.31	0.260	7 20 43.9	2.28
29	13 23 0.92	0.280	7 21 23.9	2.40	29 6 52.5	13 23 2.87	0.287	7 21 40.6	2.44
30	13 23 7.96	0.307	7 22 23.5	2.56	30 6 48.7	13 23 10.08	0.314	7 22 41.1	2.60
31	13 23 15.65	+0.334	7 23 26.9	-2.72	31 6 44.9	13 23 17.93	+0.341	7 23 45.4	-2.76

JUPITER, 1875.

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Date.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
1875.	h m s	+ s	° ' "	-'	d h m	h m s	+ s	° ' "	-'
July 1	13 23 15.65	+0.334	7 23 26.9	-2.72	1 6 44.9	13 23 17.93	+0.341	7 23 45.4	-2.76
2	13 23 24.00	0.361	7 24 34.2	2.88	2 6 41.1	13 23 26.44	0.368	7 24 53.6	2.92
3	13 23 33.00	0.388	7 25 45.3	3.04	3 6 37.3	13 23 35.59	0.395	7 26 5.6	3.08
4	13 23 42.64	0.415	7 27 0.2	3.20	4 6 33.5	13 23 45.38	0.421	7 27 21.3	3.23
5	13 23 52.92	0.442	7 28 18.9	3.36	5 6 29.7	13 23 55.81	0.448	7 28 40.8	3.39
6	13 24 3.84	0.469	7 29 41.3	3.51	6 6 25.9	13 24 6.87	0.474	7 30 4.0	3.54
7	13 24 15.40	0.495	7 31 7.4	3.66	7 6 22.2	13 24 18.57	0.500	7 31 30.9	3.69
8	13 24 27.59	0.521	7 32 37.1	3.81	8 6 18.5	13 24 30.90	0.526	7 33 1.3	3.84
9	13 24 40.40	0.547	7 34 10.4	3.96	9 6 14.8	13 24 43.84	0.552	7 34 35.3	3.99
10	13 24 53.83	0.573	7 35 47.3	4.11	10 6 11.1	13 24 57.39	0.578	7 36 12.9	4.14
11	13 25 7.88	0.598	7 37 27.7	4.26	11 6 7.4	13 25 11.56	0.603	7 37 53.9	4.29
12	13 25 22.53	0.623	7 39 11.6	4.40	12 6 3.7	13 25 26.33	0.628	7 39 38.4	4.43
13	13 25 37.79	0.648	7 40 58.9	4.54	13 6 0.0	13 25 41.70	0.653	7 41 26.3	4.57
14	13 25 53.65	0.673	7 42 49.7	4.68	14 5 56.3	13 25 57.67	0.678	7 43 17.7	4.71
15	13 26 10.11	0.698	7 44 43.8	4.82	15 5 52.7	13 26 14.23	0.702	7 45 12.3	4.85
16	13 26 27.15	0.723	7 46 41.3	4.96	16 5 49.1	13 26 31.37	0.726	7 47 10.3	4.99
17	13 26 44.78	0.747	7 48 42.1	5.10	17 5 45.4	13 26 49.10	0.750	7 49 11.6	5.12
18	13 27 2.99	0.771	7 50 46.1	5.24	18 5 41.8	13 27 7.40	0.774	7 51 16.0	5.25
19	13 27 21.77	0.794	7 52 53.3	5.37	19 5 38.2	13 27 26.27	0.798	7 53 23.6	5.39
20	13 27 41.12	0.818	7 55 3.7	5.50	20 5 34.6	13 27 45.70	0.821	7 55 34.4	5.52
21	13 28 1.03	0.841	7 57 17.3	5.63	21 5 31.0	13 28 5.69	0.845	7 57 48.4	5.65
22	13 28 21.51	0.865	7 59 34.0	5.76	22 5 27.4	13 28 26.25	0.868	8 0 5.5	5.78
23	13 28 42.55	0.888	8 1 53.7	5.89	23 5 23.8	13 28 47.36	0.891	8 2 25.6	5.91
24	13 29 4.13	0.911	8 4 16.5	6.02	24 5 20.2	13 29 9.01	0.914	8 4 48.7	6.03
25	13 29 26.26	0.934	8 6 42.3	6.14	25 5 16.6	13 29 31.21	0.937	8 7 14.8	6.15
26	13 29 48.94	0.956	8 9 11.1	6.26	26 5 13.0	13 29 53.95	0.959	8 9 43.9	6.27
27	13 30 12.15	0.978	8 11 42.8	6.38	27 5 9.5	13 30 17.22	0.981	8 12 15.8	6.39
28	13 30 35.90	1.001	8 14 17.5	6.50	28 5 6.0	13 30 41.02	1.003	8 14 50.7	6.51
29	13 31 0.18	1.023	8 16 55.0	6.62	29 5 2.4	13 31 5.35	1.025	8 17 28.4	6.63
30	13 31 24.99	1.045	8 19 35.4	6.74	30 4 58.9	13 31 30.21	1.046	8 20 9.0	6.75
31	13 31 50.32	1.066	8 22 18.6	6.86	31 4 55.4	13 31 55.58	1.068	8 22 52.4	6.86
Aug. 1	13 32 16.16	1.088	8 25 4.5	6.97	1 4 51.9	13 32 21.46	1.089	8 25 38.4	6.97
2	13 32 42.51	1.109	8 27 53.1	7.08	2 4 48.4	13 32 47.85	1.110	8 28 27.1	7.08
3	13 33 9.37	1.130	8 30 44.3	7.19	3 4 44.9	13 33 14.74	1.131	8 31 18.4	7.19
4	13 33 36.73	1.150	8 33 38.2	7.30	4 4 41.4	13 33 42.13	1.152	8 34 12.4	7.30
5	13 34 4.58	1.170	8 36 34.6	7.41	5 4 38.0	13 34 10.01	1.172	8 37 8.9	7.41
6	13 34 32.91	1.190	8 39 33.5	7.51	6 4 34.5	13 34 38.37	1.192	8 40 7.9	7.51
7	13 35 1.72	1.210	8 42 34.9	7.61	7 4 31.0	13 35 7.21	1.211	8 43 9.3	7.61
8	13 35 31.02	1.230	8 45 38.8	7.71	8 4 27.6	13 35 36.52	1.231	8 46 13.2	7.71
9	13 36 0.78	1.250	8 48 45.0	7.81	9 4 24.2	13 36 6.29	1.250	8 49 19.5	7.81
10	13 36 31.00	1.269	8 51 53.6	7.91	10 4 20.8	13 36 36.52	1.269	8 52 28.0	7.91
11	13 37 1.68	1.288	8 55 4.5	8.00	11 4 17.4	13 37 7.21	1.288	8 55 38.8	8.00
12	13 37 32.81	1.306	8 58 17.5	8.09	12 4 14.0	13 37 38.35	1.307	8 58 51.8	8.09
13	13 38 4.39	1.325	9 1 32.8	8.18	13 4 10.6	13 38 9.93	1.325	9 2 7.0	8.18
14	13 38 36.41	1.343	9 4 50.3	8.27	14 4 7.2	13 38 41.95	1.343	9 5 24.4	8.27
15	13 39 8.86	1.361	9 8 9.9	8.36	15 4 3.8	13 39 14.40	1.361	9 8 43.9	8.36
16	13 39 41.75	1.379	9 11 31.5	8.44	16 4 0.4	13 39 47.28	1.379	9 12 5.4	8.44
17	13 40 15.05	1.397	9 14 55.1	8.53	17 3 57.0	13 40 20.57	1.396	9 15 28.8	8.52
18	13 40 48.77	1.414	9 18 20.7	8.61	18 3 53.6	13 40 54.28	1.414	9 18 54.2	8.60
19	13 41 22.91	1.431	9 21 48.2	8.69	19 3 50.3	13 41 28.41	1.431	9 22 21.6	8.68
20	13 41 57.46	1.448	9 25 17.7	8.77	20 3 46.9	13 42 2.95	1.448	9 25 50.9	8.76
21	13 42 32.42	1.465	9 28 49.1	8.85	21 3 43.6	13 42 37.89	1.464	9 29 22.1	8.84
22	13 43 7.78	1.482	9 32 22.3	8.92	22 3 40.2	13 43 13.23	1.481	9 32 55.1	8.91
23	13 43 43.54	1.499	9 35 57.3	9.00	23 3 36.9	13 43 48.97	1.497	9 36 29.9	8.99
24	13 44 19.70	1.515	9 39 34.1	9.07	24 3 33.5	13 44 25.10	1.513	9 40 6.4	9.06
25	13 44 56.24	1.531	9 43 12.6	9.14	25 3 30.2	13 45 1.61	1.529	9 43 44.6	9.13
26	13 45 33.16	1.546	9 46 52.8	9.21	26 3 26.9	13 45 38.50	1.545	9 47 24.6	9.20
27	13 46 10.47	1.562	9 50 34.7	9.28	27 3 23.6	13 46 15.78	1.561	9 51 6.2	9.27
28	13 46 48.15	1.578	9 54 18.2	9.35	28 3 20.3	13 46 53.43	1.576	9 54 49.4	9.33
29	13 47 26.20	1.593	9 58 3.3	9.41	29 3 17.0	13 47 31.44	1.591	9 58 34.2	9.40
30	13 48 4.61	1.608	10 1 49.9	9.47	30 3 13.7	13 48 9.81	1.606	10 2 20.5	9.46
31	13 48 43.38	+1.623	-10 5 38.0	-9.53	31 3 10.4	13 48 48.54	+1.621	-10 6 8.3	-9.52

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
Sept. 1	13 49 22.51	+1.638	-10 9 27.5	- 9.59	1 3 7.1	13 49 27.63	+1.636	-10 9 57.5	- 9.58
2	13 50 1.99	1.652	10 13 18.4	9.65	2 3 3.9	13 50 7.06	1.650	10 13 48.1	9.64
3	13 50 41.81	1.666	10 17 10.7	9.71	3 3 0.6	13 50 46.83	1.664	10 17 40.0	9.69
4	13 51 21.97	1.680	10 21 4.3	9.76	4 2 57.3	13 51 26.94	1.678	10 21 33.2	9.74
5	13 52 2.46	1.694	10 24 59.2	9.81	5 2 54.0	13 52 7.38	1.692	10 25 27.7	9.79
6	13 52 43.28	1.708	10 28 55.3	9.86	6 2 50.8	13 52 48.14	1.705	10 29 23.4	9.84
7	13 53 24.42	1.721	10 32 52.6	9.91	7 2 47.5	13 53 29.23	1.718	10 33 20.3	9.89
8	13 54 5.88	1.734	10 36 51.0	9.96	8 2 44.2	13 54 10.63	1.731	10 37 18.3	9.94
9	13 54 47.64	1.747	10 40 50.5	10.01	9 2 41.0	13 54 52.33	1.744	10 41 17.4	9.99
10	13 55 29.71	1.759	10 44 51.1	10.05	10 2 37.8	13 55 34.34	1.757	10 45 17.5	10.03
11	13 56 12.08	1.772	10 48 52.7	-10.09	11 2 34.5	13 56 16.65	1.769	10 49 18.6	10.07
12	13 56 54.74	1.784	10 52 55.2	10.13	12 2 31.3	13 56 59.25	1.781	10 53 20.7	10.11
13	13 57 37.69	1.796	10 56 58.7	10.17	13 2 28.1	13 57 42.13	1.793	10 57 23.8	10.15
14	13 58 20.92	1.807	11 1 3.0	10.20	14 2 24.9	13 58 25.29	1.804	11 1 27.7	10.18
15	13 59 4.44	1.819	11 5 8.2	10.24	15 2 21.7	13 59 8.74	1.816	11 5 32.4	10.22
16	13 59 48.24	1.831	11 9 14.2	10.27	16 2 18.5	13 59 52.47	1.827	11 9 37.9	10.25
17	14 0 32.31	1.842	11 13 21.1	10.30	17 2 15.3	14 0 36.47	1.839	11 13 44.3	10.28
18	14 1 16.65	1.853	11 17 28.7	10.33	18 2 12.1	14 1 20.74	1.850	11 17 51.4	10.31
19	14 2 1.26	1.864	11 21 37.1	10.36	19 2 8.9	14 2 5.27	1.861	11 21 59.3	10.34
20	14 2 46.13	1.875	11 25 46.2	10.39	20 2 5.7	14 2 50.06	1.872	11 26 7.9	10.37
21	14 3 31.25	1.886	11 29 55.9	10.42	21 2 2.5	14 3 35.10	1.883	11 30 17.1	10.40
22	14 4 16.63	1.896	11 34 6.3	10.45	22 1 59.4	14 4 20.40	1.893	11 34 27.0	10.43
23	14 5 2.26	1.907	11 38 17.3	10.47	23 1 56.2	14 5 5.95	1.903	11 38 37.5	10.45
24	14 5 48.14	1.917	11 42 28.8	10.49	24 1 53.0	14 5 51.75	1.913	11 42 48.5	10.47
25	14 6 34.26	1.927	11 46 40.9	10.51	25 1 49.8	14 6 37.79	1.923	11 47 0.1	10.49
26	14 7 20.61	1.936	11 50 53.5	10.53	26 1 46.7	14 7 24.06	1.932	11 51 12.2	10.51
27	14 8 7.19	1.946	11 55 6.5	10.55	27 1 43.5	14 8 10.55	1.942	11 55 24.7	10.53
28	14 8 54.00	1.955	11 59 19.9	10.57	28 1 40.4	14 8 57.27	1.951	11 59 37.6	10.55
29	14 9 41.03	1.964	12 3 33.7	10.59	29 1 37.2	14 9 44.21	1.960	12 3 50.9	10.57
30	14 10 28.27	1.973	12 7 47.9	10.60	30 1 34.1	14 10 31.36	1.969	12 8 4.5	10.58
Oct. 1	14 11 15.72	1.982	12 12 2.4	10.61	1 1 30.9	14 11 18.72	1.978	12 12 18.4	10.59
2	14 12 3.38	1.990	12 16 17.1	10.62	2 1 27.8	14 12 6.29	1.986	12 16 32.6	10.60
3	14 12 51.25	1.999	12 20 32.0	10.63	3 1 24.6	14 12 54.07	1.995	12 20 47.0	10.61
4	14 13 39.31	2.007	12 24 47.1	10.63	4 1 21.5	14 13 42.04	2.003	12 25 1.5	10.61
5	14 14 27.56	2.015	12 29 2.3	10.64	5 1 18.3	14 14 30.20	2.011	12 29 16.2	10.61
6	14 15 15.99	2.022	12 33 17.6	10.64	6 1 15.2	14 15 18.53	2.018	12 33 30.9	10.61
7	14 16 4.60	2.029	12 37 32.9	10.64	7 1 12.1	14 16 7.04	2.025	12 37 45.7	10.62
8	14 16 53.38	2.036	12 41 48.3	10.64	8 1 9.0	14 16 55.72	2.032	12 42 0.5	10.62
9	14 17 42.34	2.043	12 46 3.7	10.64	9 1 5.8	14 17 44.58	2.039	12 46 15.4	10.62
10	14 18 31.46	2.050	12 50 19.0	10.64	10 1 2.7	14 18 33.60	2.046	12 50 30.1	10.62
11	14 19 20.74	2.057	12 54 34.3	10.63	11 0 59.6	14 19 22.78	2.053	12 54 44.9	10.61
12	14 20 10.18	2.063	12 58 49.5	10.63	12 0 56.5	14 20 12.12	2.059	12 58 59.6	10.61
13	14 20 59.77	2.069	13 3 4.6	10.63	13 0 53.4	14 21 1.61	2.065	13 3 14.1	10.60
14	14 21 49.50	2.075	13 7 19.5	10.62	14 0 50.3	14 21 51.24	2.071	13 7 28.4	10.59
15	14 22 39.37	2.081	13 11 34.3	10.61	15 0 47.2	14 22 41.01	2.077	13 11 42.6	10.58
16	14 23 29.39	2.087	13 15 48.8	10.60	16 0 44.1	14 23 30.92	2.083	13 15 56.6	10.57
17	14 24 19.54	2.093	13 20 3.1	10.59	17 0 41.0	14 24 20.97	2.089	13 20 10.4	10.56
18	14 25 9.83	2.098	13 24 17.1	10.58	18 0 37.9	14 25 11.15	2.094	13 24 23.8	10.55
19	14 26 0.25	2.103	13 28 30.7	10.57	19 0 34.8	14 26 1.46	2.099	13 28 36.9	10.54
20	14 26 50.79	2.108	13 32 44.1	10.55	20 0 31.7	14 26 51.90	2.104	13 32 49.7	10.53
21	14 27 41.45	2.113	13 36 57.1	10.54	21 0 28.6	14 27 42.46	2.109	13 37 2.2	10.51
22	14 28 32.23	2.118	13 41 9.7	10.52	22 0 25.5	14 28 33.14	2.114	13 41 14.3	10.49
23	14 29 23.12	2.123	13 45 21.9	10.50	23 0 22.4	14 29 23.92	2.118	13 45 25.9	10.47
24	14 30 14.11	2.127	13 49 33.6	10.48	24 0 19.4	14 30 14.80	2.122	13 49 37.0	10.45
25	14 31 5.20	2.131	13 53 44.8	10.46	25 0 16.3	14 31 5.78	2.126	13 53 47.7	10.43
26	14 31 56.39	2.135	13 57 55.5	10.44	26 0 13.2	14 31 56.86	2.130	13 57 57.8	10.41
27	14 32 47.67	2.139	14 2 5.7	10.42	27 0 10.1	14 32 48.03	2.134	14 2 7.5	10.39
28	14 33 39.04	2.142	14 6 15.4	10.39	28 0 7.1	14 33 39.29	2.137	14 6 16.6	10.37
29	14 34 30.48	2.145	14 10 24.4	10.36	29 0 4.0	14 34 30.62	2.141	14 10 25.1	10.34
30	14 35 22.00	2.148	14 14 32.7	10.33	30 0 0.9	14 35 22.03	2.144	14 14 33.0	10.31
31	14 36 13.59	+2.151	-14 18 40.4	-10.30	30 23 57.9	14 36 13.51	2.147	14 18 40.2	10.28
					31 23 54.8	14 37 5.05	+2.149	-14 22 46.6	-10.25

JUPITER, 1875.

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Date.	FOR WASHINGTON MEAN NOON.					FOR MERIDIAN TRANSIT.								
	Apparent Right Ascension.			Diff. for 1 hour.	Apparent Declination.		Diff. for 1 h. of Long.	Mean Time of Transit.	Apparent Right Ascension.			Diff. for 1 h. of Long.		
1875.	h	m	s		°	'			d	h	m		s	
Nov. 1	14	37	5.24	+2.153	-14	22' 47.3	-10.27	1	23	51.7	+2.151	-14	26' 52.2	-10.22
2	14	37	56.94	2.155	14	26' 53.5	10.24	2	23	48.6	2.153	14	30' 57.0	10.19
3	14	38	48.69	2.157	14	30' 58.9	10.21	3	23	45.6	2.155	14	35' 1.1	10.15
4	14	39	40.49	2.159	14	35' 3.5	10.17	4	23	42.5	2.156	14	39' 4.3	10.11
5	14	40	32.34	2.161	14	39' 7.2	10.14	5	23	39.4	2.158	14	43' 6.6	10.08
6	14	41	24.22	2.162	14	43' 10.0	10.10	6	23	36.4	2.159	14	47' 8.0	10.04
7	14	42	16.13	2.163	14	47' 11.9	10.06	7	23	33.3	2.160	14	51' 8.5	10.00
8	14	43	8.06	2.164	14	51' 13.0	10.02	8	23	30.2	2.160	14	55' 8.1	9.96
9	14	44	0.01	2.165	14	55' 13.1	9.98	9	23	27.1	2.161	14	59' 6.8	9.92
10	14	44	51.98	2.166	14	59' 12.2	9.94	10	23	24.0	2.161	15	3' 4.4	9.88
11	14	45	43.96	2.166	15	3' 10.3	9.90	11	23	21.0	2.161	15	7' 1.0	9.84
12	14	46	35.94	2.166	15	7' 7.4	9.86	12	23	17.9	2.161	15	10' 56.6	9.80
13	14	47	27.92	2.166	15	11' 3.5	9.82	13	23	14.9	2.161	15	14' 51.2	9.76
14	14	48	19.91	2.166	15	14' 58.6	9.77	14	23	11.8	2.161	15	18' 44.8	9.71
15	14	49	11.89	2.165	15	18' 52.6	9.73	15	23	8.7	2.160	15	22' 37.2	9.66
16	14	50	3.85	2.165	15	22' 45.4	9.68	16	23	5.7	2.159	15	26' 28.4	9.61
17	14	50	55.80	2.164	15	26' 37.1	9.63	17	23	2.6	2.158	15	30' 18.5	9.56
18	14	51	47.73	2.163	15	30' 27.7	9.58	18	22	59.6	2.157	15	34' 7.5	9.51
19	14	52	39.63	2.162	15	34' 17.1	9.53	19	22	56.5	2.156	15	37' 55.3	9.46
20	14	53	31.50	2.160	15	38' 5.3	9.48	20	22	53.4	2.154	15	41' 41.8	9.41
21	14	54	23.33	2.158	15	41' 52.2	9.43	21	22	50.3	2.152	15	45' 27.0	9.36
22	14	55	15.11	2.156	15	45' 37.9	9.38	22	22	47.3	2.150	15	49' 11.0	9.31
23	14	56	6.84	2.154	15	49' 22.3	9.33	23	22	44.2	2.148	15	52' 53.7	9.26
24	14	56	58.52	2.152	15	53' 5.5	9.27	24	22	41.1	2.145	15	56' 35.2	9.20
25	14	57	50.14	2.149	15	56' 47.3	9.22	25	22	38.0	2.142	16	0' 15.3	9.14
26	14	58	41.68	2.146	16	0' 27.8	9.16	26	22	35.0	2.138	16	3' 54.0	9.08
27	14	59	33.15	2.143	16	4' 6.9	9.10	27	22	31.9	2.135	16	7' 31.3	9.02
28	15	0	24.54	2.139	16	7' 44.6	9.04	28	22	28.8	2.131	16	11' 7.2	8.96
29	15	1	15.84	2.135	16	11' 20.8	8.98	29	22	25.7	2.127	16	14' 41.6	8.90
30	15	2	7.04	2.131	16	14' 55.6	8.92	30	22	22.6	2.123	16	18' 14.6	8.84
Dec. 1	15	2	58.15	2.127	16	18' 28.9	8.86	1	22	19.5	2.119	16	21' 46.0	8.78
2	15	3	49.15	2.122	16	22' 0.7	8.79	2	22	16.4	2.114	16	25' 15.9	8.71
3	15	4	40.03	2.117	16	25' 31.0	8.73	3	22	13.3	2.109	16	28' 44.3	8.65
4	15	5	30.79	2.112	16	28' 59.7	8.66	4	22	10.2	2.103	16	32' 11.1	8.58
5	15	6	21.43	2.107	16	32' 26.9	8.60	5	22	7.1	2.098	16	35' 36.4	8.52
6	15	7	11.94	2.102	16	35' 52.5	8.53	6	22	4.0	2.092	16	39' 0.1	8.45
7	15	8	2.31	2.096	16	39' 16.5	8.47	7	22	0.9	2.086	16	42' 22.2	8.39
8	15	8	52.54	2.090	16	42' 38.9	8.40	8	21	57.5	2.079	16	45' 42.7	8.32
9	15	9	42.62	2.083	16	45' 59.6	8.33	9	21	54.7	2.073	16	49' 1.5	8.25
10	15	10	32.54	2.076	16	49' 18.7	8.26	10	21	51.6	2.066	16	52' 18.7	8.18
11	15	11	22.29	2.070	16	52' 36.2	8.19	11	21	48.5	2.059	16	55' 34.2	8.11
12	15	12	11.88	2.063	16	55' 52.0	8.12	12	21	45.4	2.052	16	58' 48.1	8.04
13	15	13	1.30	2.056	16	59' 6.1	8.05	13	21	42.3	2.044	17	2' 0.3	7.97
14	15	13	50.53	2.048	17	2' 18.6	7.98	14	21	39.2	2.036	17	5' 10.8	7.90
15	15	14	39.58	2.040	17	5' 29.3	7.91	15	21	36.0	2.028	17	8' 19.6	7.83
16	15	15	28.44	2.032	17	8' 38.3	7.84	16	21	32.9	2.020	17	11' 26.6	7.76
17	15	16	17.11	2.024	17	11' 45.6	7.77	17	21	29.8	2.012	17	14' 31.9	7.69
18	15	17	5.58	2.015	17	14' 51.1	7.69	18	21	26.7	2.003	17	17' 35.4	7.61
19	15	17	53.84	2.006	17	17' 54.8	7.62	19	21	23.5	1.994	17	20' 37.1	7.54
20	15	18	41.87	1.997	17	20' 56.7	7.54	20	21	20.4	1.984	17	23' 37.0	7.46
21	15	19	29.68	1.988	17	23' 56.8	7.47	21	21	17.2	1.974	17	26' 35.1	7.39
22	15	20	17.26	1.978	17	26' 55.1	7.39	22	21	14.1	1.964	17	29' 31.4	7.31
23	15	21	4.61	1.968	17	29' 51.6	7.31	23	21	10.9	1.954	17	32' 25.8	7.23
24	15	21	51.71	1.957	17	32' 46.2	7.23	24	21	7.8	1.943	17	35' 18.4	7.15
25	15	22	38.55	1.946	17	35' 38.9	7.15	25	21	4.6	1.932	17	38' 9.0	7.07
26	15	23	25.13	1.935	17	38' 29.7	7.07	26	21	1.5	1.921	17	40' 57.7	6.99
27	15	24	11.45	1.924	17	41' 18.5	6.99	27	20	58.3	1.910	17	43' 44.5	6.91
28	15	24	57.49	1.912	17	44' 5.4	6.91	28	20	55.2	1.898	17	46' 29.4	6.83
29	15	25	43.25	1.900	17	46' 50.4	6.83	29	20	52.0	1.886	17	49' 12.3	6.75
30	15	26	28.71	1.888	17	49' 33.5	6.75	30	20	48.8	1.873	17	51' 53.3	6.67
31	15	27	13.86	1.875	17	52' 14.6	6.67	31	20	45.6	1.860	17	54' 32.3	6.59
32	15	27	58.71	+1.862	-17	54' 53.7	-6.59	32	20	42.4	+1.847	-17	57' 9.4	-6.51

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
Jan. 1	21 1 34.03	+1.090	-17° 53' 11.5"	+4.54	1 2 17.5	21 1 36.53	+1.088	-17° 53' 11"	+4.53
2	21 2 0.28	1.097	17 51 22.1	4.58	2 2 14.0	21 2 2.73	1.095	17 51 11.9	4.57
3	21 2 26.69	1.104	17 49 31.9	4.61	3 2 10.5	21 2 29.09	1.101	17 49 21.9	4.60
4	21 2 53.25	1.110	17 47 40.9	4.64	4 2 7.0	21 2 55.60	1.107	17 47 31.1	4.63
5	21 3 19.95	1.115	17 45 49.2	4.67	5 2 3.5	21 3 22.25	1.113	17 45 39.6	4.66
6	21 3 46.78	1.121	17 43 56.7	4.70	6 2 0.0	21 3 49.03	1.119	17 43 47.3	4.70
7	21 4 13.75	1.126	17 42 3.4	4.74	7 1 56.5	21 4 15.95	1.124	17 41 54.2	4.73
8	21 4 40.86	1.132	17 40 9.3	4.77	8 1 53.0	21 4 43.00	1.130	17 40 0.4	4.76
9	21 5 8.10	1.137	17 38 14.5	4.80	9 1 49.6	21 5 10.18	1.135	17 38 5.8	4.79
10	21 5 35.45	1.142	17 36 18.9	4.83	10 1 46.1	21 5 37.47	1.139	17 36 10.4	4.82
11	21 6 2.91	1.146	17 34 22.6	4.86	11 1 42.6	21 6 4.87	1.144	17 34 14.3	4.85
12	21 6 30.48	1.151	17 32 25.7	4.88	12 1 39.1	21 6 32.38	1.149	17 32 17.6	4.88
13	21 6 58.16	1.155	17 30 28.2	4.91	13 1 35.7	21 7 0.00	1.153	17 30 20.3	4.90
14	21 7 25.94	1.159	17 28 30.1	4.93	14 1 32.2	21 7 27.72	1.157	17 28 22.4	4.92
15	21 7 53.81	1.163	17 26 31.4	4.96	15 1 28.7	21 7 55.53	1.161	17 26 24.0	4.95
16	21 8 21.77	1.167	17 24 32.0	4.99	16 1 25.3	21 8 23.43	1.164	17 24 24.9	4.98
17	21 8 49.81	1.170	17 22 32.0	5.01	17 1 21.8	21 8 51.41	1.168	17 22 25.2	5.00
18	21 9 17.93	1.173	17 20 31.5	5.03	18 1 18.3	21 9 19.47	1.171	17 20 25.0	5.02
19	21 9 46.12	1.176	17 18 30.5	5.05	19 1 14.9	21 9 47.60	1.174	17 18 24.3	5.04
20	21 10 14.39	1.179	17 16 29.1	5.07	20 1 11.4	21 10 15.80	1.176	17 16 23.1	5.06
21	21 10 42.73	1.182	17 14 27.2	5.09	21 1 7.9	21 10 44.07	1.179	17 14 21.4	5.08
22	21 11 11.13	1.184	17 12 24.8	5.11	22 1 4.5	21 11 12.41	1.182	17 12 19.2	5.10
23	21 11 39.58	1.187	17 10 21.9	5.13	23 1 1.0	21 11 40.80	1.184	17 10 16.6	5.12
24	21 12 8.09	1.189	17 8 18.6	5.15	24 0 57.5	21 12 9.24	1.186	17 8 13.6	5.14
25	21 12 36.65	1.191	17 6 14.8	5.17	25 0 54.1	21 12 37.73	1.188	17 6 10.1	5.15
26	21 13 5.26	1.193	17 4 10.6	5.18	26 0 50.6	21 13 6.27	1.190	17 4 6.2	5.17
27	21 13 33.91	1.194	17 2 6.0	5.20	27 0 47.2	21 13 34.85	1.191	17 2 1.9	5.19
28	21 14 2.59	1.196	17 0 1.1	5.21	28 0 43.7	21 14 3.46	1.193	16 59 57.3	5.20
29	21 14 31.30	1.197	16 57 55.8	5.23	29 0 40.3	21 14 32.10	1.194	16 57 52.3	5.21
30	21 15 0.03	1.198	16 55 50.2	5.24	30 0 36.8	21 15 0.77	1.195	16 55 47.0	5.23
31	21 15 28.79	1.199	16 53 44.4	5.25	31 0 33.3	21 15 29.46	1.196	16 53 41.5	5.24
Feb. 1	21 15 57.57	1.199	16 51 38.3	5.26	1 0 29.9	21 15 58.17	1.196	16 51 35.7	5.25
2	21 16 26.36	1.200	16 49 31.9	5.27	2 0 26.4	21 16 26.89	1.197	16 49 29.6	5.26
3	21 16 55.16	1.200	16 47 25.2	5.28	3 0 23.0	21 16 55.62	1.197	16 47 23.2	5.27
4	21 17 23.96	1.200	16 45 18.3	5.29	4 0 19.5	21 17 24.35	1.197	16 45 16.6	5.28
5	21 17 52.75	1.200	16 43 11.2	5.30	5 0 16.1	21 17 53.07	1.197	16 43 9.8	5.29
6	21 18 21.54	1.199	16 41 3.9	5.31	6 0 12.6	21 18 21.79	1.196	16 41 2.8	5.29
7	21 18 50.32	1.199	16 38 56.5	5.31	7 0 9.2	21 18 50.50	1.196	16 38 55.7	5.30
8	21 19 19.08	1.198	16 36 49.0	5.31	8 0 5.7	21 19 19.19	1.195	16 36 48.5	5.30
9	21 19 47.82	1.197	16 34 41.4	5.32	9 0 2.3	21 19 47.86	1.194	16 34 41.2	5.31
10	21 20 16.53	1.196	16 32 33.7	5.32	9 23 58.8	21 20 16.51	1.193	16 32 33.8	5.31
11	21 20 45.21	1.194	16 30 25.9	5.32	10 23 55.4	21 20 45.12	1.191	16 30 26.3	5.31
12	21 21 13.85	1.193	16 28 18.1	5.32	11 23 51.9	21 21 13.69	1.190	16 28 18.8	5.31
13	21 21 42.45	1.191	16 26 10.3	5.32	12 23 48.4	21 21 42.22	1.188	16 26 11.3	5.31
14	21 22 11.01	1.189	16 24 2.6	5.32	13 23 45.0	21 22 10.71	1.186	16 24 3.9	5.31
15	21 22 39.52	1.187	16 21 55.0	5.31	14 23 41.5	21 22 39.15	1.184	16 21 56.6	5.30
16	21 23 7.97	1.184	16 19 47.5	5.31	15 23 38.1	21 23 7.54	1.182	16 19 49.4	5.30
17	21 23 36.36	1.182	16 17 40.0	5.31	16 23 34.6	21 23 35.87	1.179	16 17 42.2	5.30
18	21 24 4.69	1.179	16 15 32.6	5.31	17 23 31.1	21 24 4.13	1.176	16 15 35.1	5.30
19	21 24 32.96	1.176	16 13 25.2	5.31	18 23 27.7	21 24 32.33	1.174	16 13 28.0	5.29
20	21 25 1.16	1.173	16 11 17.9	5.30	19 23 24.2	21 25 0.46	1.170	16 11 21.0	5.29
21	21 25 29.28	1.170	16 9 10.8	5.29	20 23 20.8	21 25 28.51	1.167	16 9 14.2	5.28
22	21 25 57.32	1.167	16 7 4.0	5.28	21 23 17.3	21 25 56.48	1.164	16 7 7.7	5.27
23	21 26 25.28	1.163	16 4 57.4	5.27	22 23 13.8	21 26 24.38	1.161	16 5 1.4	5.26
24	21 26 53.16	1.160	16 2 51.1	5.26	23 23 10.4	21 26 52.20	1.157	16 2 55.4	5.24
25	21 27 20.95	1.156	16 0 45.1	5.25	24 23 6.9	21 27 19.93	1.153	16 0 49.7	5.23
26	21 27 48.64	1.152	15 58 39.3	5.24	25 23 3.4	21 27 47.56	1.149	15 58 44.2	5.22
27	21 28 16.23	1.148	15 56 33.8	5.22	26 22 59.9	21 28 15.08	1.145	15 56 39.0	5.21
28	21 28 43.72	1.143	15 54 28.6	5.21	27 22 56.5	21 28 42.51	1.141	15 54 34.1	5.20
29	21 29 11.11	+1.139	-15 52 23.8	+5.19	28 22 53.0	21 29 9.84	1.136	15 52 29.6	5.18
					29 22 49.5	21 29 37.06	+1.132	-15 50 25.5	+5.16

SATURN, 1875.

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Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	° ′ ″	′ ″	d h m	h m s	s	° ′ ″	′ ″
Mar. 1	21 29 11.11	+1.139	-15 52 23.8	+5.19	1 22 49.5	21 29 37.06	+1.132	-15 50 25.5	+5.16
2	21 29 38.39	1.134	15 50 19.4	5.18	2 22 46.0	21 30 4.16	1.126	15 48 21.8	5.15
3	21 30 5.55	1.129	15 48 15.4	5.16	3 22 42.5	21 30 31.13	1.121	15 46 18.5	5.13
4	21 30 32.58	1.124	15 46 11.8	5.14	4 22 39.0	21 30 57.98	1.116	15 44 15.6	5.11
5	21 30 59.49	1.119	15 44 8.6	5.12	5 22 35.5	21 31 24.70	1.111	15 42 13.1	5.10
6	21 31 26.27	1.113	15 42 5.9	5.10	6 22 32.1	21 31 51.29	1.105	15 40 11.0	5.08
7	21 31 52.92	1.108	15 40 3.6	5.09	7 22 28.6	21 32 17.75	1.100	15 38 9.5	5.05
8	21 32 19.43	1.102	15 38 1.8	5.06	8 22 25.1	21 32 44.07	1.094	15 36 8.6	5.02
9	21 32 45.80	1.096	15 36 0.7	5.03	9 22 21.6	21 33 10.24	1.087	15 34 8.3	5.00
10	21 33 12.02	1.089	15 34 0.2	5.01	10 22 18.1	21 33 36.25	1.080	15 32 8.7	4.97
11	21 33 38.08	1.083	15 32 0.3	4.98	11 22 14.6	21 34 2.10	1.074	15 30 9.7	4.95
12	21 34 3.98	1.076	15 30 1.0	4.96	12 22 11.1	21 34 27.78	1.067	15 28 11.3	4.92
13	21 34 29.72	1.069	15 28 2.3	4.93	13 22 7.6	21 34 53.30	1.060	15 26 13.5	4.89
14	21 34 55.29	1.062	15 26 4.3	4.90	14 22 4.0	21 35 18.66	1.053	15 24 16.4	4.86
15	21 35 20.70	1.055	15 24 7.0	4.87	15 22 0.5	21 35 43.86	1.046	15 22 20.1	4.83
16	21 35 45.95	1.049	15 22 10.5	4.84	16 21 57.0	21 36 8.89	1.039	15 20 24.6	4.80
17	21 36 11.03	1.041	15 20 14.8	4.81	17 21 53.5	21 36 33.75	1.032	15 18 29.9	4.76
18	21 36 35.93	1.034	15 18 19.8	4.78	18 21 50.0	21 36 58.42	1.024	15 16 35.9	4.73
19	21 37 0.64	1.026	15 16 25.6	4.74	19 21 46.5	21 37 22.89	1.016	15 14 42.7	4.70
20	21 37 25.16	1.018	15 14 32.2	4.71	20 21 42.9	21 37 47.17	1.008	15 12 50.4	4.66
21	21 37 49.48	1.009	15 12 39.7	4.67	21 21 39.4	21 38 11.25	0.999	15 10 58.9	4.63
22	21 38 13.60	1.001	15 10 48.0	4.64	22 21 35.9	21 38 35.14	0.991	15 9 8.3	4.59
23	21 38 37.53	0.993	15 8 57.2	4.60	23 21 32.3	21 38 58.83	0.983	15 7 18.6	4.55
24	21 39 1.26	0.985	15 7 7.3	4.56	24 21 28.8	21 39 22.33	0.975	15 5 29.8	4.51
25	21 39 24.79	0.976	15 5 18.3	4.52	25 21 25.2	21 39 45.63	0.966	15 3 42.0	4.47
26	21 39 48.12	0.968	15 3 30.3	4.48	26 21 21.7	21 40 8.72	0.957	15 1 55.1	4.43
27	21 40 11.24	0.959	15 1 43.3	4.44	27 21 18.1	21 40 31.58	0.948	15 0 9.2	4.39
28	21 40 34.14	0.949	14 59 57.3	4.40	28 21 14.6	21 40 54.22	0.939	14 58 24.3	4.35
29	21 40 56.81	0.940	14 58 12.3	4.35	29 21 11.0	21 41 16.64	0.929	14 56 40.4	4.31
30	21 41 19.26	0.931	14 56 28.3	4.31	30 21 7.5	21 41 38.83	0.920	14 54 57.6	4.26
31	21 41 41.49	0.921	14 54 45.3	4.27	31 21 3.9	21 42 0.80	0.911	14 53 15.8	4.22
Apr. 1	21 42 3.49	0.912	14 53 3.4	4.22	1 21 0.3	21 42 22.54	0.901	14 51 35.1	4.17
2	21 42 25.25	0.901	14 51 22.6	4.18	2 20 56.7	21 42 44.04	0.891	14 49 55.6	4.12
3	21 42 46.76	0.891	14 49 43.0	4.13	3 20 53.2	21 43 5.29	0.880	14 48 17.3	4.07
4	21 43 8.03	0.881	14 48 4.6	4.07	4 20 49.6	21 43 26.30	0.870	14 46 40.2	4.02
5	21 43 29.06	0.871	14 46 27.5	4.02	5 20 46.0	21 43 47.06	0.860	14 45 4.4	3.97
6	21 43 49.84	0.860	14 44 51.6	3.97	6 20 42.4	21 44 7.56	0.849	14 43 29.8	3.92
7	21 44 10.36	0.850	14 43 16.9	3.92	7 20 38.9	21 44 27.81	0.838	14 41 56.4	3.86
8	21 44 30.62	0.839	14 41 43.5	3.87	8 20 35.2	21 44 47.80	0.827	14 40 24.3	3.81
9	21 44 50.62	0.828	14 40 11.3	3.81	9 20 31.6	21 45 7.52	0.816	14 38 53.5	3.76
10	21 45 10.35	0.816	14 38 40.4	3.76	10 20 28.0	21 45 26.97	0.805	14 37 24.0	3.70
11	21 45 29.81	0.805	14 37 10.9	3.70	11 20 24.4	21 45 46.15	0.793	14 35 55.8	3.65
12	21 45 49.00	0.794	14 35 42.7	3.65	12 20 20.8	21 46 5.05	0.782	14 34 29.0	3.59
13	21 46 7.91	0.782	14 34 15.9	3.59	13 20 17.2	21 46 23.68	0.770	14 33 3.6	3.53
14	21 46 26.54	0.770	14 32 50.5	3.53	14 20 13.5	21 46 42.03	0.759	14 31 39.7	3.47
15	21 46 44.89	0.759	14 31 26.6	3.46	15 20 9.9	21 47 0.10	0.747	14 30 17.2	3.41
16	21 47 2.96	0.747	14 30 4.2	3.40	16 20 6.3	21 47 17.88	0.735	14 28 56.2	3.35
17	21 47 20.74	0.735	14 28 43.2	3.34	17 20 2.6	21 47 35.37	0.723	14 27 36.6	3.29
18	21 47 38.22	0.722	14 27 23.7	3.28	18 19 59.0	21 47 52.57	0.711	14 26 18.5	3.22
19	21 47 55.41	0.710	14 26 5.6	3.22	19 19 55.3	21 48 9.48	0.698	14 25 1.9	3.16
20	21 48 12.31	0.698	14 24 49.0	3.16	20 19 51.7	21 48 26.09	0.686	14 23 46.7	3.10
21	21 48 28.92	0.686	14 23 33.9	3.10	21 19 48.0	21 48 42.40	0.673	14 22 33.0	3.04
22	21 48 45.23	0.673	14 22 20.3	3.03	22 19 44.3	21 48 58.41	0.661	14 21 20.9	2.97
23	21 49 1.23	0.660	14 21 8.3	2.97	23 19 40.7	21 49 14.11	0.648	14 20 10.4	2.90
24	21 49 16.91	0.647	14 19 57.9	2.90	24 19 37.0	21 49 29.49	0.634	14 19 1.6	2.83
25	21 49 32.27	0.634	14 18 49.2	2.83	25 19 33.3	21 49 44.56	0.621	14 17 54.4	2.76
26	21 49 47.32	0.621	14 17 42.2	2.76	26 19 29.6	21 49 59.32	0.609	14 16 48.9	2.70
27	21 50 2.06	0.608	14 16 36.8	2.69	27 19 25.9	21 50 13.77	0.595	14 15 45.0	2.63
28	21 50 16.48	0.594	14 15 33.1	2.62	28 19 22.2	21 50 27.90	0.582	14 14 42.7	2.56
29	21 50 30.58	0.581	14 14 31.0	2.55	29 19 18.5	21 50 41.69	0.568	14 13 42.1	2.49
30	21 50 44.35	0.567	14 13 30.5	2.49	30 19 14.8	21 50 55.15	0.554	14 12 43.2	2.42
31	21 50 57.78	+0.553	-14 12 31.7	+2.41	31 19 11.1	21 51 8.28	+0.540	-14 11 46.0	+2.35

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
May 1	h m s 21 50 57.78	+0.553	° ′ ″ -14 12 31.7	″ +2.41	d h m 1 19 11.1	h m s 21 51 8.28	″ +0.540	° ′ ″ -14 11 46.0	″ +2.35
2	21 51 10.88	0.539	14 11 34.7	2.34	2 19 7.4	21 51 21.08	0.526	14 10 50.6	2.27
3	21 51 23.64	0.525	14 10 39.5	2.26	3 19 3.6	21 51 33.55	0.512	14 9 57.0	2.20
4	21 51 36.07	0.511	14 9 46.1	2.19	4 18 59.9	21 51 45.68	0.498	14 9 5.1	2.12
5	21 51 48.16	0.497	14 8 54.5	2.11	5 18 56.2	21 51 57.47	0.484	14 8 15.0	2.05
6	21 51 59.91	0.482	14 8 4.7	2.04	6 18 52.4	21 52 8.91	0.469	14 7 26.8	1.97
7	21 52 11.31	0.468	14 7 16.7	1.96	7 18 48.7	21 52 20.00	0.455	14 6 40.4	1.89
8	21 52 22.36	0.453	14 6 30.6	1.88	8 18 44.9	21 52 30.74	0.440	14 5 55.9	1.82
9	21 52 33.05	0.438	14 5 46.4	1.80	9 18 41.2	21 52 41.13	0.425	14 5 13.2	1.74
10	21 52 43.38	0.423	14 5 4.0	1.73	10 18 37.4	21 52 51.16	0.410	14 4 32.4	1.66
11	21 52 53.36	0.408	14 4 23.5	1.65	11 18 33.6	21 53 0.83	0.396	14 3 53.5	1.58
12	21 53 2.98	0.394	14 3 44.9	1.57	12 18 29.9	21 53 10.15	0.381	14 3 16.5	1.50
13	21 53 12.25	0.379	14 3 8.2	1.49	13 18 26.1	21 53 19.12	0.366	14 2 41.4	1.42
14	21 53 21.16	0.364	14 2 33.4	1.41	14 18 22.3	21 53 27.73	0.351	14 2 8.1	1.35
15	21 53 29.71	0.349	14 2 0.5	1.33	15 18 18.5	21 53 35.99	0.337	14 1 36.7	1.27
16	21 53 37.90	0.334	14 1 29.5	1.25	16 18 14.7	21 53 43.89	0.321	14 1 7.2	1.19
17	21 53 45.73	0.319	14 1 0.4	1.17	17 18 10.9	21 53 51.42	0.306	14 0 39.7	1.11
18	21 53 53.19	0.303	14 0 33.3	1.09	18 18 7.1	21 53 58.58	0.291	14 0 14.1	1.03
19	21 54 0.28	0.288	14 0 8.1	1.02	19 18 3.3	21 54 5.37	0.275	13 59 50.5	0.94
20	21 54 7.00	0.272	13 59 44.9	0.93	20 17 59.4	21 54 11.79	0.260	13 59 28.8	0.86
21	21 54 13.35	0.257	13 59 23.6	0.85	21 17 55.6	21 54 17.85	0.245	13 59 9.0	0.78
22	21 54 19.33	0.241	13 59 4.3	0.76	22 17 51.8	21 54 23.54	0.229	13 58 51.2	0.70
23	21 54 24.94	0.226	13 58 47.0	0.68	23 17 47.9	21 54 28.86	0.214	13 58 35.4	0.62
24	21 54 30.18	0.210	13 58 31.7	0.60	24 17 44.1	21 54 33.81	0.198	13 58 21.6	0.54
25	21 54 35.04	0.195	13 58 18.3	0.52	25 17 40.2	21 54 38.38	0.183	13 58 9.7	0.45
26	21 54 39.53	0.179	13 58 6.9	0.43	26 17 36.4	21 54 42.58	0.167	13 57 59.8	0.37
27	21 54 43.64	0.163	13 57 57.5	0.35	27 17 32.5	21 54 46.40	0.151	13 57 51.9	0.29
28	21 54 47.37	0.147	13 57 50.1	0.26	28 17 28.6	21 54 49.84	0.135	13 57 46.1	0.20
29	21 54 50.72	0.131	13 57 44.8	0.18	29 17 24.8	21 54 52.90	0.120	13 57 42.3	0.12
30	21 54 53.68	0.115	13 57 41.5	0.09	30 17 20.9	21 54 55.58	0.104	13 57 40.5	+0.03
31	21 54 56.26	0.100	13 57 40.3	+0.01	31 17 17.0	21 54 57.88	0.088	13 57 40.7	-0.05
June 1	21 54 58.46	0.084	13 57 41.1	-0.08	1 17 13.1	21 54 59.80	0.072	13 57 42.9	0.13
2	21 55 0.28	0.068	13 57 43.9	0.16	2 17 9.2	21 55 1.34	0.056	13 57 47.1	0.22
3	21 55 1.71	0.052	13 57 48.7	0.24	3 17 5.3	21 55 2.50	0.040	13 57 53.3	0.30
4	21 55 2.76	0.036	13 57 55.5	0.33	4 17 1.3	21 55 3.27	0.024	13 58 1.6	0.39
5	21 55 3.42	0.020	13 58 4.4	0.41	5 16 57.4	21 55 3.66	+0.008	13 58 11.9	0.47
6	21 55 3.70	+0.004	13 58 15.3	0.50	6 16 53.5	21 55 3.67	-0.008	13 58 24.2	0.55
7	21 55 3.60	-0.012	13 58 28.2	0.58	7 16 49.5	21 55 3.30	0.023	13 58 38.5	0.64
8	21 55 3.12	0.028	13 58 43.1	0.66	8 16 45.6	21 55 2.55	0.039	13 58 54.8	0.72
9	21 55 2.26	0.044	13 59 0.0	0.75	9 16 41.6	21 55 1.42	0.055	13 59 13.1	0.80
10	21 55 1.01	0.060	13 59 19.0	0.83	10 16 37.7	21 54 59.92	0.070	13 59 33.3	0.88
11	21 54 59.38	0.076	13 59 40.0	0.91	11 16 33.7	21 54 58.04	0.086	13 59 55.5	0.96
12	21 54 57.38	0.091	14 0 2.9	0.99	12 16 29.8	21 54 55.79	0.101	14 0 19.6	1.04
13	21 54 55.01	0.106	14 0 27.7	1.07	13 16 25.8	21 54 53.17	0.117	14 0 45.6	1.12
14	21 54 52.27	0.122	14 0 54.4	1.15	14 16 21.8	21 54 50.19	0.132	14 1 13.5	1.20
15	21 54 49.16	0.137	14 1 22.9	1.23	15 16 17.8	21 54 46.84	0.147	14 1 43.3	1.28
16	21 54 45.68	0.153	14 1 53.4	1.31	16 16 13.8	21 54 43.12	0.163	14 2 15.0	1.36
17	21 54 41.83	0.168	14 2 25.8	1.39	17 16 9.8	21 54 39.03	0.179	14 2 48.7	1.44
18	21 54 37.61	0.184	14 3 0.2	1.47	18 16 5.8	21 54 34.57	0.194	14 3 24.3	1.52
19	21 54 33.02	0.199	14 3 36.5	1.55	19 16 1.8	21 54 29.74	0.209	14 4 1.7	1.60
20	21 54 28.05	0.215	14 4 14.6	1.63	20 15 57.8	21 54 24.54	0.224	14 4 41.0	1.68
21	21 54 22.72	0.229	14 4 54.6	1.70	21 15 53.8	21 54 18.99	0.239	14 5 22.1	1.75
22	21 54 17.04	0.244	14 5 36.4	1.78	22 15 49.7	21 54 13.09	0.253	14 6 4.9	1.82
23	21 54 11.01	0.259	14 6 20.0	1.85	23 15 45.7	21 54 6.84	0.268	14 6 49.5	1.90
24	21 54 4.62	0.273	14 7 5.3	1.93	24 15 41.6	21 54 0.25	0.282	14 7 35.9	1.97
25	21 53 57.89	0.288	14 7 52.4	2.00	25 15 37.6	21 53 53.31	0.296	14 8 24.0	2.04
26	21 53 50.80	0.303	14 8 41.3	2.08	26 15 33.5	21 53 46.02	0.311	14 9 13.9	2.12
27	21 53 43.36	0.317	14 9 32.0	2.15	27 15 29.5	21 53 38.38	0.326	14 10 5.6	2.19
28	21 53 35.57	0.332	14 10 24.4	2.22	28 15 25.4	21 53 30.39	0.340	14 10 59.0	2.26
29	21 53 27.44	0.346	14 11 18.6	2.29	29 15 21.3	21 53 22.06	0.354	14 11 54.1	2.33
30	21 53 18.97	0.360	14 12 14.5	2.36	30 15 17.3	21 53 13.40	0.368	14 12 50.9	2.40
31	21 53 10.17	-0.374	-14 13 12.0	-2.43	31 15 13.2	21 53 4.41	-0.381	-14 13 49.3	-2.46

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
July 1	^h 21 ^m 53 ^s 10.17	-0.374	^o 14 ['] 13 ["] 12.0	-2.43	^d 1 ^h 15 ^m 13.2	^h 21 ^m 53 ^s 4.41	-0.381	^o 14 ['] 13 ["] 49.3	-2.46
2	21 53 1.04	0.387	14 14 11.1	2.50	2 15 9.1	21 52 55.09	0.395	14 14 49.2	2.53
3	21 52 51.58	0.401	14 15 11.8	2.56	3 15 5.0	21 52 45.45	0.408	14 15 50.7	2.60
4	21 52 41.79	0.415	14 16 14.1	2.63	4 15 0.9	21 52 35.49	0.422	14 16 53.8	2.66
5	21 52 31.67	0.428	14 17 18.0	2.69	5 14 56.8	21 52 25.21	0.435	14 17 58.5	2.73
6	21 52 21.24	0.441	14 18 23.4	2.76	6 14 52.7	21 52 14.62	0.447	14 19 4.7	2.79
7	21 52 10.51	0.453	14 19 30.3	2.82	7 14 48.6	21 52 3.74	0.459	14 20 12.3	2.84
8	21 51 59.48	0.466	14 20 38.6	2.87	8 14 44.5	21 51 52.57	0.471	14 21 21.2	2.90
9	21 51 48.16	0.478	14 21 48.2	2.93	9 14 40.4	21 51 41.11	0.484	14 22 31.4	2.95
10	21 51 36.55	0.490	14 22 59.2	2.99	10 14 36.2	21 51 29.36	0.495	14 23 43.0	3.01
11	21 51 24.66	0.501	14 24 11.5	3.04	11 14 32.1	21 51 17.33	0.507	14 24 55.9	3.06
12	21 51 12.49	0.513	14 25 25.1	3.09	12 14 28.0	21 51 5.02	0.519	14 26 10.1	3.12
13	21 51 0.04	0.525	14 26 40.0	3.15	13 14 23.8	21 50 52.43	0.530	14 27 25.6	3.17
14	21 50 47.31	0.536	14 27 56.2	3.20	14 14 19.7	21 50 39.57	0.541	14 28 42.4	3.22
15	21 50 34.31	0.547	14 29 13.7	3.25	15 14 15.5	21 50 26.46	0.551	14 30 0.3	3.27
16	21 50 21.05	0.557	14 30 32.3	3.30	16 14 11.4	21 50 13.10	0.562	14 31 19.2	3.31
17	21 50 7.55	0.567	14 31 51.9	3.34	17 14 7.2	21 49 59.50	0.571	14 32 39.2	3.35
18	21 49 53.81	0.577	14 33 12.6	3.38	18 14 3.1	21 49 45.67	0.581	14 34 0.2	3.40
19	21 49 39.84	0.587	14 34 34.3	3.42	19 13 58.9	21 49 31.61	0.591	14 35 22.3	3.44
20	21 49 25.64	0.596	14 35 57.0	3.47	20 13 54.7	21 49 17.31	0.600	14 36 45.4	3.48
21	21 49 11.21	0.606	14 37 20.7	3.51	21 13 50.6	21 49 2.79	0.610	14 38 9.5	3.52
22	21 48 56.56	0.615	14 38 45.3	3.54	22 13 46.4	21 48 48.05	0.619	14 39 34.5	3.56
23	21 48 41.69	0.624	14 40 10.8	3.58	23 13 42.2	21 48 33.10	0.627	14 41 0.3	3.59
24	21 48 26.61	0.633	14 41 37.2	3.62	24 13 38.0	21 48 17.95	0.635	14 42 26.8	3.62
25	21 48 11.33	0.641	14 43 4.5	3.65	25 13 33.8	21 48 2.61	0.643	14 43 54.1	3.65
26	21 47 55.86	0.648	14 44 32.4	3.68	26 13 29.6	21 47 47.08	0.651	14 45 22.2	3.69
27	21 47 40.21	0.656	14 46 1.1	3.71	27 13 25.4	21 47 31.37	0.658	14 46 51.0	3.71
28	21 47 24.38	0.663	14 47 30.5	3.74	28 13 21.2	21 47 15.49	0.665	14 48 20.5	3.74
29	21 47 8.38	0.670	14 49 0.6	3.77	29 13 17.0	21 46 59.44	0.672	14 49 50.7	3.77
30	21 46 52.21	0.677	14 50 31.3	3.79	30 13 12.8	21 46 43.24	0.678	14 51 21.4	3.79
31	21 46 35.89	0.683	14 52 2.5	3.81	31 13 8.6	21 46 26.89	0.684	14 52 52.6	3.81
Aug. 1	21 46 19.43	0.689	14 53 34.1	3.83	1 13 4.4	21 46 10.41	0.689	14 54 24.2	3.83
2	21 46 2.84	0.694	14 55 6.2	3.85	2 13 0.2	21 45 53.80	0.695	14 55 56.2	3.84
3	21 45 46.12	0.699	14 56 38.7	3.86	3 12 56.0	21 45 37.06	0.700	14 57 28.6	3.86
4	21 45 29.28	0.704	14 58 11.5	3.87	4 12 51.8	21 45 20.21	0.704	14 59 1.3	3.87
5	21 45 12.33	0.708	14 59 44.6	3.89	5 12 47.6	21 45 3.26	0.708	15 0 34.3	3.88
6	21 44 55.20	0.712	15 1 18.0	3.90	6 12 43.4	21 44 46.22	0.712	15 2 7.6	3.89
7	21 44 38.16	0.716	15 2 51.6	3.90	7 12 39.2	21 44 29.09	0.715	15 3 41.0	3.89
8	21 44 20.94	0.719	15 4 25.3	3.91	8 12 34.9	21 44 11.88	0.719	15 5 14.5	3.90
9	21 44 3.64	0.722	15 5 59.1	3.91	9 12 30.7	21 43 54.60	0.721	15 6 48.0	3.90
10	21 43 46.28	0.725	15 7 32.9	3.91	10 12 26.5	21 43 37.26	0.723	15 8 21.5	3.90
11	21 43 28.86	0.727	15 9 6.7	3.91	11 12 22.3	21 43 19.87	0.725	15 9 55.0	3.90
12	21 43 11.40	0.728	15 10 40.5	3.91	12 12 18.0	21 43 2.44	0.727	15 11 28.5	3.90
13	21 42 53.91	0.729	15 12 14.2	3.90	13 12 13.8	21 42 44.99	0.728	15 13 2.0	3.89
14	21 42 36.40	0.730	15 13 47.9	3.90	14 12 9.6	21 42 27.52	0.728	15 14 35.3	3.88
15	21 42 18.87	0.731	15 15 21.4	3.89	15 12 5.4	21 42 10.03	0.729	15 16 8.4	3.87
16	21 42 1.33	0.731	15 16 54.6	3.88	16 12 1.2	21 41 52.53	0.729	15 17 41.2	3.86
17	21 41 43.78	0.731	15 18 27.5	3.86	17 11 56.9	21 41 35.02	0.729	15 19 13.6	3.84
18	21 41 26.22	0.731	15 20 0.0	3.85	18 11 52.7	21 41 17.52	0.728	15 20 45.7	3.83
19	21 41 8.67	0.731	15 21 32.2	3.83	19 11 48.5	21 41 0.05	0.727	15 22 17.4	3.81
20	21 40 51.15	0.729	15 23 4.0	3.82	20 11 44.3	21 40 42.61	0.726	15 23 48.7	3.80
21	21 40 33.67	0.727	15 24 35.4	3.80	21 11 40.1	21 40 25.20	0.725	15 25 10.6	3.78
22	21 40 16.23	0.725	15 26 6.3	3.78	22 11 35.8	21 40 7.83	0.723	15 26 50.0	3.76
23	21 39 58.85	0.723	15 27 36.7	3.75	23 11 31.6	21 39 50.52	0.720	15 28 19.9	3.73
24	21 39 41.53	0.720	15 29 6.5	3.73	24 11 27.4	21 39 33.25	0.717	15 29 49.2	3.71
25	21 39 24.28	0.717	15 30 35.7	3.70	25 11 23.2	21 39 16.12	0.713	15 31 17.2	3.68
26	21 39 7.10	0.714	15 32 4.2	3.67	26 11 19.0	21 38 59.04	0.710	15 32 45.7	3.65
27	21 38 50.01	0.710	15 33 32.0	3.64	27 11 14.8	21 38 42.04	0.706	15 34 12.9	3.62
28	21 38 33.01	0.706	15 34 59.1	3.61	28 11 10.5	21 38 25.13	0.702	15 35 39.4	3.59
29	21 38 16.11	0.702	15 36 25.4	3.58	29 11 6.3	21 38 8.33	0.697	15 37 5.1	3.55
30	21 37 59.33	0.697	15 37 50.9	3.54	30 11 2.1	21 37 51.65	0.692	15 38 29.9	3.51
31	21 37 42.67	-0.691	-15 39 15.5	-3.50	31 10 57.9	21 37 35.10	-0.687	-15 39 53.8	-3.47

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
Sept. 1	h m s 21 37 26.15	° -0.685	° ′ ″ -15 40 39.1	″ -3.46	d h m 1 10 53.7	h m s 21 37 18.69	° -0.680	° ′ ″ -15 41 16.7	″ -3.43
2	21 37 9.78	0.679	15 42 1.7	3.42	2 10 49.5	21 37 2.44	0.674	15 42 38.6	3.39
3	21 36 53.56	0.673	15 43 23.2	3.38	3 10 45.3	21 36 46.34	0.668	15 43 59.4	3.35
4	21 36 37.50	0.666	15 44 43.7	3.33	4 10 41.1	21 36 30.40	0.661	15 45 19.2	3.30
5	21 36 21.61	0.658	15 46 3.1	3.29	5 10 36.9	21 36 14.63	0.653	15 46 37.9	3.26
6	21 36 5.90	0.651	15 47 21.4	3.24	6 10 32.7	21 35 59.04	0.646	15 47 55.5	3.21
7	21 35 50.37	0.643	15 48 38.6	3.19	7 10 28.5	21 35 43.64	0.638	15 49 12.0	3.16
8	21 35 35.03	0.635	15 49 54.7	3.14	8 10 24.3	21 35 28.44	0.629	15 50 27.3	3.11
9	21 35 19.89	0.626	15 51 9.5	3.09	9 10 20.1	21 35 13.44	0.621	15 51 41.3	3.06
10	21 35 4.97	0.617	15 52 22.9	3.03	10 10 16.0	21 34 58.65	0.611	15 52 54.0	3.00
11	21 34 50.27	0.608	15 53 35.0	2.98	11 10 11.8	21 34 44.09	0.602	15 54 5.3	2.94
12	21 34 35.80	0.598	15 54 45.8	2.92	12 10 7.6	21 34 29.76	0.592	15 55 15.3	2.89
13	21 34 21.57	0.588	15 55 55.3	2.87	13 10 3.5	21 34 15.67	0.582	15 56 24.0	2.83
14	21 34 7 58	0.578	15 57 3.4	2.81	14 9 59.3	21 34 1.82	0.572	15 57 31.3	2.77
15	21 33 53.83	0.568	15 58 10.0	2.75	15 9 55.1	21 33 48.21	0.562	15 58 37.1	2.71
16	21 33 40.32	0.558	15 59 15.2	2.69	16 9 51.0	21 33 34.84	0.552	15 59 41.5	2.65
17	21 33 27.06	0.547	16 0 18.9	2.62	17 9 46.8	21 33 21.73	0.541	16 0 44.4	2.59
18	21 33 14.06	0.536	16 1 21.1	2.56	18 9 42.7	21 33 8.88	0.530	16 1 45.5	2.53
19	21 33 1.34	0.524	16 2 21.8	2.50	19 9 38.6	21 32 56.31	0.518	16 2 45.7	2.46
20	21 32 48.00	0.512	16 3 20.9	2.43	20 9 34.4	21 32 44.02	0.506	16 3 44.1	2.40
21	21 32 36.75	0.500	16 4 18.5	2.37	21 9 30.3	21 32 32.02	0.494	16 4 40.9	2.34
22	21 32 24.90	0.487	16 5 14.6	2.30	22 9 26.2	21 32 20.32	0.481	16 5 36.2	2.27
23	21 32 13.36	0.475	16 6 9.1	2.24	23 9 22.0	21 32 8.93	0.468	16 6 29.9	2.20
24	21 32 2.12	0.462	16 7 1.9	2.16	24 9 17.9	21 31 57.84	0.456	16 7 21.9	2.13
25	21 31 51.18	0.449	16 7 53.0	2.09	25 9 13.8	21 31 47.05	0.443	16 8 12.9	2.06
26	21 31 40.55	0.436	16 8 42.4	2.02	26 9 9.7	21 31 36.57	0.430	16 9 0.8	1.99
27	21 31 30.24	0.423	16 9 30.1	1.95	27 9 5.6	21 31 26.41	0.416	16 9 47.7	1.92
28	21 31 20.25	0.409	16 10 16.0	1.88	28 9 1.5	21 31 16.58	0.403	16 10 32.8	1.84
29	21 31 10.59	0.395	16 11 0.2	1.80	29 8 57.4	21 31 7.08	0.389	16 11 16.2	1.77
30	21 31 1.28	0.380	16 11 42.6	1.73	30 8 53.3	21 30 57.93	0.374	16 11 57.8	1.70
Oct. 1	21 30 52.33	0.366	16 12 23.2	1.65	1 8 49.3	21 30 49.13	0.359	16 12 37.6	1.62
2	21 30 43.73	0.351	16 13 2.0	1.58	2 8 45.2	21 30 40.68	0.345	16 13 15.6	1.55
3	21 30 35.49	0.336	16 13 38.9	1.50	3 8 41.1	21 30 32.59	0.330	16 13 51.8	1.47
4	21 30 27.61	0.321	16 14 14.0	1.42	4 8 37.0	21 30 24.86	0.315	16 14 26.1	1.39
5	21 30 20.08	0.306	16 14 47.2	1.34	5 8 33.0	21 30 17.48	0.300	16 14 58.5	1.31
6	21 30 12.91	0.291	16 15 18.5	1.26	6 8 28.9	21 30 10.46	0.285	16 15 29.1	1.24
7	21 30 6.11	0.276	16 15 47.9	1.19	7 8 24.9	21 30 3.81	0.269	16 15 57.8	1.16
8	21 29 59.68	0.260	16 16 15.5	1.11	8 8 20.9	21 29 57.53	0.254	16 16 24.7	1.08
9	21 29 53.63	0.244	16 16 41.2	1.03	9 8 16.8	21 29 51.62	0.238	16 16 49.7	1.00
10	21 29 47.96	0.228	16 17 5.0	0.95	10 8 12.8	21 29 46.09	0.222	16 17 12.7	0.92
11	21 29 42.67	0.212	16 17 26.8	0.87	11 8 8.8	21 29 40.95	0.206	16 17 33.8	0.84
12	21 29 37.77	0.196	16 17 46.7	0.79	12 8 4.8	21 29 36.19	0.190	16 17 53.0	0.76
13	21 29 33.25	0.180	16 18 4.6	0.71	13 8 0.8	21 29 31.82	0.174	16 18 10.2	0.68
14	21 29 29.12	0.164	16 18 20.6	0.63	14 7 56.8	21 29 27.84	0.158	16 18 25.5	0.60
15	21 29 25.38	0.148	16 18 34.7	0.55	15 7 52.8	21 29 24.24	0.142	16 18 38.9	0.52
16	21 29 22.03	0.131	16 18 46.9	0.47	16 7 48.8	21 29 21.03	0.126	16 18 50.4	0.44
17	21 29 19.07	0.115	16 18 57.1	0.39	17 7 44.8	21 29 18.20	0.110	16 19 0.0	0.36
18	21 29 16.50	0.099	16 19 5.4	0.30	18 7 40.9	21 29 15.76	0.093	16 19 7.6	0.27
19	21 29 14.33	0.082	16 19 11.7	0.22	19 7 36.9	21 29 13.72	0.077	16 19 13.2	0.19
20	21 29 12.56	0.065	16 19 16.0	0.14	20 7 33.0	21 29 12.08	0.060	16 19 16.9	0.11
21	21 29 11.20	0.048	16 19 18.4	-0.06	21 7 29.0	21 29 10.85	0.043	16 19 18.7	-0.03
22	21 29 10.24	0.032	16 19 18.8	+0.02	22 7 25.1	21 29 10.02	0.026	16 19 18.5	+0.05
23	21 29 9.68	-0.015	16 19 17.2	0.11	23 7 21.1	21 29 9.59	-0.010	16 19 16.3	0.13
24	21 29 9.53	+0.002	16 19 13.6	0.19	24 7 17.2	21 29 9.56	+0.007	16 19 12.1	0.21
25	21 29 9.79	0.019	16 19 8.0	0.27	25 7 13.3	21 29 9.94	0.024	16 19 6.0	0.30
26	21 29 10.45	0.036	16 19 0.5	0.35	26 7 9.4	21 29 10.72	0.041	16 18 57.9	0.38
27	21 29 11.52	0.053	16 18 51.0	0.44	27 7 5.4	21 29 11.91	0.058	16 18 47.9	0.46
28	21 29 13.00	0.070	16 18 39.6	0.52	28 7 1.5	21 29 13.50	0.075	16 18 35.9	0.54
29	21 29 14.89	0.087	16 18 26.2	0.60	29 6 57.6	21 29 15.50	0.092	16 18 21.9	0.62
30	21 29 17.18	0.104	16 18 10.8	0.68	30 6 53.7	21 29 17.91	0.109	16 18 6.0	0.70
31	21 29 19.88	0.121	16 17 53.4	0.77	31 6 49.9	21 29 20.72	0.126	16 17 48.1	0.79
32	21 29 22.99	+0.138	-16 17 34.0	+0.85	32 6 46.0	21 29 23.94	+0.143	-16 17 28.2	+0.87

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	h	m		s	°		'	''		d	h		m	s	°	'	''		
Nov. 1	21	29	22.99	+0.138	-16	17	34.0	+0.85	1	6	46.0	21	29	23.94	+0.143	-16	17	23.2	+0.87
2	21	29	26.51	0.155	16	17	12.6	0.93	2	6	42.1	21	29	27.57	0.160	16	17	6.3	0.95
3	21	29	30.44	0.172	16	16	49.3	1.01	3	6	38.2	21	29	31.60	0.176	16	16	42.5	1.03
4	21	29	34.78	0.189	16	16	24.0	1.10	4	6	34.4	21	29	36.04	0.193	16	16	16.7	1.11
5	21	29	39.52	0.206	16	15	56.7	1.18	5	6	30.5	21	29	40.88	0.210	16	15	49.0	1.20
6	21	29	44.67	0.223	16	15	27.5	1.26	6	6	26.7	21	29	46.12	0.227	16	15	19.3	1.28
7	21	29	50.22	0.240	16	14	56.3	1.34	7	6	22.8	21	29	51.76	0.243	16	14	47.7	1.36
8	21	29	56.17	0.256	16	14	23.2	1.42	8	6	19.0	21	29	57.80	0.260	16	14	14.2	1.44
9	21	30	2.52	0.273	16	13	48.2	1.50	9	6	15.2	21	30	4.23	0.276	16	13	38.8	1.51
10	21	30	9.26	0.289	16	13	11.3	1.58	10	6	11.4	21	30	11.05	0.293	16	13	1.5	1.59
11	21	30	16.39	0.305	16	12	32.6	1.65	11	6	7.5	21	30	18.27	0.309	16	12	22.4	1.67
12	21	30	23.92	0.322	16	11	52.0	1.73	12	6	3.7	21	30	25.88	0.325	16	11	41.4	1.75
13	21	30	31.84	0.338	16	11	9.5	1.81	13	5	59.9	21	30	33.88	0.341	16	10	58.5	1.83
14	21	30	40.15	0.354	16	10	25.1	1.89	14	5	56.1	21	30	42.26	0.357	16	10	13.8	1.90
15	21	30	48.84	0.370	16	9	38.8	1.97	15	5	52.4	21	30	51.02	0.373	16	9	27.2	1.98
16	21	30	57.92	0.386	16	8	50.7	2.04	16	5	48.6	21	31	0.17	0.389	16	8	38.8	2.06
17	21	31	7.38	0.402	16	8	0.7	2.12	17	5	44.8	21	31	9.70	0.405	16	7	48.5	2.13
18	21	31	17.22	0.418	16	7	8.9	2.20	18	5	41.0	21	31	19.61	0.421	16	6	56.4	2.21
19	21	31	27.44	0.434	16	6	15.3	2.27	19	5	37.3	21	31	29.89	0.436	16	6	2.5	2.29
20	21	31	38.04	0.449	16	5	19.8	2.35	20	5	33.5	21	31	40.55	0.452	16	5	6.7	2.36
21	21	31	49.01	0.465	16	4	22.5	2.43	21	5	29.8	21	31	51.58	0.467	16	4	9.1	2.44
22	21	32	0.36	0.481	16	3	23.3	2.50	22	5	26.1	21	32	2.98	0.483	16	3	9.7	2.51
23	21	32	12.08	0.496	16	2	22.3	2.58	23	5	22.3	21	32	14.75	0.498	16	2	8.5	2.59
24	21	32	24.16	0.511	16	1	19.6	2.65	24	5	18.6	21	32	26.88	0.513	16	1	5.6	2.66
25	21	32	36.60	0.526	16	0	15.2	2.72	25	5	14.9	21	32	39.37	0.528	16	0	1.0	2.73
26	21	32	49.40	0.541	15	59	9.1	2.79	26	5	11.2	21	32	52.21	0.543	15	58	54.6	2.80
27	21	33	2.55	0.555	15	58	1.2	2.86	27	5	7.4	21	33	5.41	0.557	15	57	46.5	2.87
28	21	33	16.06	0.570	15	56	51.6	2.94	28	5	3.7	21	33	18.96	0.572	15	56	36.7	2.94
29	21	33	29.93	0.585	15	55	40.2	3.01	29	5	0.0	21	33	32.87	0.587	15	55	25.2	3.02
30	21	33	44.15	0.600	15	54	27.1	3.08	30	4	56.3	21	33	47.12	0.601	15	54	11.9	3.09
Dec. 1	21	33	58.72	0.614	15	53	12.2	3.16	1	4	52.6	21	34	1.72	0.615	15	52	56.8	3.16
2	21	34	13.63	0.628	15	51	55.6	3.23	2	4	49.0	21	34	16.66	0.630	15	51	40.0	3.23
3	21	34	28.88	0.642	15	50	37.4	3.29	3	4	45.3	21	34	31.94	0.643	15	50	21.6	3.30
4	21	34	44.46	0.656	15	49	17.6	3.36	4	4	41.6	21	34	47.54	0.657	15	49	1.7	3.36
5	21	35	0.36	0.669	15	47	56.2	3.43	5	4	37.9	21	35	3.46	0.670	15	47	40.2	3.43
6	21	35	16.58	0.683	15	46	33.2	3.49	6	4	34.3	21	35	19.70	0.683	15	46	17.1	3.50
7	21	35	33.12	0.696	15	45	8.5	3.56	7	4	30.6	21	35	36.26	0.697	15	44	52.4	3.56
8	21	35	49.98	0.709	15	43	42.2	3.63	8	4	27.0	21	35	53.14	0.710	15	43	26.1	3.63
9	21	36	7.15	0.722	15	42	14.4	3.69	9	4	23.3	21	36	10.32	0.722	15	41	58.2	3.69
10	21	36	24.63	0.735	15	40	45.1	3.75	10	4	19.7	21	36	27.81	0.735	15	40	28.8	3.75
11	21	36	42.41	0.747	15	39	14.3	3.81	11	4	16.0	21	36	45.60	0.748	15	38	58.0	3.81
12	21	37	0.49	0.760	15	37	42.1	3.88	12	4	12.4	21	37	3.69	0.760	15	37	25.8	3.88
13	21	37	18.87	0.772	15	36	8.3	3.94	13	4	8.8	21	37	22.07	0.772	15	35	52.0	3.94
14	21	37	37.54	0.784	15	34	33.0	4.00	14	4	5.2	21	37	40.74	0.784	15	34	16.7	4.00
15	21	37	56.50	0.796	15	32	56.2	4.06	15	4	1.5	21	37	59.70	0.796	15	32	39.9	4.06
16	21	38	15.74	0.808	15	31	18.0	4.12	16	3	57.9	21	38	18.94	0.808	15	31	1.6	4.12
17	21	38	35.27	0.819	15	29	38.3	4.18	17	3	54.3	21	38	38.47	0.819	15	29	21.9	4.18
18	21	38	55.07	0.831	15	27	57.2	4.24	18	3	50.7	21	38	58.27	0.830	15	27	40.8	4.24
19	21	39	15.14	0.842	15	26	14.7	4.30	19	3	47.1	21	39	18.33	0.841	15	25	58.4	4.30
20	21	39	35.48	0.853	15	24	30.9	4.35	20	3	43.5	21	39	38.66	0.853	15	24	14.6	4.35
21	21	39	56.09	0.864	15	22	45.7	4.41	21	3	39.9	21	39	59.26	0.864	15	22	29.5	4.41
22	21	40	16.96	0.875	15	20	59.2	4.46	22	3	36.3	21	40	20.12	0.874	15	20	43.1	4.46
23	21	40	38.08	0.885	15	19	11.4	4.52	23	3	32.8	21	40	41.23	0.885	15	18	55.3	4.52
24	21	40	59.45	0.896	15	17	22.2	4.58	24	3	29.2	21	41	2.58	0.895	15	17	6.2	4.57
25	21	41	21.07	0.906	15	15	31.7	4.63	25	3	25.6	21	41	24.18	0.905	15	15	15.8	4.63
26	21	41	42.94	0.916	15	13	39.8	4.69	26	3	22.0	21	41	46.03	0.916	15	13	24.0	4.69
27	21	42	5.06	0.926	15	11	46.6	4.74	27	3	18.5	21	42	8.13	0.926	15	11	30.9	4.74
28	21	42	27.41	0.936	15	9	52.2	4.79	28	3	14.9	21	42	30.46	0.935	15	9	36.6	4.79
29	21	42	49.98	0.945	15	7	56.6	4.84	29	3	11.4	21	42	53.01	0.944	15	7	41.2	4.83
30	21	43	12.77	0.954	15	5	59.8	4.89	30	3	7.8	21	43	15.77	0.953	15	5	44.6	4.88
31	21	43	35.78	0.963	15	4	1.9	4.94	31	3	4.3	21	43	38.75	0.962	15	3	46.8	4.93
32	21	43	59.00	+0.972	-15	2	2.9	+4.98	32	3	0.7	21	44	1.93	+0.971	-15	1	47.9	+4.98

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.														
	Apparent Right Ascension.		Diff. for 1 hour.	Apparent Declination.		Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.		Diff. for 1 h. of Long.	Apparent Declination.		Diff. for 1 hour of Long.						
	h	m	s	"	°	'	"	d	h	m	s	"	°	'	"				
Jan. 0	9	8	52.11	-0.331	+17	9	13.4	+1.54	0	14	26.6	9	8	47.27	-0.335	+17	9	35.9	+1.55
1	9	8	44.05	0.338	17	9	50.5	1.56	1	14	22.5	9	8	39.15	0.341	17	10	13.1	1.57
2	9	8	35.85	0.344	17	10	27.9	1.58	2	14	18.5	9	8	30.90	0.346	17	10	50.8	1.59
3	9	8	27.51	0.350	17	11	6.0	1.60	3	14	14.5	9	8	22.50	0.352	17	11	29.0	1.61
4	9	8	19.04	0.356	17	11	44.7	1.63	4	14	10.4	9	8	13.97	0.358	17	12	7.8	1.64
5	9	8	10.42	0.362	17	12	24.0	1.65	5	14	6.3	9	8	5.30	0.364	17	12	47.2	1.66
6	9	8	1.67	0.367	17	13	3.8	1.67	6	14	2.2	9	7	56.50	0.369	17	13	27.2	1.68
7	9	7	52.80	0.372	17	13	44.0	1.69	7	13	58.1	9	7	47.58	0.374	17	14	7.6	1.70
8	9	7	43.81	0.377	17	14	24.7	1.71	8	13	54.1	9	7	38.55	0.379	17	14	48.5	1.72
9	9	7	34.70	0.382	17	15	5.8	1.73	9	13	49.9	9	7	29.40	0.384	17	15	29.7	1.73
10	9	7	25.48	0.386	17	15	47.4	1.75	10	13	45.8	9	7	20.14	0.388	17	16	11.4	1.75
11	9	7	16.16	0.390	17	16	29.4	1.76	11	13	41.8	9	7	10.79	0.392	17	16	53.5	1.76
12	9	7	6.74	0.394	17	17	11.7	1.78	12	13	37.7	9	7	1.34	0.396	17	17	35.9	1.78
13	9	6	57.21	0.398	17	17	54.4	1.79	13	13	33.6	9	6	51.79	0.399	17	18	18.7	1.79
14	9	6	47.59	0.402	17	18	37.5	1.80	14	13	29.5	9	6	42.14	0.403	17	19	1.8	1.80
15	9	6	37.88	0.405	17	19	20.8	1.81	15	13	25.4	9	6	32.41	0.406	17	19	45.1	1.81
16	9	6	28.09	0.409	17	20	4.4	1.83	16	13	21.3	9	6	22.60	0.410	17	20	28.7	1.82
17	9	6	18.21	0.412	17	20	48.2	1.84	17	13	17.2	9	6	12.70	0.413	17	21	12.5	1.83
18	9	6	8.26	0.415	17	21	32.3	1.85	18	13	13.1	9	6	2.74	0.416	17	21	56.6	1.85
19	9	5	58.24	0.418	17	22	16.7	1.86	19	13	9.0	9	5	52.71	0.419	17	22	41.0	1.86
20	9	5	48.14	0.421	17	23	1.3	1.87	20	13	4.9	9	5	42.61	0.422	17	23	25.6	1.87
21	9	5	37.98	0.424	17	23	46.0	1.87	21	13	0.8	9	5	32.44	0.424	17	24	10.3	1.87
22	9	5	27.76	0.426	17	24	30.9	1.88	22	12	56.7	9	5	22.22	0.426	17	24	55.1	1.87
23	9	5	17.49	0.428	17	25	16.0	1.88	23	12	52.6	9	5	11.95	0.428	17	25	40.2	1.87
24	9	5	7.17	0.430	17	26	1.2	1.88	24	12	48.5	9	5	1.64	0.430	17	26	25.3	1.88
25	9	4	56.80	0.432	17	26	46.5	1.88	25	12	44.4	9	4	51.28	0.432	17	27	10.5	1.88
26	9	4	46.39	0.434	17	27	31.9	1.88	26	12	40.3	9	4	40.88	0.433	17	27	55.9	1.89
27	9	4	35.95	0.435	17	28	17.4	1.89	27	12	36.2	9	4	30.45	0.434	17	28	41.3	1.89
28	9	4	25.48	0.436	17	29	2.9	1.89	28	12	32.1	9	4	20.00	0.435	17	29	26.7	1.89
29	9	4	14.98	0.437	17	29	48.5	1.90	29	12	28.0	9	4	9.52	0.436	17	30	12.2	1.89
30	9	4	4.46	0.438	17	30	34.1	1.90	30	12	23.9	9	3	59.02	0.437	17	30	57.6	1.89
31	9	3	53.91	0.439	17	31	19.6	1.89	31	12	19.8	9	3	48.49	0.438	17	31	43.0	1.89
Feb. 1	9	3	43.35	0.440	17	32	5.1	1.89	1	12	15.7	9	3	37.96	0.438	17	32	28.4	1.89
2	9	3	32.79	0.440	17	32	50.6	1.89	2	12	11.5	9	3	27.43	0.438	17	33	13.7	1.88
3	9	3	22.22	0.440	17	33	36.1	1.89	3	12	7.4	9	3	16.89	0.438	17	33	59.0	1.88
4	9	3	11.66	0.439	17	34	21.4	1.88	4	12	3.3	9	3	6.36	0.438	17	34	44.1	1.87
5	9	3	1.11	0.439	17	35	6.6	1.88	5	11	59.2	9	2	55.85	0.437	17	35	29.1	1.87
6	9	2	50.57	0.438	17	35	51.6	1.87	6	11	55.1	9	2	45.36	0.436	17	36	13.9	1.87
7	9	2	40.05	0.437	17	36	36.4	1.87	7	11	51.0	9	2	34.88	0.435	17	36	58.5	1.86
8	9	2	29.55	0.436	17	37	21.1	1.86	8	11	46.9	9	2	24.42	0.434	17	37	43.0	1.85
9	9	2	19.07	0.435	17	38	5.6	1.85	9	11	42.8	9	2	13.98	0.433	17	38	27.3	1.84
10	9	2	8.63	0.434	17	38	49.9	1.84	10	11	38.7	9	2	3.58	0.431	17	39	11.3	1.83
11	9	1	58.23	0.432	17	39	33.9	1.83	11	11	34.6	9	1	53.23	0.429	17	39	55.1	1.82
12	9	1	47.88	0.430	17	40	17.6	1.82	12	11	30.5	9	1	42.93	0.427	17	40	38.6	1.81
13	9	1	37.56	0.428	17	41	1.1	1.81	13	11	26.4	9	1	32.67	0.425	17	41	21.8	1.80
14	9	1	27.31	0.425	17	41	44.3	1.80	14	11	22.3	9	1	22.47	0.423	17	42	4.7	1.78
15	9	1	17.11	0.423	17	42	27.1	1.79	15	11	18.2	9	1	12.32	0.421	17	42	47.2	1.77
16	9	1	6.96	0.420	17	43	9.6	1.77	16	11	14.1	9	1	2.23	0.418	17	43	29.4	1.75
17	9	0	56.87	0.418	17	43	51.7	1.75	17	11	10.0	9	0	52.21	0.415	17	44	11.2	1.74
18	9	0	46.86	0.415	17	44	33.4	1.73	18	11	5.9	9	0	42.26	0.412	17	44	52.6	1.72
19	9	0	36.92	0.412	17	45	14.8	1.72	19	11	1.8	9	0	32.38	0.409	17	45	33.7	1.71
20	9	0	27.07	0.408	17	45	55.8	1.70	20	10	57.6	9	0	22.59	0.405	17	46	14.4	1.69
21	9	0	17.31	0.404	17	46	36.4	1.68	21	10	53.5	9	0	12.89	0.402	17	46	54.7	1.67
22	9	0	7.62	0.401	17	47	16.5	1.66	22	10	49.5	9	0	3.28	0.398	17	47	34.5	1.65
23	8	59	58.01	0.397	17	47	56.1	1.64	23	10	45.4	8	59	53.74	0.394	17	48	13.8	1.63
24	8	59	48.50	0.393	17	48	35.3	1.62	24	10	41.3	8	59	44.30	0.390	17	48	52.6	1.61
25	8	59	39.10	0.389	17	49	13.9	1.60	25	10	37.2	8	59	34.97	0.386	17	49	30.9	1.59
26	8	59	29.80	0.385	17	49	52.1	1.58	26	10	33.2	8	59	25.75	0.382	17	50	8.7	1.57
27	8	59	20.60	0.381	17	50	29.8	1.56	27	10	29.1	8	59	16.63	0.378	17	50	46.1	1.55
28	8	59	11.52	0.376	17	51	6.9	1.54	28	10	25.0	8	59	7.62	0.373	17	51	22.9	1.52
29	8	59	2.55	-0.371	+17	51	43.5	+1.52	29	10	20.9	8	58	58.72	-0.368	+17	51	59.1	+1.50

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.					
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.	
	h m s	"	° ' "	"	d h m	h m s	"	° ' "	"	
Mar. 1	8 59 2.55	-0.371	+17 51 43.5	+1.52	1 10 20.9	8 58 58.72	-0.368	+17 51 59.1	+1.50	
2	8 58 53.69	0.366	17 52 19.5	1.49	2 10 16.9	8 58 49.93	0.363	17 52 34.7	1.47	
3	8 58 44.96	0.361	17 52 54.9	1.47	3 10 12.8	8 58 41.28	0.358	17 53 9.8	1.45	
4	8 58 36.36	0.355	17 53 29.8	1.44	4 10 8.7	8 58 32.76	0.352	17 53 44.4	1.43	
5	8 58 27.89	0.350	17 54 4.0	1.42	5 10 4.6	8 58 24.37	0.347	17 54 18.2	1.40	
6	8 58 19.55	0.344	17 54 37.6	1.39	6 10 0.6	8 58 16.11	0.341	17 54 51.4	1.37	
7	8 58 11.35	0.338	17 55 10.6	1.36	7 9 56.5	8 58 7.99	0.335	17 55 24.0	1.35	
8	8 58 3.29	0.332	17 55 42.9	1.33	8 9 52.4	8 58 0.02	0.329	17 55 56.0	1.32	
9	8 57 55.38	0.326	17 56 14.6	1.31	9 9 48.3	8 57 52.20	0.322	17 56 27.4	1.29	
10	8 57 47.62	0.320	17 56 45.6	1.28	10 9 44.3	8 57 44.52	0.316	17 56 58.0	1.26	
11	8 57 40.01	0.314	17 57 15.9	1.25	11 9 40.2	8 57 36.99	0.310	17 57 29.9	1.23	
12	8 57 32.56	0.307	17 57 45.4	1.21	12 9 36.2	8 57 29.62	0.303	17 57 57.0	1.20	
13	8 57 25.28	0.300	17 58 14.2	1.18	13 9 32.1	8 57 22.43	0.297	17 58 25.5	1.17	
14	8 57 18.16	0.293	17 58 42.3	1.15	14 9 28.1	8 57 15.40	0.290	17 58 53.3	1.14	
15	8 57 11.20	0.286	17 59 9.7	1.12	15 9 24.0	8 57 8.53	0.283	17 59 20.3	1.11	
16	8 57 4.40	0.279	17 59 36.4	1.09	16 9 19.9	8 57 1.81	0.276	17 59 46.6	1.08	
17	8 56 57.78	0.272	18 0 2.3	1.06	17 9 15.9	8 56 55.27	0.269	18 0 12.1	1.05	
18	8 56 51.33	0.265	18 0 27.4	1.03	18 9 11.9	8 56 48.91	0.261	18 0 36.9	1.02	
19	8 56 45.06	0.258	18 0 51.8	1.00	19 9 7.8	8 56 42.73	0.254	18 1 1.0	0.99	
20	8 56 38.97	0.250	18 1 15.4	0.96	20 9 3.8	8 56 36.72	0.247	18 1 24.2	0.95	
21	8 56 33.05	0.243	18 1 38.1	0.93	21 8 59.8	8 56 30.88	0.239	18 1 46.5	0.92	
22	8 56 27.32	0.235	18 2 0.1	0.90	22 8 55.8	8 56 25.23	0.231	18 2 8.1	0.88	
23	8 56 21.77	0.227	18 2 21.4	0.87	23 8 51.7	8 56 19.77	0.223	18 2 29.1	0.85	
24	8 56 16.41	0.219	18 2 41.9	0.83	24 8 47.7	8 56 14.50	0.216	18 2 49.3	0.82	
25	8 56 11.24	0.211	18 3 1.5	0.80	25 8 43.7	8 56 9.41	0.208	18 3 8.5	0.79	
26	8 56 6.26	0.203	18 3 20.3	0.77	26 8 39.7	8 56 4.51	0.200	18 3 26.9	0.75	
27	8 56 1.47	0.195	18 3 38.2	0.74	27 8 35.7	8 55 59.80	0.192	18 3 44.4	0.72	
28	8 55 56.87	0.187	18 3 55.3	0.70	28 8 31.7	8 55 55.29	0.184	18 4 1.2	0.69	
29	8 55 52.47	0.179	18 4 11.6	0.67	29 8 27.7	8 55 50.97	0.176	18 4 17.2	0.66	
30	8 55 48.27	0.171	18 4 27.1	0.63	30 8 23.7	8 55 46.85	0.168	18 4 32.4	0.62	
31	8 55 44.28	0.163	18 4 41.7	0.59	31 8 19.7	8 55 42.94	0.159	18 4 46.6	0.58	
Apr. 1	8 55 40.49	0.154	18 4 55.5	0.55	1 8 15.7	8 55 39.23	0.150	18 5 0.0	0.54	
2	8 55 36.91	0.145	18 5 8.4	0.52	2 8 11.7	8 55 35.73	0.141	18 5 12.6	0.50	
3	8 55 33.54	0.136	18 5 20.4	0.48	3 8 7.8	8 55 32.44	0.133	18 5 24.3	0.46	
4	8 55 30.38	0.127	18 5 31.6	0.45	4 8 3.8	8 55 29.36	0.124	18 5 35.2	0.43	
5	8 55 27.42	0.119	18 5 41.9	0.41	5 7 59.8	8 55 26.47	0.116	18 5 45.2	0.40	
6	8 55 24.66	0.110	18 5 51.3	0.38	6 7 55.9	8 55 23.79	0.107	18 5 54.2	0.37	
7	8 55 22.12	0.101	18 5 59.9	0.34	7 7 51.9	8 55 21.33	0.098	18 6 2.5	0.33	
8	8 55 19.79	0.092	18 6 7.6	0.30	8 7 47.9	8 55 19.08	0.089	18 6 9.9	0.29	
9	8 55 17.68	0.084	18 6 14.3	0.26	9 7 43.9	8 55 17.04	0.081	18 6 16.3	0.25	
10	8 55 15.78	0.075	18 6 20.1	0.22	10 7 39.9	8 55 15.21	0.073	18 6 21.8	0.21	
11	8 55 14.09	0.067	18 6 25.0	0.18	11 7 36.0	8 55 13.59	0.063	18 6 26.4	0.17	
12	8 55 12.61	0.057	18 6 29.0	0.15	12 7 32.0	8 55 12.19	0.053	18 6 30.1	0.13	
13	8 55 11.36	0.048	18 6 32.1	0.11	13 7 28.1	8 55 11.01	0.044	18 6 32.9	0.10	
14	8 55 10.33	0.038	18 6 34.3	0.07	14 7 24.1	8 55 10.05	0.035	18 6 34.8	0.06	
15	8 55 9.52	0.029	18 6 35.6	+0.03	15 7 20.2	8 55 9.31	0.026	18 6 35.8	+0.02	
16	8 55 8.93	0.020	18 6 35.9	-0.01	16 7 16.2	8 55 8.79	0.017	18 6 35.9	-0.01	
17	8 55 8.55	0.011	18 6 35.4	0.04	17 7 12.3	8 55 8.48	-0.008	18 6 35.1	0.05	
18	8 55 8.39	-0.002	18 6 34.0	0.07	18 7 8.3	8 55 8.39	+0.001	18 6 33.4	0.08	
19	8 55 8.45	+0.007	18 6 31.2	0.11	19 7 4.4	8 55 8.51	0.010	18 6 30.9	0.12	
20	8 55 8.73	0.016	18 6 28.7	0.15	20 7 0.4	8 55 8.85	0.019	18 6 27.6	0.16	
21	8 55 9.22	0.025	18 6 24.7	0.19	21 6 56.5	8 55 9.40	0.028	18 6 23.4	0.20	
22	8 55 9.93	0.034	18 6 19.7	0.23	22 6 52.6	8 55 10.17	0.037	18 6 18.2	0.24	
23	8 55 10.86	0.043	18 6 13.9	0.26	23 6 48.7	8 55 11.16	0.045	18 6 12.1	0.27	
24	8 55 12.00	0.052	18 6 7.2	0.30	24 6 44.8	8 55 12.36	0.055	18 6 5.1	0.31	
25	8 55 13.36	0.061	18 5 59.6	0.34	25 6 40.9	8 55 13.78	0.064	18 5 57.3	0.35	
26	8 55 14.93	0.070	18 5 51.1	0.38	26 6 37.0	8 55 15.41	0.073	18 5 48.6	0.38	
27	8 55 16.72	0.079	18 5 41.7	0.41	27 6 33.1	8 55 17.25	0.082	18 5 39.0	0.41	
28	8 55 18.73	0.088	18 5 31.4	0.44	28 6 29.2	8 55 19.31	0.091	18 5 28.5	0.44	
29	8 55 20.96	0.097	18 5 20.3	0.47	29 6 25.3	8 55 21.59	0.099	18 5 17.2	0.48	
30	8 55 23.41	0.106	18 5 8.3	0.51	30 6 21.4	8 55 24.09	0.108	18 5 5.0	0.52	
31	8 55 26.07	+0.115	+18 4 55.4	-0.55	31 6 17.5	8 55 26.80	+0.117	+18 4 51.9	-0.56	

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.														
	Apparent Right Ascension.		Diff for 1 hour.	Apparent Declination.		Mean Time of Transit.	Apparent Right Ascension.		Diff for 1 h. of Long.	Apparent Declination.		Diff for 1 hour of Long.							
	h	m	s	''	°	'	''	d	h	m	s	''	°	'	''				
May 1	8	55	26.07	+0.115	+18	4	55.4	-0.55	1	6	17.5	8	55	26.80	+0.117	+18	4	51.9	-0.56
2	8	55	28.04	0.124	18	4	41.6	0.59	2	6	13.6	8	55	29.72	0.126	18	4	37.9	0.60
3	8	55	32.03	0.133	18	4	26.9	0.63	3	6	9.7	8	55	32.86	0.135	18	4	23.0	0.64
4	8	55	35.34	0.142	18	4	11.4	0.67	4	6	5.8	8	55	36.22	0.144	18	4	7.3	0.68
5	8	55	38.86	0.151	18	3	55.0	0.71	5	6	2.0	8	55	39.78	0.153	18	3	50.8	0.71
6	8	55	42.60	0.160	18	3	37.7	0.75	6	5	58.1	8	55	43.56	0.162	18	3	33.3	0.75
7	8	55	46.55	0.169	18	3	19.5	0.78	7	5	54.2	8	55	47.55	0.171	18	3	14.9	0.79
8	8	55	50.71	0.178	18	3	0.5	0.81	8	5	50.3	8	55	51.75	0.180	18	2	55.7	0.82
9	8	55	55.08	0.186	18	2	40.6	0.84	9	5	46.5	8	55	56.16	0.188	18	2	35.7	0.85
10	8	55	59.66	0.195	18	2	19.9	0.88	10	5	42.6	8	56	0.78	0.196	18	2	14.8	0.88
11	8	56	4.44	0.203	18	1	58.3	0.92	11	5	38.8	8	56	5.59	0.204	18	1	53.1	0.92
12	8	56	9.42	0.212	18	1	35.8	0.95	12	5	34.9	8	56	10.61	0.213	18	1	30.5	0.96
13	8	56	14.61	0.220	18	1	12.5	0.98	13	5	31.1	8	56	15.83	0.221	18	1	7.0	0.99
14	8	56	20.00	0.229	18	0	48.4	1.02	14	5	27.2	8	56	21.25	0.230	18	0	42.7	1.03
15	8	56	25.59	0.237	18	0	23.5	1.05	15	5	23.4	8	56	26.86	0.238	18	0	17.7	1.06
16	8	56	31.37	0.246	17	59	57.7	1.09	16	5	19.6	8	56	32.67	0.247	17	59	51.8	1.10
17	8	56	37.36	0.254	17	59	31.1	1.12	17	5	15.8	8	56	38.69	0.255	17	59	25.1	1.13
18	8	56	43.55	0.262	17	59	3.7	1.16	18	5	11.9	8	56	44.91	0.263	17	58	57.6	1.16
19	8	56	49.94	0.270	17	58	35.5	1.19	19	5	8.1	8	56	51.32	0.271	17	58	29.3	1.19
20	8	56	56.52	0.278	17	58	6.6	1.23	20	5	4.3	8	56	57.92	0.279	17	58	0.3	1.23
21	8	57	3.27	0.286	17	57	36.8	1.26	21	5	0.5	8	57	4.70	0.286	17	57	30.5	1.26
22	8	57	10.22	0.294	17	57	6.2	1.29	22	4	56.7	8	57	11.67	0.294	17	56	59.8	1.30
23	8	57	17.36	0.302	17	56	34.8	1.32	23	4	52.9	8	57	18.83	0.302	17	56	28.3	1.33
24	8	57	24.69	0.310	17	56	2.7	1.36	24	4	49.1	8	57	26.18	0.310	17	55	56.1	1.36
25	8	57	32.20	0.317	17	55	29.8	1.39	25	4	45.3	8	57	33.70	0.317	17	55	23.2	1.39
26	8	57	39.89	0.325	17	54	56.2	1.42	26	4	41.5	8	57	41.41	0.325	17	54	49.5	1.42
27	8	57	47.77	0.332	17	54	21.8	1.45	27	4	37.7	8	57	49.30	0.332	17	54	15.1	1.45
28	8	57	55.83	0.340	17	53	46.7	1.48	28	4	33.9	8	57	57.38	0.340	17	53	39.9	1.48
29	8	58	4.08	0.347	17	53	10.8	1.51	29	4	30.1	8	58	5.64	0.347	17	53	4.0	1.51
30	8	58	12.50	0.355	17	52	34.2	1.55	30	4	26.3	8	58	14.07	0.355	17	52	27.3	1.55
31	8	58	21.10	0.362	17	51	56.8	1.58	31	4	22.5	8	58	22.68	0.362	17	51	49.9	1.58
June 1	8	58	29.87	0.369	17	51	18.6	1.61	1	4	18.7	8	58	31.46	0.369	17	51	11.7	1.61
2	8	58	38.81	0.376	17	50	39.7	1.64	2	4	15.0	8	58	40.40	0.376	17	50	32.8	1.64
3	8	58	47.92	0.383	17	50	0.1	1.67	3	4	11.2	8	58	49.52	0.383	17	49	53.2	1.67
4	8	58	57.20	0.390	17	49	19.9	1.69	4	4	7.4	8	58	58.80	0.390	17	49	12.9	1.70
5	8	59	6.65	0.397	17	48	39.0	1.72	5	4	3.6	8	59	8.26	0.397	17	48	32.0	1.73
6	8	59	16.26	0.403	17	47	57.4	1.75	6	3	59.9	8	59	17.87	0.403	17	47	50.4	1.75
7	8	59	26.02	0.410	17	47	15.1	1.78	7	3	56.1	8	59	27.63	0.410	17	47	8.1	1.78
8	8	59	35.95	0.416	17	46	32.1	1.81	8	3	52.4	8	59	37.56	0.416	17	46	25.1	1.81
9	8	59	46.03	0.423	17	45	48.4	1.85	9	3	48.6	8	59	47.64	0.423	17	45	41.4	1.84
10	8	59	56.27	0.429	17	45	4.0	1.87	10	3	44.8	8	59	57.88	0.430	17	44	57.0	1.87
11	9	0	6.66	0.436	17	44	19.0	1.89	11	3	41.0	9	0	8.27	0.436	17	44	12.0	1.89
12	9	0	17.19	0.442	17	43	33.3	1.91	12	3	37.3	9	0	18.79	0.441	17	43	26.3	1.91
13	9	0	27.87	0.448	17	42	47.0	1.94	13	3	33.5	9	0	29.47	0.447	17	42	40.0	1.94
14	9	0	38.70	0.454	17	42	0.1	1.96	14	3	29.8	9	0	40.29	0.453	17	41	53.2	1.96
15	9	0	49.67	0.460	17	41	12.7	1.99	15	3	26.0	9	0	51.25	0.459	17	41	5.8	1.99
16	9	1	0.77	0.466	17	40	24.6	2.01	16	3	22.3	9	1	2.34	0.464	17	40	17.8	2.01
17	9	1	12.00	0.472	17	39	36.0	2.04	17	3	18.5	9	1	13.56	0.470	17	39	29.2	2.04
18	9	1	23.38	0.477	17	38	46.7	2.06	18	3	14.8	9	1	24.93	0.476	17	38	40.0	2.06
19	9	1	34.90	0.483	17	37	56.9	2.09	19	3	11.0	9	1	36.44	0.482	17	37	50.2	2.09
20	9	1	46.54	0.488	17	37	6.5	2.11	20	3	7.3	9	1	48.06	0.487	17	36	59.9	2.11
21	9	1	58.30	0.493	17	36	15.5	2.14	21	3	3.5	9	1	59.81	0.492	17	36	8.9	2.14
22	9	2	10.19	0.498	17	35	23.9	2.16	22	2	59.8	9	2	11.68	0.497	17	35	17.4	2.16
23	9	2	22.21	0.503	17	34	31.8	2.18	23	2	56.1	9	2	23.69	0.502	17	34	25.3	2.18
24	9	2	34.35	0.508	17	33	39.1	2.20	24	2	52.4	9	2	35.81	0.507	17	33	32.7	2.20
25	9	2	46.61	0.513	17	32	46.0	2.22	25	2	48.7	9	2	48.06	0.512	17	32	39.9	2.22
26	9	2	58.98	0.518	17	31	52.4	2.24	26	2	44.9	9	3	0.41	0.517	17	31	46.2	2.24
27	9	3	11.46	0.523	17	30	58.2	2.27	27	2	41.1	9	3	12.87	0.522	17	30	52.1	2.26
28	9	3	24.07	0.528	17	30	3.5	2.29	28	2	37.4	9	3	25.46	0.527	17	29	57.5	2.28
29	9	3	36.79	0.533	17	29	8.3	2.31	29	2	33.7	9	3	38.16	0.532	17	29	2.4	2.30
30	9	3	49.61	0.537	17	28	12.7	2.33	30	2	30.0	9	3	50.96	0.536	17	28	6.9	2.32
31	9	4	2.53	+0.541	+17	27	16.5	-2.35	31	2	26.2	9	4	3.86	+0.540	+17	27	10.8	-2.34

URANUS, 1875.

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Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	o	'	d h m	h m s	s	o	'
July 1	9 4 2.53	+0.541	+17 27 16.5	-2.35	1 2 26.2	9 4 3.86	+0.540	+17 27 16.8	-2.34
2	9 4 15.56	0.545	17 26 19.8	2.37	2 2 22.5	9 4 16.86	0.544	17 26 14.2	2.36
3	9 4 28.63	0.549	17 25 22.7	2.39	3 2 18.8	9 4 29.96	0.548	17 25 17.2	2.38
4	9 4 41.90	0.553	17 24 25.2	2.40	4 2 15.1	9 4 43.15	0.552	17 24 19.8	2.40
5	9 4 55.22	0.557	17 23 27.3	2.42	5 2 11.4	9 4 56.44	0.556	17 23 22.0	2.42
6	9 5 8.62	0.560	17 22 28.9	2.44	6 2 7.7	9 5 9.82	0.560	17 22 23.7	2.44
7	9 5 22.11	0.564	17 21 30.1	2.46	7 2 4.0	9 5 23.28	0.563	17 21 25.0	2.46
8	9 5 35.68	0.567	17 20 30.9	2.47	8 2 0.3	9 5 36.82	0.566	17 20 25.9	2.47
9	9 5 49.33	0.571	17 19 31.3	2.49	9 1 56.6	9 5 50.44	0.569	17 19 26.4	2.49
10	9 6 3.07	0.574	17 18 31.3	2.51	10 1 52.9	9 6 4.15	0.572	17 18 26.5	2.50
11	9 6 16.88	0.577	17 17 31.0	2.53	11 1 49.2	9 6 17.93	0.575	17 17 26.3	2.52
12	9 6 30.77	0.580	17 16 30.3	2.54	12 1 45.5	9 6 31.79	0.578	17 16 25.8	2.53
13	9 6 44.73	0.583	17 15 29.3	2.55	13 1 41.8	9 6 45.72	0.581	17 15 24.9	2.55
14	9 6 58.76	0.586	17 14 27.9	2.56	14 1 38.1	9 6 59.72	0.584	17 14 23.7	2.56
15	9 7 12.86	0.589	17 13 26.3	2.58	15 1 34.4	9 7 13.79	0.587	17 13 22.2	2.57
16	9 7 27.01	0.591	17 12 24.3	2.59	16 1 30.7	9 7 27.90	0.589	17 12 20.4	2.58
17	9 7 41.22	0.594	17 11 22.0	2.60	17 1 27.0	9 7 42.08	0.592	17 11 18.2	2.60
18	9 7 55.49	0.596	17 10 19.4	2.61	18 1 23.3	9 7 56.32	0.594	17 10 15.8	2.61
19	9 8 9.82	0.598	17 9 16.6	2.63	19 1 19.6	9 8 10.62	0.596	17 9 13.1	2.62
20	9 8 24.20	0.600	17 8 13.4	2.64	20 1 15.9	9 8 24.96	0.598	17 8 10.1	2.63
21	9 8 38.63	0.602	17 7 10.0	2.64	21 1 12.2	9 8 39.36	0.600	17 7 6.8	2.64
22	9 8 53.11	0.604	17 6 6.3	2.65	22 1 8.5	9 8 53.80	0.602	17 6 3.3	2.65
23	9 9 7.63	0.606	17 5 2.5	2.66	23 1 4.8	9 9 8.29	0.604	17 4 59.6	2.66
24	9 9 22.20	0.608	17 3 58.3	2.68	24 1 1.1	9 9 22.82	0.606	17 3 55.6	2.67
25	9 9 36.81	0.610	17 2 54.0	2.68	25 0 57.4	9 9 37.39	0.608	17 2 51.4	2.68
26	9 9 51.45	0.611	17 1 49.4	2.69	26 0 53.7	9 9 52.00	0.609	17 1 47.0	2.69
27	9 10 6.13	0.613	17 0 44.7	2.70	27 0 50.0	9 10 6.65	0.611	17 0 42.4	2.69
28	9 10 20.85	0.614	16 59 39.8	2.71	28 0 46.4	9 10 21.33	0.612	16 59 37.7	2.70
29	9 10 35.60	0.615	16 58 34.7	2.71	29 0 42.7	9 10 36.05	0.613	16 58 32.7	2.70
30	9 10 50.37	0.616	16 57 29.4	2.72	30 0 39.0	9 10 50.78	0.614	16 57 27.6	2.71
31	9 11 5.17	0.617	16 56 24.0	2.72	31 0 35.3	9 11 5.54	0.615	16 56 22.4	2.71
Aug. 1	9 11 19.99	0.618	16 55 18.5	2.73	1 0 31.7	9 11 20.32	0.616	16 55 17.0	2.72
2	9 11 34.82	0.619	16 54 12.9	2.74	2 0 28.0	9 11 35.12	0.616	16 54 11.5	2.73
3	9 11 49.67	0.619	16 53 7.1	2.75	3 0 24.3	9 11 49.93	0.617	16 53 5.9	2.74
4	9 12 4.53	0.619	16 52 1.2	2.75	4 0 20.6	9 12 4.75	0.618	16 52 0.2	2.74
5	9 12 19.40	0.619	16 50 55.2	2.75	5 0 17.0	9 12 19.58	0.618	16 50 54.4	2.75
6	9 12 34.28	0.619	16 49 49.1	2.75	6 0 13.3	9 12 34.43	0.618	16 49 48.4	2.75
7	9 12 49.16	0.619	16 48 43.0	2.76	7 0 9.6	9 12 49.27	0.618	16 48 42.5	2.75
8	9 13 4.04	0.619	16 47 36.9	2.76	8 0 6.0	9 13 4.11	0.618	16 47 36.6	2.75
9	9 13 18.91	0.619	16 46 30.7	2.76	9 0 2.3	9 13 18.94	0.618	16 46 30.6	2.75
10	9 13 33.78	0.619	16 45 24.6	2.76	9 23 58.6	9 13 33.77	0.618	16 45 24.7	2.75
11	9 13 48.64	0.619	16 44 18.4	2.76	10 23 54.9	9 13 48.59	0.617	16 44 18.7	2.75
12	9 14 3.50	0.619	16 43 12.3	2.76	11 23 51.2	9 14 3.41	0.617	16 43 12.7	2.75
13	9 14 18.34	0.618	16 42 6.2	2.76	12 23 47.4	9 14 18.21	0.616	16 42 6.8	2.75
14	9 14 33.16	0.617	16 41 0.1	2.76	13 23 43.7	9 14 32.99	0.615	16 41 0.8	2.75
15	9 14 47.96	0.616	16 39 54.0	2.76	14 23 40.0	9 14 47.75	0.614	16 39 54.8	2.75
16	9 15 2.74	0.615	16 38 47.9	2.76	15 23 36.3	9 15 2.49	0.613	16 38 48.9	2.75
17	9 15 17.49	0.614	16 37 41.9	2.75	16 23 32.6	9 15 17.20	0.612	16 37 43.1	2.74
18	9 15 32.22	0.613	16 36 36.0	2.75	17 23 28.9	9 15 31.90	0.611	16 36 37.4	2.74
19	9 15 46.92	0.612	16 35 30.2	2.74	18 23 25.2	9 15 46.56	0.610	16 35 31.7	2.74
20	9 16 1.59	0.611	16 34 24.5	2.74	19 23 21.5	9 16 1.19	0.609	16 34 26.2	2.74
21	9 16 16.22	0.609	16 33 18.9	2.73	20 23 17.8	9 16 15.78	0.607	16 33 20.8	2.73
22	9 16 30.82	0.608	16 32 13.4	2.73	21 23 14.2	9 16 30.35	0.606	16 32 15.5	2.72
23	9 16 45.38	0.606	16 31 8.1	2.72	22 23 10.5	9 16 44.87	0.604	16 31 10.3	2.71
24	9 16 59.90	0.604	16 30 3.0	2.71	23 23 6.8	9 16 59.36	0.602	16 30 5.4	2.70
25	9 17 14.37	0.602	16 28 58.0	2.70	24 23 3.1	9 17 13.79	0.600	16 29 0.6	2.70
26	9 17 28.80	0.600	16 27 53.2	2.70	25 22 59.4	9 17 28.19	0.598	16 27 56.0	2.69
27	9 17 43.17	0.598	16 26 48.6	2.69	26 22 55.7	9 17 42.52	0.596	16 26 51.5	2.68
28	9 17 57.49	0.596	16 25 44.1	2.68	27 22 52.0	9 17 56.81	0.594	16 25 47.2	2.67
29	9 18 11.75	0.593	16 24 39.9	2.67	28 22 48.3	9 18 11.03	0.591	16 24 43.1	2.66
30	9 18 25.95	0.590	16 23 35.9	2.66	29 22 44.7	9 18 25.20	0.589	16 23 39.3	2.65
31	9 18 40.09	+0.587	+16 22 32.2	-2.65	30 22 41.0	9 18 39.31	0.586	16 22 35.7	2.64
					31 22 37.3	9 18 53.36	+0.583	+16 21 32.4	-2.63

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	° ' "	"	d h m	h m s	s	° ' "	"
Sept. 1	9 18 54.17	+0.584	+16 21 28.7	-2.64	1 22 33.6	9 19 7.33	+0.580	+16 20 29.3	-2.62
2	9 19 8.17	0.581	16 20 25.5	2.63	2 22 29.9	9 19 21.23	0.577	16 19 26.6	2.61
3	9 19 22.10	0.578	16 19 22.6	2.62	3 22 26.2	9 19 35.06	0.574	16 18 24.2	2.59
4	9 19 35.96	0.575	16 18 20.1	2.60	4 22 22.5	9 19 48.82	0.571	16 17 22.2	2.58
5	9 19 49.75	0.572	16 17 17.9	2.59	5 22 18.8	9 20 2.49	0.567	16 16 20.4	2.56
6	9 20 3.45	0.569	16 16 16.0	2.57	6 22 15.1	9 20 16.08	0.564	16 15 19.0	2.55
7	9 20 17.07	0.566	16 15 14.5	2.56	7 22 11.4	9 20 29.58	0.561	16 14 17.9	2.54
8	9 20 30.60	0.562	16 14 13.3	2.54	8 22 7.7	9 20 43.00	0.558	16 13 17.3	2.53
9	9 20 44.05	0.559	16 13 12.5	2.53	9 22 4.0	9 20 56.32	0.554	16 12 17.0	2.51
10	9 20 57.40	0.555	16 12 12.1	2.51	10 22 0.3	9 21 9.57	0.550	16 11 17.1	2.49
11	9 21 10.67	0.551	16 11 12.1	2.49	11 21 56.6	9 21 22.71	0.546	16 10 17.6	2.47
12	9 21 23.84	0.547	16 10 12.5	2.47	12 21 52.9	9 21 35.76	0.542	16 9 18.5	2.45
13	9 21 36.91	0.543	16 9 13.3	2.46	13 21 49.2	9 21 48.70	0.537	16 8 19.9	2.43
14	9 21 49.87	0.538	16 8 14.6	2.44	14 21 45.4	9 22 1.53	0.533	16 7 21.7	2.41
15	9 22 2.73	0.534	16 7 16.3	2.42	15 21 41.7	9 22 14.26	0.529	16 6 24.0	2.39
16	9 22 15.49	0.529	16 6 18.5	2.40	16 21 38.0	9 22 26.90	0.524	16 5 26.8	2.37
17	9 22 28.15	0.525	16 5 21.2	2.38	17 21 34.3	9 22 39.42	0.519	16 4 30.0	2.35
18	9 22 40.69	0.520	16 4 24.3	2.36	18 21 30.5	9 22 51.83	0.515	16 3 33.7	2.33
19	9 22 53.12	0.516	16 3 27.9	2.34	19 21 26.7	9 23 4.12	0.510	16 2 38.0	2.31
20	9 23 5.43	0.511	16 2 32.1	2.31	20 21 23.0	9 23 16.30	0.505	16 1 42.8	2.29
21	9 23 17.63	0.506	16 1 36.8	2.29	21 21 19.3	9 23 28.37	0.500	16 0 48.0	2.27
22	9 23 29.71	0.501	16 0 42.0	2.27	22 21 15.5	9 23 40.31	0.495	15 59 53.8	2.25
23	9 23 41.67	0.496	15 59 47.7	2.25	23 21 11.8	9 23 52.12	0.489	15 59 0.3	2.22
24	9 23 53.50	0.490	15 58 54.1	2.22	24 21 8.0	9 24 3.81	0.484	15 58 7.3	2.20
25	9 24 5.20	0.485	15 58 1.0	2.20	25 21 4.3	9 24 15.36	0.479	15 57 14.8	2.17
26	9 24 16.77	0.479	15 57 8.5	2.17	26 21 0.6	9 24 26.80	0.473	15 56 23.0	2.15
27	9 24 28.22	0.474	15 56 16.6	2.15	27 20 56.9	9 24 38.07	0.467	15 55 31.9	2.12
28	9 24 39.52	0.468	15 55 25.4	2.12	28 20 53.1	9 24 49.24	0.461	15 54 41.4	2.09
29	9 24 50.68	0.462	15 54 34.9	2.09	29 20 49.4	9 25 0.25	0.455	15 53 51.6	2.06
30	9 25 1.70	0.456	15 53 45.0	2.06	30 20 45.6	9 25 11.12	0.449	15 53 2.3	2.03
Oct. 1	9 25 12.58	0.450	15 52 55.7	2.03	1 20 41.9	9 25 21.85	0.443	15 52 13.7	2.01
2	9 25 23.31	0.443	15 52 7.0	2.01	2 20 38.1	9 25 32.42	0.437	15 51 25.7	1.98
3	9 25 33.89	0.437	15 51 19.0	1.98	3 20 34.4	9 25 42.83	0.430	15 50 38.4	1.95
4	9 25 44.31	0.430	15 50 31.7	1.95	4 20 30.6	9 25 53.10	0.424	15 49 51.8	1.92
5	9 25 54.58	0.424	15 49 45.1	1.92	5 20 26.9	9 26 3.22	0.418	15 49 6.0	1.89
6	9 26 4.70	0.417	15 48 59.3	1.89	6 20 23.1	9 26 13.18	0.411	15 48 21.0	1.86
7	9 26 14.66	0.411	15 48 14.3	1.86	7 20 19.4	9 26 22.97	0.404	15 47 36.8	1.82
8	9 26 24.45	0.404	15 47 30.1	1.82	8 20 15.5	9 26 32.59	0.397	15 46 53.5	1.79
9	9 26 34.08	0.398	15 46 46.8	1.79	9 20 11.8	9 26 42.06	0.391	15 46 10.9	1.76
10	9 26 43.55	0.391	15 46 4.2	1.76	10 20 8.0	9 26 51.37	0.384	15 45 29.0	1.73
11	9 26 52.86	0.384	15 45 22.3	1.73	11 20 4.2	9 27 0.50	0.377	15 44 48.0	1.70
12	9 27 1.99	0.377	15 44 41.3	1.70	12 20 0.4	9 27 9.48	0.370	15 44 7.4	1.66
13	9 27 10.96	0.370	15 44 1.1	1.67	13 19 56.6	9 27 18.28	0.363	15 43 29.2	1.63
14	9 27 19.76	0.363	15 43 21.6	1.63	14 19 52.8	9 27 26.91	0.356	15 42 49.5	1.60
15	9 27 28.38	0.356	15 42 42.9	1.60	15 19 49.0	9 27 35.36	0.348	15 42 11.7	1.56
16	9 27 36.82	0.348	15 42 5.1	1.56	16 19 45.2	9 27 43.64	0.341	15 41 34.6	1.53
17	9 27 45.09	0.341	15 41 28.1	1.53	17 19 41.4	9 27 51.73	0.333	15 40 58.4	1.49
18	9 27 53.17	0.333	15 40 51.9	1.49	18 19 37.6	9 27 59.65	0.326	15 40 23.0	1.46
19	9 28 1.07	0.325	15 40 16.6	1.45	19 19 33.8	9 28 7.38	0.318	15 39 48.6	1.42
20	9 28 8.79	0.317	15 39 42.2	1.41	20 19 30.0	9 28 14.93	0.310	15 39 15.0	1.38
21	9 28 16.32	0.310	15 39 8.7	1.38	21 19 26.2	9 28 22.29	0.302	15 38 42.3	1.34
22	9 28 23.67	0.302	15 38 36.1	1.34	22 19 22.4	9 28 29.47	0.294	15 38 10.5	1.30
23	9 28 30.83	0.294	15 38 4.3	1.30	23 19 18.6	9 28 36.45	0.287	15 37 39.6	1.27
24	9 28 37.80	0.286	15 37 33.6	1.26	24 19 14.8	9 28 43.24	0.279	15 37 9.5	1.23
25	9 28 44.56	0.278	15 37 3.7	1.22	25 19 11.0	9 28 49.83	0.270	15 36 40.5	1.19
26	9 28 51.13	0.270	15 36 34.8	1.18	26 19 7.1	9 28 56.22	0.262	15 36 12.4	1.15
27	9 28 57.50	0.262	15 36 6.8	1.15	27 19 3.3	9 29 2.42	0.254	15 35 45.3	1.11
28	9 29 3.68	0.253	15 35 39.8	1.11	28 18 59.4	9 29 8.43	0.245	15 35 18.9	1.07
29	9 29 9.66	0.245	15 35 13.6	1.07	29 18 55.6	9 29 14.22	0.237	15 34 53.7	1.03
30	9 29 15.43	0.236	15 34 48.5	1.02	30 18 51.8	9 29 19.83	0.229	15 34 29.4	0.99
31	9 29 21.00	0.228	15 34 24.4	0.98	31 18 48.0	9 29 25.23	0.221	15 34 6.2	0.94
32	9 29 26.37	+0.219	+15 34 1.3	-0.94	32 18 44.1	9 29 30.43	+0.212	+15 33 43.9	-0.90

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	Apparent Right Ascension.	Diff for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	o ' "	"	d h m	h m s	s	o ' "	"
Nov. 1	9 29 26.37	+0.219	+15 34 13	-0.94	1 18 44.1	9 29 30.43	+0.212	+15 33 43.9	-0.90
2	9 29 31.54	0.211	15 33 39.2	0.90	2 18 40.3	9 29 35.42	0.203	15 33 22.7	0.86
3	9 29 36.50	0.202	15 33 18.1	0.86	3 18 36.4	9 29 40.21	0.194	15 33 2.4	0.82
4	9 29 41.25	0.194	15 32 58.0	0.82	4 18 32.6	9 29 44.78	0.186	15 32 43.1	0.78
5	9 29 45.79	0.185	15 32 38.9	0.78	5 18 28.7	9 29 49.14	0.178	15 32 24.9	0.74
6	9 29 50.11	0.176	15 32 20.9	0.74	6 18 24.9	9 29 53.29	0.169	15 32 7.7	0.70
7	9 29 54.22	0.167	15 32 3.9	0.70	7 18 21.0	9 29 57.23	0.160	15 31 51.5	0.66
8	9 29 58.12	0.158	15 31 47.9	0.65	8 18 17.1	9 30 0.95	0.151	15 31 36.3	0.61
9	9 30 1.80	0.149	15 31 32.9	0.60	9 18 13.2	9 30 4.45	0.143	15 31 22.2	0.57
10	9 30 5.26	0.140	15 31 19.0	0.56	10 18 9.4	9 30 7.74	0.133	15 31 9.1	0.52
11	9 30 8.51	0.131	15 31 6.1	0.51	11 18 5.5	9 30 10.82	0.124	15 30 57.0	0.48
12	9 30 11.55	0.122	15 30 54.2	0.47	12 18 1.6	9 30 13.68	0.115	15 30 45.9	0.44
13	9 30 14.37	0.113	15 30 43.3	0.42	13 17 57.7	9 30 16.33	0.106	15 30 35.8	0.40
14	9 30 16.97	0.104	15 30 33.5	0.38	14 17 53.8	9 30 18.77	0.097	15 30 26.9	0.35
15	9 30 19.36	0.095	15 30 24.8	0.34	15 17 49.9	9 30 20.99	0.088	15 30 18.9	0.31
16	9 30 21.53	0.086	15 30 17.1	0.30	16 17 46.0	9 30 22.99	0.079	15 30 12.1	0.27
17	9 30 23.48	0.077	15 30 10.5	0.26	17 17 42.1	9 30 24.78	0.070	15 30 6.2	0.23
18	9 30 25.21	0.068	15 30 4.9	0.22	18 17 38.2	9 30 26.34	0.060	15 30 1.4	0.18
19	9 30 26.72	0.059	15 30 0.3	0.17	19 17 34.3	9 30 27.69	0.051	15 29 57.6	0.14
20	9 30 28.01	0.050	15 29 56.8	0.13	20 17 30.4	9 30 28.81	0.042	15 29 54.9	0.09
21	9 30 29.08	0.040	15 29 54.4	0.08	21 17 26.5	9 30 29.72	0.033	15 29 53.3	-0.05
22	9 30 29.93	0.031	15 29 53.1	-0.04	22 17 22.6	9 30 30.41	0.024	15 29 52.7	0.00
23	9 30 30.56	0.022	15 29 52.8	+0.01	23 17 18.7	9 30 30.88	0.015	15 29 53.2	+0.04
24	9 30 30.97	0.013	15 29 53.6	0.05	24 17 14.8	9 30 31.12	+0.005	15 29 54.8	0.09
25	9 30 31.15	+0.003	15 29 55.5	0.10	25 17 10.8	9 30 31.14	-0.004	15 29 57.4	0.13
26	9 30 31.11	-0.006	15 29 58.4	0.14	26 17 6.9	9 30 30.93	0.013	15 30 1.1	0.18
27	9 30 30.84	0.015	15 30 2.4	0.19	27 17 2.9	9 30 30.52	0.022	15 30 5.9	0.22
28	9 30 30.36	0.024	15 30 7.5	0.23	28 16 59.0	9 30 29.88	0.031	15 30 11.7	0.26
29	9 30 29.66	0.034	15 30 13.6	0.28	29 16 55.0	9 30 29.03	0.040	15 30 18.5	0.30
30	9 30 28.74	0.044	15 30 20.8	0.32	30 16 51.1	9 30 27.96	0.049	15 30 26.5	0.35
Dec. 1	9 30 27.60	0.053	15 30 29.1	0.37	1 16 47.1	9 30 26.67	0.058	15 30 35.5	0.39
2	9 30 26.24	0.062	15 30 38.4	0.41	2 16 43.2	9 30 25.17	0.068	15 30 45.5	0.43
3	9 30 24.67	0.071	15 30 48.7	0.45	3 16 39.2	9 30 23.44	0.077	15 30 56.4	0.47
4	9 30 22.87	0.080	15 31 0.0	0.49	4 16 35.3	9 30 21.49	0.085	15 31 8.5	0.52
5	9 30 20.85	0.089	15 31 12.4	0.53	5 16 31.3	9 30 19.33	0.094	15 31 21.5	0.56
6	9 30 18.62	0.098	15 31 25.8	0.57	6 16 27.3	9 30 16.96	0.103	15 31 35.5	0.60
7	9 30 16.18	0.106	15 31 40.1	0.61	7 16 23.3	9 30 14.39	0.112	15 31 50.5	0.64
8	9 30 13.53	0.115	15 31 55.5	0.65	8 16 19.4	9 30 11.60	0.120	15 32 6.6	0.69
9	9 30 10.67	0.124	15 32 11.9	0.70	9 16 15.4	9 30 8.61	0.129	15 32 23.6	0.73
10	9 30 7.60	0.133	15 32 29.3	0.74	10 16 11.4	9 30 5.41	0.138	15 32 41.7	0.78
11	9 30 4.32	0.141	15 32 47.7	0.79	11 16 7.4	9 30 2.00	0.147	15 33 0.6	0.82
12	9 30 0.83	0.150	15 33 7.0	0.82	12 16 3.4	9 29 58.39	0.155	15 33 20.6	0.85
13	9 29 57.14	0.158	15 33 27.3	0.86	13 15 59.4	9 29 54.57	0.164	15 33 41.4	0.89
14	9 29 53.25	0.167	15 33 48.5	0.90	14 15 55.4	9 29 50.55	0.172	15 34 3.2	0.92
15	9 29 49.15	0.175	15 34 10.7	0.94	15 15 51.4	9 29 46.33	0.180	15 34 25.9	0.96
16	9 29 44.85	0.183	15 34 33.8	0.98	16 15 47.4	9 29 41.92	0.187	15 34 49.6	1.00
17	9 29 40.36	0.191	15 34 57.9	1.02	17 15 43.4	9 29 37.31	0.196	15 35 14.3	1.04
18	9 29 35.67	0.199	15 35 22.9	1.06	18 15 39.4	9 29 32.50	0.204	15 35 39.8	1.08
19	9 29 30.78	0.207	15 35 48.8	1.10	19 15 35.4	9 29 27.50	0.212	15 36 6.2	1.12
20	9 29 25.70	0.215	15 36 15.6	1.13	20 15 31.4	9 29 22.30	0.220	15 36 33.4	1.15
21	9 29 20.42	0.223	15 36 43.2	1.17	21 15 27.3	9 29 16.91	0.228	15 37 1.5	1.19
22	9 29 14.95	0.231	15 37 11.7	1.20	22 15 23.3	9 29 11.34	0.236	15 37 30.5	1.22
23	9 29 9.30	0.239	15 37 41.1	1.24	23 15 19.3	9 29 5.59	0.244	15 38 0.3	1.26
24	9 29 3.46	0.247	15 38 11.3	1.27	24 15 15.3	9 28 59.65	0.251	15 38 30.9	1.29
25	9 28 57.44	0.254	15 38 42.3	1.31	25 15 11.2	9 28 53.53	0.258	15 39 2.4	1.33
26	9 28 51.24	0.262	15 39 14.1	1.34	26 15 7.2	9 28 47.24	0.265	15 39 34.7	1.36
27	9 28 44.87	0.269	15 39 46.8	1.38	27 15 3.1	9 28 40.47	0.273	15 40 7.8	1.40
28	9 28 38.33	0.276	15 40 20.3	1.41	28 14 59.1	9 28 34.16	0.280	15 40 41.7	1.43
29	9 28 31.62	0.283	15 40 54.6	1.45	29 14 55.0	9 28 27.36	0.287	15 41 16.4	1.47
30	9 28 24.74	0.290	15 41 29.7	1.48	30 14 51.0	9 28 20.39	0.294	15 41 51.9	1.50
31	9 28 17.69	0.297	15 42 5.6	1.51	31 14 46.9	9 28 13.26	0.301	15 42 28.1	1.53
32	9 28 10.47	-0.304	+15 42 42.2	+1.54	32 14 42.9	9 28 5.98	-0.307	+15 43 5.0	+1.56

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	h m s	s	° ' "	"	d h m	h m s	s	° ' "	"
Jan. 1	1 46 39.52	-0.040	+9 7 33.8	-0.07	1 7 1.7	1 46 39.24	-0.039	+9 7 33.3	-0.06
2	1 46 38.62	0.035	9 7 32.4	0.04	2 6 57.8	1 46 38.38	0.033	9 7 32.1	0.03
3	1 46 37.85	0.029	9 7 31.7	-0.01	3 6 53.8	1 46 37.65	0.028	9 7 31.6	-0.00
4	1 46 37.21	0.024	9 7 31.8	+0.02	4 6 49.9	1 46 37.05	0.023	9 7 31.9	+0.03
5	1 46 36.69	0.019	9 7 32.7	0.05	5 6 46.0	1 46 36.57	0.017	9 7 33.0	0.06
6	1 46 36.31	0.013	9 7 34.3	0.08	6 6 42.0	1 46 36.23	0.012	9 7 34.9	0.09
7	1 46 36.06	0.008	9 7 36.7	0.12	7 6 39.1	1 46 36.02	0.006	9 7 37.5	0.12
8	1 46 35.94	-0.002	9 7 39.8	0.15	8 6 34.1	1 46 35.94	-0.001	9 7 40.8	0.16
9	1 46 35.96	+0.004	9 7 43.7	0.18	9 6 30.2	1 46 35.99	+0.005	9 7 44.9	0.19
10	1 46 36.11	0.009	9 7 48.4	0.21	10 6 26.3	1 46 36.17	0.010	9 7 49.8	0.22
11	1 46 36.39	0.015	9 7 53.8	0.24	11 6 22.4	1 46 36.48	0.016	9 7 55.4	0.25
12	1 46 36.81	0.020	9 8 0.0	0.27	12 6 18.4	1 46 36.93	0.022	9 8 1.7	0.28
13	1 46 37.36	0.025	9 8 7.0	0.30	13 6 14.5	1 46 37.52	0.027	9 8 8.8	0.31
14	1 46 38.04	0.031	9 8 14.6	0.33	14 6 10.6	1 46 38.24	0.032	9 8 16.7	0.34
15	1 46 38.85	0.037	9 8 23.0	0.37	15 6 6.7	1 46 39.08	0.038	9 8 25.3	0.37
16	1 46 39.79	0.042	9 8 32.2	0.40	16 6 2.8	1 46 40.05	0.043	9 8 34.6	0.41
17	1 46 40.87	0.048	9 8 42.1	0.43	17 5 58.9	1 46 41.16	0.049	9 8 44.7	0.44
18	1 46 42.08	0.053	9 8 52.7	0.46	18 5 55.0	1 46 42.40	0.054	9 8 55.5	0.47
19	1 46 43.42	0.059	9 9 4.1	0.49	19 5 51.0	1 46 43.77	0.060	9 9 7.0	0.50
20	1 46 44.90	0.065	9 9 16.2	0.52	20 5 47.1	1 46 45.28	0.066	9 9 19.2	0.53
21	1 46 46.51	0.070	9 9 29.0	0.55	21 5 43.2	1 46 46.92	0.071	9 9 22.2	0.56
22	1 46 48.25	0.075	9 9 42.6	0.58	22 5 39.3	1 46 48.68	0.076	9 9 45.9	0.59
23	1 46 50.12	0.080	9 9 56.9	0.61	23 5 35.4	1 46 50.57	0.081	9 10 0.3	0.62
24	1 46 52.11	0.086	9 10 11.9	0.64	24 5 31.5	1 46 52.59	0.087	9 10 15.4	0.65
25	1 46 54.23	0.091	9 10 27.6	0.67	25 5 27.6	1 46 54.74	0.092	9 10 31.2	0.68
26	1 46 56.49	0.097	9 10 44.0	0.70	26 5 23.7	1 46 57.02	0.097	9 10 47.8	0.71
27	1 46 58.87	0.102	9 11 1.2	0.73	27 5 19.8	1 46 59.42	0.103	9 11 5.1	0.74
28	1 47 1.38	0.108	9 11 19.1	0.76	28 5 15.9	1 47 1.95	0.108	9 11 23.1	0.77
29	1 47 4.02	0.113	9 11 37.7	0.79	29 5 12.0	1 47 4.61	0.113	9 11 41.8	0.79
30	1 47 6.78	0.118	9 11 56.9	0.82	30 5 8.2	1 47 7.39	0.119	9 12 1.1	0.82
31	1 47 9.67	0.123	9 12 16.8	0.85	31 5 4.3	1 47 10.30	0.124	9 12 21.1	0.85
Feb. 1	1 47 12.60	0.128	9 12 37.5	0.88	1 5 0.4	1 47 13.33	0.129	9 12 41.9	0.88
2	1 47 15.83	0.133	9 12 58.9	0.90	2 4 56.5	1 47 16.49	0.134	9 13 3.3	0.91
3	1 47 19.10	0.139	9 13 20.9	0.93	3 4 52.6	1 47 19.78	0.140	9 13 25.4	0.93
4	1 47 22.49	0.144	9 13 43.5	0.96	4 4 48.8	1 47 23.19	0.144	9 13 48.1	0.96
5	1 47 26.00	0.149	9 14 6.8	0.99	5 4 44.9	1 47 26.71	0.149	9 14 11.5	0.99
6	1 47 29.64	0.154	9 14 30.9	1.02	6 4 41.0	1 47 30.36	0.155	9 14 35.6	1.02
7	1 47 33.39	0.159	9 14 55.6	1.04	7 4 37.2	1 47 34.13	0.159	9 15 0.4	1.05
8	1 47 37.26	0.164	9 15 20.9	1.07	8 4 33.3	1 47 38.01	0.164	9 15 25.8	1.07
9	1 47 41.26	0.169	9 15 46.8	1.10	9 4 29.4	1 47 42.02	0.170	9 15 51.8	1.10
10	1 47 45.38	0.174	9 16 13.4	1.12	10 4 25.6	1 47 46.15	0.174	9 16 18.4	1.12
11	1 47 49.61	0.179	9 16 40.6	1.15	11 4 21.7	1 47 50.39	0.179	9 16 45.6	1.15
12	1 47 53.95	0.183	9 17 8.4	1.17	12 4 17.8	1 47 54.74	0.184	9 17 13.4	1.17
13	1 47 58.41	0.188	9 17 36.8	1.20	13 4 14.0	1 47 59.21	0.189	9 17 41.9	1.20
14	1 48 2.99	0.193	9 18 5.8	1.22	14 4 10.1	1 48 3.80	0.194	9 18 10.9	1.22
15	1 48 7.68	0.198	9 18 35.4	1.25	15 4 6.3	1 48 8.50	0.198	9 18 40.5	1.25
16	1 48 12.48	0.203	9 19 5.6	1.27	16 4 2.4	1 48 13.30	0.203	9 19 10.7	1.27
17	1 48 17.39	0.207	9 19 36.3	1.29	17 3 58.6	1 48 18.21	0.207	9 19 41.5	1.29
18	1 48 22.40	0.211	9 20 7.6	1.32	18 3 54.7	1 48 23.23	0.211	9 20 12.8	1.32
19	1 48 27.52	0.215	9 20 39.5	1.34	19 3 50.9	1 48 28.35	0.216	9 20 44.7	1.34
20	1 48 32.75	0.220	9 21 11.9	1.36	20 3 47.0	1 48 33.58	0.221	9 21 17.1	1.36
21	1 48 38.08	0.224	9 21 44.8	1.38	21 3 43.2	1 48 38.92	0.225	9 21 50.0	1.38
22	1 48 43.51	0.228	9 22 18.3	1.41	22 3 39.3	1 48 44.35	0.228	9 22 23.4	1.41
23	1 48 49.04	0.233	9 22 52.3	1.43	23 3 35.5	1 48 49.88	0.233	9 22 57.4	1.43
24	1 48 54.68	0.237	9 23 26.8	-1.45	24 3 31.7	1 48 55.52	0.237	9 23 31.9	1.45
25	1 49 0.42	0.241	9 24 1.8	1.47	25 3 27.8	1 49 1.26	0.241	9 24 6.9	1.47
26	1 49 6.25	0.245	9 24 37.4	1.49	26 3 24.0	1 49 7.09	0.245	9 24 42.4	1.49
27	1 49 12.18	0.249	9 25 13.4	1.51	27 3 20.2	1 49 13.01	0.249	9 25 18.4	1.51
28	1 49 18.20	0.253	9 25 49.9	1.53	28 3 16.3	1 49 19.03	0.253	9 25 54.9	1.53
29	1 49 24.32	+0.257	+9 26 26.8	+1.55	29 3 12.5	1 49 25.15	+0.257	+9 26 31.8	+1.55

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff for 1 hour.	Apparent Declination.	Diff for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
Mar. 1	h m s 1 49 24.32	+0.257	+ 9 26 26.8	+1.55	d h m 1 3 12.5	h m s 1 49 25.15	+0.257	+ 9 26 31.8	+1.55
2	1 49 30.53	0.260	9 27 4.2	1.57	2 3 8.7	1 49 31.36	0.260	9 27 9.2	1.57
3	1 49 36.83	0.264	9 27 42.1	1.59	3 3 4.8	1 49 37.65	0.264	9 27 47.0	1.59
4	1 49 43.22	0.268	9 28 20.4	1.61	4 3 1.0	1 49 44.03	0.268	9 28 25.3	1.61
5	1 49 49.71	0.272	9 28 59.2	1.63	5 2 57.2	1 49 50.51	0.272	9 29 4.0	1.62
6	1 49 56.28	0.276	9 29 38.4	1.64	6 2 53.4	1 49 57.08	0.276	9 29 43.1	1.64
7	1 50 2.94	0.279	9 30 18.0	1.66	7 2 49.5	1 50 3.73	0.279	9 30 22.7	1.66
8	1 50 9.68	0.283	9 30 58.0	1.68	8 2 45.7	1 50 10.46	0.282	9 31 2.7	1.68
9	1 50 16.50	0.286	9 31 38.5	1.69	9 2 41.9	1 50 17.27	0.285	9 31 43.1	1.69
10	1 50 23.39	0.289	9 32 19.3	1.71	10 2 38.1	1 50 24.15	0.288	9 32 23.8	1.70
11	1 50 30.36	0.292	9 33 0.5	1.72	11 2 34.3	1 50 31.11	0.292	9 33 4.9	1.72
12	1 50 37.41	0.295	9 33 42.0	1.74	12 2 30.5	1 50 38.15	0.295	9 33 46.4	1.74
13	1 50 44.53	0.298	9 34 23.9	1.75	13 2 26.6	1 50 45.26	0.298	9 34 28.2	1.75
14	1 50 51.73	0.301	9 35 6.1	1.77	14 2 22.8	1 50 52.45	0.301	9 35 10.3	1.76
15	1 50 59.00	0.304	9 35 48.7	1.78	15 2 19.0	1 50 59.71	0.304	9 35 52.8	1.78
16	1 51 6.34	0.307	9 36 31.6	1.79	16 2 15.2	1 51 7.03	0.306	9 36 35.6	1.79
17	1 51 13.74	0.310	9 37 14.8	1.80	17 2 11.4	1 51 14.42	0.309	9 37 18.7	1.80
18	1 51 21.21	0.313	9 37 58.2	1.81	18 2 7.6	1 51 21.88	0.312	9 38 2.1	1.81
19	1 51 29.74	0.315	9 38 41.9	1.83	19 2 3.8	1 51 29.40	0.315	9 38 45.7	1.82
20	1 51 36.34	0.318	9 39 25.9	1.84	20 2 0.0	1 51 36.98	0.317	9 39 29.6	1.84
21	1 51 43.99	0.320	9 40 10.2	1.85	21 1 56.2	1 51 44.61	0.319	9 40 13.8	1.85
22	1 51 51.70	0.323	9 40 54.7	1.86	22 1 52.4	1 51 52.30	0.322	9 40 58.2	1.85
23	1 51 59.47	0.325	9 41 39.4	1.87	23 1 48.6	1 52 0.05	0.324	9 41 42.8	1.86
24	1 52 7.29	0.327	9 42 24.4	1.88	24 1 44.8	1 52 7.86	0.326	9 42 27.7	1.87
25	1 52 15.17	0.329	9 43 9.6	1.89	25 1 41.0	1 52 15.72	0.329	9 43 12.8	1.88
26	1 52 23.10	0.331	9 43 55.1	1.90	26 1 37.2	1 52 23.64	0.331	9 43 58.1	1.89
27	1 52 31.08	0.333	9 44 40.7	1.91	27 1 33.5	1 52 31.60	0.333	9 44 43.6	1.90
28	1 52 39.10	0.335	9 45 26.5	1.91	28 1 29.6	1 52 39.60	0.335	9 45 29.3	1.91
29	1 52 47.17	0.337	9 46 12.5	1.92	29 1 25.8	1 52 47.65	0.337	9 46 15.2	1.92
30	1 52 55.29	0.339	9 46 58.7	1.93	30 1 22.0	1 52 55.75	0.339	9 47 1.3	1.92
31	1 53 3.46	0.341	9 47 45.1	1.94	31 1 18.2	1 53 3.90	0.341	9 47 47.6	1.93
Apr. 1	1 53 11.67	0.343	9 48 31.6	1.94	1 1 14.4	1 53 12.09	0.342	9 48 34.0	1.94
2	1 53 19.91	0.344	9 49 18.2	1.95	2 1 10.6	1 53 20.31	0.343	9 49 20.5	1.94
3	1 53 28.19	0.346	9 50 5.0	1.95	3 1 6.8	1 53 28.57	0.345	9 50 7.2	1.95
4	1 53 36.50	0.347	9 50 51.9	1.96	4 1 3.0	1 53 36.86	0.346	9 50 54.0	1.95
5	1 53 44.85	0.349	9 51 38.9	1.96	5 0 59.2	1 53 45.19	0.348	9 51 40.9	1.96
6	1 53 53.23	0.350	9 52 26.0	1.96	6 0 55.4	1 53 53.55	0.349	9 52 27.9	1.96
7	1 54 1.64	0.351	9 53 13.2	1.97	7 0 51.6	1 54 1.94	0.350	9 53 14.9	1.96
8	1 54 10.07	0.352	9 54 0.5	1.97	8 0 47.8	1 54 10.35	0.351	9 54 2.0	1.96
9	1 54 18.53	0.353	9 54 47.8	1.97	9 0 44.0	1 54 18.79	0.352	9 54 49.2	1.97
10	1 54 27.02	0.354	9 55 35.2	1.97	10 0 40.2	1 54 27.26	0.353	9 55 36.5	1.97
11	1 54 35.53	0.355	9 56 22.6	1.98	11 0 36.4	1 54 35.75	0.354	9 56 23.8	1.97
12	1 54 44.05	0.355	9 57 10.0	1.98	12 0 32.6	1 54 44.25	0.355	9 57 11.1	1.97
13	1 54 52.59	0.356	9 57 57.5	1.98	13 0 28.9	1 54 52.77	0.355	9 57 58.4	1.97
14	1 55 1.15	0.357	9 58 45.0	1.98	14 0 25.1	1 55 1.30	0.356	9 58 45.8	1.97
15	1 55 9.72	0.358	9 59 32.5	1.98	15 0 21.3	1 55 9.85	0.356	9 59 33.2	1.97
16	1 55 18.31	0.358	10 0 19.9	1.97	16 0 17.5	1 55 18.41	0.357	10 0 20.5	1.97
17	1 55 26.90	0.358	10 1 7.3	1.97	17 0 13.8	1 55 26.98	0.357	10 1 7.8	1.97
18	1 55 35.50	0.358	10 1 54.6	1.97	18 0 10.0	1 55 35.56	0.358	10 1 55.0	1.97
19	1 55 44.10	0.359	10 2 41.9	1.97	19 0 6.2	1 55 44.14	0.358	10 2 42.2	1.96
20	1 55 52.71	0.359	10 3 29.2	1.97	20 0 2.4	1 55 52.72	0.358	10 3 29.3	1.96
					20 23 58.6	1 56 1.31	0.358	10 4 16.4	1.96
21	1 56 1.32	0.359	10 4 16.4	1.97	21 23 54.8	1 56 9.90	0.358	10 5 3.4	1.96
22	1 56 9.93	0.359	10 5 3.6	1.96	22 23 51.0	1 56 18.49	0.358	10 5 50.3	1.95
23	1 56 18.55	0.359	10 5 50.7	1.96	23 23 47.2	1 56 27.09	0.358	10 6 37.2	1.95
24	1 56 27.17	0.359	10 6 37.6	1.95	24 23 43.4	1 56 35.68	0.358	10 7 24.0	1.95
25	1 56 35.78	0.359	10 7 24.5	1.95	25 23 39.6	1 56 44.26	0.357	10 8 10.6	1.94
26	1 56 44.38	0.358	10 8 11.3	1.95	26 23 35.8	1 56 52.83	0.357	10 8 57.1	1.94
27	1 56 52.97	0.358	10 8 57.9	1.94	27 23 32.1	1 57 1.40	0.357	10 9 43.5	1.93
28	1 57 1.56	0.358	10 9 44.4	1.94	28 23 28.3	1 57 9.95	0.356	10 10 29.8	1.92
29	1 57 10.14	0.357	10 10 30.8	1.93	29 23 24.5	1 57 18.49	0.356	10 11 15.9	1.92
30	1 57 18.70	+0.356	+10 11 17.0	+1.92	30 23 20.7	1 57 27.02	+0.355	+10 12 1.8	+1.91

Date.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
1875.	h m s	s	° ' "	"	d h m	h m s	s	° ' "	"
May 1	1 57 27.25	+0.356	+10 12 3.1	+1.92	1 23 16.9	1 57 35.52	+0.354	+10 12 47.5	+1.90
2	1 57 35.78	0.355	10 12 49.0	1.91	2 23 13.1	1 57 44.00	0.353	10 13 33.1	1.90
3	1 57 44.28	0.354	10 13 31.6	1.90	3 23 9.3	1 57 52.47	0.352	10 14 18.5	1.89
4	1 57 52.77	0.353	10 14 20.1	1.89	4 23 5.5	1 58 0.92	0.351	10 15 3.7	1.88
5	1 58 1.24	-0.352	10 15 5.4	1.88	5 23 1.7	1 58 9.34	0.350	10 15 47.7	1.87
6	1 58 9.68	0.351	10 15 50.5	1.87	6 22 57.9	1 58 17.74	0.349	10 16 33.4	1.86
7	1 58 18.10	0.350	10 16 35.3	1.86	7 22 54.1	1 58 26.11	0.348	10 17 17.9	1.85
8	1 58 26.49	0.349	10 17 19.9	1.85	8 22 50.3	1 58 34.44	0.346	10 18 2.2	1.84
9	1 58 34.84	0.347	10 18 4.3	1.84	9 22 46.6	1 58 43.74	0.345	10 18 46.2	1.83
10	1 58 43.16	0.346	10 18 48.4	1.83	10 22 42.8	1 58 51.01	0.344	10 19 30.0	1.82
11	1 58 51.45	0.345	10 19 32.3	1.82	11 22 39.0	1 58 59.24	0.342	10 20 13.5	1.81
12	1 58 59.70	0.343	10 20 15.9	1.81	12 22 35.2	1 59 7.44	0.341	10 20 56.7	1.79
13	1 59 7.92	0.341	10 20 59.2	1.80	13 22 31.4	1 59 15.59	0.339	10 21 39.6	1.78
14	1 59 16.09	0.340	10 21 42.2	1.79	14 22 27.6	1 59 23.70	0.337	10 22 22.2	1.77
15	1 59 24.22	0.338	10 22 24.9	1.77	15 22 23.8	1 59 31.77	0.335	10 23 4.5	1.76
16	1 59 32.31	0.336	10 23 7.3	1.76	16 22 20.0	1 59 39.80	0.333	10 23 46.5	1.74
17	1 59 40.35	0.334	10 23 49.4	1.75	17 22 16.2	1 59 47.78	0.331	10 24 28.2	1.73
18	1 59 48.35	0.332	10 24 31.2	1.73	18 22 12.4	1 59 55.71	0.329	10 25 9.5	1.71
19	1 59 56.30	0.330	10 25 12.6	1.72	19 22 8.6	2 0 3.59	0.327	10 25 50.5	1.70
20	2 0 4.20	0.328	10 25 53.7	1.70	20 22 4.8	2 0 11.42	0.325	10 26 31.2	1.69
21	2 0 12.05	0.326	10 26 34.4	1.69	21 22 1.0	2 0 19.20	0.323	10 27 11.5	1.67
22	2 0 19.85	0.324	10 27 14.8	1.68	22 21 57.2	2 0 26.93	0.321	10 27 51.5	1.66
23	2 0 27.59	0.321	10 27 54.9	1.66	23 21 53.4	2 0 34.60	0.319	10 28 31.1	1.64
24	2 0 35.28	0.319	10 28 34.6	1.65	24 21 49.6	2 0 42.22	0.316	10 29 10.4	1.63
25	2 0 42.91	0.317	10 29 13.9	1.63	25 21 45.8	2 0 49.78	0.314	10 29 49.2	1.61
26	2 0 50.48	0.314	10 29 52.8	1.61	26 21 42.0	2 0 57.28	0.311	10 30 27.6	1.59
27	2 0 57.99	0.312	10 30 31.3	1.60	27 21 38.2	2 1 4.71	0.308	10 31 5.7	1.58
28	2 1 5.44	0.309	10 31 9.4	1.58	28 21 34.4	2 1 12.08	0.306	10 31 43.3	1.56
29	2 1 12.82	0.306	10 31 47.1	1.56	29 21 30.6	2 1 19.38	0.303	10 32 20.5	1.54
30	2 1 20.14	0.304	10 32 24.4	1.55	30 21 26.8	2 1 26.62	0.300	10 32 57.3	1.52
31	2 1 27.39	0.301	10 33 1.3	1.53	31 21 22.9	2 1 33.80	0.298	10 33 33.7	1.51
June 1	2 1 34.58	0.298	10 33 37.7	1.51	1 21 19.1	2 1 40.91	0.295	10 34 9.7	1.49
2	2 1 41.70	0.295	10 34 13.7	1.49	2 21 15.3	2 1 47.94	0.291	10 34 45.2	1.47
3	2 1 48.74	0.292	10 34 49.2	1.47	3 21 11.5	2 1 54.89	0.288	10 35 20.2	1.45
4	2 1 55.70	0.289	10 35 24.3	1.45	4 21 7.7	2 2 1.77	0.285	10 35 54.8	1.43
5	2 2 2.59	0.285	10 35 58.9	1.43	5 21 3.8	2 2 8.57	0.282	10 36 28.9	1.41
6	2 2 9.40	0.282	10 36 33.0	1.41	6 21 0.0	2 2 15.30	0.279	10 37 2.5	1.39
7	2 2 16.14	0.279	10 37 6.7	1.39	7 20 56.2	2 2 21.95	0.275	10 37 35.7	1.37
8	2 2 22.80	0.276	10 37 39.9	1.37	8 20 52.4	2 2 28.52	0.272	10 38 8.3	1.35
9	2 2 29.37	0.272	10 38 12.6	1.35	9 20 48.6	2 2 35.00	0.268	10 38 40.4	1.33
10	2 2 35.86	0.269	10 38 44.7	1.33	10 20 44.7	2 2 41.40	0.265	10 39 12.0	1.31
11	2 2 42.26	0.265	10 39 16.3	1.31	11 20 40.9	2 2 47.71	0.261	10 39 43.1	1.29
12	2 2 48.58	0.261	10 39 47.4	1.29	12 20 37.1	2 2 53.94	0.258	10 40 13.7	1.26
13	2 2 54.81	0.258	10 40 18.0	1.26	13 20 33.2	2 3 0.08	0.255	10 40 43.8	1.24
14	2 3 0.96	0.254	10 40 48.1	1.24	14 20 29.4	2 3 6.14	0.251	10 41 13.4	1.22
15	2 3 7.02	0.251	10 41 17.7	1.22	15 20 25.6	2 3 12.11	0.247	10 41 42.4	1.20
16	2 3 12.99	0.247	10 41 46.7	1.20	16 20 21.7	2 3 17.98	0.243	10 42 10.9	1.17
17	2 3 18.86	0.243	10 42 15.2	1.17	17 20 17.9	2 3 23.75	0.239	10 42 38.8	1.15
18	2 3 24.64	0.239	10 42 43.1	1.15	18 20 14.0	2 3 29.43	0.235	10 43 6.2	1.13
19	2 3 30.32	0.235	10 43 10.5	1.13	19 20 10.2	2 3 35.02	0.231	10 43 33.1	1.11
20	2 3 35.91	0.231	10 43 37.3	1.11	20 20 6.4	2 3 40.51	0.227	10 43 59.4	1.09
21	2 3 41.40	0.227	10 44 3.6	1.08	21 20 2.6	2 3 45.91	0.223	10 44 25.1	1.06
22	2 3 46.79	0.223	10 44 29.3	1.06	22 19 58.7	2 3 51.21	0.219	10 44 50.3	1.04
23	2 3 52.09	0.219	10 44 54.4	1.04	23 19 54.9	2 3 56.41	0.215	10 45 14.9	1.01
24	2 3 57.21	0.215	10 45 19.0	1.01	24 19 51.0	2 4 1.51	0.210	10 45 38.9	0.99
25	2 4 2.39	0.210	10 45 43.0	0.99	25 19 47.1	2 4 6.51	0.206	10 46 2.3	0.96
26	2 4 7.38	0.206	10 46 6.4	0.96	26 19 43.3	2 4 11.41	0.202	10 46 25.1	0.94
27	2 4 12.27	0.202	10 46 29.1	0.94	27 19 39.4	2 4 16.20	0.197	10 46 47.3	0.91
28	2 4 17.06	0.197	10 46 51.3	0.91	28 19 35.6	2 4 20.89	0.193	10 47 9.0	0.89
29	2 4 21.74	0.193	10 47 12.9	0.89	29 19 31.7	2 4 25.47	0.189	10 47 30.0	0.86
30	2 4 26.31	0.188	10 47 33.9	0.86	30 19 27.9	2 4 29.94	0.184	10 47 50.4	0.84
31	2 4 30.77	+0.184	+10 47 54.3	+0.84	31 19 24.0	2 4 34.30	+0.180	+10 48 10.2	+0.81

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	° ' "	"	d h m	h m s	s	° ' "	"
July 1	2 4 30.77	+0.184	+10 47 54.3	+0.84	1 19 24.0	2 4 34.30	+0.180	+10 48 10.2	+0.81
2	2 4 35.13	0.179	10 48 14.0	0.81	2 19 20.2	2 4 38.56	0.175	10 48 29.4	0.79
3	2 4 39.37	0.174	10 48 33.1	0.78	3 19 16.3	2 4 42.70	0.170	10 48 48.0	0.76
4	2 4 43.50	0.170	10 48 51.6	0.76	4 19 12.4	2 4 46.73	0.165	10 49 6.0	0.74
5	2 4 47.52	0.165	10 49 9.5	0.73	5 19 8.6	2 4 50.64	0.161	10 49 23.3	0.71
6	2 4 51.42	0.160	10 49 26.7	0.71	6 19 4.7	2 4 54.44	0.156	10 49 39.9	0.68
7	2 4 55.21	0.155	10 49 43.3	0.68	7 19 0.8	2 4 58.13	0.151	10 49 55.9	0.65
8	2 4 58.88	0.151	10 49 59.2	0.65	8 18 57.0	2 5 1.71	0.147	10 50 11.3	0.63
9	2 5 2.44	0.146	10 50 14.5	0.62	9 18 53.1	2 5 5.17	0.142	10 50 26.0	0.60
10	2 5 5.89	0.141	10 50 29.1	0.60	10 18 49.2	2 5 8.51	0.137	10 50 40.1	0.57
11	2 5 9.22	0.136	10 50 43.1	0.57	11 18 45.3	2 5 11.73	0.132	10 50 53.5	0.55
12	2 5 12.42	0.131	10 50 56.4	0.54	12 18 41.4	2 5 14.84	0.127	10 51 6.3	0.52
13	2 5 15.51	0.126	10 51 9.1	0.52	13 18 37.5	2 5 17.83	0.122	10 51 18.5	0.49
14	2 5 18.48	0.121	10 51 21.2	0.49	14 18 33.7	2 5 20.70	0.117	10 51 30.0	0.47
15	2 5 21.33	0.116	10 51 32.6	0.46	15 18 29.8	2 5 23.45	0.112	10 51 40.9	0.44
16	2 5 24.07	0.111	10 51 43.3	0.43	16 18 25.9	2 5 26.08	0.107	10 51 51.1	0.41
17	2 5 26.68	0.106	10 51 53.4	0.41	17 18 22.0	2 5 28.59	0.102	10 52 0.7	0.38
18	2 5 29.16	0.101	10 52 2.8	0.38	18 18 18.1	2 5 30.98	0.097	10 52 9.6	0.36
19	2 5 31.53	0.096	10 52 11.6	0.35	19 18 14.2	2 5 33.25	0.092	10 52 17.8	0.33
20	2 5 33.78	0.091	10 52 19.7	0.32	20 18 10.3	2 5 35.40	0.087	10 52 25.3	0.30
21	2 5 35.90	0.086	10 52 27.1	0.30	21 18 6.4	2 5 37.42	0.082	10 52 32.2	0.28
22	2 5 37.90	0.081	10 52 33.9	0.27	22 18 2.5	2 5 39.32	0.077	10 52 38.5	0.25
23	2 5 39.77	0.075	10 52 40.0	0.24	23 17 58.6	2 5 41.10	0.071	10 52 44.2	0.22
24	2 5 41.52	0.070	10 52 45.5	0.21	24 17 54.7	2 5 42.75	0.066	10 52 49.2	0.19
25	2 5 43.15	0.065	10 52 50.3	0.18	25 17 50.8	2 5 44.28	0.061	10 52 53.4	0.16
26	2 5 44.65	0.060	10 52 54.3	0.15	26 17 46.9	2 5 45.69	0.056	10 52 57.0	0.14
27	2 5 46.03	0.055	10 52 57.7	0.13	27 17 43.0	2 5 46.97	0.051	10 52 59.9	0.11
28	2 5 47.28	0.050	10 53 0.5	0.10	28 17 39.1	2 5 48.13	0.046	10 53 2.1	0.08
29	2 5 48.41	0.044	10 53 2.6	0.07	29 17 35.2	2 5 49.16	0.040	10 53 3.7	0.05
30	2 5 49.41	0.039	10 53 4.0	0.04	30 17 31.2	2 5 50.06	0.035	10 53 4.6	+0.02
31	2 5 50.28	0.034	10 53 4.7	+0.01	31 17 27.3	2 5 50.84	0.030	10 53 4.8	-0.01
Aug. 1	2 5 51.03	0.029	10 53 4.7	-0.01	1 17 23.4	2 5 51.49	0.024	10 53 4.3	0.03
2	2 5 51.65	0.023	10 53 4.1	0.04	2 17 19.5	2 5 52.01	0.019	10 53 3.2	0.06
3	2 5 52.14	0.018	10 53 2.8	0.07	3 17 15.6	2 5 52.41	0.014	10 53 1.4	0.09
4	2 5 52.50	0.012	10 53 0.8	0.10	4 17 11.6	2 5 52.69	0.009	10 52 59.0	0.11
5	2 5 52.74	0.007	10 52 58.2	0.12	5 17 7.7	2 5 52.84	+0.004	10 52 55.9	0.14
6	2 5 52.85	+0.002	10 52 54.9	0.15	6 17 3.8	2 5 52.86	-0.002	10 52 52.1	0.17
7	2 5 52.84	-0.003	10 52 50.9	0.18	7 16 59.8	2 5 52.76	0.007	10 52 47.7	0.20
8	2 5 52.70	0.009	10 52 46.3	0.21	8 16 55.9	2 5 52.53	0.012	10 52 42.6	0.22
9	2 5 52.43	0.014	10 52 41.0	0.24	9 16 52.0	2 5 52.17	0.017	10 52 36.9	0.25
10	2 5 52.04	0.019	10 52 35.0	0.26	10 16 48.0	2 5 51.69	0.022	10 52 30.5	0.28
11	2 5 51.52	0.024	10 52 28.4	0.29	11 16 44.1	2 5 51.09	0.028	10 52 23.5	0.31
12	2 5 50.88	0.029	10 52 21.2	0.31	12 16 40.1	2 5 50.36	0.033	10 52 15.8	0.33
13	2 5 50.11	0.035	10 52 13.3	0.34	13 16 36.2	2 5 49.51	0.038	10 52 7.5	0.36
14	2 5 49.22	0.040	10 52 4.8	0.37	14 16 32.2	2 5 48.54	0.043	10 51 58.6	0.39
15	2 5 48.21	0.045	10 51 55.6	0.40	15 16 28.3	2 5 47.44	0.048	10 51 49.0	0.41
16	2 5 47.07	0.050	10 51 45.8	0.42	16 16 24.3	2 5 46.22	0.053	10 51 38.8	0.44
17	2 5 45.81	0.055	10 51 35.4	0.45	17 16 20.4	2 5 44.88	0.058	10 51 27.9	0.47
18	2 5 44.43	0.060	10 51 24.3	0.48	18 16 16.4	2 5 43.42	0.063	10 51 16.4	0.49
19	2 5 42.93	0.065	10 51 12.6	0.50	19 16 12.5	2 5 41.84	0.068	10 51 4.3	0.52
20	2 5 41.31	0.070	10 51 0.2	0.53	20 16 8.5	2 5 40.14	0.073	10 50 51.6	0.54
21	2 5 39.56	0.075	10 50 47.3	0.55	21 16 4.5	2 5 38.32	0.078	10 50 38.3	0.57
22	2 5 37.69	0.080	10 50 33.7	0.58	22 16 0.6	2 5 36.38	0.083	10 50 24.4	0.59
23	2 5 35.70	0.085	10 50 19.6	0.60	23 15 56.6	2 5 34.32	0.088	10 50 9.9	0.62
24	2 5 33.60	0.090	10 50 4.8	0.63	24 15 52.6	2 5 32.14	0.093	10 49 54.7	0.65
25	2 5 31.38	0.095	10 49 49.4	0.65	25 15 48.7	2 5 29.85	0.098	10 49 38.9	0.67
26	2 5 29.04	0.100	10 49 33.5	0.68	26 15 44.7	2 5 27.45	0.102	10 49 22.6	0.69
27	2 5 26.59	0.105	10 49 16.9	0.70	27 15 40.7	2 5 24.93	0.107	10 49 5.7	0.72
28	2 5 24.02	0.109	10 48 59.7	0.73	28 15 36.7	2 5 22.29	0.112	10 48 48.2	0.74
29	2 5 21.34	0.114	10 48 41.9	0.75	29 15 32.8	2 5 19.54	0.117	10 48 30.1	0.76
30	2 5 18.54	0.119	10 48 23.6	0.78	30 15 28.8	2 5 16.67	0.122	10 48 11.5	0.79
31	2 5 15.63	-0.124	+10 48 4.7	-0.80	31 15 24.8	2 5 13.69	-0.126	+10 47 52.3	-0.81

Date. 1875.	FOR WASHINGTON MEAN NOON.				FOR MERIDIAN TRANSIT.				
	Apparent Right Ascension.	Diff for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
Sept. 1	h m s 2 5 12.60	-0.128	+10 47 45.3	-0.82	d h m 1 15 20.8	h m s 2 5 10.61	-0.131	+10 47 32.6	-0.83
2	2 5 9.47	0.133	10 47 25.3	0.84	2 15 16.8	2 5 7.42	0.135	10 47 12.3	0.86
3	2 5 6.23	0.137	10 47 4.8	0.87	3 15 12.8	2 5 4.12	0.140	10 46 51.5	0.88
4	2 5 2.88	0.142	10 46 43.7	0.89	4 15 8.9	2 5 0.71	0.144	10 46 39.1	0.90
5	2 4 59.42	0.146	10 46 22.1	0.91	5 15 4.9	2 4 57.20	0.149	10 46 8.2	0.92
6	2 4 55.86	0.151	10 45 59.9	0.94	6 15 0.9	2 4 53.58	0.153	10 45 45.8	0.94
7	2 4 52.19	0.155	10 45 37.2	0.96	7 14 56.9	2 4 49.85	0.157	10 45 22.9	0.96
8	2 4 48.42	0.159	10 45 14.0	0.98	8 14 52.9	2 4 46.03	0.161	10 44 59.5	0.99
9	2 4 44.55	0.163	10 44 50.4	1.00	9 14 48.9	2 4 42.12	0.165	10 44 35.6	1.01
10	2 4 40.59	0.167	10 44 26.3	1.02	10 14 44.9	2 4 38.11	0.169	10 44 11.2	1.03
11	2 4 36.53	0.171	10 44 1.6	1.04	11 14 40.9	2 4 33.99	0.174	10 43 46.3	1.04
12	2 4 32.36	0.176	10 43 36.5	1.06	12 14 36.9	2 4 29.78	0.178	10 43 21.0	1.06
13	2 4 28.10	0.180	10 43 10.9	1.08	13 14 32.9	2 4 25.48	0.181	10 42 55.2	1.08
14	2 4 23.75	0.183	10 42 44.9	1.09	14 14 28.9	2 4 21.08	0.185	10 42 29.0	1.10
15	2 4 19.31	0.187	10 42 18.5	1.11	15 14 24.9	2 4 16.60	0.189	10 42 2.4	1.12
16	2 4 14.78	0.191	10 41 51.6	1.13	16 14 20.8	2 4 12.03	0.192	10 41 35.3	1.14
17	2 4 10.16	0.194	10 41 24.2	1.15	17 14 16.8	2 4 7.37	0.196	10 41 7.7	1.16
18	2 4 5.45	0.198	10 40 56.4	1.16	18 14 12.8	2 4 2.63	0.199	10 40 39.8	1.17
19	2 4 0.66	0.201	10 40 28.3	1.18	19 14 8.8	2 3 57.80	0.203	10 40 11.5	1.19
20	2 3 55.79	0.205	10 39 59.8	1.20	20 14 4.8	2 3 52.89	0.206	10 39 42.8	1.20
21	2 3 50.83	0.208	10 39 30.8	1.21	21 14 0.8	2 3 47.90	0.209	10 39 13.7	1.22
22	2 3 45.80	0.211	10 39 1.5	1.23	22 13 56.8	2 3 42.84	0.212	10 38 44.2	1.24
23	2 3 40.69	0.215	10 38 31.8	1.24	23 13 52.8	2 3 37.70	0.216	10 38 14.4	1.25
24	2 3 35.50	0.218	10 38 1.8	1.26	24 13 48.7	2 3 32.48	0.219	10 37 44.3	1.26
25	2 3 30.23	0.221	10 37 31.4	1.27	25 13 44.7	2 3 27.18	0.222	10 37 13.9	1.27
26	2 3 24.89	0.224	10 37 0.7	1.29	26 13 40.7	2 3 21.82	0.225	10 36 43.2	1.29
27	2 3 19.49	0.226	10 36 29.7	1.30	27 13 36.7	2 3 16.39	0.227	10 36 12.1	1.30
28	2 3 14.02	0.229	10 35 58.4	1.31	28 13 32.7	2 3 10.90	0.230	10 35 40.6	1.32
29	2 3 8.48	0.232	10 35 26.7	1.33	29 13 28.6	2 3 5.34	0.233	10 35 8.8	1.33
30	2 3 2.87	0.235	10 34 54.7	1.34	30 13 24.6	2 2 59.71	0.236	10 34 36.7	1.34
Oct. 1	2 2 57.20	0.237	10 34 22.5	1.35	1 13 20.6	2 2 54.03	0.238	10 34 4.4	1.35
2	2 2 51.48	0.240	10 33 50.0	1.36	2 13 16.6	2 2 48.29	0.240	10 33 31.9	1.36
3	2 2 45.70	0.242	10 33 17.2	1.37	3 13 12.5	2 2 42.50	0.242	10 32 59.1	1.37
4	2 2 39.87	0.244	10 32 44.2	1.38	4 13 8.5	2 2 36.65	0.245	10 32 26.0	1.38
5	2 2 33.98	0.247	10 32 11.0	1.39	5 13 4.5	2 2 30.74	0.247	10 31 52.8	1.39
6	2 2 28.03	0.249	10 31 37.6	1.40	6 13 0.4	2 2 24.79	0.249	10 31 19.4	1.40
7	2 2 22.04	0.250	10 31 4.0	1.40	7 12 56.4	2 2 18.79	0.250	10 30 45.8	1.40
8	2 2 16.01	0.252	10 30 30.2	1.41	8 12 52.4	2 2 12.76	0.252	10 30 12.1	1.41
9	2 2 9.94	0.254	10 29 56.3	1.42	9 12 48.3	2 2 6.68	0.254	10 29 38.2	1.42
10	2 2 3.82	0.256	10 29 22.2	1.42	10 12 44.3	2 2 0.56	0.256	10 29 4.1	1.42
11	2 1 57.67	0.257	10 28 48.0	1.43	11 12 40.3	2 1 54.41	0.257	10 28 29.8	1.43
12	2 1 51.48	0.259	10 28 13.6	1.44	12 12 36.2	2 1 48.22	0.259	10 27 55.4	1.43
13	2 1 45.26	0.260	10 27 39.1	1.44	13 12 32.2	2 1 42.00	0.260	10 27 21.0	1.44
14	2 1 39.01	0.261	10 27 4.5	1.44	14 12 28.2	2 1 35.75	0.261	10 26 46.5	1.44
15	2 1 32.73	0.262	10 26 29.8	1.45	15 12 24.1	2 1 29.48	0.262	10 26 11.8	1.45
16	2 1 26.43	0.263	10 25 55.0	1.45	16 12 20.1	2 1 23.18	0.263	10 25 37.1	1.45
17	2 1 20.10	0.264	10 25 20.2	1.45	17 12 16.1	2 1 16.86	0.264	10 25 2.3	1.45
18	2 1 13.75	0.265	10 24 45.3	1.46	18 12 12.0	2 1 10.52	0.265	10 24 27.5	1.45
19	2 1 7.38	0.266	10 24 10.3	1.46	19 12 8.0	2 1 4.15	0.266	10 23 52.6	1.45
20	2 1 0.99	0.266	10 23 35.3	1.46	20 12 4.0	2 0 57.77	0.266	10 23 17.7	1.45
21	2 0 54.59	0.267	10 23 0.3	1.46	21 11 59.9	2 0 51.38	0.266	10 22 42.8	1.45
22	2 0 48.17	0.268	10 22 25.3	1.46	22 11 55.9	2 0 44.98	0.267	10 22 7.9	1.45
23	2 0 41.75	0.268	10 21 50.3	1.46	23 11 51.8	2 0 38.57	0.267	10 21 33.0	1.45
24	2 0 35.32	0.268	10 21 15.3	1.46	24 11 47.8	2 0 32.16	0.267	10 20 58.2	1.45
25	2 0 28.89	0.268	10 20 40.4	1.45	25 11 43.7	2 0 25.74	0.267	10 20 23.4	1.45
26	2 0 22.45	0.268	10 20 5.6	1.45	26 11 39.7	2 0 19.32	0.267	10 19 48.7	1.44
27	2 0 16.02	0.268	10 19 30.8	1.45	27 11 35.7	2 0 12.91	0.267	10 19 14.1	1.44
28	2 0 9.59	0.268	10 18 56.1	1.44	28 11 31.6	2 0 6.50	0.267	10 18 39.5	1.44
29	2 0 3.17	0.267	10 18 21.5	1.44	29 11 27.6	2 0 0.10	0.266	10 18 5.0	1.43
30	1 59 56.76	0.267	10 17 47.0	1.44	30 11 23.5	1 59 53.71	0.266	10 17 30.7	1.43
31	1 59 50.36	0.266	10 17 12.6	1.43	31 11 19.5	1 59 47.34	0.265	10 16 56.5	1.42
32	1 59 43.97	-0.266	+10 16 38.4	-1.42	32 11 15.5	1 59 40.98	-0.265	+10 16 22.4	-1.42

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	Apparent Right Ascension.	Diff. for 1 hour.	Apparent Declination.	Diff. for 1 hour.	Mean Time of Transit.	Apparent Right Ascension.	Diff. for 1 h. of Long.	Apparent Declination.	Diff. for 1 hour of Long.
	h m s	s	o ' "	"	d h m	h m s	s	o ' "	"
Nov. 1	1 59 43.97	-0.266	+10 16 38.4	-1.42	1 11 15.5	1 59 40.98	-0.265	+10 16 22.4	-1.42
2	1 59 37.60	0.265	10 16 4.3	1.42	2 11 11.4	1 59 34.64	0.264	10 15 48.5	1.41
3	1 59 31.26	0.264	10 15 30.4	1.41	3 11 7.4	1 59 28.33	0.263	10 15 14.8	1.40
4	1 59 24.94	0.263	10 14 56.8	1.40	4 11 3.4	1 59 22.04	0.262	10 14 41.3	1.39
5	1 59 18.64	0.262	10 14 23.4	1.39	5 10 59.3	1 59 15.77	0.261	10 14 8.0	1.38
6	1 59 12.37	0.261	10 13 50.1	1.38	6 10 55.3	1 59 9.53	0.259	10 13 34.9	1.37
7	1 59 6.13	0.259	10 13 17.0	1.37	7 10 51.3	1 59 3.32	0.258	10 13 2.1	1.36
8	1 58 59.93	0.258	10 12 44.2	1.36	8 10 47.2	1 58 57.15	0.256	10 12 29.5	1.35
9	1 58 53.76	0.256	10 12 11.6	1.35	9 10 43.2	1 58 51.02	0.255	10 11 57.2	1.34
10	1 58 47.63	0.255	10 11 39.3	1.34	10 10 39.2	1 58 44.92	0.253	10 11 25.1	1.33
11	1 58 41.53	0.253	10 11 7.3	1.33	11 10 35.1	1 58 38.86	0.252	10 10 53.3	1.32
12	1 58 35.48	0.251	10 10 35.6	1.31	12 10 31.1	1 58 32.84	0.250	10 10 21.8	1.31
13	1 58 29.48	0.249	10 10 4.2	1.30	13 10 27.1	1 58 26.88	0.247	10 9 50.6	1.29
14	1 58 23.53	0.247	10 9 33.1	1.29	14 10 23.0	1 58 20.97	0.245	10 9 19.8	1.28
15	1 58 17.62	0.245	10 9 2.3	1.27	15 10 19.0	1 58 15.10	0.244	10 8 49.2	1.26
16	1 58 11.76	0.243	10 8 31.9	1.26	16 10 15.0	1 58 9.28	0.241	10 8 19.0	1.25
17	1 58 5.96	0.240	10 8 1.8	1.25	17 10 10.9	1 58 3.52	0.239	10 7 49.2	1.24
18	1 58 0.22	0.238	10 7 32.1	1.23	18 10 6.9	1 57 57.82	0.236	10 7 19.7	1.22
19	1 57 54.53	0.236	10 7 2.8	1.21	19 10 2.9	1 57 52.18	0.234	10 6 50.7	1.20
20	1 57 48.91	0.233	10 6 33.9	1.20	20 9 58.9	1 57 46.60	0.231	10 6 22.0	1.19
21	1 57 43.35	0.230	10 6 5.4	1.18	21 9 54.8	1 57 41.08	0.228	10 5 53.7	1.17
22	1 57 37.86	0.227	10 5 37.3	1.16	22 9 50.8	1 57 35.63	0.226	10 5 25.9	1.15
23	1 57 32.43	0.225	10 5 9.6	1.14	23 9 46.8	1 57 30.24	0.223	10 4 58.5	1.13
24	1 57 27.07	0.222	10 4 42.4	1.12	24 9 42.8	1 57 24.92	0.220	10 4 31.5	1.11
25	1 57 21.79	0.218	10 4 15.6	1.11	25 9 38.8	1 57 19.69	0.216	10 4 5.0	1.10
26	1 57 16.59	0.215	10 3 49.3	1.09	26 9 34.7	1 57 14.54	0.213	10 3 38.9	1.08
27	1 57 11.46	0.212	10 3 23.5	1.07	27 9 30.7	1 57 9.46	0.210	10 3 13.4	1.06
28	1 57 6.41	0.209	10 2 58.2	1.05	28 9 26.7	1 57 4.46	0.207	10 2 48.4	1.03
29	1 57 1.45	0.205	10 2 33.3	1.03	29 9 22.7	1 56 59.54	0.203	10 2 23.8	1.01
30	1 56 56.57	0.202	10 2 8.9	1.00	30 9 18.7	1 56 54.70	0.200	10 1 59.7	0.99
Dec. 1	1 56 51.77	0.198	10 1 45.1	0.98	1 9 14.7	1 56 49.94	0.196	10 1 36.1	0.97
2	1 56 47.06	0.194	10 1 21.8	0.96	2 9 10.7	1 56 45.28	0.192	10 1 13.1	0.95
3	1 56 42.44	0.191	10 0 59.1	0.93	3 9 6.7	1 56 40.71	0.189	10 0 50.7	0.92
4	1 56 37.91	0.187	10 0 37.0	0.91	4 9 2.7	1 56 36.23	0.185	10 0 28.8	0.90
5	1 56 33.48	0.183	10 0 15.4	0.89	5 8 58.6	1 56 31.85	0.180	10 0 7.4	0.88
6	1 56 29.14	0.179	9 59 54.3	0.87	6 8 54.6	1 56 27.57	0.176	9 59 46.6	0.86
7	1 56 24.90	0.175	9 59 33.8	0.84	7 8 50.6	1 56 23.38	0.173	9 59 26.4	0.83
8	1 56 20.76	0.170	9 59 14.0	0.81	8 8 46.6	1 56 19.28	0.169	9 59 6.9	0.80
9	1 56 16.72	0.166	9 58 54.7	0.79	9 8 42.6	1 56 15.28	0.164	9 58 47.9	0.78
10	1 56 12.78	0.162	9 58 36.1	0.76	10 8 38.6	1 56 11.39	0.160	9 58 29.5	0.75
11	1 56 8.94	0.158	9 58 18.0	0.74	11 8 34.6	1 56 7.60	0.156	9 58 11.7	0.73
12	1 56 5.21	0.153	9 58 0.5	0.71	12 8 30.7	1 56 3.92	0.151	9 57 54.5	0.70
13	1 56 1.59	0.149	9 57 43.7	0.69	13 8 26.7	1 56 0.34	0.147	9 57 37.9	0.68
14	1 55 58.07	0.144	9 57 27.5	0.66	14 8 22.7	1 55 56.87	0.142	9 57 22.0	0.65
15	1 55 54.67	0.139	9 57 12.0	0.63	15 8 18.7	1 55 53.51	0.138	9 57 6.8	0.62
16	1 55 51.38	0.135	9 56 57.1	0.61	16 8 14.7	1 55 50.27	0.133	9 56 52.2	0.60
17	1 55 48.20	0.130	9 56 42.9	0.58	17 8 10.7	1 55 47.14	0.128	9 56 38.2	0.57
18	1 55 45.13	0.125	9 56 29.3	0.55	18 8 6.8	1 55 44.12	0.123	9 56 24.9	0.54
19	1 55 42.18	0.120	9 56 16.4	0.52	19 8 2.8	1 55 41.22	0.118	9 56 12.2	0.51
20	1 55 39.35	0.116	9 56 4.1	0.50	20 7 58.8	1 55 38.44	0.114	9 56 0.2	0.49
21	1 55 36.63	0.111	9 55 52.5	0.47	21 7 54.8	1 55 35.77	0.109	9 55 48.9	0.46
22	1 55 34.03	0.106	9 55 41.6	0.44	22 7 50.9	1 55 33.21	0.104	9 55 38.3	0.43
23	1 55 31.55	0.101	9 55 31.4	0.41	23 7 46.9	1 55 30.78	0.099	9 55 28.3	0.40
24	1 55 29.20	0.096	9 55 21.9	0.38	24 7 42.9	1 55 28.47	0.094	9 55 19.0	0.37
25	1 55 26.96	0.091	9 55 13.1	0.35	25 7 39.0	1 55 26.28	0.089	9 55 10.5	0.34
26	1 55 24.84	0.086	9 55 5.0	0.32	26 7 35.0	1 55 24.21	0.084	9 55 2.6	0.31
27	1 55 22.85	0.080	9 54 57.6	0.29	27 7 31.0	1 55 22.26	0.079	9 54 55.5	0.28
28	1 55 20.99	0.075	9 54 50.9	0.26	28 7 27.1	1 55 20.44	0.073	9 54 49.0	0.25
29	1 55 19.25	0.070	9 54 45.0	0.23	29 7 23.1	1 55 18.74	0.068	9 54 43.3	0.22
30	1 55 17.64	0.065	9 54 39.8	0.20	30 7 19.2	1 55 17.17	0.063	9 54 38.3	0.19
31	1 55 16.15	0.059	9 54 35.3	0.17	31 7 15.2	1 55 15.72	0.058	9 54 34.1	0.16
32	1 55 14.79	-0.054	+ 9 54 31.5	-0.14	32 7 11.3	1 55 14.41	-0.052	+ 9 54 30.6	-0.13

HORIZONTAL PARALLAXES AND SEMIDIAMETERS.									
Mean Noon.	HORIZONTAL PARALLAXES.			SEMIDIAMETERS.			SID. TIME OF SEMIDIAMETER PASSING THE MERIDIAN.		
	♄	♃	♂	♄	♃	♂	♄	♃	♂
Jan. 1	6.24	26.24	4.91	2.36	25.35	2.90	0.19	1.80	0.19
6	6.18	24.15	5.05	2.33	23.33	2.88	0.18	1.64	0.20
11	6.18	22.22	5.19	2.33	21.48	2.97	0.17	1.50	0.20
16	6.24	20.48	5.35	2.36	19.80	3.06	0.17	1.38	0.21
21	6.38	18.94	5.51	2.41	18.30	3.15	0.18	1.28	0.22
26	6.62	17.57	5.69	2.51	16.97	3.25	0.18	1.19	0.22
31	7.00	16.36	5.88	2.64	15.80	3.36	0.19	1.11	0.23
Feb. 5	7.59	15.29	6.09	2.87	14.77	3.47	0.20	1.04	0.24
10	8.51	14.34	6.29	3.21	13.85	3.59	0.22	0.98	0.25
15	9.82	13.50	6.52	3.71	13.04	3.72	0.25	0.92	0.26
20	11.50	12.75	6.77	4.34	12.32	3.87	0.30	0.87	0.27
25	13.15	12.08	7.03	4.96	11.67	4.02	0.34	0.82	0.28
Mar. 2	14.13	11.48	7.32	5.33	11.09	4.18	0.36	0.78	0.30
7	14.04	10.93	7.63	5.30	10.56	4.36	0.36	0.74	0.31
12	13.22	10.44	7.97	4.99	10.08	4.55	0.34	0.70	0.33
17	12.13	9.99	8.34	4.58	9.65	4.76	0.32	0.67	0.34
22	11.08	9.58	8.74	4.18	9.25	4.99	0.29	0.64	0.36
27	10.16	9.21	9.16	3.84	8.89	5.24	0.26	0.61	0.38
April 1	9.38	8.87	9.62	3.54	8.56	5.50	0.24	0.58	0.40
6	8.72	8.55	10.12	3.29	8.26	5.78	0.23	0.56	0.42
11	8.16	8.26	10.65	3.08	7.99	6.08	0.21	0.54	0.44
16	7.69	8.00	11.22	2.90	7.73	6.41	0.20	0.52	0.45
21	7.30	7.76	11.84	2.75	7.49	6.76	0.19	0.50	0.49
26	6.98	7.53	12.49	2.64	7.27	7.13	0.18	0.48	0.52
May 1	6.77	7.32	13.19	2.56	7.07	7.54	0.18	0.47	0.55
6	6.68	7.13	13.94	2.52	6.88	7.95	0.18	0.46	0.58
11	6.74	6.95	14.73	2.54	6.71	8.39	0.18	0.45	0.62
16	6.99	6.78	15.56	2.68	6.55	8.88	0.19	0.44	0.65
21	7.44	6.62	16.41	2.81	6.40	9.38	0.21	0.43	0.69
26	8.07	6.48	17.25	3.05	6.26	9.86	0.23	0.42	0.73
31	8.88	6.35	18.06	3.35	6.13	10.33	0.25	0.42	0.77
June 5	9.84	6.22	18.78	3.72	6.01	10.75	0.28	0.41	0.80
10	10.95	6.11	19.41	4.13	5.90	11.10	0.31	0.41	0.83
15	12.18	6.00	19.90	4.60	5.79	11.37	0.34	0.41	0.85
20	13.46	5.90	20.24	5.08	5.70	11.57	0.37	0.40	0.87
25	14.63	5.81	20.41	5.52	5.61	11.66	0.40	0.40	0.88
30	15.45	5.72	20.42	5.83	5.53	11.67	0.42	0.40	0.88
July 5	15.62	5.64	20.27	5.90	5.45	11.58	0.42	0.39	0.87
10	15.02	5.57	19.96	5.67	5.38	11.41	0.41	0.39	0.86
15	13.77	5.51	19.52	5.20	5.32	11.15	0.37	0.39	0.84
20	12.22	5.45	18.93	4.61	5.27	10.82	0.33	0.38	0.81
25	10.67	5.40	18.30	4.03	5.22	10.46	0.29	0.38	0.79
30	9.30	5.35	17.64	3.51	5.17	10.07	0.26	0.37	0.76
Aug. 4	8.20	5.31	16.99	3.10	5.13	9.70	0.23	0.37	0.73
9	7.40	5.27	16.34	2.79	5.09	9.33	0.20	0.36	0.70
14	6.88	5.24	15.69	2.60	5.06	8.96	0.19	0.36	0.68
19	6.59	5.21	15.04	2.49	5.03	8.59	0.18	0.35	0.65
24	6.46	5.19	14.42	2.44	5.01	8.24	0.17	0.35	0.62
29	6.44	5.17	13.84	2.43	4.99	7.92	0.17	0.34	0.60
Sept. 3	6.51	5.16	13.28	2.46	4.98	7.60	0.17	0.34	0.58
8	6.64	5.15	12.75	2.51	4.97	7.28	0.17	0.34	0.55
13	6.84	5.14	12.24	2.58	4.96	6.98	0.18	0.33	0.52
18	7.10	5.14	11.75	2.68	4.96	6.71	0.18	0.33	0.50
23	7.44	5.14	11.31	2.81	4.96	6.48	0.19	0.33	0.48
28	7.88	5.14	10.90	2.97	4.97	6.25	0.21	0.33	0.46
Oct. 3	8.45	5.15	10.53	3.19	4.98	6.04	0.23	0.33	0.44
8	9.18	5.16	10.17	3.47	4.99	5.83	0.25	0.34	0.43
13	10.13	5.18	9.82	3.82	5.00	5.63	0.28	0.34	0.41
18	11.30	5.20	9.48	4.27	5.02	5.43	0.31	0.34	0.39
23	12.51	5.22	9.17	4.72	5.04	5.25	0.34	0.35	0.37

HORIZONTAL PARALLAXES AND SEMIDIAMETERS.									
Mean Noon.	HORIZONTAL PARALLAXES.			SEMIDIAMETERS.			SID. TIME OF SEMIDIAMETER PASSING THE MERIDIAN.		
	♃	♄	♅	♃	♄	♅	♃	♄	♅
Oct. 28	13.18	5.24	8.87	4.98	5.06	5.07	0.35	0.35	0.36
Nov. 2	12.60	5.27	8.59	4.75	5.09	4.91	0.33	0.36	0.35
7	11.08	5.30	8.32	4.18	5.12	4.75	0.29	0.36	0.34
12	9.58	5.34	8.06	3.60	5.16	4.60	0.25	0.37	0.32
17	8.39	5.38	7.81	3.17	5.20	4.46	0.22	0.37	0.31
22	7.58	5.42	7.58	2.86	5.24	4.33	0.20	0.38	0.30
27	7.04	5.47	7.35	2.67	5.28	4.20	0.19	0.38	0.29
Dec. 2	6.66	5.52	7.14	2.52	5.33	4.08	0.18	0.39	0.28
7	6.41	5.58	6.93	2.42	5.38	3.96	0.18	0.39	0.27
12	6.24	5.64	6.74	2.36	5.44	3.85	0.17	0.40	0.26
17	6.15	5.70	6.55	2.32	5.50	3.74	0.17	0.40	0.25
22	6.12	5.77	6.38	2.31	5.57	3.64	0.17	0.40	0.24
27	6.15	5.84	6.21	2.32	5.64	3.55	0.17	0.41	0.24
32	6.24	5.92	6.04	2.36	5.72	3.45	0.18	0.41	0.23
Mean Noon.	♃	♄	♅	♃	♄	♅	♃	♄	♅
Jan. 1	1.56	0.83	0.50	16.59	7.29	1.90	1.20	0.55	0.13
11	1.60	0.82	0.50	17.07	7.24	1.91	1.23	0.54	0.13
21	1.65	0.82	0.51	17.58	7.21	1.92	1.27	0.54	0.13
31	1.70	0.81	0.51	18.12	7.19	1.92	1.31	0.54	0.13
Feb. 10	1.76	0.81	0.51	18.69	7.19	1.92	1.35	0.53	0.14
20	1.81	0.82	0.51	19.25	7.21	1.92	1.39	0.53	0.14
Mar. 2	1.86	0.82	0.50	19.79	7.24	1.91	1.43	0.54	0.14
12	1.90	0.83	0.50	20.27	7.29	1.90	1.44	0.54	0.13
22	1.94	0.83	0.50	20.68	7.36	1.89	1.49	0.54	0.13
April 1	1.97	0.84	0.49	20.98	7.44	1.87	1.51	0.55	0.13
11	1.99	0.85	0.49	21.14	7.53	1.86	1.52	0.56	0.13
21	1.99	0.87	0.49	21.16	7.64	1.84	1.52	0.56	0.13
May 1	1.98	0.88	0.49	21.05	7.76	1.82	1.51	0.57	0.13
11	1.96	0.89	0.48	20.80	7.89	1.81	1.49	0.58	0.13
21	1.92	0.91	0.48	20.44	8.03	1.79	1.46	0.59	0.12
31	1.88	0.92	0.47	19.99	8.16	1.78	1.43	0.60	0.12
June 10	1.83	0.94	0.47	19.49	8.30	1.76	1.39	0.61	0.12
20	1.78	0.95	0.47	18.96	8.43	1.75	1.36	0.62	0.12
30	1.73	0.97	0.46	18.41	8.55	1.74	1.32	0.63	0.12
July 10	1.68	0.98	0.46	17.87	8.66	1.74	1.29	0.64	0.12
20	1.63	0.99	0.46	17.36	8.75	1.73	1.25	0.64	0.12
30	1.59	1.00	0.46	16.89	8.81	1.73	1.21	0.65	0.12
Aug. 9	1.55	1.00	0.46	16.46	8.84	1.73	1.18	0.65	0.12
19	1.51	1.00	0.46	16.07	8.85	1.73	1.15	0.65	0.12
29	1.48	1.00	0.46	15.72	8.82	1.73	1.13	0.65	0.12
Sept. 8	1.45	0.99	0.46	15.43	8.77	1.74	1.11	0.65	0.12
18	1.43	0.98	0.46	15.18	8.69	1.75	1.10	0.64	0.12
28	1.41	0.97	0.46	14.98	8.58	1.76	1.09	0.64	0.12
Oct. 8	1.39	0.96	0.47	14.84	8.46	1.77	1.08	0.63	0.12
18	1.38	0.94	0.47	14.74	8.33	1.78	1.08	0.62	0.12
28	1.38	0.93	0.48	14.69	8.20	1.80	1.08	0.61	0.13
Nov. 7	1.38	0.91	0.48	14.68	8.06	1.82	1.08	0.60	0.13
17	1.39	0.90	0.48	14.73	7.93	1.83	1.09	0.59	0.13
27	1.40	0.88	0.49	14.83	7.80	1.85	1.10	0.58	0.13
Dec. 7	1.41	0.87	0.49	14.98	7.68	1.87	1.11	0.57	0.13
17	1.43	0.86	0.50	15.19	7.56	1.89	1.13	0.56	0.13
27	1.45	0.85	0.50	15.44	7.47	1.90	1.15	0.55	0.13
37	1.48	0.84	0.50	15.74	7.40	1.91	1.17	0.55	0.13

Horizontal Parallax of Neptune, 0^h.30, Jan. 1 to Jan. 28, July 14 to Sept. 17, and after Nov. 27.
 " " " 0^h.29, Jan. 29 to July 13.
 " " " 0^h.31, Sept. 18 to Nov. 27.

Date.	RECTANGULAR EQUATORIAL.						POLAR ECLIPTIC.			
	X.	X'.	Y.	Y'.	Z.	Z'.	$\lambda = \odot$'s True Longitude.	λ'	$\beta = \odot$'s Latitude.	Log. Rad. Vect. = ρ .
1875.										9.99
Mar. 3.5	+ .9499880	9828	- .2621926	2131	- .1137789	7741	343 15 19.5	15.9	- .51	65346
4.0	.9525747	5636	.2545990	6196	.1104837	4793	343 45 22.3	18.7	0.49	65915
4.5	.9550890	0840	.2469859	20066	.1071800	1761	344 15 24.7	21.0	0.46	66485
5.0	.9575306	5257	.2393537	3746	.1038680	8646	344 45 26.7	22.9	0.43	67057
5.5	.9598994	8946	.2317033	7243	.1005480	5450	345 15 28.3	24.4	0.39	67629
6.0	.9621953	1906	.2240352	0563	.0972203	2177	345 45 29.4	25.4	0.34	68201
6.5	.9644181	4135	.2163500	3713	.0938851	8830	346 15 30.1	26.1	0.29	68775
7.0	.9665675	5630	.2086481	6696	.0905427	5411	346 45 30.3	26.2	0.24	69350
7.5	.9686434	6390	.2009306	9522	.0871933	1921	347 15 29.9	25.8	0.18	69925
8.0	.9706458	6415	.1931979	2196	.0838374	8367	347 45 29.1	24.9	0.12	70501
8.5	.9725744	5702	.1854507	4725	.0804752	4750	348 15 27.8	23.6	- .06	71077
9.0	.9744290	4250	.1776895	7115	.0771068	1071	348 45 26.0	21.7	0.00	71653
9.5	.9762098	2059	.1699150	9371	.0737328	7335	349 15 23.6	19.3	+ .06	72230
10.0	.9779167	9129	.1621279	1501	.0703534	3545	349 45 20.7	16.3	0.13	72807
10.5	.9795495	5458	.1543288	3512	.0669687	9703	350 15 17.3	12.9	0.20	73386
11.0	.9811081	1046	.1465183	5408	.0635790	5811	350 45 13.4	8.9	0.26	73966
11.5	.9825926	5892	.1386970	7196	.0601847	1872	351 15 8.9	4.4	0.32	74547
12.0	.9840028	2995	.1308655	8882	.0567861	7891	351 44 63.9	59.3	0.37	75129
12.5	.9853387	3356	.1230244	0472	.0533833	3868	352 14 58.3	53.7	0.42	75712
13.0	.9866001	5972	.1151742	1972	.0499765	9805	352 44 52.1	47.4	0.47	76295
13.5	.9877873	7845	.1073159	3390	.0465662	5706	353 14 45.3	40.6	0.51	76880
14.0	.9889002	8976	.0994498	4730	.0431526	1574	353 44 38.0	33.3	0.55	77467
14.5	.9899387	9363	.0915766	5999	.0397359	7412	354 14 30.2	25.4	0.57	78054
15.0	.9909029	9007	.0836368	7203	.0363165	3223	354 44 21.8	16.9	0.59	78642
15.5	.9917927	7907	.0758111	8347	.0328946	9008	355 14 12.7	7.8	0.59	79234
16.0	.9926082	6064	.0679201	9438	.0294703	4770	355 43 63.1	58.1	0.59	79827
16.5	.9933494	3478	.0600244	0482	.0260440	0512	356 13 53.0	47.9	0.59	80421
17.0	.9940161	0147	.0521245	1484	.0226159	6236	356 43 42.3	37.2	0.58	81017
17.5	.9946086	6074	.0442208	2448	.0191864	1945	357 13 31.1	26.0	0.56	81616
18.0	.9951269	1259	.0363142	3383	.0157555	7640	357 43 19.3	14.2	0.54	82217
18.5	.9955709	5701	.0284052	4294	.0123236	3326	358 13 7.0	1.8	0.51	82820
19.0	.9959406	9400	.0204944	5188	.0088909	9004	358 42 54.1	48.8	0.47	83426
19.5	.9962362	2358	.0125821	6066	.0054576	4676	359 12 40.6	35.3	0.42	84034
20.0	.9964576	4574	-.0046690	6936	-.0020241	0346	359 42 26.6	21.2	0.36	84645
20.5	.9966049	6049	+ .0032443	2196	+ .0014095	3985	0 12 12.1	6.6	0.31	85257
21.0	.9966780	6783	.0111575	1327	.0048430	8316	0 41 57.1	51.5	0.25	85872
21.5	.9966773	6778	.0190697	0448	.0082761	2642	1 11 41.6	36.0	0.19	86490
22.0	.9966025	6032	.0269805	9555	.0117087	6963	1 41 25.6	19.9	0.12	87110
22.5	.9964537	4547	.0348894	8643	.0151404	1276	2 11 9.0	3.3	+ .06	87732
23.0	.9962309	2322	.0427958	7707	.0185709	5577	2 40 51.9	46.2	- .01	88357
23.5	.9959343	9358	.0506992	6740	.0220001	2984	3 10 34.4	28.6	0.08	88984
24.0	.9955638	5656	.0585989	5736	.0254278	4136	3 40 16.4	10.5	0.14	89613
24.5	.9951195	1116	.0664944	4690	.0288537	8391	4 9 57.9	52.0	0.21	90244
25.0	.9946014	6038	.0743852	3598	.0322775	2625	4 39 38.9	32.9	0.27	90877
25.5	.9940095	0121	.0822707	2452	.0356991	6836	5 9 19.4	13.4	0.33	91511
26.0	.9933439	3468	.0901505	1249	.0391183	1023	5 38 59.5	53.4	0.38	92146
26.5	.9926046	6078	.0980238	2981	.0425347	5183	6 8 39.1	33.0	0.43	92783
27.0	.9917917	7952	.1058901	8644	.0459479	9311	6 38 18.4	12.2	0.47	93421
27.5	.9909052	9090	.1137488	7230	.0493578	3405	7 7 57.2	50.9	0.51	94059
28.0	.9899451	9492	.1215995	5736	.0527645	7468	7 37 35.5	29.2	0.54	94698
28.5	.9889115	9159	.1294415	4156	.0561675	1494	8 7 13.4	7.1	0.56	95338
29.0	.9878045	8092	.1372743	2484	.0595663	5478	8 36 50.9	44.5	0.57	95979
29.5	.9866241	6291	.1450972	0712	.0629608	9418	9 6 27.9	21.5	0.57	96620
30.0	.9853705	3758	.1529097	8836	.0663509	3314	9 35 64.4	58.0	0.57	97260
30.5	.9840437	0493	.1607112	6851	.0697364	7165	10 5 40.5	34.0	0.56	97900
31.0	.9826438	6498	.1685010	4749	.0731167	0964	10 35 16.2	9.6	0.55	98540
31.5	.9811710	1773	.1762787	2525	.0764918	4710	11 4 51.5	44.8	0.52	99179
Apr. 1.0	.9796252	6318	.1840437	0175	.0798615	8403	11 34 26.3	19.5	0.49	99816
1.5	.9780066	0135	.1917953	7690	.0832255	2039	12 3 60.6	53.8	0.45	100453
2.0	.9763152	3225	.1995330	5067	.0865834	5614	12 33 34.5	27.6	0.41	101088
2.5	+ .9745514	5590	+ .2072560	2296	+ .0899350	9126	13 3 7.0	1.0	- .36	01721

◆ The first figures of this and the following logarithms are 0.00.

SUN'S COÖRDINATES, 1875. 389

Date.	RECTANGULAR EQUATORIAL.						POLAR ECLIPTIC.			
	X.	X'.	Y.	Y'.	Z.	Z'.	$\lambda = \odot$'s True Longitude.	λ'	$\beta = \odot$'s Latitude.	Log. Rad. Vect. = ρ .
1875.										
Feb. 1.0	+6659039	9054	-6666804	6910	-2892996	2714	312° 29' 54.6"	54.9	-0.40	9.99 37402
1.5	.6723657	3669	.6612985	3092	.2869645	9366	313 0 20.9	21.1	0.43	37748
2.0	.6787757	7766	.6558652	8760	.2846070	5794	313 30 46.9	47.0	0.45	38098
2.5	.6851333	1339	.6503807	3917	.2822273	2000	314 1 12.7	12.7	0.47	38452
3.0	.6914379	4383	.6448456	8568	.2798255	7985	314 31 38.2	38.2	0.48	38810
3.5	.6976890	6891	.6392605	2718	.2774020	3753	315 2 3.4	3.4	0.48	39170
4.0	.7038861	8859	.6336259	6373	.2749570	9307	315 32 28.3	28.3	0.47	39533
4.5	.7100286	9282	.6279421	9537	.2724906	4646	316 2 53.0	52.9	0.46	39900
5.0	.7161160	1154	.6222094	2212	.2700030	9773	316 33 17.4	17.2	0.44	40270
5.5	.7221479	1471	.6164237	4406	.2674944	4690	317 3 41.4	41.2	0.41	40642
6.0	.7281237	1227	.6106003	6124	.2649651	9400	317 34 5.1	4.8	0.37	41017
6.5	.7340430	0417	.6047246	7369	.2624152	3904	318 4 28.5	28.2	0.33	41395
7.0	.7399053	9038	.5988021	8146	.2598449	8205	318 34 51.5	51.1	0.28	41777
7.5	.7457102	7084	.5928335	8461	.2572545	2304	319 5 14.2	13.7	0.23	42162
8.0	.7514573	4553	.5868192	8320	.2546443	6205	319 35 36.5	35.9	0.17	42549
8.5	.7571462	1440	.5807597	7727	.2520144	9910	320 5 58.5	57.8	0.11	42930
9.0	.7627763	7739	.5746553	6685	.2493654	3424	320 36 20.1	19.3	-0.05	43332
9.5	.7683475	3449	.5685069	5202	.2466971	6744	321 6 41.2	40.4	+0.02	43729
10.0	.7738593	8565	.5623149	3284	.2440099	9875	321 37 2.0	1.1	0.09	44129
10.5	.7793112	3083	.5560797	0934	.2413038	2818	322 7 22.4	21.4	0.16	44532
11.0	.7847029	6998	.5498018	8157	.2385792	5576	322 37 42.3	41.3	0.22	44930
11.5	.7900340	0307	.5434820	4961	.2358365	8152	323 8 1.8	0.8	0.28	45350
12.0	.7953042	3007	.5371207	1350	.2330758	0548	323 38 20.9	19.8	0.34	45764
12.5	.8005130	5094	.5307184	7329	.2302974	2768	324 8 39.6	38.4	0.40	46182
13.0	.8056601	6564	.5242756	2903	.2275014	4812	324 38 57.8	56.5	0.45	46604
13.5	.8107451	7412	.5177929	8078	.2246881	6682	325 9 15.6	14.2	0.50	47031
14.0	.8157678	7638	.5112708	2859	.2218577	8382	325 39 32.9	31.4	0.54	47462
14.5	.8207277	7236	.5047099	7252	.2190105	9914	326 9 49.8	48.3	0.58	47897
15.0	.8256245	6203	.4981106	1260	.2161467	1280	326 40 6.3	4.7	0.61	48337
15.5	.8304580	4536	.4914734	4890	.2132666	2482	327 10 22.3	20.7	0.63	48781
16.0	.8352278	2233	.4847989	8147	.2103703	3523	327 40 37.9	36.2	0.64	49230
16.5	.8399337	9291	.4780876	1035	.2074580	4404	328 10 53.0	51.3	0.65	49693
17.0	.8445752	5705	.4713399	3559	.2045298	5126	328 41 7.7	5.9	0.65	50141
17.5	.8491524	1476	.4645565	5726	.2015863	5695	329 11 22.0	20.1	0.64	50605
18.0	.8536647	6598	.4577379	7541	.1986275	6111	329 41 35.9	33.9	0.62	51073
18.5	.8581119	1069	.4508845	9009	.1956536	6376	330 11 49.3	47.2	0.60	51546
19.0	.8624938	4888	.4439970	9136	.1926649	6493	330 42 2.2	0.0	0.57	52024
19.5	.8668101	8050	.4370758	0925	.1896617	6465	331 12 14.7	12.5	0.53	52508
20.0	.8710605	0553	.4301214	1382	.1866442	6294	331 42 26.8	24.5	0.49	52996
20.5	.8752446	2394	.4231342	1512	.1836125	5981	332 12 38.5	36.2	0.44	52489
21.0	.8793621	3569	.4161148	1320	.1805668	5529	332 42 49.9	47.5	0.39	53987
21.5	.8834129	4076	.4090638	0811	.1775075	4940	333 12 60.8	58.4	0.33	54490
22.0	.8873968	3914	.4019816	9990	.1744346	4215	333 43 11.3	8.8	0.27	54998
22.5	.8913133	3079	.3948687	8863	.1713484	3357	334 13 21.4	18.9	0.21	55510
23.0	.8951622	1568	.3877256	7434	.1682490	2368	334 43 31.2	28.6	0.14	56027
23.5	.8989432	9377	.3805529	5708	.1651369	1251	335 13 40.6	37.9	0.07	56548
24.0	.9026561	6506	.3733511	3692	.1620121	0007	335 43 49.6	46.8	+0.01	57074
24.5	.9063005	2950	.3661207	1390	.1588748	8638	336 13 58.2	55.4	-0.06	57604
25.0	.9098761	8706	.3588622	8807	.1557253	7148	336 44 6.4	3.6	0.12	58138
25.5	.9133828	3773	.3515761	5947	.1525639	5538	337 14 14.3	11.4	0.18	58675
26.0	.9168203	8148	.3442630	2817	.1493908	3811	337 44 21.8	18.8	0.24	59216
26.5	.9201882	1827	.3369233	9422	.1462062	1969	338 14 28.9	25.9	0.30	59761
27.0	.9234863	4808	.3295576	5767	.1430103	0015	338 44 35.7	32.6	0.35	60308
27.5	.9267144	7089	.3221666	1858	.1398033	7949	339 14 42.1	39.0	0.40	60858
28.0	.9298723	8668	.3147507	7701	.1365855	5775	339 44 48.1	44.9	0.44	61411
28.5	.9329596	9542	.3073105	3301	.1333571	3496	340 14 53.8	50.5	0.47	61967
Mar. 1.0	.9359761	9707	.2998467	8665	.1301183	1113	340 44 59.1	55.7	0.50	62525
1.5	.9389215	9161	.2923598	3797	.1268696	8630	341 15 4.0	0.6	0.52	63085
2.0	.9417957	7904	.2848503	8703	.1236110	6048	341 45 8.5	5.1	0.53	63648
2.5	.9445984	5931	.2773189	3391	.1203428	3372	342 15 12.6	9.1	0.53	64213
3.0	+9473292	3240	-2697661	7865	-1170653	0601	342 45 16.3	12.7	-0.53	64779

NOTE.—+ denotes a change in the preceding figure.

Date. 1875.	RECTANGULAR EQUATORIAL.						POLAR ECLIPTIC.				
	X.	X'.	Y.	Y'.	Z.	Z'.	$\lambda = \odot$'s True Longitude.	λ'	$\beta = \odot$'s Latitude.	Log. Rad. Vect. = ρ .	
Mar. 3.5	+ .9499880	9828	-.2621926	2131	-.1137789	7741	343° 15' 19.5	15.9	-.51	0.99 65346	
4.0	.9525747	5696	.2545090	6196	.1104837	4793	343 45 22.3	18.7	0.49	65915	
4.5	.9550890	0840	.2469859	40066	.1071800	1761	344 15 24.7	21.0	0.46	66485	
5.0	.9575306	5257	.2393537	3746	.1038680	8646	344 45 26.7	22.9	0.43	67057	
5.5	.9598994	8946	.2317033	7243	.1005480	5450	345 15 28.3	24.4	0.39	67629	
6.0	.9621953	1906	.2240352	0563	.0972203	2177	345 45 29.4	25.4	0.34	68201	
6.5	.9644181	4135	.2163500	3713	.0938851	8830	346 15 30.1	26.1	0.29	68775	
7.0	.9665675	5630	.2086481	6696	.0905427	5411	346 45 30.3	26.2	0.24	69350	
7.5	.9686434	6300	.2009306	9522	.0871933	1921	347 15 29.9	25.8	0.18	69925	
8.0	.9706458	6415	.1931979	2196	.0838374	8367	347 45 29.1	24.9	0.12	70501	
8.5	.9725744	5702	.1854507	4725	.0804752	4750	348 15 27.8	23.6	-0.06	71077	
9.0	.9744290	4250	.1776895	7115	.0771068	1071	348 45 26.0	21.7	0.00	71653	
9.5	.9762098	2059	.1699150	9371	.0737328	7335	349 15 23.6	19.3	+0.06	72230	
10.0	.9779167	9129	.1621279	1501	.0703534	3545	349 45 20.7	16.3	0.13	72807	
10.5	.9795495	5458	.1543288	3512	.0669687	9703	350 15 17.3	12.9	0.20	73386	
11.0	.9811081	1046	.1465193	5408	.0635790	5811	350 45 13.4	8.9	0.26	73966	
11.5	.9825926	5892	.1386970	7196	.0601847	1872	351 15 8.9	4.4	0.32	74547	
12.0	.9840028	9905	.1308655	8882	.0567861	7891	351 44 63.9	59.3	0.37	75129	
12.5	.9853387	3356	.1230244	0472	.0533833	3868	352 14 58.3	53.7	0.42	75712	
13.0	.9866001	5972	.1151742	1972	.0499765	9805	352 44 52.1	47.4	0.47	76295	
13.5	.9877873	7845	.1073159	3390	.0465662	5706	353 14 45.3	40.6	0.51	76880	
14.0	.9889002	8976	.0994498	4730	.0431526	1574	353 44 38.0	33.3	0.55	77467	
14.5	.9899387	9363	.0915766	5999	.0397359	7412	354 14 30.2	25.4	0.57	78054	
15.0	.9909029	9007	.0836968	7203	.0363165	3223	354 44 21.8	16.9	0.59	78642	
15.5	.9917927	7907	.0758111	8347	.0328946	9008	355 14 12.7	7.8	0.59	79234	
16.0	.9926082	6064	.0679201	9438	.0294703	4770	355 43 63.1	58.1	0.50	79827	
16.5	.9933494	3478	.0600244	0482	.0260440	0512	356 13 53.0	47.9	0.59	80421	
17.0	.9940161	0147	.0521245	1484	.0226159	6236	356 43 42.3	37.2	0.58	81017	
17.5	.9946086	6074	.0442208	2448	.0191864	1945	357 13 31.1	26.0	0.56	81616	
18.0	.9951269	1259	.0363142	3383	.0157555	7640	357 43 19.3	14.2	0.54	82217	
18.5	.9955709	5701	.0284052	4294	.0123236	3326	358 13 7.0	1.8	0.51	82820	
19.0	.9959406	9400	.0204944	5188	.0088909	9004	358 42 54.1	48.8	0.47	83426	
19.5	.9962362	2358	.0125821	6066	.0054576	4676	359 12 40.6	35.3	0.42	84034	
20.0	.9964576	4574	-.0046690	6936	-.0020241	0346	359 42 26.6	21.2	0.36	84645	
20.5	.9966049	6049	+ .0032443	2196	+ .0014095	3985	0 12 12.1	6.6	0.31	85257	
21.0	.9966780	6783	.0111575	1327	.0048430	8316	0 41 57.1	51.5	0.25	85872	
21.5	.9966773	6778	.0190697	0448	.0082761	2642	1 11 41.6	36.0	0.19	86490	
22.0	.9966025	6032	.0269805	9555	.0117087	6963	1 41 25.6	19.9	0.12	87110	
22.5	.9964537	4547	.0348894	8643	.0151404	1276	2 11 9.0	3.3	+0.06	87732	
23.0	.9962309	2322	.0427958	7707	.0185709	5577	2 40 51.9	46.2	-0.01	88357	
23.5	.9959343	9358	.0506902	6740	.0220001	9864	3 10 34.4	28.6	0.08	88984	
24.0	.9955638	5656	.0585989	5736	.0254278	4136	3 40 16.4	10.5	0.14	89613	
24.5	.9951195	1116	.0664944	4690	.0288537	8391	4 9 57.9	52.0	0.21	90244	
25.0	.9946014	6038	.0743852	3598	.0322775	2625	4 39 38.9	32.9	0.27	90877	
25.5	.9940095	0121	.0822707	2452	.0356991	6836	5 9 19.4	13.4	0.33	91511	
26.0	.9933439	3468	.0901505	1249	.0391183	1023	5 38 59.5	53.4	0.38	92146	
26.5	.9926046	6078	.0980238	9981	.0425347	5183	6 8 39.1	33.0	0.43	92783	
27.0	.9917917	7952	.1058901	8644	.0459479	9311	6 38 18.4	12.2	0.47	93421	
27.5	.9909052	9090	.1137488	7230	.0493578	3405	7 7 57.2	50.9	0.51	94059	
28.0	.9899451	9492	.1215995	5736	.0527645	7468	7 37 35.5	29.2	0.54	94698	
28.5	.9889115	9159	.1294415	4156	.0561675	1494	8 7 13.4	7.1	0.56	95338	
29.0	.9878045	8092	.1372743	2484	.0595663	5478	8 36 50.9	44.5	0.57	95979	
29.5	.9866241	6291	.1450972	0712	.0629608	9418	9 6 27.9	21.5	0.57	96620	
30.0	.9853705	3758	.1529097	8836	.0663509	3314	9 35 64.4	58.0	0.57	97260	
30.5	.9840437	0493	.1607112	6851	.0697364	7165	10 5 40.5	34.0	0.56	97900	
31.0	.9826438	6498	.1685010	4749	.0731167	0964	10 35 16.2	9.6	0.55	98540	
31.5	.9811710	1773	.1762787	2525	.0764918	4710	11 4 51.5	44.8	0.52	99179	
Apr. 1.0	.9796252	6318	.1840437	0175	.0798615	8403	11 34 26.3	19.5	0.49	99816	
1.5	.9780066	0135	.1917953	7690	.0832235	2039	12 3 60.6	53.8	0.45	◆00453	
2.0	.9763152	3225	.1995330	5067	.0865834	5614	12 33 34.5	27.6	0.41	01088	
2.5	+ .9745514	5590	+ .2072560	2296	+ .0899350	9126	13 3 7.9	1.0	-0.36	01721	

◆ The first figures of this and the following logarithms are 0.00.

SUN'S COÖRDINATES, 1875. 391

Date.	RECTANGULAR EQUATORIAL.						POLAR ECLIPTIC.			
	X.	X'.	Y.	Y'.	Z.	Z'.	$\lambda = \odot$'s True Longitude.	λ'	$\beta = \odot$'s Latitude.	Log. Rad. Vect. = ρ .
1875.										
Apr. 3.0	+9727152	7231	+2149638	9373	+0932800	2572	13° 32' 40.9"	33.9	-0.30	0.00
3.5	.9708067	8150	.2226558	6293	.0966182	5950	14 2 13.3	6.3	0.25	02353
4.0	.9688262	8349	.2303315	3050	.0999493	9256	14 31 45.2	38.1	0.19	03614
4.5	.9667738	7828	.2379901	9635	.1032729	2488	15 1 16.6	9.5	0.13	04241
5.0	.9646497	6591	.2456311	6045	.1065890	5645	15 30 47.6	40.4	-0.07	04866
5.5	.9624540	4638	.2532539	2273	.1098972	8723	16 0 18.1	10.9	0.00	05489
6.0	.9601868	1970	.2608580	8314	.1131973	1719	16 29 48.1	40.8	+0.06	06111
6.5	.9578487	8593	.2684426	4159	.1164889	4631	16 59 17.5	10.1	0.12	06730
7.0	.9554397	4507	.2760073	9806	.1197718	7456	17 28 46.4	39.0	0.19	07347
7.5	.9529599	9713	.2835514	5247	.1230459	0193	17 58 14.8	7.3	0.25	07962
8.0	.9504097	4215	.2910745	0478	.1263109	2839	18 27 42.7	35.2	0.31	08575
8.5	.9477893	8015	.2985758	5491	.1295663	5389	18 57 10.0	2.4	0.36	09186
9.0	.9450991	1117	.3060548	0281	.1328121	7843	19 26 36.8	29.1	0.41	09794
9.5	.9423392	3522	.3135111	4842	.1360478	0196	19 55 63.0	55.2	0.45	10400
10.0	.9395098	5232	.3209438	9170	.1392732	2446	20 25 28.6	20.7	0.49	11004
10.5	.9366114	6252	.3283527	3259	.1424884	4594	20 54 53.7	45.8	0.51	11607
11.0	.9336444	6586	.3357373	7105	.1456930	6636	21 24 18.2	10.2	0.53	12208
11.5	.9306089	6235	.3430969	0701	.1488866	8568	21 53 42.2	34.2	0.54	12807
12.0	.9275050	5201	.3504309	4041	.1520691	0390	22 22 65.6	57.5	0.55	13405
12.5	.9243334	3489	.3577389	7121	.1552404	2099	22 52 28.4	20.3	0.55	14002
13.0	.9210943	1102	.3650204	9936	.1584002	3693	23 21 50.7	42.5	0.54	14598
13.5	.9177879	8045	.3722749	2481	.1615481	5168	23 51 12.4	4.2	0.53	15193
14.0	.9144145	4314	.3795018	4750	.1646840	6524	24 20 33.5	25.2	0.51	15787
14.5	.9109746	9919	.3867006	6738	.1678077	7757	24 49 54.0	45.6	0.48	16380
15.0	.9074684	4861	.3938709	8441	.1709190	8866	25 19 14.0	5.5	0.44	16972
15.5	.9038961	9143	.4010121	9853	.1740177	9850	25 48 33.5	25.0	0.40	17563
16.0	.9002581	2768	.4081237	0969	.1771035	0705	26 17 52.4	43.8	0.36	18154
16.5	.8965546	5737	.4152054	1786	.1801763	1429	26 47 10.8	2.2	0.30	18744
17.0	.8927861	8057	.4222567	2299	.1832358	2020	27 16 28.7	20.0	0.24	19334
17.5	.8889528	9729	.4292771	2503	.1862819	2478	27 45 46.0	37.3	0.18	19923
18.0	.8850549	0755	.4362662	2395	.1893143	2799	28 14 62.7	53.9	0.12	20511
18.5	.8810930	1140	.4432235	1968	.1923330	2982	28 44 18.9	10.0	+0.06	21099
19.0	.8770673	0888	.4501486	1220	.1953377	3026	29 13 34.6	25.6	-0.01	21687
19.5	.8729780	0000	.4570410	0144	.1983281	2927	29 42 49.8	40.7	0.08	22275
20.0	.8688254	8479	.4639002	8737	.2013042	2685	30 11 64.6	55.4	0.15	22863
20.5	.8646098	6328	.4707259	6994	.2042658	2297	30 41 19.0	9.8	0.22	23450
21.0	.8603317	3552	.4775177	4913	.2072127	1763	31 10 32.9	23.6	0.28	24037
21.5	.8559913	0153	.4842732	2488	.2101446	1079	31 39 46.3	37.0	0.34	24624
22.0	.8515887	6132	.4909977	9714	.2130614	0244	32 8 59.3	49.9	0.40	25210
22.5	.8471246	1496	.4976847	6584	.2159629	9256	32 38 11.8	2.4	0.45	25795
23.0	.8425992	6247	.5043358	3096	.2188489	8113	33 7 23.9	14.4	0.49	26380
23.5	.8380127	0387	.5109506	9244	.2217191	6812	33 36 35.6	26.0	0.53	26964
24.0	.8333654	3920	.5175226	5025	.2245734	5352	34 5 46.9	37.2	0.56	27547
24.5	.8286577	6848	.5240694	0433	.2274116	3731	34 34 57.7	47.9	0.58	28129
25.0	.8238899	9175	.5305725	5465	.2302334	1946	35 3 68.1	58.2	0.60	28709
25.5	.8190624	0905	.5370374	0115	.2330387	9996	35 33 18.1	8.2	0.61	29288
26.0	.8141754	2041	.5434636	4378	.2358273	7879	36 2 27.8	17.8	0.62	29866
26.5	.8092293	2585	.5498508	8250	.2385990	5593	36 31 37.1	27.1	0.61	30442
27.0	.8042244	2541	.5561986	1729	.2413536	3135	37 0 46.0	35.9	0.60	31016
27.5	.7991610	1913	.5625066	4810	.2440909	0507	37 29 54.5	44.4	0.58	31587
28.0	.7940394	0703	.5687741	7486	.2468106	7702	37 58 62.6	52.4	0.56	32156
28.5	.7888602	8916	.5750006	9751	.2495127	4720	38 28 10.4	0.1	0.52	32722
29.0	.7836237	6356	.5811858	1604	.2521968	1558	38 57 17.8	7.4	0.48	33285
29.5	.7783302	3627	.5873292	3039	.2548628	8216	39 26 24.8	14.3	0.44	33846
30.0	.7729798	0129	.5934303	4051	.2575105	4691	39 55 31.5	20.9	0.39	34403
30.5	.7675732	6068	.5994886	4635	.2601398	0981	40 24 37.8	27.2	0.33	34956
May 1.0	.7621108	1450	.6055038	4788	.2627503	7084	40 53 43.7	33.0	0.27	35506
1.5	.7565930	6278	.6114754	4505	.2653419	2998	41 22 49.2	38.5	0.21	36053
2.0	.7510202	0556	.6174028	3781	.2679144	8721	41 51 54.3	43.5	0.14	36596
2.5	.7453928	4287	.6232854	2608	.2704675	4248	42 20 59.0	48.2	-0.07	37134
3.0	+7397113	7478	+6291230	0985	+2730009	9581	42 49 63.3	52.4	0.00	37668

NOTE.—+ denotes a change in the preceding figure.

Date. 1875.	RECTANGULAR EQUATORIAL.						POLAR ECLIPTIC.			
	X.	X'.	Y.	Y'.	Z.	Z'.	$\lambda = \odot$'s True Longitude.	λ'	$\beta = \odot$'s Latitude.	Log. Rad. Vect. = ρ .
May 3.5	+7339761	:0132	+6349151	8907	+2755146	4716	43° 18' 67.3"	56.3	+0.06	0.00 38198
4.0	.7281876	2253	.6406617	6375	.2780084	9652	43 47 70.9	59.8	0.13	38724
4.5	.7223464	3847	.6463615	3374	.2804821	4387	44 17 14.0	2.8	0.19	39246
5.0	.7164529	4918	.6520146	:9906	.2829354	8918	44 46 16.7	5.4	0.25	39763
5.5	.7105075	5470	.6576205	5967	.2853682	3244	45 15 19.0	7.7	0.30	40276
6.0	.7045108	5509	.6631787	1551	.2877804	7365	45 44 20.9	9.5	0.35	40784
6.5	.6984632	5039	.6686885	6650	.2901717	1276	46 13 22.4	11.0	0.40	41287
7.0	.6923653	4066	.6741507	1274	.2925420	4977	46 42 23.5	12.0	0.44	41786
7.5	.6862174	2593	.6795637	5406	.2949111	8466	47 11 24.1	12.5	0.47	42281
8.0	.6800199	0624	.6849276	9047	.2972187	1741	47 40 24.3	12.6	0.49	42771
8.5	.6737737	8168	.6902419	2192	.2995249	4801	48 9 24.0	12.2	0.51	43257
9.0	.6674791	5228	.6955063	4838	.3018094	7644	48 38 23.3	11.4	0.52	43738
9.5	.6611366	1809	.7007203	6980	.3040720	9269	49 7 22.1	10.1	0.52	44215
10.0	.6547468	7918	.7058836	8615	.3063126	2674	49 36 20.5	8.4	0.51	44687
10.5	.6483103	3559	.7109960	9741	.3085310	4856	50 5 18.4	6.3	0.49	45156
11.0	.6418275	8737	.7160572	0355	.3107272	6816	50 34 15.8	3.6	0.47	45621
11.5	.6352989	3457	.7210667	0452	.3129008	8551	51 3 12.8	0.6	0.44	46082
12.0	.6287251	7726	.7260241	0029	.3150517	0059	51 31 69.4	57.1	0.41	46540
12.5	.6221066	1547	.7309293	9083	.3171799	1339	52 0 65.5	53.1	0.37	46994
13.0	.6154439	4926	.7357820	7612	.3192853	2392	52 29 61.1	48.6	0.32	47445
13.5	.6087375	7868	.7405818	5610	.3213678	3216	52 58 56.3	43.7	0.27	47892
14.0	.6019879	:0379	.7453234	3081	.3234272	3809	53 27 51.1	38.4	0.21	48336
14.5	.5951956	2462	.7500217	0016	.3254634	4170	53 56 45.5	32.7	0.15	48778
15.0	.5883611	4123	.7546614	6415	.3274764	4299	54 25 39.4	26.5	0.08	49217
15.5	.5814849	5368	.7592471	2275	.3294660	4194	54 54 32.9	20.0	+0.02	49652
16.0	.5745675	6201	.7637737	7504	.3314320	3854	55 23 26.0	13.0	-0.05	50085
16.5	.5676094	6626	.7682558	2367	.3333744	3277	55 52 18.8	5.8	0.12	50515
17.0	.5606111	6649	.7726782	6593	.3352930	2462	56 20 71.2	58.1	0.19	50943
17.5	.5535731	6276	.7770455	0269	.3371878	1409	56 49 63.1	49.9	0.25	51369
18.0	.5464959	5511	.7813574	3391	.3390587	0118	57 18 54.7	41.4	0.31	51792
18.5	.5393800	4358	.7856139	5959	.3409054	8584	57 47 46.0	32.6	0.37	52213
19.0	.5322259	2823	.7898146	7969	.3427279	6809	58 16 36.9	23.4	0.42	52632
19.5	.5250341	0912	.7939593	9419	.3445261	4791	58 45 27.4	13.8	0.47	53048
20.0	.5178050	8629	.7980475	0304	.3462999	2529	59 14 17.6	3.9	0.52	53462
20.5	.5105392	5977	.8020792	0624	.3480491	0021	59 42 67.4	53.7	0.56	53874
21.0	.5032372	2964	.8060541	0376	.3497737	7267	60 11 56.9	43.1	0.59	54283
21.5	.4958995	9594	.8099718	9556	.3514736	4266	60 40 46.2	32.3	0.62	54689
22.0	.4885265	5871	.8138322	8164	.3531485	1014	61 9 35.2	21.2	0.64	55092
22.5	.4811187	1799	.8176350	6195	.3547985	7514	61 38 24.0	9.9	0.67	55493
23.0	.4736767	7386	.8213799	3647	.3564235	3764	62 6 72.4	58.2	0.66	55892
23.5	.4662009	2635	.8250667	0519	.3580233	:9762	62 35 60.5	46.2	0.66	56286
24.0	.4586916	7549	.8286952	6808	.3595978	5507	63 4 48.4	34.0	0.65	56678
24.5	.4511496	2136	.8322650	2509	.3611469	0998	63 33 36.0	21.5	0.63	57066
25.0	.4435753	6400	.8357759	7621	.3626706	6235	64 2 23.4	8.8	0.60	57451
25.5	.4359692	:0345	.8392277	2143	.3641686	1215	64 30 70.6	56.0	0.57	57833
26.0	.4283318	3977	.8426201	6071	.3656409	5939	64 59 57.6	42.9	0.53	58212
26.5	.4206636	7302	.8459527	9401	.3670873	0403	65 28 44.4	29.6	0.48	58586
27.0	.4129652	:0325	.8492254	2132	.3685077	4607	65 57 31.0	16.1	0.43	58956
27.5	.4052370	3049	.8524380	4262	.3699020	8550	66 26 17.3	2.3	0.38	59322
28.0	.3974797	5482	.8555902	5788	.3712701	2232	66 54 63.4	48.3	0.32	59683
28.5	.3896937	7629	.8586816	6706	.3726120	5651	67 23 49.3	34.1	0.26	60039
29.0	.3818796	9495	.8617122	7016	.3739275	8806	67 52 35.0	19.7	0.19	60391
29.5	.3740381	1086	.8646816	6714	.3752165	1698	68 21 20.3	5.1	0.13	60738
30.0	.3661697	2408	.8675895	5798	.3764783	4316	68 49 65.8	50.3	-0.06	61080
30.5	.3582749	3467	.8704358	4265	.3777137	6670	69 18 50.9	35.3	+0.01	61417
31.0	.3503543	4268	.8732202	2113	.3789223	8757	69 47 35.8	20.2	0.07	61748
31.5	.3424085	4816	.8759426	9342	.3801040	0575	70 16 20.5	4.8	0.13	62073
June 1.0	.3344382	5119	.8786027	5948	.3812585	2121	70 44 65.0	49.2	0.18	62393
1.5	.3264439	5183	.8812002	1927	.3823859	3396	71 13 49.3	33.4	0.23	62707
2.0	.3184262	5013	.8837351	7281	.3834861	4399	71 42 33.3	17.3	0.28	63015
2.5	+3103857	4614	+8862071	2006	+3845590	5129	72 11 17.1	1.0	+0.33	63318

NOTE.—The accented letters correspond to the mean equinox and equator of Jan. 0d.0.

SUN'S COÖRDINATES, 1875. 393

Date.	RECTANGULAR EQUATORIAL.						POLAR ECLIPTIC.			
	X.	X'.	Y.	Y'.	Z.	Z'.	$\lambda = \odot$'s True Longitude.	λ'	$\beta = \odot$'s Latitude.	Log. Rad. Vect. = ρ .
1875.										
June 3.0	+3023230	3993	+8886158	6098	+3856046	5586	72° 30' 60.7	44.5	+0.37	0.00 63614
3.5	2942388	3158	.8909613	9558	.3866228	5769	73 8 44.0	27.7	0.41	63904
4.0	2861337	2113	.8932434	2384	.3876133	5675	73 37 27.1	10.7	0.44	64188
4.5	2780082	0864	.8954620	4575	.3885760	5303	74 5 70.1	53.6	0.46	64465
5.0	2698630	9418	.8976168	6128	.3895109	4654	74 34 52.8	36.2	0.47	64736
5.5	2616989	7783	.8997077	7042	.3904182	3728	75 3 35.2	18.5	0.47	65001
6.0	2535152	5963	.9017347	7317	.3912977	2524	75 32 17.4	0.6	0.47	65260
6.5	2453158	3965	.9036975	6950	.3921494	1043	76 0 59.3	42.4	0.46	65513
7.0	2370882	1795	.9055960	5941	.3929731	9282	76 29 41.0	24.0	0.44	65760
7.5	2288639	9459	.9074302	4288	.3937689	7241	76 58 22.4	5.3	0.41	66002
8.0	2206138	6964	.9092000	1990	.3945367	4921	77 26 63.6	46.4	0.38	66239
8.5	2123484	4316	.9109053	9049	.3952765	2321	77 55 44.6	27.3	0.35	66470
9.0	2040632	1520	.9125459	5462	.3959882	9440	78 24 25.2	7.0	0.31	66696
9.5	1957741	8585	.9141219	1228	.3966718	6278	78 52 65.6	48.2	0.26	66916
10.0	1874665	5515	.9156333	6348	.3973273	2835	79 21 45.8	28.3	0.21	67130
10.5	1791460	2316	.9170798	0819	.3979546	9110	79 50 25.7	8.1	0.15	67339
11.0	1708132	8904	.9184614	4641	.3985538	5104	80 18 65.4	47.7	0.09	67543
11.5	1624688	5556	.9197782	7815	.3991247	0815	80 47 44.8	27.0	+0.02	67743
12.0	1541134	2008	.9210301	0340	.3996675	6245	81 16 24.8	6.1	-0.05	67938
12.5	1457475	8355	.9222170	2215	.4001821	1393	81 44 62.9	44.9	0.11	68129
13.0	1373716	4601	.9233388	3440	.4006886	6261	82 13 41.6	23.5	0.18	68316
13.5	1289863	0754	.9243957	4015	.4011268	0845	82 42 20.2	2.0	0.25	68499
14.0	1205923	6820	.9253875	3939	.4015568	5147	83 10 58.5	40.2	0.31	68677
14.5	1121901	2803	.9263142	3213	.4019586	9168	83 39 36.6	18.2	0.37	68851
15.0	1037802	8709	.9271758	1836	.4023322	2907	84 7 74.5	56.0	0.42	69022
15.5	0953633	4546	.9279722	9606	.4026775	6362	84 36 52.3	33.7	0.47	69189
16.0	0869399	0318	.9287035	7126	.4029946	9536	85 5 29.9	11.2	0.52	69353
16.5	0785106	6030	.9293696	3794	.4032835	2428	85 33 67.3	48.5	0.56	69513
17.0	0700759	1688	.9299706	9811	.4035441	5037	86 2 44.6	25.7	0.60	69669
17.5	0616363	7298	.9305063	5175	.4037764	7363	86 31 21.7	2.7	0.63	69821
18.0	0531925	2865	.9309767	9886	.4039805	9407	86 59 58.7	39.6	0.65	69970
18.5	0447450	8395	.9313819	3945	.4041563	1168	87 28 35.5	16.3	0.66	70116
19.0	0362944	3894	.9317217	7350	.4043038	2646	87 56 72.3	53.0	0.67	70258
19.5	0278411	9366	.9319962	0102	.4044230	3841	88 25 49.0	29.7	0.67	70397
20.0	0193858	4818	.9322054	2201	.4045139	4753	88 54 25.6	6.2	0.66	70532
20.5	0109290	0255	.9323493	3647	.4045764	5381	89 22 62.1	42.6	0.64	70664
21.0	+0024711	5682	.9324279	4441	.4046106	5726	89 51 38.5	19.6	0.62	70792
21.5	-0059869	8894	.9324410	4579	.4046164	5787	90 19 74.8	55.1	0.59	70916
22.0	0144448	3468	.9323888	4065	.4045939	5565	90 48 51.1	31.3	0.55	71036
22.5	0229020	8035	.9322712	2897	.4045431	5060	91 17 27.3	7.5	0.51	71153
23.0	0313579	2590	.9320880	1073	.4044639	4272	91 45 63.7	43.7	0.47	71265
23.5	0398120	7126	.9318394	8594	.4043562	3198	92 14 40.1	20.0	0.42	71372
24.0	0482637	1638	.9315254	5462	.4042202	1841	92 42 76.4	56.2	0.36	71475
24.5	0567124	6121	.9311458	1674	.4040558	0201	93 11 52.6	32.3	0.30	71574
25.0	0651575	0568	.9307007	7231	.4038630	8277	93 40 28.8	8.4	0.24	71668
25.5	0735985	4973	.9301901	2133	.4036417	6067	94 8 65.1	44.6	0.18	71757
26.0	0820347	0331	.9296140	6380	.4033920	3574	94 37 41.4	20.8	0.10	71841
26.5	0904655	3635	.9289724	9972	.4031139	0797	95 5 77.7	57.0	-0.03	71919
27.0	09888902	7878	.9282653	2909	.4028075	7737	95 34 54.0	33.2	+0.04	71992
27.5	1073084	2056	.9274927	5191	.4024726	4391	96 3 30.4	9.5	0.10	72059
28.0	1157194	6162	.9266544	6816	.4021092	0761	96 31 66.8	45.8	0.16	72121
28.5	1241225	0189	.9257506	7786	.4017174	6847	97 0 43.2	22.1	0.22	72178
29.0	1325172	4133	.9247814	8103	.4012971	2648	97 28 79.6	58.4	0.27	72228
29.5	1409028	7985	.9237469	7766	.4008484	8165	97 57 56.0	34.8	0.32	72271
30.0	1492788	1742	.9226471	6776	.4003714	3399	98 26 32.5	11.2	0.36	72308
30.5	1576444	5395	.9214820	5134	.3998661	8350	98 54 69.0	47.6	0.40	72338
July 1.0	1659991	8939	.9202516	2839	.3993325	3018	99 23 45.4	23.9	0.43	72362
1.5	1743422	2367	.9189562	9893	.3987705	7402	99 52 21.9	0.3	0.45	72379
2.0	1826731	5673	.9175958	6296	.3981803	1504	100 20 58.4	36.7	0.46	72390
2.5	1909910	8849	.9161704	2053	.3975619	5324	100 49 34.9	13.1	0.47	72394
3.0	1992953	1889	.9146801	7159	+3969153	8863	101 17 71.5	49.6	0.48	72392

NOTE.—+ denotes a change in the preceding figure.

Date. 1875.	RECTANGULAR EQUATORIAL.						POLAR ECLIPTIC.			
	X.	X'.	Y.	Y'.	Z.	Z'.	$\lambda = \odot$'s True Longitude.	λ'	$\beta = \odot$'s Latitude.	Log. Rad. Vect. = ρ .
July 3.5	2075856	4789	+9131253	1620	+3962406	2120	101° 46' 48.0	26.0	+0.46	0.00 72383
4.0	2158612	7542	.9115058	5434	.3955378	5096	102 15 24.5	2.4	0.44	72368
4.5	2241214	0142	.9098218	8603	.3948068	7792	102 43 61.0	38.8	0.42	72347
5.0	2323655	2581	.9080733	1127	.3940480	9208	103 12 37.6	15.3	0.39	72318
5.5	2405930	4853	.9062607	3010	.3932612	2344	103 40 74.1	51.7	0.35	72283
6.0	2488033	6954	.9043841	4253	.3924467	4204	104 9 50.6	28.1	0.31	72241
6.5	2569958	8877	.9024436	4857	.3916044	5786	104 38 27.1	4.5	0.27	72193
7.0	2651698	0615	.9004394	4824	.3907344	7091	105 6 63.5	40.8	0.22	72139
7.5	2733248	2163	.8983717	4156	.3898368	8119	105 35 39.9	17.1	0.16	72079
8.0	2814602	3515	.8962406	2854	.3889118	8874	106 3 76.3	53.4	0.10	72012
8.5	2895754	4665	.8940464	0921	.3879594	9355	106 32 52.7	29.7	+0.03	71940
9.0	2976607	5607	.8917891	8358	.3869796	9562	107 1 29.1	6.0	-0.03	71863
9.5	3057426	6334	.8894692	5168	.3859726	9497	107 29 65.4	42.2	0.10	71781
10.0	3137937	6843	.8870868	1353	.3849384	9160	107 58 41.7	18.4	0.16	71693
10.5	3218223	7128	.8846419	6913	.3838772	8553	108 26 78.0	54.6	0.23	71599
11.0	3298278	7182	.8821348	1852	.3827890	7676	108 55 54.4	30.9	0.29	71501
11.5	3378098	7001	.8795659	6172	.3816739	6530	109 24 30.7	7.1	0.35	71398
12.0	3457678	6580	.8769353	9875	.3805321	5117	109 52 67.0	43.3	0.41	71291
12.5	3537011	5912	.8742432	2964	.3793635	3436	110 21 43.4	19.6	0.47	71179
13.0	3616092	4993	.8714896	5438	.3781684	1490	110 49 79.8	55.9	0.52	71062
13.5	3694916	3816	.8686750	7301	.3769468	9279	111 18 56.3	32.3	0.57	70941
14.0	3773478	2377	.8657995	8555	.3756988	6804	111 47 32.8	8.7	0.61	70816
14.5	3851773	0672	.8628634	9204	.3744245	4066	112 15 69.3	45.2	0.64	70687
15.0	3929796	8695	.8598668	9248	.3731240	1067	112 44 45.8	21.6	0.67	70554
15.5	4007541	6440	.8568100	8689	.3717975	7807	113 12 82.4	58.1	0.69	70418
16.0	4085004	3903	.8536932	7530	.3704451	4288	113 41 59.1	34.7	0.70	70278
16.5	4162179	1078	.8505165	5773	.3690666	0508	114 10 35.8	11.3	0.70	70134
17.0	4239061	7960	.8472801	3419	.3676623	6471	114 38 72.6	48.0	0.69	69967
17.5	4315646	4545	.8439845	+0472	.3662323	2176	115 7 49.6	24.9	0.67	69836
18.0	4391929	0828	.8406297	6933	.3647767	7625	115 36 26.7	1.9	0.64	69682
18.5	4467903	6802	.8372158	2804	.3632956	2820	116 4 63.9	39.0	0.62	69524
19.0	4543564	2464	.8337432	8088	.3617889	7759	116 33 41.2	16.3	0.59	69363
19.5	4618908	7809	.8302122	2787	.3602569	2444	117 1 78.7	53.7	0.55	69198
20.0	4693930	2832	.8266229	6903	.3586996	6876	117 30 56.4	31.3	0.50	69030
20.5	4768623	7526	.8229754	+0438	.3571171	1057	117 59 34.2	9.0	0.45	68858
21.0	4842983	1887	.8192700	3394	.3555096	4988	118 27 72.2	46.9	0.40	68683
21.5	4917006	5911	.8155070	5773	.3538771	8668	118 56 50.5	25.1	0.34	68504
22.0	4990686	+9592	.8116866	7579	.3522196	2099	119 25 28.9	3.4	0.28	68321
22.5	5064018	2926	.8079090	8813	.3505373	5282	119 53 67.5	41.9	0.28	68134
23.0	5136996	5906	.8038743	9476	.3488303	8218	120 22 46.3	20.6	0.15	67943
23.5	5209616	8528	.7998829	9571	.3470986	0906	120 50 85.4	59.6	-0.09	67748
24.0	5281872	0786	.7958350	9101	.3453424	3350	121 19 64.7	38.8	0.02	67548
24.5	5353759	2675	.7917307	8068	.3435618	5550	121 48 44.2	18.3	+0.05	67344
25.0	5425270	4188	.7875702	6473	.3417568	7506	122 16 84.0	58.0	0.11	67135
25.5	5496402	5322	.7833540	4320	.3399275	9219	122 45 64.1	38.0	0.17	66921
26.0	5567150	6072	.7790822	1612	.3380741	0691	123 14 44.4	18.3	0.22	66702
26.5	5637507	6432	.7747549	8349	.3361967	1923	123 42 84.9	58.7	0.27	66478
27.0	5707468	6396	.7703725	4535	.3342953	2915	124 11 65.7	39.4	0.32	66248
27.5	5777028	5959	.7659355	+0174	.3323702	3670	124 40 46.8	20.4	0.36	66013
28.0	5846181	5115	.7614441	5269	.3304215	4189	125 9 28.1	1.6	0.39	65773
28.5	5914922	3859	.7568985	9823	.3284492	4472	125 37 69.7	43.1	0.42	65527
29.0	5983245	2185	.7522990	3838	.3264534	4520	126 6 51.6	24.9	0.44	65276
29.5	6051145	0088	.7476459	7317	.3244344	4336	126 35 33.7	7.0	0.45	65019
30.0	6118616	7562	.7429396	+0264	.3223922	3920	127 3 76.0	49.2	0.45	64756
30.5	6185654	4604	.7381804	2682	.3203270	3274	127 32 58.6	31.8	0.44	64487
31.0	6252252	1206	.7333685	4572	.3182389	2400	128 1 41.5	14.6	0.43	64211
31.5	6318407	7365	.7285044	5941	.3161282	1299	128 29 84.5	57.5	0.41	63929
Aug. 1.0	6384113	3075	.7235884	6791	.3139949	9972	128 58 67.8	40.7	0.38	63641
1.5	6449354	8330	.7186210	7126	.3118392	8421	129 27 51.4	24.2	0.35	63347
2.0	6514156	3126	.7136023	6048	.3096612	6648	129 56 35.3	8.0	0.32	63048
2.5	6578483	7457	+7085329	6264	+3074612	4654	130 24 79.3	51.9	+0.27	62742

NOTE.—The accented letters correspond to the mean equinox and equator of Jan. Old.

SUN'S COÖRDINATES, 1875. 395

Date.	RECTANGULAR EQUATORIAL.						POLAR ECLIPTIC.			
	X.	X'.	Y.	Y'.	Z.	Z'.	$\lambda = \odot$'s True Longitude.	λ'	$\beta = \odot$'s Latitude.	Log. Rad. Vect. = ρ .
1875.										0.00
Aug. 3.0	-.6642341	1319	+.7034132	5076	+3052394	2442	130° 53' 63.5	36.0	+0.22	62430
3.5	.6705724	4707	.6982434	3387	.3029958	:0012	131 22 48.0	20.5	0.17	62112
4.0	.6768628	7616	.6930239	1201	.3007306	7367	131 51 32.7	5.1	0.11	61789
4.5	.6831048	0041	.6877552	8523	.2984442	4509	132 19 77.6	50.0	+0.05	61461
5.0	.6892980	1978	.6824377	5357	.2961364	1437	132 48 62.7	35.0	-0.02	61127
5.5	.6954418	3421	.6770719	1708	.2938075	8155	133 17 48.0	20.2	0.09	60796
6.0	.7015359	4367	.6716580	7578	.2914577	4664	133 46 33.5	5.6	0.15	60440
6.5	.7075798	4811	.6661965	2972	.2890874	0967	134 14 79.2	51.2	0.22	60089
7.0	.7135732	4750	.6606878	7894	.2866966	7065	134 43 65.1	37.0	0.28	59733
7.5	.7195155	4179	.6551323	2348	.2842856	2961	135 12 51.3	23.1	0.34	59372
8.0	.7254064	3094	.6495304	6338	.2818544	8656	135 41 37.7	9.4	0.40	59006
8.5	.7312454	1490	.6438826	9869	.2794033	4151	136 9 84.3	56.0	0.46	58636
9.0	.7370322	:9364	.6381893	2945	.2769325	9449	136 38 71.1	42.7	0.52	58261
9.5	.7427664	6712	.6324509	5570	.2744422	4553	137 7 58.1	29.7	0.57	57882
10.0	.7484475	3529	.6266678	7747	.2719325	9463	137 36 45.3	17.0	0.61	57500
10.5	.7540752	:9812	.6208405	9483	.2694036	4180	138 5 32.8	4.3	0.65	57114
11.0	.7596491	5557	.6149695	:0782	.2668558	8708	138 33 80.5	51.9	0.68	56724
11.5	.7651690	0763	.6090551	1647	.2642893	3050	139 2 68.4	39.7	0.70	56330
12.0	.7706343	5423	.6030978	2082	.2617041	7205	139 31 56.5	27.7	0.71	55934
12.5	.7760448	:9535	.5970979	2092	.2591005	1175	140 0 44.9	16.0	0.71	55535
13.0	.7814001	3095	.5910559	1680	.2564787	4963	140 29 33.5	4.5	0.71	55132
13.5	.7866999	6100	.5849721	:0850	.2538388	8571	140 57 82.5	53.5	0.70	54727
14.0	.7919437	8545	.5788469	9606	.2511809	1999	141 26 71.8	42.7	0.69	54319
14.5	.7971313	0428	.5726809	7955	.2485054	5250	141 55 61.4	32.3	0.66	53909
15.0	.8022624	1746	.5664743	5897	.2458124	8326	142 24 51.2	22.0	0.63	53496
15.5	.8073366	2496	.5602276	3438	.2431019	1228	142 53 41.3	12.1	0.59	53080
16.0	.8123534	2672	.5539411	:0581	.2403742	3958	143 22 31.7	2.4	0.55	52662
16.5	.8173126	2272	.5476154	7332	.2376295	6517	143 50 82.6	53.2	0.50	52241
17.0	.8222139	1293	.5412507	3693	.2348680	8908	144 19 73.8	44.3	0.44	51818
17.5	.8270569	:9731	.5348475	9669	.2320898	1133	144 48 65.3	35.7	:0.39	51393
18.0	.8318413	7583	.5284062	5263	.2292949	3191	145 17 57.2	27.5	0.33	50966
18.5	.8365666	4844	.5219274	:0483	.2264838	5086	145 46 49.5	19.7	0.27	50536
19.0	.8412325	1511	.5154113	5330	.2236566	6820	146 15 42.1	12.2	0.20	50104
19.5	.8458387	7582	.5088584	9809	.2208134	8395	146 44 35.0	5.0	0.14	49670
20.0	.8503848	3052	.5022690	3922	.2179543	9811	147 12 88.4	58.3	0.07	49234
20.5	.8548706	7919	.4956437	7676	.2150797	1071	147 41 82.2	52.1	-0.01	48794
21.0	.8592956	2178	.4889828	:1074	.2121897	2177	148 10 76.4	46.2	+0.06	48352
21.5	.8636594	5825	.4822267	4120	.2092844	3131	148 39 71.1	40.9	0.12	47907
22.0	.8679616	8856	.4755558	6818	.2063638	3932	149 8 66.2	35.9	0.18	47459
22.5	.8722020	1269	.4687907	9174	.2034284	4584	149 37 61.8	31.5	0.23	47007
23.0	.8763803	3061	.4619917	:1191	.2004783	5089	150 6 57.8	27.4	0.28	46552
23.5	.8804960	4227	.4551593	2874	.1975138	5451	150 35 54.2	23.7	0.32	46094
24.0	.8845487	4764	.4482940	4228	.1945349	5668	151 4 51.1	20.5	0.35	45633
24.5	.8885382	4668	.4413962	5251	.1915419	5745	151 33 48.4	17.8	0.38	45168
25.0	.8924641	3937	.4344665	5967	.1885349	5682	152 2 46.2	15.5	0.40	44699
25.5	.8963261	2567	.4275052	6361	.1855142	5481	152 31 44.4	13.7	0.41	44227
26.0	.9001238	0554	.4205127	6442	.1824799	5144	153 0 43.1	12.3	0.42	43751
26.5	.9038568	7894	.4134898	6220	.1794324	4675	153 29 42.2	11.4	0.42	43271
27.0	.9075248	4584	.4064369	5697	.1763718	4075	153 58 41.8	10.9	0.41	42786
27.5	.9111275	0621	.3993544	4878	.1732983	3347	154 27 41.9	11.0	0.40	42279
28.0	.9146646	6001	.3922428	3768	.1702123	2493	154 56 42.4	11.4	0.38	41804
28.5	.9181355	0721	.3851029	2375	.1671138	1515	155 25 43.3	12.2	0.35	41306
29.0	.9215404	4781	.3779351	:0703	.1640031	0414	155 54 44.6	13.4	0.31	40804
29.5	.9248788	8176	.3707399	8757	.1608806	9195	156 23 46.4	15.2	0.27	40298
30.0	.9281502	0901	.3635179	6542	.1577464	7859	156 52 48.4	17.3	0.23	39787
30.5	.9313545	2955	.3562694	4063	.1546007	6409	157 21 51.3	20.0	0.17	39272
31.0	.9344914	4335	.3489950	1325	.1514438	4846	157 50 54.4	23.0	0.11	38752
31.5	.9375606	5038	.3416953	8334	.1482760	3174	158 19 57.9	26.5	+0.05	38228
Sept. 1.0	.9405616	5059	.3343709	5094	.1450973	1393	158 48 61.8	30.3	-0.01	37700
1.5	.9434946	4400	.3270223	1613	.1419082	9509	159 17 66.1	34.6	0.07	37167
2.0	-.9463592	3057	+.3196502	7897	+.1387088	7521	159 46 70.9	39.3	-0.14	36629

NOTE.—: denotes a change in the preceding figure.

396 SUN'S COÖRDINATES, 1875.

Date. 1875.	RECTANGULAR EQUATORIAL.						POLAR ECLIPTIC.			
	X.	X'.	Y.	Y'.	Z.	Z'.	$\lambda = \odot$'s True Longitude.	λ'	$\beta = \odot$'s Latitude.	Log. Rad. Vect. = ρ .
Sept. 2.5	.9491550	1026	+.3122550	3950	+.1354994	5433	160° 15' 76.1"	44.4"	−0.20	0.00
3.0	.9518819	8307	.3048373	9778	.1322202	3247	160 44 81.5	49.7	0.27	35543
3.5	.9545397	4896	.2973978	5388	.1290516	0967	161 13 87.4	55.5	0.34	34994
4.0	.9571283	0794	.2899371	0786	.1258137	8504	161 43 33.7	1.7	0.40	34441
4.5	.9596474	5997	.2824555	5975	.1225668	6131	162 12 40.4	8.4	0.46	33884
5.0	.9620966	0501	.2749537	0961	.1193113	3582	162 41 47.4	15.3	0.51	33324
5.5	.9644761	4308	.2674323	5752	.1160472	0947	163 10 54.8	22.7	0.56	32761
6.0	.9667856	7415	.2598919	0353	.1127748	8229	163 39 62.6	30.4	0.60	32194
6.5	.9690250	0821	.2523330	4768	.1094945	5432	164 8 70.8	38.6	0.64	31625
7.0	.9711941	1524	.2447561	9003	.1062065	2558	164 37 79.3	47.0	0.67	31054
7.5	.9732928	2523	.2371618	3064	.1029109	9608	165 6 88.2	55.8	0.70	30480
8.0	.9753209	2816	.2295507	6957	.0996080	6585	165 36 37.5	5.0	0.72	29904
8.5	.9772783	2402	.2219233	0687	.0962981	3492	166 5 47.3	14.8	0.73	29325
9.0	.9791647	1279	.2142801	4259	.0929814	0330	166 34 57.4	24.8	0.73	28744
9.5	.9809802	9446	.2066218	7680	.0896581	7103	167 3 67.9	35.3	0.72	28162
10.0	.9827247	6903	.1989489	0055	.0863285	3813	167 32 78.8	46.1	0.70	27579
10.5	.9843981	3650	.1912619	4088	.0829929	0462	168 1 90.1	57.4	0.68	26994
11.0	.9860001	0683	.1835613	7085	.0796515	7053	168 31 41.7	8.9	0.66	26408
11.5	.9875307	5002	.1758477	9952	.0763044	3588	169 0 53.8	21.0	0.63	25821
12.0	.9889899	9607	.1681216	2694	.0729519	0069	169 20 66.3	33.4	0.59	25233
12.5	.9903775	3496	.1603836	5317	.0695943	6498	170 58 79.2	46.3	0.55	24644
13.0	.9916933	6667	.1526341	7825	.0662318	2878	170 27 92.6	59.6	0.50	24055
13.5	.9929374	9121	.1448736	0223	.0628645	9211	170 57 46.5	13.5	0.44	23466
14.0	.9941096	0856	.1371027	2517	.0594927	5499	171 26 60.8	27.7	0.38	22876
14.5	.9952097	1870	.1293219	4711	.0561167	1744	171 55 75.6	42.5	0.32	22286
15.0	.9962377	2164	.1215317	6811	.0527366	7948	172 24 90.9	57.7	0.25	21696
15.5	.9971936	1736	.1137327	8823	.0493526	4114	172 54 46.6	13.4	0.19	21105
16.0	.9980772	0585	.1059254	0752	.0459650	0243	173 23 62.8	29.5	0.12	20514
16.5	.9988884	8711	.0981103	2603	.0425739	6337	173 52 79.5	46.2	−0.05	19922
17.0	.9996271	6112	.0902879	4381	.0391797	2400	174 22 36.7	3.3	+0.02	19330
17.5	1.0002932	2786	.0824588	6092	.0357826	8434	174 51 54.5	21.0	0.08	18738
18.0	1.0008866	8734	.0746235	7741	.0323828	4441	175 20 72.8	39.2	0.14	18145
18.5	1.0014072	3954	.0667825	9332	.0289806	0424	175 49 91.6	58.0	0.20	17553
19.0	1.0018549	8445	.0589363	0871	.0255760	6383	176 19 50.9	17.2	0.25	16960
19.5	1.0022296	2205	.0510856	2366	.0221695	2323	176 48 70.8	37.1	0.30	16367
20.0	1.0025312	5235	.0432308	3819	.0187612	8245	177 17 91.2	57.4	0.34	15773
20.5	1.0027596	7533	.0353725	5237	.0153514	4152	177 47 52.2	18.4	0.37	15178
21.0	1.0029147	9098	.0275112	6625	.0119404	0047	178 16 73.8	39.9	0.39	14583
21.5	1.0029964	9929	.0196476	7990	.0085282	5930	178 46 36.0	2.1	0.40	13986
22.0	1.0030047	0026	.0117823	9338	.0051152	1805	179 15 58.7	24.7	0.41	13388
22.5	1.0029395	9388	+.0039156	0672	+.0017016	7674	179 44 82.0	48.0	0.41	12789
23.0	1.0028007	8014	−.0039518	8002	−.0017124	6462	180 14 45.9	11.8	0.41	12189
23.5	1.0025883	5904	.0118191	6674	.0051264	0597	180 43 70.3	36.2	0.39	11587
24.0	1.0023022	3057	.0196858	5340	.0085402	4730	181 13 35.3	1.1	0.37	10984
24.5	1.0019424	9473	.0275513	3995	.0119536	8860	181 42 60.8	26.6	0.35	10380
25.0	1.0015087	5151	.0354152	2634	.0153663	2983	182 11 86.9	52.6	0.32	9773
25.5	1.0010012	0090	.0432766	1248	.0187779	7094	182 41 53.6	19.3	0.28	9164
26.0	1.0004199	4291	.0511351	9833	.0221883	1193	183 10 80.8	46.4	0.23	8554
26.5	.9997647	7754	.0589901	8383	.0255972	5278	183 40 46.6	14.2	0.18	7942
27.0	.9990355	0477	.0668409	6891	.0290043	0345	184 9 76.9	42.4	0.13	7329
27.5	.9982324	2460	.0746869	5351	.0324094	3392	184 39 45.8	11.2	0.07	66713
28.0	.9973554	3704	.0825276	3758	.0358122	7416	185 8 75.3	40.6	+0.01	60995
28.5	.9964045	4210	.0903623	2106	.0392124	1414	185 38 45.2	10.5	−0.05	55475
29.0	.9953798	3978	.0981904	0388	.0426096	5382	186 7 75.6	40.8	0.12	40853
29.5	.9942812	3006	.1060111	8596	.0460037	0319	186 37 46.5	11.7	0.19	04229
30.0	.9931088	1297	.1138240	6796	.0493944	3222	187 6 78.0	43.1	0.26	03603
30.5	.9918628	8852	.1116286	4773	.0527815	7089	187 36 50.0	15.1	0.32	02975
Oct. 1.0	.9905432	5671	.1204241	2729	.0561646	0916	188 5 82.5	47.5	0.38	02345
1.5	.9891500	1753	.1372097	0586	.0595434	4700	188 35 55.5	20.5	0.44	01713
2.0	.9876833	7101	.1449851	8341	.0629177	8439	189 4 89.0	53.9	0.49	01079
2.5	−.9861433	1716	−.1527496	5987	−.0662873	2132	189 34 62.9	27.8	−0.54	00444

NOTE.—The accented letters correspond to the mean equinox and equator of Jan. 0d.0.

SUN'S COÖRDINATES, 1875. 397

Date.	RECTANGULAR EQUATORIAL.						POLAR ECLIPTIC.			
	X.	X'.	Y.	Y'.	Z.	Z'.	$\lambda = \odot$'s True Longitude.	λ'	$\beta = \odot$'s Latitude.	Log. Rad. Vect. = ρ .
1875.										
Oct. 3.0	-.9845299	5507	-.1605026	3519	-.0696519	5775	190° 4' 37.3	21	-0.59	9.99
3.5	.9828435	8748	.1682433	0928	.0730112	9364	190 33 72.1	36.9	0.63	99170
4.0	.9810842	1170	.1759713	8210	.0763649	2897	191 3 47.4	12.1	0.67	98531
4.5	.9792521	2664	.1836859	5358	.0797126	6371	191 32 83.2	47.9	0.69	97891
5.0	.9773473	3831	.1913864	2365	.0830543	9785	192 2 59.4	24.0	0.71	97250
5.5	.9753700	4073	.1990725	9228	.0863896	3134	192 32 36.1	0.7	0.71	96609
6.0	.9733205	3593	.2067435	5940	.0897184	6419	193 1 73.2	37.7	0.71	95968
6.5	.9711988	2389	.2143987	2495	.0930403	9635	193 31 50.8	15.3	0.71	95326
7.0	.9690050	0468	.2220275	8886	.0963550	2779	194 0 88.8	53.2	0.70	94685
7.5	.9667395	7828	.2296596	5109	.0996624	5850	194 30 67.2	31.6	0.67	94044
8.0	.9644023	4471	.2372643	1158	.1029623	8846	195 0 46.1	10.4	0.64	93403
8.5	.9619936	9399	.2448511	7029	.1062544	1764	195 29 85.4	49.7	0.61	92763
9.0	.9595136	5614	.2524194	2716	.1095383	4600	195 59 65.2	29.4	0.57	92124
9.5	.9569625	9118	.2599687	8212	.1128141	7355	196 29 45.4	9.6	0.52	91488
10.0	.9543406	3914	.2674985	3513	.1160814	0025	196 58 86.1	50.2	0.47	90852
10.5	.9516480	7005	.2750082	8613	.1193398	2607	197 28 67.2	31.3	0.42	90217
11.0	.9488847	9386	.2824971	3506	.1225891	5098	197 58 48.8	12.8	0.36	89584
11.5	.9460512	1066	.2899649	8187	.1258293	7497	198 27 90.8	54.7	0.30	88953
12.0	.9431476	2045	.2974110	2652	.1290601	9802	198 57 73.3	37.1	0.23	88324
12.5	.9401741	2325	.3048348	6894	.1322813	2012	199 27 56.3	23.0	0.17	87696
13.0	.9371309	1908	.3122357	0907	.1354925	4122	199 57 39.8	3.4	0.10	87071
13.5	.9340181	0795	.3196136	4690	.1386936	6131	200 26 83.8	47.4	-0.03	86448
14.0	.9308360	8989	.3269678	8236	.1418844	8037	200 56 68.2	31.7	+0.03	85828
14.5	.9275847	6491	.3342974	1536	.1450649	9839	201 26 53.2	16.7	0.10	85209
15.0	.9242642	3302	.3416021	4588	.1482344	1533	201 56 38.7	2.1	0.16	84592
15.5	.9208751	9426	.3488817	7388	.1513930	3117	202 25 84.8	48.2	0.22	83978
16.0	.9174175	4865	.3561355	9930	.1545404	4589	202 55 71.4	34.7	0.27	83367
16.5	.9138915	9620	.3633628	2208	.1576764	5947	203 25 58.5	21.8	0.32	82759
17.0	.9102972	3693	.3705631	4216	.1608007	7189	203 55 46.1	3.0	0.36	82153
17.5	.9066351	7087	.3777360	5950	.1639131	8311	204 24 94.2	57.3	0.39	81549
18.0	.9029053	9804	.3848810	7405	.1670135	9313	204 54 82.9	45.9	0.42	80948
18.5	.8991079	1845	.3919975	8575	.1701015	0192	205 24 72.2	25.2	0.44	80349
19.0	.8952430	3212	.3990849	9454	.1731769	0945	205 54 62.0	34.9	0.46	79752
19.5	.8913111	3909	.4061427	0037	.1762395	1569	206 24 52.4	15.3	0.46	79158
20.0	.8873123	3936	.4131705	0320	.1792891	2063	206 54 43.4	6.2	0.46	78566
20.5	.8832469	3296	.4201675	0296	.1823254	2425	207 23 94.9	57.7	0.45	77976
21.0	.8791149	1992	.4271333	9960	.1853483	2653	207 53 87.0	49.7	0.44	77387
21.5	.8749168	9026	.4340673	9305	.1883573	2742	208 23 79.7	42.4	0.41	76799
22.0	.8706527	7400	.4409691	8329	.1913524	2692	208 53 72.9	35.5	0.38	76213
22.5	.8663229	4117	.4478381	7025	.1943333	2500	209 23 66.7	29.2	0.35	75629
23.0	.8619275	9178	.4546736	5386	.1972997	2163	209 53 61.1	23.5	0.31	75046
23.5	.8574670	5589	.4614752	3407	.2002513	1678	210 23 56.1	18.4	0.26	74465
24.0	.8529415	9349	.4682421	1083	.2031880	1044	210 53 51.6	13.8	0.20	73885
24.5	.8483514	4463	.4749740	8408	.2061095	0258	211 23 47.6	9.8	0.15	73305
25.0	.8436970	7934	.4816702	5377	.2090156	9319	211 53 44.2	6.3	0.09	72726
25.5	.8389786	9765	.4883331	1982	.2119059	8221	212 23 41.3	3.4	+0.03	72147
26.0	.8341965	2959	.4949533	8221	.2147803	6964	212 53 39.0	1.0	-0.04	71570
26.5	.8293510	4519	.5015392	4087	.2176386	5547	213 22 97.2	59.2	0.10	70994
27.0	.8244425	5449	.5080871	9573	.2204804	3965	213 52 96.0	57.9	0.17	70419
27.5	.8194714	5753	.5145966	4675	.2233054	2215	214 22 95.2	57.1	0.23	69844
28.0	.8144380	5434	.5210671	9387	.2261135	0296	214 52 94.0	56.1	0.30	69270
28.5	.8093427	4496	.5274981	3704	.2289045	8206	215 22 95.1	56.9	0.36	68696
29.0	.8041859	2943	.5338890	7621	.2316781	5942	215 52 95.8	57.5	0.41	68123
29.5	.7989679	9778	.5402393	1031	.2344340	3501	216 22 97.0	58.7	0.46	67553
30.0	.7936892	8006	.5465486	4232	.2371721	0882	216 53 38.6	0.2	0.50	66980
30.5	.7883501	4630	.5528192	6916	.2398920	8082	217 23 40.7	2.2	0.54	66409
31.0	.7829510	9653	.5590416	9178	.2425935	5098	217 53 43.3	4.7	0.58	65839
31.5	.7774925	6083	.5652244	1014	.2452765	1928	218 23 46.3	7.6	0.61	65271
Nov. 1.0	.7719749	9922	.5713640	2418	.2479408	8572	218 53 49.7	5.9	0.63	64704
1.5	.7663867	5175	.5774600	3386	.2505862	5026	219 23 53.6	14.8	0.64	64138
2.0	-.7607643	8845	-.5835118	3903	-.2532123	1288	219 53 57.8	18.9	-0.65	63574

NOTE.— δ denotes a change in the preceding figure.

400 HELIOCENTRIC COÖRDINATES.

MERCURY.										
1875.	Julian Day.	x .	y .	z .	Log Radius Vector.	Longitude in Orbit.	$-\frac{x^2}{r^3}$.	$-\frac{y^2}{r^3}$.	$-\frac{z^2}{r^3}$.	
	240									
Jan.	1	5890	-0.1198	-0.4503	-0.0274	9.6690	255 34.1	+1.15	+ 4.31	+0.26
	6	5895	-0.0087	0.4612	0.0382	9.6657	269 25.1	+0.08	4.52	0.37
	11	5900	+0.1028	0.4378	0.0462	9.6559	283 41.5	-1.07	4.60	0.48
	16	5905	0.2060	0.3796	0.0505	9.6393	298 51.7	2.43	4.46	0.59
	21	5910	0.2906	0.2878	0.0504	9.6161	315 29.4	4.01	3.97	0.70
	26	5915	0.3446	0.1660	0.0449	9.5868	334 16.2	5.83	2.82	0.76
Feb.	31	5920	0.3544	-0.0240	0.0338	9.5530	356 1.1	7.55	+ 0.51	0.72
	5	5925	0.3075	+0.1213	-0.0173	9.5195	21 28.4	8.27	- 3.27	+0.46
	10	5930	0.1993	0.2411	+0.0025	9.4947	50 41.0	6.36	7.69	-0.08
	15	5935	+0.0444	0.3037	0.0217	9.4884	82 8.7	-1.49	10.13	0.73
	20	5940	-0.1210	0.2918	0.0356	9.5034	112 57.5	+3.63	8.77	1.06
March	25	5945	0.2606	0.2147	0.0415	9.5331	140 39.8	6.38	5.25	1.02
	2	5950	0.3534	+0.0975	0.0399	9.5675	164 29.4	6.80	- 1.88	0.77
	7	5955	0.3949	-0.0346	0.0324	9.5998	184 53.1	6.01	+ 0.53	0.50
	12	5960	0.3903	0.1634	0.0204	9.6267	202 39.9	4.94	2.17	0.26
	17	5965	0.3476	0.2763	+0.0078	9.6471	218 36.2	3.87	3.08	-0.09
April	22	5970	0.2755	0.3663	-0.0064	9.6608	233 20.0	2.79	3.71	+0.06
	27	5975	0.1820	0.4282	0.0199	9.6679	247 22.5	1.76	4.13	0.19
	1	5980	-0.0752	0.4588	0.0321	9.6685	261 10.2	+0.72	4.42	0.31
	6	5985	+0.0368	0.4560	0.0419	9.6625	275 8.3	-0.37	4.57	0.42
	11	5990	0.1462	0.4186	0.0485	9.6500	289 42.9	1.60	4.57	0.53
May	16	5995	0.2432	0.3463	0.0511	9.6307	305 24.1	3.03	4.32	0.64
	21	6000	0.3170	0.2427	0.0488	9.6049	322 48.7	4.72	3.60	0.73
	26	6005	0.3548	-0.1101	0.0411	9.5734	342 41.7	6.58	+ 2.05	0.76
	1	6010	0.3428	+0.0362	0.0277	9.5390	5 52.7	8.07	- 0.88	0.65
	6	6015	0.2706	0.1749	-0.0095	9.5078	32 55.3	7.89	5.10	+0.27
June	11	6020	+0.1405	0.2750	+0.0107	9.4895	63 19.9	-4.65	9.10	-0.35
	16	6025	-0.0235	0.3079	0.0282	9.4921	94 54.3	+0.75	10.01	0.91
	21	6030	0.1824	0.2671	0.0389	9.5143	124 39.8	5.09	7.45	1.09
	26	6035	0.3045	0.1703	0.0417	9.5470	150 47.8	6.78	3.79	0.93
	31	6040	0.3763	+0.0444	0.0374	9.5811	173 8.5	6.61	- 0.79	0.66
July	5	6045	0.3981	-0.0881	0.0282	9.6115	192 22.5	5.68	+ 1.25	0.40
	10	6050	0.3770	0.2117	0.0159	9.6358	209 19.2	4.54	2.55	0.19
	15	6055	0.3214	0.3161	+0.0020	9.6535	224 42.0	3.42	3.36	-0.02
	20	6060	0.2396	0.3950	-0.0119	9.6645	239 5.6	2.37	3.90	+0.12
	25	6065	0.1399	0.4445	0.0251	9.6689	252 59.0	1.34	4.26	0.24
Aug.	30	6070	-0.0299	0.4617	0.0363	9.6668	266 47.9	+0.29	4.49	0.35
	5	6075	+0.0823	0.4448	0.0449	9.6582	280 57.5	-0.85	4.59	0.46
	10	6080	0.1877	0.3932	0.0501	9.6430	295 55.2	2.15	4.51	0.57
	15	6085	0.2767	0.3075	0.0508	9.6210	312 13.5	3.70	4.10	0.68
	20	6090	0.3375	0.1908	0.0464	9.5927	330 32.5	5.47	3.10	0.75
Sept.	25	6095	0.3566	-0.0516	0.0363	9.5595	351 40.0	7.27	+ 1.05	0.74
	30	6100	0.3210	+0.0950	0.0207	9.5254	16 23.3	8.29	- 2.46	0.53
	4	6105	0.2239	0.2221	-0.0013	9.4982	44 57.0	6.98	6.92	+0.04
	9	6110	+0.0759	0.2974	+0.0184	9.4879	76 11.2	-2.54	9.96	-0.62
	14	6115	-0.0907	0.2995	0.0335	9.4992	107 21.2	+2.80	9.27	1.04
Oct.	19	6120	0.2376	0.2331	0.0410	9.5269	135 45.2	6.07	5.96	1.05
	24	6125	0.3399	+0.1212	0.0407	9.5611	160 17.9	6.86	- 2.44	0.82
	29	6130	0.3908	-0.0096	0.0342	9.5941	181 16.8	6.28	+ 0.15	0.55
	3	6135	0.3943	0.1401	0.0235	9.6221	199 29.3	5.22	1.85	0.31
	8	6140	0.3581	0.2567	+0.0104	9.6438	215 43.2	4.08	2.92	-0.12
13	6145	-0.2909	-0.3515	-0.0037	9.6588	230 37.8	+2.99	+ 3.61	+0.04	

NOTE.—The Epoch is the 2405,000th day of the Julian Period = 1873, July 25.

Date.	RECTANGULAR EQUATORIAL.						POLAR ECLIPTIC.			
	X.	X'.	Y.	Y'.	Z.	Z'.	$\lambda = \odot$'s True Longitude.	λ'	$\beta = \odot$'s Latitude.	Log. Rad. Vect. = ρ .
1875.										
Dec. 3.0	-.3177922	9920	-.8556193	5725	-.3712865	2231	251° 10' 65".7	21'.5	-.41	9.99 35941
3.5	.3094931	6939	.8581043	0590	.3723646	3018	251 40 93.2	48.9	0.36	35615
4.0	.3011704	3722	.8605226	4789	.3734137	3515	252 11 60.9	16.5	0.30	35294
4.5	.2922248	+0276	.8628743	8321	.3744338	3722	252 41 88.7	44.2	0.24	34978
5.0	.2844569	6607	.8651591	1185	.3754249	3639	253 12 56.7	12.1	0.18	34666
5.5	.2760673	2721	.8673769	3379	.3763871	3267	253 42 84.9	40.2	0.12	34359
6.0	.2676567	8624	.8695274	4900	.3773199	2601	254 13 53.2	8.5	-0.05	34058
6.5	.2592258	4324	.8716106	5748	.3782235	1643	254 43 81.8	37.0	+0.02	33763
7.0	.2507753	9828	.8736264	5922	.3790979	0393	255 14 50.5	5.6	0.08	33473
7.5	.2423057	5141	.8755747	5421	.3799429	8849	255 44 79.4	34.6	0.14	33188
8.0	.2338177	0270	.8774553	4244	.3807585	7012	256 15 48.4	3.3	0.21	32909
8.5	.2253120	5220	.8792679	2386	.3815447	4880	256 45 77.6	32.5	0.27	32637
9.0	.2167892	+0003	.8801026	+9849	.3823015	2454	257 16 47.0	1.7	0.33	32371
9.5	.2082499	4619	.8816892	6632	.3830228	+9734	257 46 76.5	31.1	0.38	32111
10.0	.1996948	9076	.8842977	2734	.3837263	6716	258 17 46.2	0.7	0.43	31857
10.5	.1911244	3380	.8858378	8152	.3843944	3403	258 47 76.1	30.5	0.47	31610
11.0	.1825394	7538	.8873094	2885	.3850328	+9793	259 18 46.1	0.4	0.50	31370
11.5	.1739405	+1557	.8887125	6933	.3856415	5887	259 48 76.3	30.5	0.53	31136
12.0	.1653283	5443	.8900470	0295	.3862205	1685	260 19 46.7	0.8	0.55	30909
12.5	.1567033	9201	.8915128	2970	.3867695	7184	260 49 77.2	31.2	0.56	30690
13.0	.1480662	2838	.8925098	4957	.3872892	2386	261 20 47.9	1.8	0.57	30477
13.5	.1394176	6359	.8936379	6255	.3877788	7289	261 50 78.8	32.6	0.57	30271
14.0	.1307581	9771	.8946970	6864	.3882383	1891	262 21 49.9	3.6	0.56	30071
14.5	.1220883	3080	.8956870	6781	.3886679	6194	262 51 81.2	34.8	0.54	29878
15.0	.1134090	6294	.8966078	6006	.3890676	0198	263 22 52.8	6.3	0.51	29692
15.5	.1047208	9419	.8974593	4539	.3894373	3901	263 52 84.6	38.0	0.48	29513
16.0	.0960242	2459	.8982412	2376	.3897768	7305	264 23 56.6	9.9	0.45	29340
16.5	.0873199	5423	.8989537	9519	.3900862	0406	264 53 88.7	41.9	0.41	29174
17.0	.0786085	8315	.8995966	5966	.3903655	3206	265 24 61.0	14.1	0.36	29014
17.5	.0698906	+1142	.9001699	1717	.3906145	5704	265 54 93.5	46.5	0.31	28861
18.0	.0611668	3910	.9006734	6770	.3908332	7899	266 25 66.3	19.2	0.25	28714
18.5	.0524380	6628	.9011070	1124	.3910216	9790	266 55 99.3	52.1	0.19	28572
19.0	.0437047	9301	.9014707	4779	.3911797	1379	267 26 72.4	25.1	0.12	28436
19.5	.0349675	+1934	.9017643	7733	.3913074	2664	267 56 105.8	58.4	+0.06	28306
20.0	.0262272	4536	.9019878	9987	.3914048	3646	268 27 79.4	31.9	-0.01	28181
20.5	.0174844	7113	.9021411	1538	.3914717	4323	268 58 53.1	5.5	0.07	28062
21.0	-.0087398	9672	.9022243	2388	.3915082	1696	269 28 87.0	39.3	0.13	27948
21.5	+0.000058	2221	.9022373	2537	.3915142	4764	269 59 61.1	13.3	0.19	27840
22.0	.0087518	5234	.9021799	1982	.3914895	4524	270 29 95.4	47.5	0.25	27737
22.5	.0174975	2686	.9020522	0723	.3914344	3982	271 0 69.9	21.9	0.31	27638
23.0	.0262422	0130	.9018541	8761	.3913487	3133	271 30 104.5	56.4	0.36	27542
23.5	.0349851	7555	.9015856	6095	.3912325	1979	272 1 79.3	31.1	0.41	27454
24.0	.0437256	4956	.9012466	2724	.3910856	0519	272 32 54.2	5.9	0.45	27369
24.5	.0524629	2325	.9008373	8650	.3909082	8753	273 2 89.2	40.8	0.48	27288
25.0	.0611964	+9656	.9003576	3872	.3907002	6681	273 33 64.3	15.8	0.51	27211
25.5	.0699252	6941	.8998075	8390	.3904615	4303	274 3 99.5	50.9	0.53	27139
26.0	.0786486	4171	.8991870	2204	.3901922	1619	274 34 74.8	26.1	0.54	27072
26.5	.0873660	1343	.8984962	5315	.3899025	8630	275 5 50.2	1.4	0.55	27008
27.0	.0960766	8446	.8977351	7723	.3895622	5335	275 35 85.6	36.7	0.55	26948
27.5	.1047797	5474	.8969038	9429	.3892014	1736	276 6 61.1	12.1	0.54	26892
28.0	.1134745	2420	.8960023	0434	.3888101	7832	276 36 96.6	47.5	0.52	26840
28.5	.1221604	+9273	.8950308	0738	.3883884	3624	277 7 72.1	22.9	0.49	26793
29.0	.1308367	6038	.8939893	+0342	.3879363	9112	277 37 107.6	58.3	0.45	26750
29.5	.1395025	2694	.8928779	9248	.3874539	4297	278 8 83.2	33.8	0.41	26711
30.0	.1481571	+9239	.8916967	7456	.3869412	9179	278 39 58.7	9.2	0.37	26677
30.5	.1568000	5667	.8904459	4967	.3863982	3758	279 9 94.2	44.6	0.32	26648
31.0	.1654304	1970	.8891255	1782	.3858250	8035	279 40 69.7	20.0	0.26	26623
31.5	.1740476	+8141	.8877358	7905	.3852216	2010	280 10 105.2	55.4	0.21	26602
32.0	+0.1826509	4173	-.8862769	3336	-.3845881	5684	280 41 80.6	30.7	-0.15	26586

NOTE. — : denotes a change in the preceding figure.

400 HELIOCENTRIC COÖRDINATES.

MERCURY.											
1875.	Julian Day.	x .	y .	z .	Log Radius Vector.	Longitude in Orbit.	$-\frac{x^2}{r^3}$.	$-\frac{y^2}{r^3}$.	$-\frac{z^2}{r^3}$.		
	240										
Jan.	1	5890	-0.1198	-0.4503	-0.0274	9.6690	255° 34.1	+1.15	+ 4.31	+0.26	
	6	5895	-0.0087	0.4612	0.0382	9.6657	269 25.1	+0.08	4.52	0.37	
	11	5900	+0.1028	0.4378	0.0462	9.6559	283 41.5	-1.07	4.60	0.48	
	16	5905	0.2060	0.3796	0.0505	9.6393	298 51.7	2.43	4.46	0.59	
	21	5910	0.2906	0.2878	0.0504	9.6161	315 29.4	4.01	3.97	0.70	
	26	5915	0.3446	0.1660	0.0449	9.5868	334 16.2	5.83	2.82	0.76	
	31	5920	0.3544	-0.0240	0.0338	9.5530	356 1.1	7.55	+ 0.51	0.72	
Feb.	5	5925	0.3075	+0.1213	-0.0173	9.5195	21 28.4	8.27	- 3.27	+0.46	
	10	5930	0.1993	0.2411	+0.0025	9.4947	50 41.0	6.36	7.69	-0.08	
	15	5935	+0.0444	0.3037	0.0217	9.4884	82 8.7	-1.49	10.13	0.73	
		20	5940	-0.1210	0.2918	0.0356	9.5034	112 57.5	+3.63	8.77	1.06
		25	5945	0.2606	0.2147	0.0415	9.5331	140 39.8	6.38	5.25	1.02
March	2	5950	0.3534	+0.0975	0.0399	9.5675	164 29.4	6.80	- 1.88	0.77	
	7	5955	0.3949	-0.0346	0.0324	9.5998	184 53.1	6.01	+ 0.53	0.50	
	12	5960	0.3903	0.1634	0.0204	9.6267	202 39.9	4.94	2.17	0.26	
		17	5965	0.3476	0.2763	+0.0078	9.6471	218 36.2	3.87	3.08	-0.09
		22	5970	0.2755	0.3663	-0.0064	9.6608	233 20.0	2.79	3.71	+0.06
	27	5975	0.1820	0.4282	0.0199	9.6679	247 22.5	1.76	4.13	0.19	
April	1	5980	-0.0752	0.4588	0.0321	9.6685	261 10.2	+0.72	4.42	0.31	
	6	5985	+0.0368	0.4560	0.0419	9.6625	275 8.3	-0.37	4.57	0.42	
		11	5990	0.1462	0.4186	0.0485	9.6500	289 42.9	1.60	4.57	0.53
		16	5995	0.2432	0.3463	0.0511	9.6307	305 24.1	3.03	4.32	0.64
		21	6000	0.3170	0.2427	0.0488	9.6049	322 48.7	4.72	3.60	0.73
May	26	6005	0.3548	-0.1101	0.0411	9.5734	342 41.7	6.58	+ 2.05	0.76	
	1	6010	0.3428	+0.0362	0.0277	9.5390	5 52.7	8.07	- 0.88	0.65	
		6	6015	0.2706	0.1749	-0.0095	9.5078	32 55.3	7.89	5.10	+0.27
		11	6020	+0.1405	0.2750	+0.0107	9.4895	63 19.9	-4.65	9.10	-0.35
		16	6025	-0.0235	0.3079	0.0282	9.4921	94 54.3	+0.75	10.01	0.91
	21	6030	0.1824	0.2671	0.0389	9.5143	124 39.8	5.09	7.45	1.09	
	26	6035	0.3045	0.1703	0.0417	9.5470	150 47.8	6.78	3.79	0.93	
	31	6040	0.3763	+0.0444	0.0374	9.5811	173 8.5	6.61	- 0.79	0.66	
June	5	6045	0.3981	-0.0881	0.0282	9.6115	192 22.5	5.68	+ 1.25	0.40	
	10	6050	0.3770	0.2117	0.0159	9.6358	209 19.2	4.54	2.55	0.19	
	15	6055	0.3214	0.3161	+0.0020	9.6535	224 42.0	3.42	3.36	-0.02	
	20	6060	0.2396	0.3950	-0.0119	9.6645	239 5.6	2.37	3.90	+0.12	
		25	6065	0.1399	0.4445	0.0251	9.6689	252 59.0	1.34	4.26	0.24
July	30	6070	-0.0299	0.4617	0.0363	9.6668	266 47.9	+0.29	4.49	0.35	
	5	6075	+0.0823	0.4448	0.0449	9.6582	280 57.5	-0.85	4.59	0.46	
	10	6080	0.1877	0.3932	0.0501	9.6430	295 55.2	2.15	4.51	0.57	
	15	6085	0.2767	0.3075	0.0508	9.6210	312 13.5	3.70	4.10	0.68	
		20	6090	0.3375	0.1908	0.0464	9.5927	330 32.5	5.47	3.10	0.75
	25	6095	0.3566	-0.0516	0.0363	9.5595	351 40.0	7.27	+ 1.05	0.74	
	30	6100	0.3210	+0.0950	0.0207	9.5254	16 23.3	8.29	- 2.46	0.53	
Aug.	4	6105	0.2239	0.2221	-0.0013	9.4982	44 57.0	6.98	6.92	+0.04	
	9	6110	+0.0759	0.2974	+0.0184	9.4879	76 11.2	-2.54	9.96	-0.62	
	14	6115	-0.0907	0.2995	0.0335	9.4992	107 21.2	+2.80	9.27	1.04	
		19	6120	0.2376	0.2331	0.0410	9.5269	135 45.2	6.07	5.96	1.05
		24	6125	0.3399	+0.1212	0.0407	9.5611	160 17.9	6.86	- 2.44	0.82
	29	6130	0.3908	-0.0096	0.0342	9.5941	181 16.8	6.28	+ 0.15	0.55	
Sept.	3	6135	0.3943	0.1401	0.0235	9.6221	199 29.3	5.22	1.85	0.31	
	8	6140	0.3581	0.2567	+0.0104	9.6438	215 43.2	4.08	2.92	-0.12	
	13	6145	-0.2909	-0.3515	-0.0037	9.6588	230 37.8	+2.99	+ 3.61	+0.04	

NOTE.—The Epoch is the 2405,000th day of the Julian Period = 1872, July 25.

HELIOCENTRIC COÖRDINATES. 401

MERCURY.

1875.	Julian Day.	x .	y .	z .	Log Radius Vector.	Longitude in Orbit.	$-\frac{r^2}{r^3} z$.	$-\frac{r^2}{r^3} y$.	$-\frac{r^2}{r^3} x$.	
	240									
Sept.	18	6150	-0.2009	-0.4189	-0.0175	9.6671	244° 46.2	+1.96	+ 4.06	+0.17
	23	6155	-0.0959	0.4554	0.0299	9.6689	258 34.8	+0.92	4.37	0.29
	28	6160	+0.0158	0.4591	0.0402	9.6641	272 29.0	-0.15	4.55	0.40
Oct.	3	6165	0.1264	0.4280	0.0475	9.6528	286 54.6	1.35	4.58	0.51
	8	6170	+0.2265	0.3623	0.0509	9.6348	302 20.7	2.75	4.39	0.62
	13	6175	0.3055	0.2636	0.0496	9.6102	319 22.7	4.39	3.79	0.71
	18	6180	0.3510	-0.1364	0.0430	9.5797	338 44.1	6.23	+ 2.43	0.76
	23	6185	0.3494	+0.0084	0.0306	9.5454	1 14.3	7.85	- 0.19	0.69
	28	6190	0.2888	-0.1509	-0.0131	9.5130	27 33.0	8.13	4.24	+0.37
Nov.	2	6195	0.1686	0.2607	+0.0070	9.4915	57 26.7	5.49	8.51	-0.23
	7	6200	+0.0082	0.3076	0.0253	9.4899	89 1.9	-0.28	10.14	0.83
	12	6205	-0.1547	0.2798	0.0376	9.5090	119 19.5	+4.47	8.09	1.09
	17	6210	0.2858	0.1910	0.0418	9.5405	146 11.6	6.63	4.44	0.97
	22	6215	0.3667	+0.0691	0.0387	9.5749	169 12.6	6.72	- 1.26	0.71
Dec.	27	6220	0.3976	-0.0636	0.0302	9.6062	188 57.8	5.88	+ 0.94	0.45
	2	6225	0.3839	0.1897	0.0181	9.6317	206 16.7	4.75	2.35	0.23
	7	6230	0.3340	0.2982	+0.0047	9.6507	221 54.2	3.63	3.24	-0.05
	12	6235	0.2566	0.3824	-0.0094	9.6629	236 26.6	2.57	3.82	+0.09
	17	6240	0.1596	0.4377	0.0227	9.6686	250 23.6	1.54	4.21	0.22
	22	6245	-0.0500	0.4611	0.0345	9.6677	264 11.5	+0.48	4.46	0.33
	27	6250	+0.0621	0.4506	0.0436	9.6603	278 15.2	-0.63	4.59	0.44
	32	6255	0.1689	0.4056	0.0494	9.6463	293 1.6	1.89	4.54	0.55
	37	6260	+0.2618	-0.3261	-0.0510	9.6256	309 2.0	-3.39	+ 4.21	+0.66

VENUS.

1875.	Julian Day.	x .	y .	z .	Log Radius Vector.	Longitude in Orbit.	$-\frac{r^2}{r^3} z$.	$-\frac{r^2}{r^3} y$.	$-\frac{r^2}{r^3} x$.	
	240									
Jan.	1	5890	-0.3038	+0.6507	+0.0270	9.8565	115° 4.8	+ 9.94	-21.28	-0.88
	6	5895	0.3925	0.6010	0.0314	9.8564	123 11.8	12.84	19.68	1.03
	11	5900	0.4733	0.5393	0.0352	9.8564	131 19.0	15.50	17.66	1.15
	16	5905	0.5447	0.4668	0.0382	9.8564	139 26.2	17.83	15.28	1.25
	21	5910	0.6053	0.3852	0.0405	9.8568	147 33.3	19.80	12.60	1.32
	26	5915	0.6539	0.2959	0.0419	9.8567	155 40.0	21.37	9.67	1.37
	31	5920	0.6894	0.2007	0.0426	9.8569	163 46.4	22.49	6.55	1.39
Feb.	5	5925	0.7112	+0.1014	0.0423	9.8571	171 52.2	23.16	- 3.30	1.38
	10	5930	0.7190	0.0000	0.0413	9.8574	179 57.4	23.37	0.00	1.34
	15	5935	0.7125	-0.1010	0.0394	9.8578	188 1.9	23.10	+ 3.27	1.28
	20	5940	0.6920	0.2002	0.0367	9.8581	196 5.6	22.39	6.48	1.19
	25	5945	0.6579	0.2955	0.0334	9.8585	204 8.5	21.22	9.53	1.08
March	2	5950	0.6108	0.3850	0.0293	9.8589	212 10.5	19.64	12.39	0.94
	7	5955	0.5518	0.4670	0.0248	9.8593	220 11.5	17.70	14.98	0.79
	12	5960	0.4821	0.5398	0.0197	9.8598	228 11.7	15.42	17.28	0.63
	17	5965	0.4029	0.6022	0.0142	9.8602	236 10.9	12.85	19.21	0.48
	22	5970	0.3160	0.6529	0.0085	9.8606	244 9.3	10.05	20.77	0.27
	27	5975	0.2231	0.6909	+0.0026	9.8609	252 6.8	7.08	21.92	-0.08
April	1	5980	0.1255	0.7156	-0.0034	9.8612	260 3.6	3.97	22.66	+0.11
	6	5985	-0.0257	0.7265	0.0093	9.8615	267 59.7	+ 0.81	22.95	0.29
	11	5990	+0.0746	0.7234	0.0150	9.8618	275 55.2	- 2.35	22.82	0.47
	16	5995	+0.1735	-0.7065	-0.0204	9.8620	283 50.2	- 5.46	+22.25	+0.64

NOTE.—The Epoch is the 9405,000th day of the Julian Period = 1872, July 25.

402 HELIOCENTRIC COÖRDINATES.

VENUS.										
1875.	Julian Day.	x .	y .	z .	Log Radius Vector.	Longitude in Orbit.	$-\frac{r^2}{r^3} z$.	$-\frac{r^2}{r^3} y$.	$-\frac{r^2}{r^3} x$.	
April	21	240 6000	+0.2690	-0.6760	-0.0255	9.8621	291° 44.9	- 8.46	+21.27	+0.80
	26	6005	0.3594	0.6326	0.0300	9.8622	299 39.2	11.30	19.69	0.94
May	1	6010	0.4429	0.5771	0.0340	9.8623	307 33.4	13.92	18.14	1.07
	6	6015	0.5180	0.5105	0.0373	9.8623	215 27.6	16.28	16.05	1.17
	11	6020	0.5831	0.4342	0.0399	9.8622	323 21.8	18.33	13.66	1.25
	16	6025	0.6371	0.3496	0.0417	9.8621	331 16.3	20.05	11.00	1.31
	21	6030	0.6789	0.2582	0.0428	9.8619	339 11.1	21.39	8.13	1.35
	26	6035	0.7077	0.1620	0.0430	9.8617	347 6.3	22.34	5.11	1.36
	31	6040	0.7228	-0.0625	0.0424	9.8614	355 2.1	22.87	+ 1.98	1.34
	June 5	6045	0.7241	+0.0381	0.0410	9.8611	2 58.6	22.94	- 1.20	1.30
	10	6050	0.7114	0.1379	0.0388	9.8607	10 55.7	22.60	4.38	1.23
	15	6055	0.6849	0.2351	0.0358	9.8604	18 53.7	21.82	7.48	1.14
	20	6060	0.6452	0.3277	0.0322	9.8600	26 52.5	20.61	10.46	1.03
	25	6065	0.5930	0.4140	0.0279	9.8596	34 52.2	18.99	13.26	0.89
	30	6070	0.5291	0.4923	0.0232	9.8591	42 52.8	17.00	15.81	0.74
	July	5	6075	0.4550	0.5607	0.0178	9.8587	50 54.3	14.66	18.06	0.57
10		6080	0.3719	0.6183	0.0122	9.8583	58 56.7	12.01	19.97	0.39
15		6085	0.2815	0.6637	0.0063	9.8580	67 0.0	9.12	21.50	0.20
20		6090	0.1856	0.6961	-0.0003	9.8576	75 4.1	6.03	22.59	+0.01
25		6095	+0.0860	0.7147	+0.0056	9.8573	83 9.0	- 2.80	23.26	-0.18
Aug.	30	6100	-0.0153	0.7192	0.0115	9.8570	91 14.5	+ 0.50	23.44	0.38
	4	6105	0.1163	0.7094	0.0172	9.8568	99 20.6	3.80	23.16	0.56
	9	6110	0.2150	0.6855	0.0225	9.8566	107 27.2	7.03	22.41	0.73
	14	6115	0.3094	0.6480	0.0274	9.8565	115 34.1	10.13	21.20	0.90
	19	6120	0.3976	0.5976	0.0317	9.8564	123 41.2	13.01	19.56	1.04
Sept.	24	6125	0.4779	0.5352	0.0354	9.8564	131 48.4	15.65	17.52	1.16
	29	6130	0.5487	0.4622	0.0384	9.8564	139 55.6	17.96	15.13	1.25
	3	6135	0.6086	0.3801	0.0406	9.8565	148 2.6	19.91	12.43	1.33
	8	6140	0.6564	0.2903	0.0420	9.8567	156 9.4	21.45	9.48	1.37
	13	6145	0.6911	0.1948	0.0426	9.8569	164 15.7	22.54	6.35	1.39
Oct.	18	6150	0.7121	+0.0954	0.0423	9.8572	172 21.5	23.19	- 3.11	1.38
	23	6155	0.7190	-0.0089	0.0412	9.8575	180 26.6	23.39	+ 0.19	1.34
	28	6160	0.7117	0.1070	0.0393	9.8578	188 31.0	23.08	3.47	1.27
	3	6165	0.6904	0.2061	0.0366	9.8582	196 34.7	22.33	6.66	1.18
	8	6170	0.6554	0.3012	0.0332	9.8586	204 37.5	21.13	9.71	1.07
Nov.	13	6175	0.6076	0.3902	0.0291	9.8590	212 39.4	19.54	12.55	0.94
	18	6180	0.5480	0.4717	0.0244	9.8594	220 40.4	17.57	15.13	0.78
	23	6185	0.4776	0.5439	0.0194	9.8598	228 40.5	15.25	17.40	0.62
	28	6190	0.3979	0.6056	0.0139	9.8602	236 39.7	12.69	19.31	0.44
	2	6195	0.3105	0.6555	0.0081	9.8606	244 38.0	9.87	20.84	0.26
Dec.	7	6200	0.2171	0.6927	+0.0022	9.8609	252 35.5	6.89	21.98	-0.07
	12	6205	0.1196	0.7166	-0.0038	9.8613	260 32.2	3.78	22.68	+0.12
	17	6210	-0.0197	0.7267	0.0096	9.8616	268 28.3	+ 0.62	22.95	0.30
	22	6215	+0.0806	0.7228	0.0153	9.8618	276 23.7	- 2.54	22.79	0.48
	27	6220	0.1793	0.7050	0.0207	9.8620	284 18.7	5.64	22.20	0.65
	2	6225	0.2746	0.6738	0.0257	9.8621	292 13.3	8.64	21.19	0.81
	7	6230	0.3646	0.6296	0.0302	9.8622	300 7.6	11.47	19.79	0.96
	12	6235	0.4477	0.5734	0.0342	9.8623	308 1.8	14.07	18.02	1.07
	17	6240	0.5222	0.5062	0.0375	9.8623	315 55.9	16.42	15.91	1.18
	22	6245	0.5867	0.4293	0.0400	9.8622	323 50.2	18.45	13.50	1.26
	27	6250	0.6400	0.3443	0.0418	9.8621	331 44.7	20.15	10.84	1.32
	32	6255	+0.6810	-0.2526	-0.0428	9.8619	339 39.5	-21.47	+ 7.96	+1.35

NOTE.—The Epoch is the 2405,000th day of the Julian Period = 1872, July 23.

HELIOCENTRIC COÖRDINATES. 403

THE EARTH.

1875.	Julian Day.	x .	y .	z .	Log Radius Vector.	Longitude in Orbit.	$-\frac{r^2}{r^3}x$.	$-\frac{r^2}{r^3}y$.	$-\frac{r^2}{r^3}z$.
	240								
	5880	-0.0123	+0.9834	0.0000	9.9928	90° 43.7	+ 0.18	-13.79	0.00
Jan.	1	5890	0.1863	0.9656	9.9927	100 55.1	2.62	13.55	
	10	5900	0.3543	0.9175	9.9928	111 6.7	4.97	12.87	
	21	5910	0.5112	0.8410	9.9931	121 17.5	7.15	11.77	
	31	5920	0.6524	0.7386	9.9936	131 27.0	9.10	10.30	
Feb.	10	5930	0.7734	0.6134	9.9944	141 34.9	10.73	8.51	
	20	5940	0.8708	0.4694	9.9953	151 40.4	12.00	6.47	
March	2	5950	0.9417	0.3111	9.9964	161 43.2	12.88	4.26	
	12	5960	0.9838	+0.1434	9.9975	171 42.9	13.36	- 1.95	
	22	5970	0.9966	-0.0288	9.9987	181 39.3	13.42	+ 0.39	
April	1	5980	0.9797	0.2001	0.0000	191 32.4	13.07	2.67	
	11	5990	0.9339	0.3653	0.0012	201 22.1	12.35	4.83	
	21	6000	0.8608	0.5198	0.0024	211 8.4	11.29	6.83	
May	1	6010	0.7626	0.6593	0.0036	220 51.5	9.93	8.60	
	11	6020	0.6424	0.7799	0.0046	230 31.8	8.30	10.09	
	21	6030	0.5038	0.8782	0.0054	240 9.7	6.47	11.29	
	31	6040	0.3509	0.9515	0.0061	249 45.4	4.49	12.17	
June	10	6050	0.1882	0.9980	0.0067	259 19.4	2.40	12.71	
	20	6060	-0.0201	1.0162	0.0071	268 52.1	+ 0.26	12.91	
	30	6070	+0.1486	1.0058	0.0072	278 24.2	- 1.88	12.77	
July	10	6080	0.3130	0.9672	0.0071	287 56.2	3.98	12.29	
	20	6090	0.4687	0.9014	0.0069	297 28.5	5.96	11.47	
	30	6100	0.6113	0.8102	0.0065	307 1.8	7.79	10.34	
Aug.	9	6110	0.7366	0.6962	0.0058	316 36.6	9.44	8.92	
	19	6120	0.8409	0.5625	0.0050	326 13.2	10.84	7.25	
	29	6130	0.9213	0.4127	0.0041	335 52.2	11.95	5.35	
Sept.	8	6140	0.9752	0.2510	0.0030	345 33.9	12.75	3.28	
	18	6150	0.0007	-0.0821	0.0018	355 18.6	13.19	+ 1.08	
	28	6160	0.9972	+0.0892	0.0006	5 6.6	13.25	- 1.19	
Oct.	8	6170	0.9645	0.2578	9.9993	14 57.7	12.93	3.46	
	18	6180	0.9033	0.4188	9.9981	24 52.7	12.21	5.66	
	28	6190	0.8149	0.5673	9.9969	34 50.9	11.11	7.73	
Nov.	7	6200	0.7020	0.6987	9.9958	44 52.2	9.64	9.60	
	17	6210	0.5677	0.8089	9.9948	54 56.3	7.85	11.18	
	27	6220	0.4160	0.8943	9.9940	65 3.1	5.79	12.44	
Dec.	7	6230	0.2516	0.9521	9.9933	75 11.9	3.52	13.30	
	17	6240	+0.0794	0.9806	9.9929	85 22.2	- 1.11	13.74	
	27	6250	-0.0952	0.9788	9.9927	95 33.6	+ 1.34	13.74	
	37	6260	-0.2670	+0.9465	9.9927	105 45.3	+ 3.75	-13.28	0.00

MARS.

1875.	Julian Day.	x .	y .	z .	Log. Radius Vector.	Longitude in Orbit.	$-\frac{r^2}{r^3}x$.	$-\frac{r^2}{r^3}y$.	$-\frac{r^2}{r^3}z$.	
	240									
Jan.	1	5890	-1.6403	-0.0986	+0.0376	0.2158	183° 25.5	+0.66	+0.04	-0.01
	11	5900	1.6208	0.2261	0.0344	0.2139	187 55.6	0.65	0.09	0.01
	21	5910	1.5903	0.3522	0.0310	0.2119	192 28.2	0.65	0.14	0.01
	31	5920	1.5488	0.4753	0.0273	0.2096	197 3.5	0.64	0.20	0.01
Feb.	10	5930	1.4966	0.5960	0.0235	0.2071	201 41.9	0.63	0.25	0.01
	20	5940	1.4339	0.7120	0.0195	0.2044	206 23.7	0.62	0.31	0.01
March	2	5950	1.3609	0.8230	0.0154	0.2015	211 9.1	0.60	0.36	0.01
	12	5960	-1.2778	-0.9277	+0.0111	0.1984	215 58.5	+0.57	+0.42	-0.00

NOTE.—The Epoch is the 2405,000th day of the Julian Period = 1872, July 25.

404 HELIOCENTRIC COÖRDINATES.

MARS.									
1875.	Julian Day.	<i>x</i> .	<i>y</i> .	<i>z</i> .	Log Radius Vector.	Longitude in Orbit.	$-\frac{x^2}{r^3}$.	$-\frac{y^2}{r^3}$.	$-\frac{z^2}{r^3}$.
	240								
March 22	5970	-1.1850	-1.0256	+0.0068	0.1952	220° 52.3	+0.54	+0.47	0.00
April 1	5980	1.0834	1.1155	+0.0024	0.1918	225 50.5	0.51	0.52	0.00
11	5990	0.9732	1.1967	-0.0020	0.1882	230 53.4	0.47	0.58	0.00
21	6000	0.8550	1.2681	0.0064	0.1846	236 1.4	0.42	0.63	0.00
May 1	6010	0.7298	1.3292	0.0108	0.1809	241 14.7	0.37	0.67	0.00
11	6020	0.5984	1.3790	0.0150	0.1771	246 33.4	0.31	0.72	+0.01
21	6030	0.4618	1.4167	0.0191	0.1733	251 57.7	0.25	0.76	0.01
31	6040	0.3211	1.4420	0.0231	0.1695	257 27.6	0.18	0.79	0.01
June 10	6050	0.1775	1.4538	0.0269	0.1659	263 3.3	0.10	0.82	0.01
20	6060	-0.0323	1.4522	0.0304	0.1623	268 44.6	+0.02	0.84	0.02
30	6070	+0.1133	1.4366	0.0335	0.1589	274 31.5	-0.07	0.85	0.02
July 10	6080	0.2577	1.4067	0.0363	0.1556	280 23.9	0.16	0.85	0.02
20	6090	0.3996	1.3626	0.0388	0.1525	286 21.5	0.24	0.84	0.02
30	6100	0.5374	1.3045	0.0409	0.1497	292 23.9	0.33	0.82	0.03
Aug. 9	6110	0.6695	1.2326	0.0426	0.1472	298 30.7	0.43	0.79	0.03
19	6120	0.7943	1.1477	0.0438	0.1451	304 41.6	0.52	0.74	0.03
29	6130	0.9106	1.0503	0.0445	0.1433	310 55.8	0.60	0.68	0.03
Sept. 8	6140	1.0169	0.9415	0.0448	0.1419	317 12.7	0.67	0.62	0.03
18	6150	1.1120	0.8218	0.0445	0.1409	323 31.8	0.75	0.55	0.03
28	6160	1.1945	0.6933	0.0438	0.1404	329 51.9	0.80	0.46	0.03
Oct. 8	6170	1.2638	0.5569	0.0425	0.1404	336 12.6	0.85	0.37	0.03
18	6180	1.3188	0.4143	0.0408	0.1408	342 33.0	0.88	0.28	0.03
28	6190	1.3591	0.2670	0.0386	0.1417	348 52.4	0.90	0.18	0.03
Nov. 7	6200	1.3844	-0.1168	0.0360	0.1430	355 9.8	0.91	+0.08	0.02
17	6210	1.3943	+0.0347	0.0330	0.1447	1 24.7	0.91	-0.02	0.02
27	6220	1.3891	0.1859	0.0297	0.1467	7 36.4	0.89	0.12	0.02
Dec. 7	6230	1.3690	0.3350	0.0260	0.1492	13 44.3	0.86	0.21	0.02
17	6240	1.3344	0.4807	0.0220	0.1519	19 47.8	0.83	0.30	0.01
27	6250	1.2861	0.6213	0.0179	0.1549	25 46.5	0.78	0.38	0.01
37	6260	+1.2246	+0.7556	-0.0135	0.1582	31 40.1	-0.73	-0.45	+0.01

JUPITER.									
1875.	Julian Day.	<i>x</i> .	<i>y</i> .	<i>z</i> .	Log Radius Vector.	Longitude in Orbit.	$-\frac{x^2}{r^3}$.	$-\frac{y^2}{r^3}$.	$-\frac{z^2}{r^3}$.
	240								
Jan. 1	5890	-5.16313	-1.75503	+0.12300	0.73677	198° 46' 16"	+143.74	+48.86	-3.42
11	5900	5.13922	1.82282	0.12270	0.73674	199 31 34	143.10	50.76	3.42
21	5910	5.11437	1.89027	0.12238	0.73671	200 16 53	142.44	52.65	3.41
31	5920	5.08859	1.95737	0.12204	0.73667	201 2 12	141.76	54.53	3.40
Feb. 10	5930	5.06188	2.02412	0.12168	0.73663	201 47 31	141.06	56.40	3.39
20	5940	5.03424	2.09050	0.12130	0.73659	202 32 51	140.33	58.27	3.38
March 2	5950	5.00569	2.15650	0.12089	0.73654	203 18 11	139.58	60.13	3.37
12	5960	4.97622	2.22210	0.12046	0.73649	204 3 32	138.81	61.98	3.36
22	5970	4.94584	2.28720	0.12001	0.73643	204 48 54	138.01	63.83	3.35
April 1	5980	4.91455	2.35207	0.11954	0.73637	205 34 17	137.19	65.66	3.34
11	5990	4.88237	2.41642	0.11905	0.73631	206 19 40	136.35	67.48	3.32
21	6000	4.84930	2.48033	0.11853	0.73625	207 5 4	135.49	69.30	3.31
May 1	6010	4.81534	2.54378	0.11799	0.73618	207 50 29	134.61	71.11	3.30
11	6020	4.78050	2.60677	0.11743	0.73610	208 35 55	133.70	72.91	3.28
21	6030	-4.74477	-2.66928	+0.11685	0.73602	209 21 22	+132.77	+74.69	-3.27

NOTE.—The Epoch is the 2405,000th day of the Julian Period = 1872, July 25.

HELIOCENTRIC COÖRDINATES. 405

JUPITER.										
1875.	Julian Day.	<i>x</i> .	<i>y</i> .	<i>z</i> .	Log Radius Vector.	Longitude in Orbit.	$-\frac{r^2}{r^3}x$.	$-\frac{r^2}{r^3}y$.	$-\frac{r^2}{r^3}z$.	
	240									
May	31	6040	-4.70817	-2.73130	+0.11625	0.73594	210° 6' 50"	+131.82	+76.47	-3.25
June	10	6050	4.67070	2.79282	0.11562	0.73586	210 52 19	130.85	78.24	3.24
	20	6060	4.63238	2.85382	0.11497	0.73577	211 37 49	129.86	80.00	3.22
	30	6070	4.59321	2.91430	0.11431	0.73567	212 23 20	128.85	81.75	3.21
July	10	6080	4.55320	2.97425	0.11362	0.73558	213 8 52	127.81	83.49	3.19
	20	6090	4.51235	3.03365	0.11291	0.73548	213 54 25	126.75	85.21	3.17
	30	6100	4.47067	3.09248	0.11218	0.73537	214 40 0	125.67	86.93	3.15
Aug.	9	6110	4.42816	3.15074	0.11143	0.73526	215 25 36	124.56	88.64	3.13
	19	6120	4.38484	3.20842	0.11066	0.73515	216 11 14	123.44	90.33	3.12
	29	6130	4.34071	3.26551	0.10987	0.73504	216 56 53	122.30	92.00	3.10
Sept.	8	6140	4.29577	3.32200	0.10906	0.73492	217 42 33	121.13	93.66	3.08
	18	6150	4.25004	3.37788	0.10823	0.73480	218 28 15	119.94	95.32	3.06
	28	6160	4.20353	3.43314	0.10738	0.73467	219 13 58	118.73	96.97	3.03
Oct.	8	6170	4.15624	3.48776	0.10651	0.73454	219 59 43	117.50	98.60	3.01
	18	6180	4.10819	3.54173	0.10562	0.73441	220 45 30	116.25	100.22	2.99
	28	6190	4.05937	3.59505	0.10471	0.73428	221 31 19	114.98	101.82	2.97
Nov.	7	6200	4.00979	3.64770	0.10378	0.73414	222 17 9	113.68	103.41	2.94
	17	6210	3.95947	3.69967	0.10283	0.73399	223 3 1	112.36	104.99	2.92
	27	6220	3.90841	3.75096	0.10186	0.73385	223 48 55	111.03	106.55	2.89
Dec.	7	6230	3.85663	3.80155	0.10088	0.73370	224 34 51	109.67	108.10	2.87
	17	6240	3.80413	3.85142	0.09987	0.73354	225 20 48	108.29	109.64	2.84
	27	6250	3.75091	3.90057	0.09884	0.73339	226 6 48	106.89	111.16	2.82
	37	6260	-3.69698	-3.94899	+0.09780	0.73322	226 52 50	+105.48	+112.67	-2.79

SATURN.

1875.	Julian Day.	<i>x</i> .	<i>y</i> .	<i>z</i> .	Log Radius Vector.	Longitude in Orbit.	$-\frac{r^2}{r^3}x$.	$-\frac{r^2}{r^3}y$.	$-\frac{r^2}{r^3}z$.	
	240									
Jan.	1	5890	+7.07281	-6.92020	-0.16841	0.99548	315° 38' 40"	- 9.86	+9.65	+0.23
	11	5900	7.10869	6.88032	0.17051	0.99539	315 57 18	9.92	9.60	0.24
	21	5910	7.14436	6.84023	0.17261	0.99530	316 15 57	9.98	9.55	0.24
	31	5920	7.17981	6.79993	0.17470	0.99521	316 34 36	10.04	9.50	0.24
Feb.	10	5930	7.21503	6.75942	0.17679	0.99512	316 53 16	10.09	9.45	0.25
	20	5940	7.25003	6.71870	0.17887	0.99502	317 11 56	10.15	9.40	0.25
March	2	5950	7.28482	6.67777	0.18095	0.99493	317 30 37	10.20	9.35	0.25
	12	5960	7.31939	6.63663	0.18302	0.99484	317 49 18	10.26	9.30	0.26
	22	5970	7.35373	6.59530	0.18509	0.99475	318 8 0	10.31	9.25	0.26
April	1	5980	7.38784	6.55377	0.18715	0.99465	318 26 42	10.36	9.20	0.26
	11	5990	7.42173	6.51203	0.18921	0.99456	318 45 25	10.42	9.14	0.27
	21	6000	7.45539	6.47009	0.19126	0.99446	319 4 8	10.48	9.09	0.27
May	1	6010	7.48882	6.42795	0.19330	0.99436	319 22 52	10.53	9.04	0.27
	11	6020	7.52202	6.38561	0.19534	0.99427	319 41 36	10.58	8.99	0.27
	21	6030	7.55499	6.34307	0.19737	0.99417	320 0 21	10.63	8.93	0.28
	31	6040	7.58773	6.30033	0.19940	0.99408	320 19 6	10.69	8.88	0.28
June	10	6050	7.62023	6.25740	0.20142	0.99398	320 37 52	10.74	8.82	0.28
	20	6060	7.65250	6.21428	0.20343	0.99388	320 56 38	10.80	8.77	0.29
	30	6070	7.68454	6.17096	0.20544	0.99378	321 15 25	10.85	8.71	0.29
July	10	6080	7.71634	6.12745	0.20744	0.99368	321 34 13	10.90	8.66	0.29
	20	6090	7.74790	6.08375	0.20944	0.99358	321 53 1	10.95	8.60	0.30
	30	6100	+7.77922	-6.03987	-0.21143	0.99348	322 11 50	-11.00	+8.55	+0.30

NOTE.—The Epoch is the 2405,000th day of the Julian Period = 1872, July 25.

406 HELIOCENTRIC COÖRDINATES.

SATURN.									
1875.	Julian Day.	<i>x</i> .	<i>y</i> .	<i>z</i> .	Log Radius Vector.	Longitude in Orbit.	$-\frac{x^2}{r^3}$.	$-\frac{y^2}{r^3}$.	$-\frac{z^2}{r^3}$.
	240								
Aug. 9	6110	+7.81030	-5.99580	-0.21341	0.99338	322° 30' 39"	-11.06	+8.49	+0.30
19	6120	7.84114	5.95154	0.21538	0.99327	322 49 29	11.11	8.43	0.30
29	6130	7.87174	5.90709	0.21735	0.99317	323 8 19	11.16	8.37	0.31
Sept. 8	6140	7.90210	5.86246	0.21931	0.99307	323 27 10	11.21	8.32	0.31
18	6150	7.93221	5.81765	0.22127	0.99297	323 46 1	11.26	8.26	0.31
28	6160	7.96207	5.77266	0.22322	0.99287	324 4 53	11.31	8.20	0.32
Oct. 8	6170	7.99168	5.72748	0.22516	0.99276	324 23 45	11.36	8.14	0.32
18	6180	8.02104	5.68212	0.22709	0.99266	324 42 38	11.41	8.08	0.32
28	6190	8.05016	5.63659	0.22902	0.99255	325 1 31	11.46	8.02	0.33
Nov. 7	6200	8.07903	5.59088	0.23094	0.99245	325 20 25	11.51	7.96	0.33
17	6210	8.10764	5.54499	0.23285	0.99234	325 39 20	11.56	7.90	0.33
27	6220	8.13600	5.49893	0.23475	0.99224	325 58 15	11.61	7.84	0.33
Dec. 7	6230	8.16410	5.45270	0.23665	0.99213	326 17 11	11.66	7.78	0.34
17	6240	8.19195	5.40630	0.23854	0.99202	326 36 8	11.71	7.72	0.34
27	6250	8.21954	5.35972	0.24042	0.99192	326 55 5	11.75	7.66	0.34
37	6260	+8.24687	-5.31297	-0.24230	0.99181	327 14 3	-11.80	+7.60	+0.34

URANUS.									
1875.	Julian Day.	<i>x</i> .	<i>y</i> .	<i>z</i> .	Log Radius Vector.	Longitude in Orbit.	$-\frac{x^2}{r^3}$.	$-\frac{y^2}{r^3}$.	$-\frac{z^2}{r^3}$.
	240								
Dec. 22	5880	-12.49773	+13.56744	+0.21490	1.26594	132° 39' 8"	+0.38	-0.41	-0.01
Jan. 31	5920	12.61433	13.45275	0.21596	1.26583	133 9 36	0.39	0.41	0.01
Mar. 12	5960	12.73002	13.33706	0.21701	1.26573	133 40 5	0.39	0.41	0.01
Apr. 21	6000	12.84473	13.22038	0.21803	1.26562	134 10 35	0.39	0.40	0.01
May 31	6040	12.95842	13.10271	0.21903	1.26552	134 41 6	0.40	0.40	0.01
July 10	6080	13.07113	12.98404	0.22002	1.26541	135 11 37	0.40	0.40	0.01
Aug. 19	6120	13.18284	12.86441	0.22101	1.26531	135 42 9	0.40	0.39	0.01
Sept. 28	6160	13.29354	12.74383	0.22198	1.26521	136 12 41	0.41	0.39	0.01
Nov. 7	6200	13.40322	12.62231	0.22292	1.26511	136 43 15	0.41	0.39	0.01
Dec. 17	6240	-13.51186	+12.49986	+0.22386	1.26501	137 13 48	+0.41	-0.38	-0.01

NEPTUNE.									
1875.	Julian Day.	<i>x</i> .	<i>y</i> .	<i>z</i> .	Log Radius Vector.	Longitude in Orbit.	$-\frac{x^2}{r^3}$.	$-\frac{y^2}{r^3}$.	$-\frac{z^2}{r^3}$.
	240								
Jan. 31	5880	+25.8786	+14.7829	-0.9113	1.47447	29° 44.5	-0.25	-0.14	+0.01
Aug. 19	5920	25.8155	14.8924	0.9120	1.47446	29 59.1	0.24	0.14	0.01
Mar. 12	5960	25.7519	15.0016	0.9127	1.47446	30 13.6	0.24	0.14	0.01
Apr. 21	6000	25.6879	15.1105	0.9134	1.47446	30 28.2	0.24	0.14	0.01
May 31	6040	25.6234	15.2192	0.9140	1.47446	30 42.8	0.24	0.14	0.01
July 10	6080	25.5585	15.3276	0.9147	1.47445	30 57.4	0.24	0.15	0.01
Aug. 19	6120	25.4931	15.4357	0.9153	1.47445	31 11.9	0.24	0.15	0.01
Sept. 28	6160	25.4273	15.5436	0.9159	1.47445	31 26.5	0.24	0.15	0.01
Nov. 7	6200	25.3610	15.6512	0.9165	1.47445	31 41.1	0.24	0.15	0.01
Dec. 17	6240	+25.2943	+15.7586	-0.9171	1.47444	31 55.6	-0.24	-0.15	+0.01

NOTE.—The Epoch is the 2405,000th day of the Julian Period = 1872, July 25.

INCLINATIONS AND NODES.

Planet.	Inclination.	Increase in 100 Days.	Longitude of Ascending Node.	Increase in 100 Days.
Mercury . . .	7° 0' 9.8"	+0.01947	46° 49' 3"	+11.643
Venus . . .	3 23 35.4	+0.01195	75 33 5	9.004
Mars . . .	1 51 1.8	-0.00586	48 34 2	7.585
Jupiter . . .	1 18 35.1	-0.06189	99 7 16	9.402
Saturn . . .	2 29 19.2	-0.03824	112 30 56	8.425
Uranus . . .	0 46 30.2	+0.00835	73 20 59	4.898
Neptune . . .	1 46 54.3	-0.09020	130 22 29	+10.885

NOTE.—The Epoch is the 2405,000th day of the Julian Period = 1872, July 25.

MASSES. SUN'S=1.

Planet.	Mass.	Log. of Mass.	Authority.
Mercury . .	$\frac{1}{4865751}$ =.000 000 206	93.31285	ENCKE, <i>A. N.</i> , No. 443.
Venus . . .	$\frac{1}{390000}$ =.000 002 564	94.40893	LE VERRIER, <i>Théor. de Merc.</i> , p. 115.
The Earth .	$\frac{1}{354936}$ =.000 002 817	94.44985	LE VERRIER, <i>Théor. de Merc.</i> , p. 26.
Mars . . .	$\frac{1}{2680637}$ =.000 000 373	93.57176	BURCKHARDT, <i>Conn. des Temps.</i> , 1816, p. 343.
Jupiter . .	$\frac{1}{1047.879 \pm .235}$ =.000 954 308	96.979689	BESSEL, <i>Die Masse des Jupiter</i> , p. 64.
Saturn . . .	$\frac{1}{3501.6}$ =.000 285 584	96.455733	BESSEL, <i>Comptes Rendus</i> , 1841.
Uranus . . .	$\frac{1}{24905}$ =.000 040 153	95.60371	LAMONT, <i>Mem. Ast. Soc.</i> , Vol. XI. p. 54.
Neptune . .	$\frac{1}{18780}$ =.000 053 248	95.72630	PEIRCE, <i>Am. Ac. Proc.</i> , Vol. I. p. 333.

ECLIPSES IN 1875.

In the year 1875 there will be two Eclipses, both of the Sun.

I. A Total Eclipse of the Sun, April 5, 1875, invisible at Washington, with the following elements :

Washington mean time of δ in Right Ascension, April 5 ^d 13 ^h 22 ^m 7.0.			
Sun and Moon's R. A.	0 59 9.39	Hourly Motions	9.13 and 133.19
Sun's Declination	+6° 19' 14.7	Hourly Motion	+ 0' 56.8
Moon's Declination	+6 10 20.4	" "	+17 32.6
Sun's Equa. Hor. Par.	8.8	True Semidiameter	15 58.6
Moon's Equa. Hor. Par.	60 47.3	" "	16 33.1

From these elements may be deduced the following results :

Eclipse begins on the Earth April 5^d 10^h 50^m.3, Washington mean time, in longitude 112° 25'.5 East from Washington, and in latitude 33° 5'.1 South.

Central Eclipse begins on the Earth 11^h 44^m.4, in longitude 99° 19'.7 East from Washington, and in latitude 35° 30'.0 South.

Central Eclipse at Noon 13^h 22^m.1, in longitude 160° 22'.3 East from Washington, and in latitude 2° 7'.8 South.

Central Eclipse ends on the Earth 15^h 12^m.1, in longitude 134° 39'.1 West from Washington, and in latitude 21° 12'.3 North.

Eclipse ends on the Earth 16^h 8^m.3, in longitude 148° 25'.1 West from Washington, and in latitude 23° 26'.7 North.

DATA FOR COMPUTING THE ECLIPSE FOR ANY PLACE, FOR PENUMBRA.

Wash. M. Time.	A.	B.	C.	log. E.	log. F.	log. G.	log. H.	μ
h m				9.99	9.99	9.02	9.05	
10 40	-1.37352	-0.35014	-1.42311	7609	7162	0155	7037	159° 5' 21".8
10 50	1.28883	0.30450	1.37747	7607	7160	0336	7203	161 35 24.3
11 0	1.20413	0.25886	1.33182	7605	7158	0517	7369	164 5 26.9
11 10	1.11943	0.21322	1.28618	7603	7156	0697	7535	166 35 29.5
11 20	1.03472	0.16758	1.24054	7601	7154	0878	7701	169 5 32.0
11 30	0.95001	0.12194	1.19490	7599	7151	1059	7867	171 35 34.6
11 40	0.86530	0.07631	1.14926	7597	7149	1240	8033	174 5 37.2
11 50	0.78058	-0.03068	1.10362	7595	7147	1420	8199	176 35 39.7
12 0	0.69585	+0.01494	1.05798	7593	7145	1601	8365	179 5 42.3
12 10	0.61112	0.06057	1.01234	7591	7143	1782	8530	181 35 44.9
12 20	0.52639	0.10620	0.96671	7589	7140	1962	8696	184 5 47.4
12 30	0.44165	0.15182	0.92107	7587	7138	2142	8861	186 35 50.0
12 40	0.36692	0.19744	0.87544	7585	7136	2323	9027	189 5 52.6
12 50	0.27218	0.24306	0.82980	7583	7134	2503	9192	191 35 55.1
13 0	0.18743	0.28867	0.78417	7581	7132	2683	9358	194 5 57.7
13 10	0.10269	0.33429	0.73853	7579	7129	2863	9523	196 36 0.3
13 20	-0.01795	0.37990	0.69290	7577	7127	3043	9688	199 6 2.8
13 30	+0.06680	0.42551	0.64727	7575	7125	3223	9853	201 36 5.4
13 40	0.15155	0.47112	0.60163	7573	7123	3403	10018	204 6 8.0
13 50	0.23630	0.51673	0.55600	7571	7121	3583	0183	206 36 10.5
14 0	0.32106	0.56233	0.51037	7568	7118	3763	0348	209 6 13.1
14 10	0.40582	0.60794	0.46474	7566	7116	3942	0513	211 36 15.7
14 20	+0.49057	+0.65355	-0.41911	7564	7114	4122	0677	214 6 18.2

◆ The first figures of this and the following logarithms are 9.06.

OUTLINES AND PATH OF THE PENUMBRA AND THE CENTRAL LINE OF THE TOTAL ECLIPSE OF APRIL 5, 1875.



DATA FOR COMPUTING THE ECLIPSE FOR ANY PLACE, FOR PENUMBRA.

Wash. M. Time.	A.	B.	C.	log. E.	log. F.	log. G.	log. H.	μ
				9.99	9.99	9.02	9.06	
^h ^m 14 30	+0.57532	+0.69915	-0.37347	7562	7112	4301	0842	216° 36' 20".8
14 40	0.66007	0.74475	0.32784	7560	7110	4481	1007	219 6 23.4
14 50	0.74482	0.79035	0.28221	7558	7107	4660	1171	221 36 25.9
15 0	0.82957	0.83594	0.23658	7556	7105	4839	1336	224 6 28.5
15 10	0.91432	0.88154	0.19095	7554	7103	5018	1500	226 36 31.1
15 20	0.99906	0.92713	0.14532	7552	7101	5197	1665	229 6 33.6
15 30	1.08380	0.97272	0.09968	7550	7099	5376	1829	231 36 36.2
15 40	1.16854	1.01831	0.05405	7548	7096	5555	1993	234 6 38.8
15 50	1.25327	1.06390	-0.00842	7546	7094	5733	2158	236 36 41.3
16 0	1.33800	1.10949	+0.03721	7544	7092	5912	2322	239 6 43.9
16 10	+1.42272	+1.15508	+0.08284	7542	7090	6091	2486	241 36 46.5

FOR SHADOW.

Washington Mean Time.	B.	C.	Washington Mean Time.	B.	C.
^h ^m 11 40	-0.62220	-0.60337	^h ^m 13 30	-0.12037	-0.10139
11 50	0.57657	0.55773	13 40	0.07476	0.05576
12 0	0.53094	0.51210	13 50	-0.02915	-0.01013
12 10	0.48532	0.46646	14 0	+0.01646	+0.03550
12 20	0.43969	0.42083	14 10	0.06206	0.08113
12 30	0.39407	0.37519	14 20	0.10767	0.12677
12 40	0.34845	0.32956	14 30	0.15327	0.17240
12 50	0.30283	0.28392	14 40	0.19887	0.21803
13 0	0.25721	0.23829	14 50	0.24447	0.26366
13 10	0.21160	0.19266	15 0	0.29007	0.30929
13 20	0.16598	0.14702	15 10	0.33566	0.35492
13 30	-0.12037	-0.10139	15 20	+0.38126	+0.40055

A and μ are the same as for Penumbra, and the values of log. E, log. F, log. G, and log. H, may be obtained from the corresponding values for Penumbra, by numerically decreasing log. E and increasing log. F by 0.000001, and by numerically increasing log. G by 0.000096 and decreasing log. H by 0.000088.

CHANGES OF THE QUANTITIES IN THE TABLES OF DATA IN UNITS OF THE SIXTH PLACE OF DECIMALS.

Washington Mean Time.	For one Minute.			For one Second.		
	A.	B.	C.	A'.	B'.	C'.
^h ^m 10 30	+8467.8	+4564.3	+4564.8	+141.13	+76.07	+76.08
11 0	8469.7	4563.8	4564.4	141.16	76.06	76.07
11 30	8471.3	4563.3	4564.0	141.19	76.05	76.07
12 0	8472.6	4562.7	4563.7	141.21	76.04	76.06
12 30	8473.7	4562.2	4563.5	141.23	76.04	76.06
13 0	8474.4	4561.7	4563.3	141.24	76.03	76.05
13 30	8474.9	4561.2	4563.2	141.25	76.02	76.05
14 0	8475.2	4560.7	4563.2	141.25	76.01	76.05
14 30	8475.1	4560.2	4563.2	141.25	76.00	76.05
15 0	8474.6	4559.7	4563.2	141.24	75.99	76.05
15 30	8473.8	4559.2	4563.2	141.23	75.99	76.05
16 0	8472.7	4558.7	4563.2	141.21	75.98	76.05
16 30	+8471.3	+4558.2	+4563.2	+141.19	+75.97	+76.05

OUTLINES AND PATH OF THE PENUMBRA, AND THE CENTRAL LINE OF THE ANNULAR ECLIPSE OF SEPTEMBER 28, 1875.



II. An Annular Eclipse of the Sun, September 28, 1875, partly visible at Washington, with the following elements:

Washington mean time of ζ in Right Ascension, September 28 19 ^d 34 ^h 17.0 ^m .			
Sun and Moon's R. A.	12 ^h 21 ^m 50.83 ^s	Hourly Motions	9.04 ^s and 111.09 ^s
Sun's Declination	-2° 21' 54".7	Hourly Motion	- 0' 58".5
Moon's Declination	-2 6 28.1	" "	-15 8.7
Sun's Equa. Hor. Par.	8.8	True Semidiameter	15 58.7
Moon's Equa Hor. Por.	55 46.0	" "	15 11.1

From these elements may be deduced the following results:

Eclipse begins on the Earth September 28^d 16^h 53^m.3, Washington mean time, in longitude 16° 6'.2 East from Washington, and in latitude 38° 9'.0 North.

Central Eclipse begins on the Earth 17^h 58^m.9, in longitude 0° 4'.7 East from Washington, and in latitude 43° 16'.3 North.

Central Eclipse at Noon 19^h 34^m.3, in longitude 64° 1'.1 East from Washington, and in latitude 13° 48'.2 North.

Central Eclipse ends on the Earth 21^h 40^m.7, in longitude 123° 3'.2 East from Washington, and in latitude 15° 5'.2 South.

Eclipse ends on the Earth 22^h 46^m.2, in longitude 106° 54'.9 East from Washington, and in latitude 20° 9'.2 South.

DATA FOR COMPUTING THE ECLIPSE FOR ANY PLACE, FOR PENUMBRA.

Wash. M. Time.	A.	B.	C.	log. E.	log. F.	log. G.	log. H.	μ
				9.99	9.99	n 8.6	n 8.5	
16 50	-1.25507	+1.53487	+0.41511	9561	9725	5515	5470	254 53 43.3
17 0	1.17868	1.49246	0.37264	9560	9724	5558	5525	257 23 46.0
17 10	1.10229	1.45004	0.33017	9559	9724	5602	5579	259 53 48.7
17 20	1.02589	1.40763	0.28769	9558	9723	5646	5636	262 23 51.4
17 30	0.94950	1.36521	0.24522	9557	9722	5689	5691	264 53 54.2
17 40	0.87311	1.32279	0.20275	9556	9722	5733	5745	267 23 56.9
17 50	0.79671	1.28037	0.16028	9555	9721	5777	5799	269 53 59.6
18 0	0.72032	1.23795	0.11781	9554	9720	5821	5853	272 24 2.3
18 10	0.64392	1.19553	0.07534	9553	9719	5864	5907	274 54 5.0
18 20	0.56752	1.15310	+0.03287	9552	9719	5907	5961	277 24 7.7
18 30	0.49112	1.11068	-0.00960	9552	9718	5951	6015	279 54 10.5
18 40	0.41471	1.06825	0.05208	9551	9717	5994	6070	282 24 13.2
18 50	0.33831	1.02583	0.09455	9550	9717	6037	6124	284 54 15.9
19 0	0.26191	0.98340	0.13702	9549	9716	6080	6178	287 24 18.6
19 10	0.18551	0.94097	0.17948	9548	9715	6123	6232	289 54 21.3
19 20	0.10911	0.89855	0.22195	9547	9714	6166	6285	292 24 24.0
19 30	-0.03271	0.85612	0.26441	9546	9714	6208	6339	294 54 26.7
19 40	+0.04369	0.81369	0.30688	9545	9713	6251	6393	297 24 29.5
19 50	0.12008	0.77126	0.34935	9544	9712	6294	6447	299 54 32.2
20 0	0.19648	0.72883	0.39181	9543	9711	6337	6501	302 24 34.9
20 10	0.27287	0.68640	0.43427	9543	9711	6380	6555	304 54 37.6
20 20	0.34927	0.64398	0.47673	9542	9710	6422	6608	307 24 40.4
20 30	0.42566	0.60155	0.51919	9541	9709	6465	6662	309 54 43.1
20 40	0.50206	0.55912	0.56165	9540	9709	6508	6715	312 24 45.8
20 50	0.57845	0.51669	0.60411	9539	9708	6550	6769	314 54 48.6
21 0	0.65484	0.47427	0.64657	9538	9707	6593	6822	317 24 51.3
21 10	0.73122	0.43184	0.68902	9537	9706	6636	6875	319 54 54.0
21 20	+0.80760	+0.38942	-0.73147	9536	9706	6678	6929	322 24 56.7

DATA FOR COMPUTING THE ECLIPSE FOR ANY PLACE, FOR PENUMBRA.

Wash. M. Time.	A.	B.	C.	log. E.	log. F.	log. G.	log. H.	μ
h m				9.99	9.99	n 8.6	n 8.5	
21 30	+0.88398	+0.34699	-0.77392	9535	9705	6721	6982	324° 54' 59.5
21 40	0.96036	0.30457	0.81637	9534	9704	6763	7035	327 25 2.2
21 50	1.03674	0.26215	0.85881	9533	9704	6806	7088	329 55 4.9
22 0	1.11311	0.21973	0.90125	9532	9703	6848	7141	332 25 7.6
22 10	1.18948	0.17731	0.94369	9532	9702	6890	7193	334 55 10.3
22 20	1.26584	0.13490	0.98613	9531	9701	6932	7246	337 25 13.0
22 30	1.34220	0.09249	1.02856	9530	9701	6975	7299	339 55 15.7
22 40	1.41856	0.05008	1.07099	9529	9700	7017	7352	342 25 18.5
22 50	+1.49492	+0.00767	-1.11342	9528	9699	7059	7404	344 55 21.2

FOR SHADOW.

Washington Mean Time.	B.	C.	Washington Mean Time.	B.	C.
h m			h m		
17 50	+0.73438	+0.70627	19 50	+0.22527	+0.19664
18 0	0.69196	0.66380	20 0	0.18284	0.15418
18 10	0.64954	0.62133	20 10	0.14041	0.11172
18 20	0.60711	0.57886	20 20	0.09798	0.06926
18 30	0.56469	0.53639	20 30	0.05556	+0.02680
18 40	0.52226	0.49392	20 40	+0.01313	-0.01566
18 50	0.47983	0.45145	20 50	-0.02930	0.05811
19 0	0.43740	0.40898	21 0	0.07173	0.10057
19 10	0.39497	0.36651	21 10	0.11415	0.14302
19 20	0.35255	0.32404	21 20	0.15658	0.18547
19 30	0.31012	0.28158	21 30	0.19900	0.22791
19 40	0.26769	0.23911	21 40	0.24143	0.27036
19 50	+0.22527	+0.19664	21 50	-0.28385	-0.31281

A, μ , log. E, and log. F are the same as for Penumbra, and the values of log. G and log. H may be obtained from the corresponding values for Penumbra, by numerically decreasing log. G by 0.00022, and by numerically increasing log. H by 0.00028.

CHANGES OF THE QUANTITIES IN THE TABLES OF DATA IN UNITS OF THE SIXTH PLACE OF DECIMALS.

Washington Mean Time.	For one Minute.			For one Second.		
	A.	B.	C.	A'.	B'.	C'.
h m						
16 30	+7638.0	-4240.9	-4246.7	+127.30	-70.68	-70.78
17 0	7638.7	4241.4	4247.0	127.31	70.69	70.78
17 30	7639.3	4241.8	4247.2	127.32	70.70	70.79
18 0	7639.9	4242.2	4247.3	127.33	70.70	70.79
18 30	7640.2	4242.5	4247.2	127.34	70.71	70.79
19 0	7640.3	4242.7	4247.0	127.34	70.71	70.78
19 30	7640.1	4242.8	4246.7	127.33	70.71	70.78
20 0	7639.8	4242.8	4246.4	127.33	70.71	70.77
20 30	7639.3	4242.7	4246.0	127.32	70.71	70.77
21 0	7638.7	4242.6	4245.5	127.31	70.71	70.76
21 30	7637.9	4242.3	4244.9	127.30	70.70	70.75
22 0	7637.0	4241.8	4244.1	127.28	70.70	70.73
22 30	7636.0	4241.2	4243.2	127.27	70.69	70.72
23 0	+7635.0	-4240.5	-4242.2	+127.25	-70.67	-70.70

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.													
JANUARY.													
STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.				
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.		Hour Angle H		Y	x'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d	h m	h m	m					
B. A. C. 4896	6	-1.22	- 0.1	-17 16.1	1	21 19.3	+ 1 22.0	-0.5972	5064	-2063	+ 6	-84	
α Libræ	4½	1.33	0.3	19 19.0	2	7 50.8	+11 34.7	-0.4309	5134	.1921	+12	-71	
β Libræ	6½	1.33	0.5	19 10.5	8	24.3	-11 52.8	-0.6945	5137	.1912	- 2	-90	
B. A. C. 5253	6	1.55	1.3	24 9.5	3	4 13.7	+ 7 19.6	+1.3183	5279	.1588	+66	+53	
B. A. C. 5254	6	1.55	1.5	23 36.3	4	15.5	+ 7 21.3	+0.7034	5279	.1588	+67	- 5	
B. A. C. 5286	6½	1.57	1.5	24 28.7	6	27.5	+ 9 29.1	+1.3198	5295	.1546	+66	+55	
δ Scorpii	2½	-1.54	- 2.0	-22 15.9	7	20.4	+10 20.4	-1.2508	5302	-1530	-47	-90	
B. A. C. 5335	6½	1.50	2.1	23 16.2	10	2.8	-11 2.5	-0.5527	5321	.1479	+ 1	-81	
B. A. C. 5354	6½	1.61	2.3	23 21.5	11	16.9	- 9 50.8	-0.6353	5330	.1455	- 4	-90	
19 Scorpii	5½	1.64	2.7	23 52.0	16	49.1	- 4 29.6	-0.8511	5372	.1342	-18	-90	
σ Scorpii	3½	1.66	2.4	25 17.5	17	2.3	- 4 16.9	+0.6328	5374	.1338	+64	- 6	
α Scorpii	1½	1.69	2.8	26 9.2	20	48.2	- 0 38.5	+1.1384	5400	.1259	+64	+27	
22 Scorpii	5	-1.66	- 3.0	-24 50.3	21	12.1	- 0 15.4	-0.3531	5402	-1250	+ 8	-66	
25 Scorpii	6	1.74	3.8	25 18.1	4	4 44.6	+ 7 1.7	-0.7248	5455	.1083	-13	-90	
B. A. C. 5800	6½	1.81	5.0	26 50.0	16	50.8	- 5 17.3	-0.1909	5534	.0795	+12	-56	
A ¹ Ophiuchi	5½	1.78	5.1	26 25.1	17	22.8	- 4 46.4	-0.6855	5536	.0782	-14	-90	
A ² Ophiuchi	6	1.78	5.1	26 25.0	17	22.9	- 4 46.3	-0.6842	5536	.0782	-14	-90	
38 Ophiuchi	6½	1.79	5.3	26 29.4	18	21.2	- 3 50.1	-0.6825	5542	.0758	-14	-90	
43 Ophiuchi	6	-1.84	- 5.4	-28 1.2	20	47.8	- 1 28.7	+0.8056	5556	-0.0696	+62	+ 3	
3 Sagittarii	5	1.84	6.6	27 47.0	5	7 13.5	+ 8 34.5	-0.0410	5606	.0427	+16	-47	
B. A. C. 6024	6½	1.84	6.9	27 1.2	8	26.6	+ 9 45.0	-0.9141	5612	.0392	-31	-90	
B. A. C. 6063	6½	1.87	6.9	28 2.8	11	7.0	-11 40.4	+0.0913	5623	.0382	+22	-38	
B. A. C. 6072	6½	1.87	6.9	27 44.4	11	55.2	-10 54.0	+0.8957	5626	.0303	+62	+ 5	
B. A. C. 6120	6½	1.87	7.4	28 22.3	15	22.6	- 7 34.2	+0.3385	5638	.0205	+35	-25	
B. A. C. 6127	5	-1.86	- 7.4	-28 28.2	15	55.3	- 7 2.6	+0.4348	5640	-0.187	+40	-19	
B. A. C. 7197	6	1.53	12.8	23 11.7	8	11 44.8	+10 17.1	-0.1489	5560	+1618	+22	-53	
B. A. C. 7237	6	1.50	13.0	24 15.2	13	45.5	-11 46.6	+1.2933	5551	.1663	+66	+46	
χ Capricorni	6	1.37	12.8	21 41.8	20	38.9	- 5 7.7	-0.1982	5517	.1809	+21	-59	
27 Capricorni	6	1.41	12.8	21 3.6	21	5.5	- 4 42.0	-0.7869	5514	.1817	- 9	-90	
ϕ Capricorni	5½	1.40	12.8	21 10.3	23	47.8	- 2 5.4	-0.1494	5501	.1873	+25	-53	
33 Capricorni	5½	-1.38	-12.9	-21 23.1	9	3 36.3	+ 1 35.2	+0.7813	5481	+1951	+69	- 1	
37 Capricorni	6	1.31	12.8	20 38.6	8	26.1	+ 6 15.0	+0.9687	5456	.2041	+70	+10	
ϵ Capricorni	4½	1.32	12.7	20 1.7	9	27.0	+ 7 13.8	+0.5332	5450	.2060	+63	-16	
κ Capricorni	5	1.31	12.6	19 26.3	11	59.0	+ 9 40.6	+0.4446	5437	.2104	+59	-20	
B. A. C. 7550	6	1.30	12.6	20 11.7	12	13.9	+ 9 55.1	+1.2871	5436	.2109	+70	+39	
29 Aqua., mult.	6	1.20	12.2	17 34.2	21	6.0	- 5 30.8	+0.4851	5389	.2259	+63	-19	
50 Aquarii	6	-1.11	-11.1	-14 9.9	10	7 24.6	+ 4 27.4	-0.6456	5340	+2406	+ 6	-88	
B. A. C. 7835	6½	1.10	10.9	13 33.4	10	2.2	+ 6 59.8	-0.6399	5329	.2440	+ 7	-87	
56 Aquarii	6	1.09	11.3	15 13.6	10	9.4	+ 7 6.7	+1.1205	5329	.2441	+75	+19	
70 Aquarii	6	1.01	10.0	11 13.1	18	51.4	- 8 28.2	-0.8606	5293	.2542	- 4	-90	
74 Aquarii	6	0.98	10.2	12 17.0	21	14.1	- 6 10.1	+0.8490	5284	.2567	+78	+ 1	
ψ Aquarii	4½	0.88	9.1	9 46.3	11	8 3.2	+ 4 18.4	+1.0862	5251	.2665	+80	+15	
χ Aquarii	5½	-0.88	- 8.7	- 8 24.6	8	33.1	+ 4 47.2	-0.1829	5250	+2668	+33	-54	
20 Piscium	6	0.77	6.4	3 51.0	23	44.4	- 4 30.0	-1.1434	5222	.2760	-20	-90	
24 Piscium	6½	0.74	6.4	4 15.1	12	2 11.1	- 2 7.9	-0.0652	5219	.2767	+41	-48	
27 Piscium	5½	0.70	6.2	3 43.5	5	0.8	+ 0 36.5	+1.1298	5218	.2777	+27	+18	
29 Piscium	5½	0.69	6.1	3 47.5	6	33.1	+ 2 5.9	+1.0172	5217	.2781	+26	+10	
B. A. C. 8365	6½	0.70	5.0	1 11.9	8	8.2	+ 3 38.1	-1.1280	5217	.2785	-18	-90	
4 Ceti	6	-0.67	- 5.6	- 3 14.7	9	27.0	+ 4 54.4	+1.3341	5216	+2788	+57	+36	
5 Ceti	6	0.67	5.6	3 8.7	9	40.8	+ 5 7.7	+1.2951	5216	.2789	+57	+32	
B. A. C. 5	6	0.66	5.6	- 2 55.2	9	56.0	+ 5 22.5	+1.1347	5216	.2790	+57	+18	
44 Piscium	6	0.62	3.5	+ 1 14.8	18	6.1	-10 42.8	-0.8410	5222	.2798	0	-89	
10 Ceti	6	0.58	4.3	- 0 44.6	18	41.8	-10 8.2	+1.3577	5223	.2798	+29	+39	
B. A. C. 221	6	-0.52	- 1.5	+ 4 38.2	12	5 13.6	+ 0 3.7	-1.1882	5242	+2786	-22	-86	

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

JANUARY.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.		
Name.	Mag.	Red'ns from 1875.0 Δ _a Δ _d	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	z'	y'	N'n.	S'n.	
		^s ^u	^o	^d ^h ^m	^h ^m				^o	^o	
B. A. C. 274	6½	-0.47	- 0.8	+ 5 48.5	13 10 48.2	+ 5 27.7	-0.8300	.5257	+2770	+ 1	-84
73 Piscium	6½	0.44	1.1	4 59.1	13 14.2	+ 7 49.0	+0.6794	.5264	.2760	+89	- 9
e Piscium	5½	0.41	- 0.9	4 59.3	14 55.8	+ 9 27.4	+1.1439	.5270	.2752	+90	+20
γ Piscium	4½	0.41	+ 0.1	6 54.8	17 27.3	+11 54.0	-0.1220	.5280	.2740	+38	-50
δ Piscium	6½	0.41	0.1	6 55.0	17 28.0	+11 54.7	-0.1218	.5280	.2740	+38	-50
88 Piscium	6	0.40	0.0	6 20.0	17 56.2	-11 38.0	+0.5098	.5281	.2737	+82	-13
54 Ceti	6	-0.22	+ 2.7	+10 25.4	14 10 53.9	+ 4 46.5	+0.9917	.5364	+2612	+90	+12
B. A. C. 609	6	0.19	3.4	11 41.4	14 49.3	+ 8 34.1	+0.7261	.5386	.2575	+90	- 3
19 Arietis	6	0.13	4.9	14 41.7	20 58.5	- 9 29.2	-0.7556	.5427	.2592	+ 4	-74
27 Arietis	6	-0.04	6.2	17 9.1	15 4 55.6	- 1 48.7	-1.2927	.5481	.2395	-37	-73
40 Arietis	6	+0.06	6.9	17 45.8	12 38.2	+ 5 37.7	-0.1120	.5538	.2275	+38	-42
π Arietis, mult.	5½	0.08	6.7	16 56.7	12 58.7	+ 5 57.5	+0.7960	.5540	.2271	+90	+ 5
ρ ¹ Arietis	7½	+0.10	+ 6.8	+17 13.8	15 25.8	+ 8 19.4	+1.0546	.5559	+2230	+90	+12
ρ ² Arietis	6	0.10	7.0	17 49.6	15 46.6	+ 8 39.3	+0.5343	.5563	.2224	+78	- 9
ρ ³ Arietis	6	0.11	6.9	17 31.5	16 2.0	+ 8 54.2	+0.8952	.5565	.2218	+90	+11
54 Arietis	6½	0.17	7.4	18 18.9	21 6.9	-10 11.9	+1.2003	.5605	.2127	+90	+35
δ Arietis	4½	0.19	7.7	19 15.3	22 28.7	- 8 53.1	+0.5403	.5615	.2100	+79	- 7
ζ Arietis	4½	0.21	8.2	20 34.9	23 50.6	- 7 34.2	-0.5155	.5627	.2072	+16	-62
B. A. C. 1032	6½	+0.26	+ 8.1	+20 3.4	16 2 20.8	- 5 9.6	+0.5266	.5649	+2021	+78	- 6
τ ¹ Arietis	5	0.25	8.4	20 41.8	2 29.2	- 5 1.4	-0.0911	.5650	.2019	+39	-38
τ ² Arietis	6	0.26	8.4	20 17.7	3 8.0	- 4 24.1	+0.4447	.5656	.2004	+72	-11
65 Arietis	6	0.26	8.4	20 21.6	3 49.8	- 3 43.8	+0.5184	.5661	.1990	+78	- 7
66 Arietis	6½	0.29	8.7	22 22.4	5 27.2	- 2 10.0	-1.1932	.5674	.1956	-30	-68
9 Tauri	6	0.33	9.4	22 47.9	8 57.3	+ 1 12.1	-0.9497	.5702	.1880	-10	-67
δ Pleiadum	4½	+0.37	+ 9.6	+23 43.3	12 9.7	+ 4 17.1	-1.2897	.5726	+1807	-44	-67
ε Pleiadum	5	0.39	9.6	23 33.6	12 45.2	+ 4 51.3	-1.0205	.5731	.1792	-15	-67
γ Tauri	3	0.39	9.7	23 43.2	13 13.1	+ 5 18.1	-1.0985	.5734	.1783	-21	-67
f Pleiadum	4½	0.41	9.6	23 40.3	13 53.9	+ 5 57.4	-0.9300	.5740	.1766	- 9	-67
ε Pleiadum	5½	0.41	9.6	23 45.3	13 54.4	+ 5 57.8	-1.0127	.5740	.1766	-15	-66
32 Tauri	6	0.47	9.4	22 7.1	17 1.8	+ 8 58.0	+1.1784	.5764	.1689	+90	+39
33 Tauri	6	+0.45	+ 9.5	+22 48.8	17 5.9	+ 9 1.9	+0.4891	.5764	+1688	+76	- 5
36 Tauri	6½	0.50	9.8	23 45.8	19 59.5	+11 48.8	+0.0090	.5785	.1616	+45	-28
χ ¹ Tauri	5½	0.60	10.3	25 20.1	17 3 9.0	- 5 18.6	-0.4877	.5839	.1426	+17	-53
χ ² Tauri	6½	0.60	10.3	25 20.4	3 9.2	- 5 18.4	-0.4915	.5839	.1426	+17	-54
62 Tauri	6	0.61	9.8	24 0.7	3 44.0	- 4 45.0	+0.9311	.5843	.1410	+90	+23
B. A. C. 1648	6½	0.93	10.3	27 49.8	18 1 28.2	- 7 54.0	-0.5461	.5959	.0765	+14	-52
β Tauri	2	+0.97	+10.3	+28 30.1	3 26.7	- 6 0.4	-1.0807	.5966	+0701	-24	-62
B. A. C. 1746	6½	1.00	9.7	27 34.9	7 5.0	- 2 31.2	+0.0838	.5977	.0585	+49	-15
136 Tauri	5	1.09	9.3	27 35.0	13 35.3	+ 3 42.8	+0.3936	.5991	.0371	+70	+ 3
B. A. C. 1882	6½	1.12	9.5	28 55.4	14 45.9	+ 4 50.5	-0.9226	.5993	+0331	-11	-61
B. A. C. 2097	6½	1.26	8.4	28 17.6	19 3 24.1	- 7 3.1	-0.1310	.5990	-0086	+37	-22
49 Aurigæ	5½	1.28	8.2	28 7.2	5 12.9	- 5 18.8	+0.0251	.5987	.0145	+46	-14
53 Aurigæ	6½	+1.29	+ 8.1	+29 5.5	6 23.2	- 4 11.5	-0.9817	.5984	-0184	-16	-61
54 Aurigæ	6	1.29	7.9	28 22.4	6 50.5	- 3 45.3	-0.2610	.5983	.0200	+29	-30
28 Geminor.	6	1.31	7.9	29 5.8	8 46.8	- 1 53.9	-1.0428	.5978	.0262	-21	-61
47 Geminor.	6	1.37	6.5	27 3.7	18 54.1	+ 7 48.2	+0.5981	.5940	.0588	+88	+11
53 Geminor.	6	1.42	6.4	28 6.9	20 37.3	+ 9 27.2	-0.5824	.5932	.0645	+11	-53
59 Geminor.	6½	1.42	6.0	27 52.7	23 55.6	-11 22.6	-0.5719	.5914	.0741	+12	-53
ι Geminorum	4	+1.44	+ 6.0	+28 2.8	20 0 22.9	-10 56.4	-0.7770	.5912	-0757	- 1	-62
θ ¹ Geminorum	5	1.45	5.8	28 22.5	1 45.8	- 9 36.9	-1.2221	.5903	.0803	-40	-62
θ ² Geminorum	5	1.45	5.8	28 10.4	1 57.0	- 9 26.1	-1.0304	.5901	.0808	-19	-62
B. A. C. 2472	6	1.45	5.8	28 10.6	2 16.7	- 9 7.2	-1.0605	.5899	.0817	-22	-62
υ Geminorum	4½	1.43	5.6	27 10.4	4 20.3	- 7 8.5	-0.2087	.5888	.0874	+32	-32
ε Geminorum	6	+1.41	+ 5.0	+26 4.9	7 33.3	- 4 3.3	+0.6118	.5865	-0974	+89	+ 9

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.														
JANUARY.														
STAR'S—					AT CONJUNCTION IN R. A.					Limiting Parallels.				
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Hour Angle H		Y	r'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d	h	m	h	m					
ϕ Geminor.	5	+1.45	+4.3	+27 5.3	20	11	13.4	- 0	32.0	-0.7985	.5836	-1.089	- 2	-63
ω^1 Cancri	6	1.44	3.9	25 44.1		14	11.8	+ 2	19.4	+0.2580	.5816	.1163	+60	-11
ω^2 Cancri	6 $\frac{1}{2}$	1.44	3.9	25 25.9		14	31.4	+ 2	18.2	+0.5304	.5813	.1173	+80	+ 2
ψ^1 Cancri	6 $\frac{1}{2}$	1.46	3.4	26 12.7		17	54.2	+ 5	53.1	-0.6828	.5786	.1263	+ 6	-63
ψ^2 Cancri	4	1.46	3.4	25 53.1		18	0.5	+ 5	59.2	-0.3607	.5785	.1266	+24	-45
λ Cancri	6	1.45	3.0	24 24.9		22	7.0	+ 9	56.2	+0.6116	.5751	.1374	+38	+ 5
ν^1 Cancri, mult	7	+1.45	+2.7	+24 56.5	21	0	37.0	-11	39.5	-0.2835	.5729	-1.436	+29	-42
ν^2 Cancri	5 $\frac{1}{2}$	1.45	2.6	24 33.5		1	25.3	-10	53.0	-0.0040	.5722	.1457	+44	-23
ν^3 Cancri	6	1.45	2.5	24 30.1		2	37.1	- 9	43.9	-0.1213	.5712	.1486	+38	-34
32 Cancri	6	1.46	2.3	24 30.5		3	14.1	- 9	8.3	-0.2221	.5705	.1503	+32	-40
ξ Cancri	5	1.41	0.2	22 33.0		18	42.2	+ 5	45.7	-0.7905	.5561	.1844	0	-68
79 Cancri	6	1.41	0.2	22 30.1		19	8.2	+ 6	10.8	-0.8213	.5554	.1852	- 2	-68
B. A. C. 3138	6	+1.40	+0.1	+21 47.8		20	34.9	+ 7	34.4	-0.3569	.5543	-1.880	+25	-51
17 Leonis	3 $\frac{1}{2}$	1.25	-2.4	17 22.2	22	21	13.6	+ 7	23.2	-0.8794	.5309	.2272	- 3	-73
37 Leonis	6	1.19	2.5	14 21.0	23	1	45.5	+ 2	46.3	+1.2663	.5267	.2327	+90	+37
42 Leonis	6	1.19	2.9	15 36.2		4	15.2	- 9	48.7	-0.6436	.5246	.2355	+11	-73
B. A. C. 3579	6	1.17	3.3	14 58.8		7	41.2	- 6	29.1	-0.7993	.5217	.2391	+ 2	-64
i Leonis	6	1.15	3.3	14 46.6		9	21.7	- 4	51.7	-0.8095	.5204	.2408	+11	+75
l Leonis	5	+1.05	-3.5	+11 12.3		17	57.6	+ 3	28.4	+0.7060	.5137	-2.482	+90	- 5
B. A. C. 3837	6	0.95	4.2	8 44.6	24	6	47.1	- 8	4.9	+0.1003	.5050	.2564	+50	-37
σ Leonis	4	0.89	4.1	6 42.8		10	33.1	- 4	25.4	+1.3110	.5027	.2581	+90	+35
10 Virginis	6	0.66	5.1	+ 2 35.9	25	12	53.7	- 2	49.1	-1.1376	.4911	.2633	-18	-88
13 Virginis	6	0.60	4.7	- 0 5.6		17	52.5	+ 2	1.5	+0.4793	.4897	.2631	+72	-19
17 Virginis	3 $\frac{1}{2}$	0.59	4.8	+ 0 1.6		18	34.1	+ 2	42.0	+0.1656	.4896	.2630	+53	-36
k Virginis	5	+0.16	-4.3	- 9 31.3	27	11	20.5	- 5	37.8	+0.1641	.4889	-2.468	+51	-36
86 Virginis	6	+0.09	4.2	11 48.0		18	29.4	+ 1	19.4	+0.3333	.4906	.2416	+78	+ 6
B. A. C. 4679	6 $\frac{1}{2}$	-0.03	3.8	14 22.2	28	4	34.5	+11	7.8	+1.3756	.4938	.2330	+76	+47
B. A. C. 4896	6	0.28	4.3	17 16.2	29	5	35.8	+11	26.3	-0.9135	.5054	.2051	-12	-90
ι^1 Libræ	4 $\frac{1}{2}$	0.30	4.4	19 19.1		16	8.0	- 2	20.3	-0.7340	.5116	.1903	- 4	-90
ι^2 Libræ	6 $\frac{1}{2}$	0.30	4.5	19 10.6		16	41.6	- 1	47.7	-0.9968	.5119	.1896	-20	-90
42 Libræ	5 $\frac{1}{2}$	-0.56	-3.9	-22 24.7	30	6	0.0	+11	6.2	+1.2939	.5207	-1.683	+68	+45
B. A. C. 5253	6	0.64	4.0	24 9.6		12	34.7	- 6	31.5	+1.0483	.5151	.1566	+66	+18
B. A. C. 5254	6	0.63	4.3	23 36.3		12	36.5	- 6	29.8	+0.4333	.5151	.1566	+53	-21
B. A. C. 5286	6 $\frac{1}{2}$	0.65	4.3	24 28.7		14	49.0	- 4	21.5	+1.0537	.5269	.1523	+66	+18
B. A. C. 5335	6 $\frac{1}{2}$	0.66	5.0	23 16.2		18	25.4	- 0	52.0	-0.8138	.5294	.1455	-14	-90
B. A. C. 5354	6 $\frac{1}{2}$	0.68	4.9	23 21.6		19	39.8	+ 0	19.8	-0.8945	.5303	.1431	-19	-90
19 Scorpii	5 $\frac{1}{2}$	-0.74	-5.2	-23 52.0	31	1	13.6	+ 5	42.7	-1.1010	.5341	-1.212	-35	-90
σ Scorpii	3 $\frac{1}{2}$	0.75	4.7	25 17.5		1	26.9	+ 5	55.6	+0.4351	.5343	.1211	+51	-20
α Scorpii	1 $\frac{1}{2}$	4.79	4.7	26 9.2		5	13.8	+ 9	35.0	+0.8978	.5369	.1235	+64	+ 8
22 Scorpii	5	0.77	5.1	24 50.3		5	37.8	+ 9	58.2	-0.5939	.5372	.1226	- 4	-86
25 Scorpii	6	-0.85	-5.5	-25 18.2		13	12.6	- 6	42.4	-0.9513	.5427	-1.058	-27	-90
FEBRUARY.														
B. A. C. 5800	6 $\frac{1}{2}$	-0.97	-6.1	-26 50.1	1	1	22.2	+ 5	2.0	-0.3939	.5502	-0.771	+ 1	-70
A ¹ Ophiuchi	5 $\frac{1}{2}$	0.96	6.1	26 25.1		1	54.3	+ 5	32.9	-0.8859	.5505	.0760	-26	-90
A ² Ophiuchi	6	0.96	6.1	26 24.8		1	54.4	+ 5	32.9	-0.8872	.5505	.0760	-26	-90
38 Ophiuchi	6 $\frac{1}{2}$	0.97	6.2	26 29.4		2	53.0	+ 6	29.5	-0.8806	.5511	.0737	-26	-90
43 Ophiuchi	6	1.00	6.1	28 1.3		5	20.2	+ 8	51.5	+0.6135	.5526	.0673	+56	- 9
3 Sagittarii	5	-1.07	-6.8	-27 47.0		15	49.2	- 5	3.0	-0.2108	.5581	-0.404	+ 7	-57
B. A. C. 6024	6 $\frac{1}{2}$	1.09	7.2	27 1.2		17	1.3	- 3	52.5	-1.0829	.5587	.0372	-43	-90
B. A. C. 6063	6 $\frac{1}{2}$	1.10	7.1	28 2.8		19	42.3	- 1	17.3	-0.0619	.5600	.0299	-14	-48
B. A. C. 6972	6 $\frac{1}{2}$	1.11	6.9	28 44.4		20	30.7	- 0	30.6	+0.6659	.5602	.0285	+57	- 6
B. A. C. 6120	6 $\frac{1}{2}$	1.12	7.3	28 22.3		23	58.4	+ 2	49.4	+0.1867	.5616	.0187	+26	-34
B. A. C. 6127	5	-1.13	-7.2	-28 28.3	2	0	31.3	+ 3	21.2	+0.2840	.5618	-0.171	+31	-28

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

FEBRUARY.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1875.0 Δα Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	z'	y'	N'n.	S'n.
				d h m	h m					
B. A. C. 6190	6½	-1.16 - 7.3	28° 41.6'	2 4 26.8	+ 7 8.1	+0.4776	.5633	-.0059	+42	-17
B. A. C. 6191	6½	1.16 7.5	28 19.6	4 27.2	+ 7 8.4	+0.0834	.5633	.0059	+19	-39
B. A. C. 6194	6	0.99 6.3	27 5.3	4 46.2	+ 7 26.7	-1.2534	.5633	.0051	-60	-90
B. A. C. 6220	6½	1.17 7.5	28 29.4	6 23.6	+ 9 0.5	+0.2523	.5639	-.0007	+28	-30
φ Sagittarii	3½	1.21 8.7	27 7.2	16 20.2	- 5 24.9	-1.0852	.5664	+.0273	-44	-90
τ Sagittarii	3½	1.23 9.0	27 51.2	3 1 11.8	+ 3 6.7	+0.0533	.5674	.0521	+22	-41
B. A. C. 6628	6	-1.25 - 9.5	28 6.4	8 30.2	+10 8.7	+0.7791	.5677	+.0725	+62	+ 1
B. A. C. 6666	6	1.24 9.7	27 14.5	10 25.5	+11 58.9	+0.0306	.5676	.0789	+23	-42
ω Sagittarii	5	1.25 10.4	26 37.9	21 37.2	- 1 13.5	-0.4644	.5661	.1087	+ 1	-76
Α Sagittarii	5	1.26 10.4	26 32.1	22 55.8	+ 0 2.2	-0.4444	.5659	.1121	+ 2	-74
50 Aquarii	6	1.10 10.9	14 9.9	6 14 51.1	-10 18.4	-0.5097	.5405	.2460	+13	-76
B. A. C. 7835	6½	1.10 10.7	13 33.4	17 25.3	- 7 49.4	-0.4965	.5394	.2493	+14	-75
56 Aquarii	6	-1.07 -10.9	-15 13.6	17 32.2	- 7 42.8	+1.2445	.5393	+.2496	+75	+30
70 Aquarii	6	1.06 10.1	11 13.0	7 2 2.7	+ 0 30.8	-0.6925	.5359	.2598	+ 5	-90
74 Aquarii	6	1.04 10.2	12 17.0	4 22.0	+ 2 45.5	-1.0016	.5352	.2623	-12	-90
ψ Aquarii	4½	0.97 9.4	9 46.3	14 56.1	-11 1.1	+1.2618	.5324	.2720	+80	+29
χ Aquarii	5½	0.98 9.2	8 24.6	15 25.3	-10 32.9	+0.0087	.5322	.2724	+43	-44
20 Piscium	6	0.94 7.3	3 27.5	8 6 15.9	+ 3 49.0	-0.9099	.5287	.2811	- 4	-90
24 Piscium	6½	-0.92 - 7.3	- 3 51.0	6 39.3	+ 4 7.4	+0.1614	.5283	+.2820	+53	-36
27 Piscium	5½	0.90 7.1	4 15.1	11 25.3	+ 8 48.4	+1.3493	.5281	.2828	+86	+38
29 Piscium	5½	0.89 7.0	3 43.5	12 55.6	+10 15.9	+1.2408	.5280	.2832	+87	+26
B. A. C. 8365	6½	0.90 6.4	1 11.9	14 28.7	+11 46.0	-0.8812	.5279	.2835	- 2	-90
B. A. C. 5	6	0.88 6.6	- 2 55.2	16 14.2	-10 31.9	+1.3624	.5278	.2839	+87	+39
B. A. C. 57	6½	0.88 5.3	+ 0 59.5	20 34.8	- 6 19.6	-1.3665	.5278	.2844	-40	-89
44 Piscium	6	-0.86 - 5.0	+ 1 14.8	9 0 14.3	- 2 47.1	-0.5828	.5280	+.2844	+15	-80
B. A. C. 221	6	0.79 3.1	4 38.2	11 9.6	+ 7 47.2	-0.9141	.5292	.2825	- 3	-86
B. A. C. 274	6½	0.75 2.4	5 48.5	16 38.7	-10 54.3	-0.5539	.5301	.2804	+16	-76
73 Piscium	6½	0.72 2.3	4 59.1	19 2.4	- 8 35.4	+0.9482	.5306	.2792	+90	+ 7
c Piscium	5½	0.70 2.1	4 59.2	20 42.6	- 6 58.4	+1.4119	.5311	.2783	+90	+50
γ Piscium	4½	0.70 1.3	6 54.8	23 11.9	- 4 34.0	+0.1554	.5317	.2769	+53	-35
δ Piscium	6½	-0.70 - 1.3	+ 6 55.0	23 12.6	- 4 33.3	+0.1557	.5317	+.2769	+53	-35
88 Piscium	6	0.68 - 1.5	6 20.0	23 40.4	- 4 6.4	+0.8732	.5318	.2766	+90	+ 2
54 Ceti	6	0.55 + 1.0	10 25.4	16 27.2	-11 52.8	+1.2735	.5383	.2626	+90	+34
B. A. C. 609	6	0.52 1.7	11 41.3	20 20.9	- 8 7.0	+1.0090	.5402	.2583	+90	+13
19 Arietis	6	0.48 3.2	14 41.6	11 2 25.2	- 1 12.1	-0.4698	.5435	.2508	+21	-65
27 Arietis	6	0.39 4.9	17 9.1	10 24.0	+ 5 27.1	-1.0100	.5481	.2498	-12	-73
40 Arietis	6	-0.30 + 5.6	+17 45.8	18 6.9	-11 6.2	+0.1713	.5529	+.2269	+54	-28
π Arietis, mult.	5½	0.29 5.4	16 56.7	18 27.5	-10 46.3	+1.0775	.5531	.2264	+90	+23
ρ ¹ Arietis	7½	0.27 5.8	17 13.7	20 53.5	- 8 25.6	+1.3357	.5547	.2222	+90	+50
ρ ² Arietis	6	0.27 6.0	17 49.5	21 15.8	- 8 4.1	+0.8139	.5549	.2215	+90	+ 7
ρ ³ Arietis	6	0.25 5.8	17 31.5	21 31.3	- 7 49.2	+1.1754	.5551	.2208	+90	+31
47 Arietis	6	0.27 6.7	20 10.1	22 11.5	- 7 10.4	-1.3530	.5555	.2199	-51	-70
δ Arietis	4½	-0.18 + 6.8	+19 15.3	12 3 59.8	- 1 34.7	+0.8155	.5593	+.2086	+90	+ 8
ζ Arietis	4½	0.17 7.3	20 34.9	5 22.2	- 0 15.3	-0.2448	.5596	.2058	+31	-46
B. A. C. 1032	6½	0.12 7.2	20 3.4	7 53.4	+ 2 10.3	+0.7991	.5619	.2006	+90	+ 8
π ¹ Arietis	5	0.12 7.4	20 41.8	8 1.8	+ 2 18.5	+0.1786	.5620	.2002	+55	-24
π ² Arietis	6	0.11 7.5	20 17.7	8 41.0	+ 2 56.2	+0.7160	.5624	.1989	+90	+ 4
65 Arietis	6	0.11 7.5	20 21.6	9 23.1	+ 3 36.8	+0.7898	.5628	.1975	+90	+ 8
66 Arietis	6½	-0.09 + 8.3	+22 22.4	11 1.4	+ 5 11.5	-0.9320	.5640	+.1938	- 8	-68
9 Tauri	6	-0.04 8.7	22 47.9	14 33.4	+ 8 35.5	-0.6909	.5663	.1860	+ 7	-67
g Pleiadum	5½	+0.01 9.1	23 53.8	17 45.8	+11 40.7	-1.2212	.5684	.1786	-34	-66
b Pleiadum	4½	0.01 9.0	23 43.3	17 47.8	+11 42.6	-1.0371	.5684	.1786	-16	-66
c Pleiadum	5	0.01 9.4	23 58.7	18 10.9	-11 55.2	-1.2207	.5686	.1776	-35	-66
d Pleiadum	5	+0.02 + 9.1	+23 33.6	18 23.7	-11 42.8	-0.7670	.5688	+.1772	+ 2	-67

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

FEBRUARY.

STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.			
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	x'	y'	N'n.	S'n.
		Δα	Δδ		d	h	m						
γ Tauri	3	+0.03	+ 9.1	+23 43.2	12	18	52.0	-11 15.6	-0.8459	.5691	+1760	- 3	-67
f Pleiadum	4½	0.04	9.1	23 40.3	19	33.2	-10 35.9	-0.6773	.5696	.1743	+ 7	-66	
λ Pleiadum	5½	0.04	9.1	23 45.3	19	33.8	-10 35.4	-0.7605	.5696	.1743	+ 2	-62	
33 Tauri	6	0.10	9.1	22 48.8	22	47.6	- 7 28.9	+0.7470	.5716	.1665	+90 + 9		
36 Tauri	6½	0.15	9.4	23 45.8	13	1 43.7	- 4 39.6	+0.2600	.5735	.1592	+60 -16		
χ¹ Tauri	5½	0.27	10.4	25 20.1	8	59.6	+ 2 19.4	-0.2504	.5778	.1403	+30 -40		
α² Tauri	8½	+0.27	+10.4	+25 20.4	8	59.7	+ 2 19.5	-0.2460	.5778	+1403	+31 -40		
62 Tauri	6	0.28	9.9	24 0.7	9	35.0	+ 2 53.4	+1.1792	.5781	.1382	+90 +42		
B. A. C. 1648	6½	0.65	11.0	27 49.9	14	7 44.7	+ 0 10.0	-0.3448	.5881	.0738	+25 -39		
β Tauri	2	0.71	11.1	28 30.1	9	45.9	+ 2 6.3	-0.8884	.5886	.0676	- 8 -62		
B. A. C. 1746	6½	0.77	10.6	27 34.9	13	29.1	+ 5 40.5	+0.2824	.5895	.0558	+62 - 5		
B. A. C. 1772	6	0.80	11.2	29 8.7	14	44.6	+ 6 52.9	-1.2482	.5897	.0518	-47 -61		
136 Tauri	5	+0.87	+10.3	+27 35.0	20	8.7	-11 56.3	+0.5842	.5904	+0348	+87 +13		
B. A. C. 1882	6½	0.90	10.7	28 55.4	21	21.0	-10 46.9	-0.7489	.5905	.0310	+ 1 -61		
κ Aurigæ	4½	1.04	10.3	29 32.7	15	4 32.0	- 3 53.5	-1.2480	.5907	+0078	-47 -61		
B. A. C. 2097	6½	1.13	9.6	28 17.7	10	18.1	+ 1 38.4	+0.0281	.5901	-0103	+46 -14		
49 Aurigæ	5½	1.16	9.3	28 7.2	12	9.7	+ 3 25.5	+0.1820	.5898	.0163	+55 - 6		
53 Aurigæ	6½	1.18	9.7	29 5.5	13	21.7	+ 4 34.5	-0.8389	.5897	.0204	- 5 -61		
54 Aurigæ	6	+1.19	+9.2	+28 22.4	13	49.7	+ 5 1.4	-0.1104	.5896	-0220	+38 -22		
28 Geminor.	6	1.22	9.4	29 5.9	15	49.0	+ 6 55.8	-0.9051	.5890	.0282	-10 -61		
47 Geminor.	6	1.33	7.9	27 3.7	16	2 11.7	- 7 6.5	+0.7343	.5854	.0607	+90 +19		
53 Geminor.	6	1.38	7.8	28 6.9	3	57.6	- 5 24.8	-0.4631	.5846	.0655	+18 -46		
59 Geminor.	6½	1.40	7.3	27 52.8	7	20.8	- 2 9.6	-0.4596	.5829	.0757	+19 -46		
ι Geminor.	4	1.42	7.3	28 2.8	7	48.8	- 1 42.8	-0.6677	.5828	.0769	+ 6 -60		
β¹ Geminor.	5	+1.45	+7.1	+28 22.6	9	13.8	- 0 21.1	-1.1210	.5820	-0813	-27 -62		
β² Geminor.	5	1.45	7.1	28 10.5	9	25.3	- 0 10.1	-0.9279	.5819	.0816	-11 -62		
B. A. C. 2472	6	1.46	7.1	28 10.6	9	45.4	+ 0 9.2	-0.9590	.5817	.0827	-13 -62		
ν Geminor.	4½	1.46	6.7	27 10.4	11	52.1	+ 2 11.0	-0.1021	.5805	.0887	+39 -27		
c Geminor.	6	1.47	6.0	26 4.9	15	9.8	+ 5 20.9	+0.7206	.5786	.0982	+90 +14		
φ Geminorum	5	1.54	5.8	27 5.3	18	55.2	+ 8 57.5	-0.7135	.5762	.1087	+ 4 -63		
ω¹ Geminor.	6	+1.53	+5.0	+25 44.1	21	57.8	+11 53.1	+0.3481	.5742	-1170	+66 - 7		
ω² Cancrī	6½	1.53	5.0	25 26.0	22	17.9	-11 47.5	+0.6226	.5740	.1178	+90 + 7		
ψ¹ Cancrī	6½	1.58	4.6	26 12.7	17	1 45.4	- 8 28.0	-0.6114	.5713	.1272	+10 -59		
ψ² Cancrī	4	1.58	4.6	25 53.2	1	51.9	- 8 21.7	-0.2863	.5712	.1276	+29 -40		
λ Cancrī	6	1.57	3.7	24 24.9	6	3.8	- 4 19.3	+0.6864	.5681	.1381	+90 + 8		
ν¹ Cancrī, mult.	7	1.58	3.4	24 56.5	8	36.9	- 1 51.9	-0.2223	.5662	.1443	+32 -39		
ν² Cancrī	5½	+1.59	+3.2	+24 33.5	9	26.4	- 1 4.2	+0.0569	.5655	-1465	+48 -25		
ν³ Cancrī	6	1.61	3.1	24 30.1	10	39.8	+ 0 6.5	-0.0644	.5645	.1493	+41 -31		
32 Cancrī	6	1.62	2.8	24 30.6	11	17.5	+ 0 42.8	-0.1670	.5640	.1508	+35 -37		
ξ Cancrī	9	1.68	0.7	22 33.0	18	3 3.3	- 8 5.4	-0.7771	.5510	.1851	+ 2 -68		
79 Cancrī	6	1.68	0.7	22 30.1	3	29.8	- 7 39.8	-0.8093	.5506	.1859	0 -68		
B. A. C. 3138	6	1.68	+0.4	21 47.8	4	57.9	- 6 14.7	-0.3439	.5493	.1888	+26 -50		
γ Leonis	3½	+1.65	-3.2	+17 22.2	19	5 56.3	- 6 6.3	-0.9298	.5286	-2287	- 6 -73		
37 Leonis	6	1.61	3.9	14 21.0	10	30.7	- 1 40.6	+1.2145	.5250	.2343	+90 +31		
42 Leonis	6	1.61	4.1	15 36.2	13	1.6	+ 0 45.6	-0.7102	.5225	.2372	+ 7 -75		
B. A. C. 3579	6	1.61	4.6	14 58.8	16	29.1	+ 4 6.6	-0.8784	.5205	.2409	- 2 -75		
i Leonis	6	1.60	4.8	14 46.6	18	10.2	+ 5 44.6	-1.0664	.5192	.2426	-15 -75		
l Leonis	5	1.54	5.8	11 12.3	20	2 48.8	- 9 52.6	+0.6101	.5132	.2503	+83 -10		
B. A. C. 3837	6	+1.49	-6.8	+ 8 44.5	15	39.9	+ 2 35.7	-0.0281	.5054	-2588	+43 -44		
o Leonis	4	1.45	7.0	6 42.7	19	26.0	+ 6 15.4	+1.1749	.5034	.2607	+90 +23		
10 Virginis	6	1.31	8.9	+ 2 35.8	21	41.8	+ 7 46.9	-1.3277	.4933	.2666	-35 -88		
13 Virginis	6	1.27	8.8	- 0 5.7	22	2 38.9	-11 24.2	+0.2786	.4921	.2660	+60 -30		
γ Virginis	3½	1.27	8.9	+ 0 1.5	3	20.3	-10 43.9	-0.0358	.4920	.2660	+43 -46		
B. A. C. 4255	6½	+1.17	-8.9	- 3 41.2	13	45.5	- 0 35.8	-1.2500	.4905	-2640	+87 +27		

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

FEBRUARY.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.					
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	z'	y'	N'n.	S'n.	
		Δα	Δδ		d	h	m	h	m					
A Virginis	5	+0.96	-9.3	-9 31.4	22	19	49.3	+4	38.9	-0.0913	.4912	-.2489	+37	-49
86 Virginis	6	0.90	9.1	11 48.1	24	2	55.3	+11	33.1	+0.6714	.4927	.2436	+78	-9
B. A. C. 4679	6	0.81	8.8	14 22.3			12 57.8	-2	41.1	+1.1084	.4954	.2346	+76	+18
B. A. C. 4896	6½	0.62	8.7	17 16.3	25	13	52.8	-2	28.9	-1.1860	.5058	.2056	-32	-90
γ Libræ	4½	0.52	8.6	19 19.2	26	0	24.8	+7	44.3	-1.0055	.5113	.1902	-20	-90
δ Libræ	6½	0.52	8.5	19 10.7			0 58.3	+8	16.8	-1.2685	.5115	.1895	-43	-90
42 Libræ	5½	+0.40	-7.6	-23 24.7			14 18.4	-2	47.6	+1.0318	.5194	-.1677	+67	+16
B. A. C. 5253	6	0.33	7.5	24 9.6			20 54.9	+3	36.4	+0.7896	.5234	.1558	+66	0
B. A. C. 5254	6	0.62	7.8	23 36.4			20 56.7	+3	38.1	+0.1725	.5235	.1556	+39	-35
B. A. C. 5286	6½	0.31	7.6	24 28.8			23 9.8	+5	47.0	+0.7964	.5248	.1515	+66	0
B. A. C. 5335	6½	0.29	8.2	23 16.3	27	2	47.4	4	9 17.6	-1.0750	.5269	.1446	-31	-90
B. A. C. 5354	6½	0.28	8.0	23 21.6			4 2.3	+10	30.1	-1.1550	.5277	.1420	-38	-90
σ Scorpis	3½	+0.21	-7.3	-25 17.6			9 51.8	-7	51.7	+0.1840	.5312	-.1303	+36	-34
α Scorpis	1½	0.18	7.2	26 9.3			13 40.5	-4	10.5	+0.6521	.5336	.1222	+62	-8
22 Scorpis	5	0.18	7.7	24 50.4			14 4.7	-3	47.2	-0.8455	.5339	.1214	-18	-90
25 Scorpis	6	+0.10	7.6	25 18.2			21 43.6	+3	36.5	-1.1978	.5386	.1045	-47	-90
B. A. C. 5800	6½	-0.02	7.5	26 50.1	28	10	0.9	-8	31.4	-0.6249	.5457	.0757	-11	-90
A¹ Ophiuchi	5½	0.02	7.5	26 25.1			10 33.3	-8	0.2	-1.1205	.5460	.0744	-42	-90
A² Ophiuchi	6	-0.02	-7.5	-26 25.1			10 33.4	-8	0.1	-1.1218	.5460	-.0744	-42	-90
38 Ophiuchi	6½	0.04	7.5	26 29.4			11 32.7	-7	2.9	-1.1140	.5465	.0720	-42	-90
43 Ophiuchi	6	-0.05	-7.2	-28 1.3			14 1.6	-4	39.2	+0.3896	.5479	-.0657	+42	-23

MARCH.

3 Sagittarii	5	-0.16	-7.4	-27 47.0	1	0	37.4	+5	34.2	-0.4266	.5530	-.0387	-4	-73
B. A. C. 6063	6½	0.18	7.4	28 2.8			4 34.5	+9	22.8	-0.2725	.5545	.0286	+3	-61
B. A. C. 6072	6½	0.19	7.3	28 44.5			5 23.5	+10	10.0	+0.4597	.5548	.0265	+42	-18
B. A. C. 6120	6½	0.23	7.6	28 22.3			8 54.0	-10	27.1	-0.0173	.5561	.0172	+15	-45
B. A. C. 6127	5	0.24	7.5	28 28.3			9 27.3	-9	55.0	+0.0815	.5564	.0156	+20	-40
B. A. C. 6190	6½	0.27	7.4	28 41.6			13 26.0	-6	5.0	+0.2808	.5577	.0046	+31	-29
B. A. C. 6191	6½	0.27	7.6	28 19.6			13 26.4	-6	4.6	-0.1153	.5577	-.0046	+9	-51
B. A. C. 6220	6½	-0.28	-7.5	-28 29.4			15 24.4	-4	10.8	+0.0567	.5583	+0.0005	+17	-41
γ Sagittarii	3½	0.44	8.0	27 51.2	2	10	27.5	-9	49.5	-0.1168	.5621	.0531	+13	-52
B. A. C. 6628	6	0.50	8.0	28 6.4			17 51.3	-2	42.1	+0.6220	.5623	.0736	+56	-9
B. A. C. 6666	6	0.52	8.1	27 14.5			20 8.1	-0	30.4	-0.1256	.5623	.0797	+15	-52
ω Sagittarii	5	0.57	8.4	26 37.9	3	7	6.6	+10	3.8	+0.2645	.5616	.1094	+38	-30
δ Sagittarii	5	0.58	8.2	27 30.1			7 34.4	+10	30.6	+1.2371	.5615	.1106	+63	+41
A Sagittarii	5	-0.58	-8.3	-26 32.1			8 26.5	+11	20.8	+0.3095	.5614	+1.129	+41	-27
B. A. C. 7077	6	0.67	8.6	25 22.0			22 55.6	+1	18.3	+0.9815	.5585	.1500	+65	+13
B. A. C. 7197	6	0.72	9.3	23 11.6	4	5	38.1	+7	46.2	-0.2337	.5567	.1663	+18	-58
B. A. C. 7237	6	0.72	8.8	24 15.1			7 37.6	+9	41.4	+1.2067	.5561	.1707	+66	+32
χ Capricorni	6	0.77	9.2	21 41.8			14 26.0	-7	44.8	-0.2405	.5538	.1864	+20	-59
27 Capricorni	6	0.78	9.3	21 3.5			14 52.3	-7	19.4	-0.8213	.5537	.1872	-11	-90
φ Capricorni	5½	-0.78	-9.2	-21 10.3			17 32.1	-4	45.3	-0.1971	.5528	+1.1930	+23	-56
33 Capricorni	5½	0.80	9.2	21 21.0			21 16.8	-1	8.6	+0.7600	.5515	.2008	+67	-3
37 Capricorni	6	0.80	9.2	20 38.6	5	2	1.1	+3	25.8	+0.9665	.5499	.2106	+70	+10
ε Capricorni	4½	0.81	9.3	20 1.6			3 0.7	+4	23.2	+0.5410	.5496	.2128	+64	-16
ζ Capricorni	5	0.82	9.4	19 26.2			5 29.4	+6	46.8	+0.4643	.5488	.2172	+60	-20
B. A. C. 7550	6	0.81	9.2	20 11.7			5 44.1	+7	1.0	+1.2084	.5487	.2183	+70	+40
29 Aquæ., mult.	6	-0.85	-9.3	-17 34.0			14 31.9	-8	29.5	+0.5793	.5457	+2.335	+68	-14
B. A. C. 221	6	0.94	4.0	+4 38.2	6	19	15.1	-6	19.5	-0.7800	.5374	.2385	+4	-77
B. A. C. 274	6½	0.92	3.2	5 48.4	7	0	34.7	-1	10.6	-0.4153	.5385	.2908	+23	-67
73 Piscium	6½	0.90	3.1	4 59.0			2 54.1	+1	4.1	+1.0681	.5393	.2855	+90	+14
γ¹ Piscium	4½	0.89	2.4	6 54.8			6 56.1	+4	58.0	+0.2925	.5405	.2829	+61	-28
γ² Piscium	6½	-0.89	-2.4	+6 55.0			6 56.7	+4	58.6	+0.2928	.5405	+2.829	+61	-28

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

MARCH.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.			
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.		Y	α'	y'	N'n.	S'n.	
		$\Delta\alpha$	$\Delta\delta$		d	h						m	h	m
88 Piscium	6	-0.88	- 2.5	+ 6 20.0	9	7 23.7	+ 5 24.7	+1.0012	.5407	+2826	+90	+10
π Piscium	6	0.89	- 0.5	11 30.1	17	29.8	- 8 49.9	-1.3323	.5444	.2746	-37	-79
B. A. C. 609	6	0.81	+ 0.4	11 41.3	10	3 26.4	+ 0 46.1	+1.1585	.5490	.2636	+90	+24
19 Arietis	6	0.79	1.7	14 41.6	9	22.8	+ 6 30.0	-0.2949	.5520	.2557	+29	-55
27 Arietis	6	0.71	3.0	17 9.0	17	5.0	-10 4.4	-0.8228	.5562	.2439	0	+73
40 Arietis	6	0.67	4.0	17 45.8	11	0 35.1	- 2 50.5	+0.3465	.5604	.2308	+65	-19
π Arietis, mult.	5½	-0.66	+ 3.8	+16 56.7	0	55.1	- 2 31.2	+1.2419	.5606	+2303	+90	+37
ρ^2 Arietis	6	0.64	4.5	17 49.5	3	39.1	+ 0 6.8	+0.9836	.5623	.2250	+90	+17
ρ^3 Arietis	6	0.64	4.6	17 31.5	3	54.1	+ 0 21.2	+1.3406	.5624	.2246	+90	+51
47 Arietis	6	0.66	5.2	20 10.0	4	33.3	+ 0 59.0	-1.1574	.5628	.2232	-24	-70
δ Arietis	4½	0.58	5.7	19 15.2	10	12.8	+ 6 25.8	+0.9876	.5662	.2116	+90	+19
ζ Arietis	4½	0.57	6.0	20 34.9	11	33.3	+ 7 43.3	-0.0603	.4670	.2088	+41	-37
B. A. C. 1032	6½	-0.53	+ 6.0	+20 3.4	14	0.9	+10 5.3	+0.9727	.5684	+2033	+90	+19
τ^1 Arietis	5	0.53	6.2	20 41.8	14	9.2	+10 13.4	+0.3592	.5685	.2031	+66	-15
τ^2 Arietis	6	0.52	6.2	20 17.7	14	47.5	+10 50.2	+0.8910	.5688	.2017	+90	+14
65 Arietis	6½	0.51	6.3	20 21.6	15	28.6	+11 29.8	+0.9640	.5692	.2001	+90	+19
66 Arietis	6½	0.52	7.0	22 22.4	17	4.6	-10 57.9	-0.7393	.5702	.1965	+ 5	-67
9 Tauri	6	0.47	7.5	22 47.9	20	32.0	- 7 38.4	-0.5007	.5723	.1884	+18	-58
g Pleiadum	5½	-0.43	+ 6.9	+23 53.8	23	40.4	- 4 37.3	-1.0261	.5739	+1808	-15	-66
b Pleiadum	4½	0.43	7.8	23 43.2	23	42.4	- 4 35.3	-0.8439	.5739	.1808	- 3	-66
c Pleiadum	5	0.43	8.1	24 4.5	23	49.9	- 4 28.2	-1.1776	.5740	.1803	-29	-66
d Pleiadum	5	0.43	8.1	23 58.6	12	0 5.0	- 4 13.7	-1.0340	.5742	.1798	-16	-66
e Pleiadum	5	0.43	7.8	23 33.7	0	17.6	- 4 1.5	-0.5761	.5743	.1793	+13	-61
η Tauri	3	0.42	7.9	23 43.1	0	45.3	- 3 34.8	-0.6545	.5746	.1780	+ 9	-65
f Pleiadum	4½	-0.40	+ 8.0	+23 40.3	1	25.7	- 2 56.0	-0.4872	.5751	+1763	+18	-56
h Pleiadum	5½	0.40	8.0	23 45.3	1	26.2	- 2 55.5	-0.5699	.5751	.1763	+13	-61
33 Tauri	6	0.35	8.0	22 48.8	4	36.4	+ 0 7.2	+0.9245	.5768	.1710	+90	+20
36 Tauri	6½	0.31	8.3	23 45.8	7	29.3	+ 2 53.4	+0.4415	.5783	.1607	+73	- 6
χ^1 Tauri	5½	0.21	9.5	25 20.1	14	38.2	+ 9 45.4	-0.0658	.5817	.1412	+41	-30
χ^2 Tauri	8½	-0.21	9.5	25 20.4	14	38.4	+ 9 45.6	-0.5078	.5817	.1411	+16	-55
B. A. C. 1648	6½	+0.19	+11.1	+27 49.9	13	13 9.2	+ 7 21.9	-0.1681	.5888	+0735	+35	-29
β Tauri	2	0.24	11.3	28 30.1	15	9.8	+ 9 17.5	-0.7109	.5889	.0671	+ 4	-61
B. A. C. 1709	6½	0.26	11.4	29 5.3	16	26.6	+10 31.3	-1.2246	.5891	.0631	-41	-61
B. A. C. 1746	6½	0.30	10.9	27 34.9	18	52.1	-11 9.2	+0.4549	.5893	.0555	+75	+ 4
B. A. C. 1772	6	0.33	11.4	29 8.7	20	7.3	- 9 57.1	-1.0735	.5894	.0514	-23	-61
136 Tauri	5	0.43	10.8	27 35.0	14	1 30.8	- 4 46.8	+0.7535	.5895	.0343	+90	+22
B. A. C. 1882	6½	+0.45	+11.3	+28 55.4	2	43.0	- 3 37.5	-0.5793	.5894	+0302	+11	-51
κ Aurigæ	4½	0.61	11.3	29 32.7	9	54.5	+ 3 16.4	-1.0837	.5887	+0075	-24	-61
B. A. C. 2097	6½	0.70	10.6	28 17.7	15	41.8	+ 8 49.5	+0.1891	.5873	-0.113	+57	- 5
49 Aurigæ	5½	0.74	10.5	28 7.2	17	34.0	+10 37.2	+0.3420	.5867	.0172	+66	+ 2
53 Aurigæ	6½	0.77	10.6	29 5.5	18	46.4	+11 46.6	-0.6815	.5863	.0209	+ 5	-58
54 Aurigæ	6	0.78	10.4	28 22.4	19	14.6	-11 46.3	+0.0480	.5862	.0225	+47	-14
28 Geminor.	6	+0.79	+10.5	+29 5.9	21	14.6	- 9 51.1	-0.7499	.5856	-0287	+ 1	-61
47 Geminor.	6	0.97	8.9	27 3.8	15	7 42.5	+ 0 11.7	+0.8861	.5809	.0605	+90	+28
53 Geminor.	6	1.02	9.2	28 6.9	9	29.4	+ 1 54.3	-0.3172	.5800	.0659	+27	-37
59 Geminor.	6½	1.07	9.0	27 52.8	12	54.8	+ 5 11.7	-0.3165	.5781	.0761	+27	-37
ϵ Geminorum	4	1.09	9.0	28 2.8	13	23.1	+ 5 38.8	-0.5263	.5778	.0777	+15	-50
b^1 Geminorum	5	1.11	8.7	28 22.6	14	49.1	+ 7 1.5	-0.9824	.5769	.0817	+15	-62
b^2 Geminorum	5	+1.11	+ 8.7	+28 10.5	15	0.7	+ 7 12.6	-0.7889	.5769	-0820	- 1	-62
B. A. C. 2472	6	1.12	8.7	28 10.6	15	21.1	+ 7 32.3	-0.8202	.5766	.0831	- 3	-62
ν Geminorum	4½	1.13	8.2	27 10.4	17	29.4	+ 9 35.6	+0.0387	.5753	.0891	+47	-20
c Geminorum	6	1.17	7.5	26 4.9	20	49.7	-11 11.8	+0.8622	.5732	.0985	+90	+23
ϕ Geminorum	5	1.25	7.3	27 5.4	16	0 38.2	- 7 32.0	-0.5824	.5705	.1090	+12	-56
ω^1 Cancri	6	+1.27	+ 6.6	+25 44.1	3	43.5	+ 4 33.7	+0.4816	.5681	-1.173	+77	0

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.											
MARCH.											
STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.		
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d h m	h m					
ψ^3 Cancri	6 $\frac{1}{2}$	+1.28	+ 6.5	+25 26.0	16 4 3.8	- 4 14.2	+0.7572	.5679	-1.180	+90	+14
ψ^1 Cancri	6 $\frac{1}{2}$	1.32	6.2	26 12.7	7 34.6	- 0 51.3	-0.4871	.5653	.1269	+18	-52
ψ^2 Cancri	4	1.32	6.2	25 53.2	7 41.1	- 0 45.0	-0.1600	.5652	.1272	+36	-34
λ Cancri	6	1.35	5.2	24 24.9	11 57.2	+ 3 21.6	+0.8141	.5619	.1379	+90	+16
ψ^1 Cancri, mult	7	1.42	5.2	24 56.6	14 32.2	+ 5 51.4	-0.1033	.5598	.1441	+39	-33
ψ^3 Cancri	5 $\frac{1}{2}$	1.43	4.9	24 33.6	15 23.1	+ 6 40.0	+0.1772	.5591	.1460	+55	-19
ψ^3 Cancri	6	+1.44	+ 4.7	+24 30.1	16 37.7	+ 7 51.9	+0.0537	.5581	-1.190	+48	-25
32 Cancri	6	1.45	4.7	24 30.6	17 16.1	+ 8 28.9	-0.0501	.5576	.1505	+42	-31
ξ Cancri	5	1.58	2.1	22 33.0	17 9 19.0	- 0 2.2	-0.6833	.5444	.1844	+ 7	-67
79 Cancri	6	1.58	2.0	22 30.2	9 45.9	+ 0 23.7	-0.7163	.5440	.1852	+ 5	-68
B. A. C. 3138	6	1.58	+ 1.7	21 47.8	11 15.7	+ 1 50.5	-0.2502	.5427	.1881	+31	-45
η Leonis	3 $\frac{1}{2}$	1.69	- 2.4	17 22.2	18 12 41.8	+ 2 26.8	-0.8744	.5228	.2285	- 3	-73
37 Leonis	6	+1.66	- 3.4	+14 21.0	17 21.0	+ 6 57.3	+1.2785	.5193	-2.234	+90	+37
42 Leonis	6	1.69	3.6	15 36.2	19 54.6	+ 9 26.2	-0.6634	.5176	.2362	+10	-74
B. A. C. 3579	6	1.70	4.2	14 58.8	23 25.5	-11 9.5	-0.8343	.5152	.2401	0	-75
i Leonis	6	1.70	4.4	14 46.6	19 1 2.4	- 9 35.7	-1.0299	.5142	.2422	-12	-75
l Leonis	5	1.68	5.9	11 12.3	9 55.0	- 0 58.7	+0.6452	.5089	.2498	+87	- 8
B. A. C. 3837	6	1.69	7.4	8 44.5	22 56.8	+11 40.3	-0.0157	.5020	.2586	+44	-43
σ Leonis	4	+1.65	- 8.0	+ 6 42.7	20 2 45.7	- 8 37.3	+1.1874	.5003	-2.606	+90	+24
10 Virginis	6	1.64	10.6	+ 2 35.8	21 5 15.9	- 6 51.3	-1.3652	.4919	.2670	-39	-88
13 Virginis	6	1.61	10.9	- 0 5.7	10 14.7	- 2 0.7	+0.2400	.4910	.2669	+58	-32
η Virginis	3 $\frac{1}{2}$	1.61	10.9	+ 0 1.5	10 56.3	- 1 20.2	-0.0763	.4909	.2668	+41	-48
B. A. C. 4255	6 $\frac{1}{2}$	1.58	11.6	- 3 41.3	21 24.1	+ 8 50.5	+1.1995	.4900	.2652	+7	+22
λ Virginis	5	1.49	12.7	9 31.4	23 3 29.3	- 9 53.4	-0.1792	.4926	.2506	+33	-54
86 Virginis	6	+1.45	-12.6	-11 48.2	10 34.6	- 2 59.8	+0.5786	.4942	-2.451	+75	-15
B. A. C. 4679	6 $\frac{1}{2}$	1.42	-12.6	14 22.4	20 35.9	+ 6 44.7	+1.0074	.4971	.2361	+76	+10
B. A. C. 4896	6	1.34	12.5	17 16.4	24 21 27.5	+ 6 53.5	-1.3053	.5073	.2065	-44	-90
ι Libræ	4 $\frac{1}{2}$	1.29	11.8	19 19.2	25 7 58.6	- 6 54.1	-1.1280	.5124	.1914	-29	-90
42 Libræ	5 $\frac{1}{2}$	1.21	11.0	23 24.8	21 52.4	+ 6 34.1	+0.9112	.5198	.1682	+67	+ 7
B. A. C. 5253	6	1.18	10.6	24 9.7	26 4 29.4	-11 1.4	+0.6677	.5234	.1561	+65	- 8
B. A. C. 5254	6	+1.18	-10.7	-23 36.4	4 31.2	-10 59.6	+0.0483	.5234	-1.561	+32	-42
B. A. C. 5286	6 $\frac{1}{2}$	1.18	10.5	24 28.8	6 44.7	- 8 50.4	+0.6742	.5246	.1517	+65	- 7
B. A. C. 5335	6 $\frac{1}{2}$	1.13	10.7	23 16.3	10 23.0	- 5 19.1	-1.2045	.5266	.1448	-42	-90
B. A. C. 5354	6 $\frac{1}{2}$	1.13	10.7	23 21.7	11 38.1	- 4 6.3	-1.2847	.5273	.1422	-53	-90
σ Scorpii	3 $\frac{1}{2}$	1.11	10.0	25 17.6	17 29.1	+ 1 33.3	+0.0591	.5304	.1303	+30	-41
α Scorpii	1 $\frac{1}{2}$	1.07	9.8	26 9.3	21 19.0	+ 5 15.6	+0.5290	.5325	.1219	+54	-15
22 Scorpii	5	+1.08	-10.1	-24 50.1	21 43.3	+ 5 39.2	-0.9754	.5327	-1.212	-27	-90
B. A. C. 5800	6 $\frac{1}{2}$	0.92	8.9	26 50.1	27 17 49.0	+ 1 4.3	-0.7521	.5429	.0751	-18	-90
A ¹ Ophiuchi	5 $\frac{1}{2}$	0.92	9.2	26 25.2	18 21.8	+ 1 36.0	-1.2511	.5432	.0739	-56	-90
A ² Ophiuchi	6	0.92	9.2	26 25.1	18 21.9	+ 1 36.1	-1.2523	.5432	.0739	-56	-90
38 Ophiuchi	6 $\frac{1}{2}$	0.91	9.2	26 29.5	19 21.9	+ 2 34.1	-1.2445	.5436	.0715	-55	-90
43 Ophiuchi	6	0.90	8.3	28 1.3	21 52.4	+ 4 59.4	+0.2690	.5447	.0654	+34	-29
3 Sagittarii	5	+0.81	- 7.9	-27 47.0	28 8 36.2	- 8 39.3	-0.5503	.5487	-0.086	-11	-84
B. A. C. 6063	6 $\frac{1}{2}$	0.76	7.8	28 2.8	12 36.7	- 4 47.2	-0.3940	.5500	.0293	- 3	-70
B. A. C. 6072	6 $\frac{1}{2}$	0.75	7.4	28 44.5	13 26.5	- 3 59.2	+0.3443	.5503	.0260	+35	-25
γ^1 Sagittarii	4	0.74	7.1	29 35.1	16 12.2	- 1 19.3	+1.2067	.5511	.0188	+61	+39
B. A. C. 6120	6 $\frac{1}{2}$	0.73	7.6	28 22.3	17 0.2	- 0 33.1	-0.1357	.5513	.0167	+ 9	-53
B. A. C. 6127	5	0.73	7.6	28 28.3	17 34.0	- 0 0.5	-0.0361	.5515	.0151	+14	-47
B. A. C. 6190	6 $\frac{1}{2}$	+0.62	- 7.1	-28 41.6	21 36.7	+ 3 53.5	+0.1663	.5525	-0.043	+23	-35
B. A. C. 6191	6 $\frac{1}{2}$	0.64	7.4	28 19.6	21 37.0	+ 3 53.9	-0.2332	.5525	-0.043	+ 2	-59
B. A. C. 6220	6 $\frac{1}{2}$	0.67	7.2	28 29.4	23 37.0	+ 5 49.6	-0.0584	.5529	+0.009	+11	-48
τ Sagittarii	3 $\frac{1}{2}$	0.48	6.4	27 51.2	29 19 1.8	+ 0 32.6	-0.2269	.5554	.0529	+ 7	-59
B. A. C. 6628	6	0.40	6.0	28 6.4	30 2 35.0	+ 7 49.5	+0.5226	.5553	.0730	+50	-15
B. A. C. 6666	6	+0.37	- 6.4	-27 14.5	4 54.8	+10 4.2	-0.2311	.5551	+0.071	+10	-59

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

MARCH.

STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.				
Name.	Mag.	Red'ns from 1875.0. Δα Δδ		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	x'	y'	N'n.	S'n.	
		a	b	o	d	h	m	h	m					
ω Sagittarii	5	+0.25	- 6.0	-26° 37.8	30	16	8.0	- 3	6.8	+0.1683	.5540	+1.086	+33	-35
♁ Sagittarii	5	0.25	5.7	27 30.1		16	36.3	- 2	39.5	+1.1508	.5539	.1077	+63	+29
A Sagittarii	5	0.24	5.9	26 32.0		17	29.8	- 1	47.9	+0.2145	.5538	.1120	+36	-33
B. A. C. 7077	6	0.10	5.7	25 22.0	31	8	18.4	-11	31.0	+0.9012	.5509	.1485	+65	+ 7
B. A. C. 7197	6	0.02	6.1	23 11.6		15	10.1	- 4	53.9	-0.3214	.5490	.1646	+14	-64
B. A. C. 7237	6	+0.01	- 5.6	-24 15.1		17	12.2	- 2	56.0	+1.1334	.5485	+1.692	+66	+24

APRIL.

χ Capricorni	6	-0.07	- 6.0	-21 41.8	1	0	9.4	+ 3	46.7	-0.3217	.5465	+1.849	+16	-64
27 Capricorni	6	0.08	6.1	21 3.5		0	36.2	+ 4	12.5	-0.9070	.5464	.1855	-16	-90
♁ Capricorni	5½	0.11	6.0	21 10.2		3	19.5	+ 6	50.2	-0.2757	.5457	.1914	+19	-61
33 Capricorni	5½	0.14	5.8	21 23.0		7	8.7	+10	31.4	+0.6915	.5446	.1991	+69	- 7
35 Capricorni	6	-0.14	- 5.6	-21 44.2		8	31.8	+11	51.6	+1.3369	.5442	+2.020	+68	+49
37 Capricorni	6	0.19	5.7	20 38.5		11	58.5	- 8	48.7	+0.9026	.5433	.2088	+70	+ 5
ε Capricorni	4½	0.19	5.9	20 1.6		12	59.2	- 7	50.1	+0.4748	.5429	.2107	+60	-19
κ Capricorni	5	0.22	6.0	19 26.2		15	30.8	- 5	23.7	+0.4000	.5423	.2154	+57	-24
B. A. C. 7550	6	0.22	5.8	20 11.6		15	45.6	- 4	59.4	+1.2385	.5422	.2160	+70	+32
29 Aquar., mult	6	0.30	5.8	17 34.0	9	0	33.4	+ 3	20.4	+0.4881	.5399	.2317	+63	-19
50 Aquarii	6	-0.40	- 6.1	-14 9.8		10	42.5	-10	50.9	-0.5732	.5377	+2.476	+10	-81
B. A. C. 7835	6½	0.43	6.1	13 33.2		13	16.8	- 8	21.8	-0.5523	.5372	.2513	+12	-79
56 Aquarii	6	0.41	5.7	15 13.5		13	23.9	- 8	15.0	+1.1833	.5372	.2514	+75	+24
70 Aquarii	6	0.50	6.0	11 13.0		21	52.9	- 0	2.9	-0.7201	.5359	.2627	+ 4	-90
74 Aquarii	6	0.50	5.6	12 17.0	8	0	11.4	+ 2	11.0	+0.9723	.5356	.2655	+78	+ 8
ψ ¹ Aquarii	4½	0.58	5.3	9 46.2		10	33.4	-11	42.7	+1.2581	.5347	.2766	+80	+28
χ Aquarii	5½	-0.60	- 5.6	- 8 24.6		11	7.1	-11	15.0	+0.0185	.5347	+2.770	+44	-44
20 Piscium	6	0.70	5.3	3 27.5	4	1	39.0	+ 2	48.2	-0.8433	.5351	.2876	0	-90
24 Piscium	6½	0.70	- 5.1	- 3 51.0		3	58.6	+ 5	3.2	+0.2194	.5354	.2886	+56	-33
27 Arietis	6	0.91	+ 1.9	+17 9.1	7	2	13.5	+ 0	52.1	-0.7737	.5655	.2485	+ 3	-69
40 Arietis	6	0.87	3.1	17 45.9		9	29.3	+ 7	51.6	+0.3789	.5704	.2354	+67	-17
ρ ² Arietis	6	0.85	3.4	17 49.5		12	27.2	+10	42.7	+1.0093	.5724	.2294	+90	+19
47 Arietis	6	-0.87	+ 3.9	+20 10.0		13	19.7	+11	33.2	-1.0972	.5732	+2.276	-19	-70
δ Arietis	4½	0.83	4.2	19 15.2		18	47.7	- 7	11.5	+1.0172	.5767	.2160	+90	+21
ζ Arietis	4½	0.84	4.5	20 34.9		20	5.4	- 5	56.8	-0.0143	.5776	.2131	+44	-34
B. A. C. 1032	6½	0.80	4.7	20 3.4		22	28.0	- 3	39.8	+1.0035	.5792	.2072	+90	+21
τ ¹ Arietis	5	0.82	4.8	20 41.8		22	36.0	- 3	32.1	+0.3995	.5793	.2069	+69	-13
τ ² Arietis	6	0.80	4.8	20 17.7		23	13.0	- 2	56.5	+0.9230	.5796	.2059	+90	+16
65 Arietis	6	-0.78	+ 4.8	+20 21.6		23	52.7	- 2	18.4	+0.9952	.5800	+2.043	+90	+21
66 Arietis	6½	0.80	5.3	22 22.4	8	1	25.4	- 0	49.3	-0.6809	.5810	.2007	+ 8	-67
9 Tauri	6	0.78	5.9	22 47.8		4	35.7	+ 2	13.0	-0.4451	.5829	.1927	+20	-55
g Pleiadum	5½	0.74	6.4	23 53.8		7	47.6	+ 5	17.6	-0.9616	.5848	.1845	-10	-66
b Pleiadum	4	0.74	6.3	23 43.2		7	49.5	+ 5	19.5	-0.7822	.5849	.1844	+ 1	-66
e Pleiadum	5	0.74	6.5	24 4.5		7	56.8	+ 5	26.4	-1.1107	.5849	.1839	-22	-66
c Pleiadum	5	-0.74	+ 6.6	+23 58.6		8	11.3	+ 5	40.4	-0.9696	.5851	+1.834	-11	-66
d Pleiadum	5	0.74	6.4	23 33.4		8	23.5	+ 5	52.1	-0.5189	.5852	.1826	+16	-68
7 Tauri	3	0.73	6.5	23 43.1		8	50.2	+ 6	17.8	-0.5957	.5855	.1813	+12	-62
f Pleiadum	4	0.72	6.5	23 40.3		9	29.3	+ 6	55.3	-0.4310	.5858	.1797	+21	-53
A Pleiadum	5½	0.72	6.5	23 45.3		9	29.7	+ 6	55.7	-0.5121	.5858	.1797	+17	-58
33 Tauri	6	0.69	6.6	22 48.8		12	33.3	+ 9	51.9	+0.9585	.5876	.1712	+90	+23
36 Tauri	6	-0.66	+ 7.2	+23 45.7		15	16.3	-11	32.0	+0.4839	.5889	+1.639	+76	- 4
χ ¹ Tauri	5½	0.58	8.0	25 20.1		22	14.5	- 4	50.7	-0.0143	.5922	.1437	+44	-27
χ ² Tauri	8½	0.58	8.0	25 20.4		22	14.7	- 4	50.5	-0.0184	.5922	.1437	+44	-27
B. A. C. 1648	6½	0.26	10.3	27 49.8	9	20	1.7	- 7	58.0	-0.1139	.5930	.0749	+38	-26
β Tauri	2	0.24	10.7	28 30.1		21	58.7	- 6	6.0	-0.6492	.5961	.0683	+ 8	-57
B. A. C. 1709	6½	-0.21	+10.7	+29 5.2		23	13.2	- 4	54.6	-1.1558	.5982	+0.643	-31	-61.

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

APRIL.

STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.			
Name.	Mag.	Red'ns from 1875.0		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	z'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d	h	m						
B. A. C. 1746	6 $\frac{1}{2}$	-0.17	+10.3	+27 34.9	10	1	34.5	- 2 39.3	+0.5000	.5983	+0.614	+79	+ 7
B. A. C. 1772	6	0.14	10.8	29 8.7		2	47.5	- 1 29.4	-1.0072	.5984	.0523	-17	-61
136 Tauri	5	0.05	10.3	27 35.0		8	2.0	+ 3 31.9	+0.7949	.5978	.0346	+90	+25
B. A. C. 1832	6 $\frac{1}{2}$	-0.03	10.7	28 55.4		9	12.3	+ 4 39.3	-0.5205	.5976	.0309	+15	-46
κ Aurigæ	4 $\frac{1}{2}$	+0.10	11.1	29 32.7		16	12.7	+11 22.0	-1.0198	.5952	+0.064	-19	-61
B. A. C. 2097	6 $\frac{1}{2}$	0.21	10.7	28 17.7		21	51.8	- 7 13.0	+0.2375	.5938	-0.114	+60	- 3
49 Aurigæ	5 $\frac{1}{2}$	+0.24	+10.6	+28 7.2		23	41.4	- 5 27.9	+0.3889	.5931	-0.173	+70	+ 4
53 Aurigæ	6	0.26	10.8	29 5.5	11	0	52.2	- 4 20.1	-0.6237	.5925	.0214	+ 9	-53
54 Aurigæ	6	0.27	10.5	28 22.4		1	19.8	- 3 53.6	+0.0975	.5922	.0229	+50	-11
28 Geminor.	6	0.30	10.7	29 5.9		3	17.3	- 2 0.9	-0.6918	.5913	.0290	+ 5	-59
47 Geminor.	6	0.51	9.5	27 3.8		13	33.3	+ 7 50.0	+0.9270	.5853	.0615	+90	+30
53 Geminor.	6	0.54	10.0	28 6.9		15	18.4	+ 9 30.8	-0.2657	.5841	.0666	+29	-34
59 Geminor.	6 $\frac{1}{2}$	+0.62	+ 9.8	+27 52.8		18	40.6	-11 15.1	-0.2657	.5817	-0.767	+30	-35
ϵ Geminor.	4	0.62	9.8	28 2.8		19	8.5	-10 48.3	-0.4737	.5814	.0782	+18	-47
δ^1 Geminor.	5	0.65	9.7	28 22.6		20	33.2	- 9 27.0	-0.9264	.5804	.0823	-11	-62
δ^2 Geminor.	5	0.65	9.7	28 10.5		20	44.7	- 9 15.9	-0.7347	.5802	.0820	+ 2	-62
B. A. C. 2472	6	0.65	9.6	28 10.7		21	4.8	- 8 56.6	-0.7656	.5800	.0838	0	-62
ν Geminor.	4 $\frac{1}{2}$	0.67	9.2	27 10.4		23	11.3	- 6 55.1	+0.1030	.5784	.0898	+50	-17
ϵ Geminor.	6	+0.72	+ 8.7	+26 4.9	12	2	29.0	- 3 45.1	+0.9032	.5757	-0.992	+90	+25
ϕ Geminorum	5	0.80	8.4	27 5.4		6	14.9	- 0 8.0	-0.5323	.5725	.1096	+15	-53
ω^1 Cancrî	6	0.83	7.9	25 44.1		9	18.3	+ 2 48.4	+0.5248	.5700	.1177	+90	+ 2
ω^2 Cancrî	6 $\frac{1}{2}$	0.84	7.8	25 26.0		9	38.5	+ 3 7.8	+0.7987	.5696	.1188	+90	+17
ψ^1 Cancrî	6 $\frac{1}{2}$	0.90	7.7	26 12.8		13	7.4	+ 6 28.8	-0.4390	.5665	.1276	+20	-50
ψ^2 Cancrî	6	0.90	7.7	25 53.2		13	13.8	+ 6 35.0	-0.1140	.5664	.1278	+38	-32
λ Cancrî	6	+0.94	+ 6.7	+24 25.0		17	28.0	+10 39.7	+0.8551	.5627	-1.382	+90	+18
ν^1 Cancrî, mult.	7	1.00	6.7	24 56.6		20	2.7	-10 51.2	-0.0588	.5603	.1445	+41	-31
ν^2 Cancrî	6 $\frac{1}{2}$	1.00	6.6	24 33.6		20	52.7	-10 3.1	+0.2203	.5596	.1464	+58	-17
ν^3 Cancrî	6	1.02	6.4	24 30.1		22	7.0	- 8 51.5	+0.0971	.5584	.1493	+50	-24
32 Cancrî	6	1.03	6.4	24 30.6		22	45.2	- 8 14.7	-0.0066	.5579	.1507	+44	-29
ξ Cancrî	5	1.22	4.0	22 33.0	13	14	46.1	+ 7 12.3	-0.6422	.5430	.1842	+10	-66
79 Cancrî	6	+1.23	+ 3.9	+22 30.2		15	13.0	+ 7 38.2	-0.6753	.5426	-1.850	+ 8	-67
B. A. C. 3138	6	1.25	+ 3.5	21 47.9		16	42.9	+ 9 5.1	-0.2102	.5412	.1879	+33	-43
γ Leonis	3 $\frac{1}{2}$	1.46	- 0.6	17 22.3	14	18	16.0	+ 9 48.3	-0.8424	.5194	.2266	0	-73
37 Leonis	6	1.46	2.2	14 21.0		22	57.3	- 9 39.1	+1.3116	.5155	.2321	+90	+41
42 Leonis	6	1.49	2.0	15 36.3	15	1	32.2	- 7 8.9	-0.6342	.5141	.2350	+11	-73
B. A. C. 3579	6	1.51	2.6	14 58.8		5	5.0	- 3 42.6	-0.8065	.5117	.2386	+ 2	-75
i Leonis	6	+1.53	- 2.7	+14 46.6		6	48.8	- 2 1.8	-1.0030	.5105	-2.404	-10	-75
l Leonis	5	1.54	4.7	11 12.3		15	40.7	+ 6 34.3	+0.6733	.5050	.2481	+90	- 7
B. A. C. 3837	6	1.60	6.6	8 44.5	16	4	51.0	- 4 38.1	+0.0061	.4983	.2560	+45	-42
σ Leonis	4	1.59	7.4	6 42.7		8	42.4	- 0 53.1	+1.2134	.4966	.2588	+90	+26
10 Virginis	6	1.70	10.4	+ 2 35.8	17	11	29.9	+ 1 10.1	-1.3549	.4890	.2655	-38	-98
13 Virginis	6	1.69	11.2	- 0 5.7		16	31.7	+ 6 3.8	+0.2554	.4882	.2655	+58	-32
η Virginis	3 $\frac{1}{2}$	+1.70	-11.3	+ 0 1.5		17	13.7	+ 6 44.7	-0.0623	.4881	-2.654	+41	-48
B. A. C. 4255	6 $\frac{1}{2}$	1.71	12.4	- 3 41.3	18	3	47.1	- 6 58.9	+1.2162	.4877	.2640	+87	+24
λ Virginis	5	1.77	14.3	9 31.4	19	10	3.9	- 1 31.3	-0.1701	.4918	.2503	+34	-54
86 Virginis	6	1.77	14.6	11 48.2		17	10.8	+ 5 23.9	+0.5890	.4938	.2450	+74	-14
B. A. C. 4679	6 $\frac{1}{2}$	1.79	14.7	14 22.4	20	3	13.6	- 8 50.0	+1.0188	.4972	.2360	+76	+11
B. A. C. 4896	6	1.83	14.6	17 16.4	21	4	6.4	- 8 40.1	-1.2960	.5084	.2070	-43	-90
μ Libræ	4 $\frac{1}{2}$	+1.84	-14.3	-19 19.3		14	37.1	+ 1 31.9	-1.1179	.5139	-1.915	-28	-90
42 Libræ	5 $\frac{1}{2}$	0.83	13.4	23 24.8	22	4	30.1	- 9 0.7	+0.9273	.5213	.1703	+67	+ 8
B. A. C. 5253	6	0.84	12.8	24 9.7		11	6.9	- 2 36.4	+0.6845	.5250	.1563	+66	- 7
B. A. C. 5254	6	0.85	13.0	23 36.5		11	8.7	- 2 34.6	+0.0639	.5250	.1563	+33	-41
B. A. C. 5286	6 $\frac{1}{2}$	0.84	12.7	24 28.9		13	22.2	- 0 25.4	+0.6915	.5262	.1519	+66	- 6
B. A. C. 5335	6 $\frac{1}{2}$	+0.82	-12.8	-23 16.3		17	0.4	+ 3 5.8	-1.1910	.5282	-1.449	-41	-80

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

APRIL.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1875.0. Δα Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	z'	y'	N'n.	S'n.
B. A. C. 5354	6½	+0.82 -12.7	23 21.7	22 18 15.5	+ 4 18.5	-1.2715	.5289	-1.423	-51	-90
σ Scorpii	3½	0.84 11.9	25 17.6	23 0 6.5	+ 9 58.2	+0.0774	.5320	.1304	+31	-40
α Scorpii	1½	0.82 11.6	26 9.3	3 56.5	-10 19.3	+0.5493	.5339	.1221	+56	-15
22 Scorpii	5	0.84 11.7	24 50.4	4 20.9	- 9 55.6	-0.9596	.5341	.1212	-26	-90
B. A. C. 5800	6½	0.77 10.0	26 50.1	24 0 29.3	+ 9 32.1	-0.7327	.5432	.1017	-17	-90
A¹ Ophiuchi	5½	0.77 10.1	26 25.2	1 2.3	+10 4.0	-1.2334	.5434	.0737	-53	-90
A² Ophiuchi	6	+0.77 -10.1	-26 25.0	1 2.4	+10 4.1	-1.2348	.5434	-0.737	-54	-90
38 Ophiuchi	6½	1.77 9.9	26 29.5	2 2.5	+11 2.2	-1.2266	.5438	.0713	-53	-90
43 Ophiuchi	6	1.77 9.3	28 1.3	4 33.8	-10 31.7	+0.2941	.5446	.0652	+36	-29
3 Sagittarii	5	1.69 8.6	27 47.0	15 21.3	- 0 6.6	-0.5273	.5480	.0380	- 9	-81
B. A. C. 6063	6½	1.67 8.2	28 2.8	19 23.7	+ 3 47.3	-0.3692	.5489	.0278	- 2	-68
B. A. C. 6072	6½	1.67 7.9	28 44.5	20 13.8	+ 4 35.7	+0.3733	.5491	.0255	+37	-23
γ¹ Sagittarii	4	+1.68 - 7.4	-29 35.1	23 1.0	+ 7 17.0	+1.2414	.5496	-0.183	+61	+46
B. A. C. 6120	4	1.65 7.6	28 22.3	23 49.4	+ 8 3.7	-0.1085	.5498	.0163	+10	-51
B. A. C. 6127	5	1.64 7.6	28 28.3	25 0 23.5	+ 8 36.6	-0.0082	.5499	.0149	+15	-45
B. A. C. 6190	6½	1.63 7.1	28 41.5	4 28.5	-11 27.0	+0.1957	.5505	.0041	+25	-33
B. A. C. 6191	6½	1.63 7.1	28 19.6	4 28.8	-11 26.7	+0.2057	.5505	-0.041	+ 4	-57
B. A. C. 6220	6½	1.60 6.9	28 29.4	6 30.1	- 9 29.7	-0.0300	.5507	+0.011	+13	-46
τ Sagittarii	3½	+1.42 - 5.2	-27 51.1	26 2 10.4	+ 9 28.7	-0.1953	.5514	+0.0528	+ 9	-56
B. A. C. 6628	6	1.36 4.2	28 6.3	9 51.3	- 7 6.6	+0.5627	.5508	.0728	+52	-13
B. A. C. 6666	6	1.32 4.4	27 14.5	12 13.6	- 4 49.5	-0.1979	.5505	.0789	+11	-57
ω Sagittarii	5	1.21 3.4	26 37.8	23 40.3	+ 6 13.2	+0.2078	.5483	.1075	+35	-33
δ Sagittarii	5	1.20 3.2	27 30.0	27 0 9.3	+ 6 41.2	+1.2006	.5482	.1092	+63	+35
A Sagittarii	5	1.19 3.4	26 32.0	1 3.9	+ 7 33.8	+0.2547	.5479	.1110	+38	-31
B. A. C. 7077	6	+0.99 - 2.2	-25 21.9	16 13.7	- 1 47.9	+0.9521	.5439	+1.470	+65	+11
B. A. C. 7197	6	-0.90 2.4	23 11.5	23 15.9	+ 4 59.7	-0.2840	.5418	.1625	+15	-62
B. A. C. 7237	6	0.88 1.8	24 15.0	28 1 21.3	+ 7 0.9	+1.1888	.5411	.1672	+66	+30
χ Capricorni	6	0.78 2.1	21 41.7	8 30.0	-10 5.0	-0.2835	.5388	.1819	+18	-61
27 Capricorni	6	0.75 2.2	21 3.4	8 57.6	- 9 38.3	-0.8768	.5386	.1829	-14	-90
φ Capricorni	5½	0.71 2.0	21 10.2	11 45.4	- 6 56.1	-0.2370	.5377	.1885	+21	-58
33 Capricorni	5½	+0.68 - 1.7	-21 22.9	15 41.2	- 3 8.3	+0.7434	.5366	+1.963	+68	- 4
37 Capricorni	6	0.62 1.3	20 38.4	20 39.5	+ 1 40.1	+0.9572	.5351	.2055	+70	+ 9
ε Capricorni	4½	0.60 1.4	20 1.5	21 42.0	+ 2 40.5	+0.5241	.5347	.2074	+63	-17
κ Capricorni	5	0.57 1.4	19 26.1	29 0 18.0	+ 5 11.3	+0.4482	.5340	.2121	+59	-21
B. A. C. 7550	6	0.58 1.2	20 11.5	0 33.3	+ 5 26.1	+1.2975	.5339	.2127	+70	+39
29 Aqua., mult.	6	0.44 1.3	17 34.0	9 36.8	- 9 48.3	+0.5370	.5314	.2278	+66	-16
50 Aquarii	6	+0.30 - 1.8	-14 9.8	20 3.9	+ 0 18.4	-0.5385	.5291	+2.436	+12	-78
B. A. C. 7835	6½	0.28 1.7	13 33.3	22 42.8	+ 2 52.2	-0.5176	.5287	.2472	+14	-76
56 Aquarii	6	0.28 1.0	15 13.4	22 50.0	+ 2 59.2	+1.2402	.5286	.2475	+75	+29
70 Aquarii	6	0.17 1.6	11 12.9	30 7 33.6	+11 25.9	-0.6883	.5275	.2585	+ 6	-90
74 Aquarii	6	0.15 1.3	12 16.9	9 56.0	-10 16.3	+1.0242	.5274	.2613	+78	+11
ψ¹ Aquarii	4½	0.03 1.1	9 46.1	20 39.7	+ 0 6.7	+1.3098	.5272	.2723	+80	+34
χ Aquarii	5½	+0.01 - 1.5	- 8 24.5	21 9.2	+ 0 35.2	+0.0561	.5272	+2.727	+46	-42

MAY.

20 Piscium	6	-0.15 - 1.6	- 3 27.4	1 12 1.4	- 9 1.3	-0.8185	.5288	+2.836	+ 2	-90
24 Piscium	6½	0.18 1.3	3 50.9	14 23.8	- 6 43.5	+0.2522	.5290	.2844	+58	-32
27 Piscium	5½	0.20 1.0	4 15.0	17 8.3	- 4 4.3	+1.4371	.5297	.2862	+86	+54
29 Piscium	5½	-0.23 - 1.2	- 3 43.4	18 37.5	- 2 38.0	+1.3326	.5299	+2.868	+87	+35
B. A. C. 8365	6½	0.25 1.5	- 1 11.8	20 9.4	- 1 9.0	-0.7681	.5303	.2874	+ 5	-90
B. A. C. 57	6½	0.32 1.6	+ 0 59.6	2 2 9.0	+ 4 38.8	-1.2300	.5324	.2891	-25	-89
44 Piscium	6	0.34 1.1	1 14.8	5 43.7	+ 8 6.5	-0.4474	.5337	.2897	+22	-70
Venus			0 40.5	7 30.0	+ 9 49.3	+0.6375	.4897	.2718	+85	-13
B. A. C. 221	6	-0.44 - 1.0	+ 4 38.2	16 19.5	- 5 38.7	-0.7495	.5382	+2.893	+ 6	-82

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

MAY.

STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.	
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.	Hour Angle <i>H</i>	<i>Y</i>	<i>z'</i>	<i>y'</i>	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d h m	h m					
B. A. C. 274	6	-0.48	-0.6	+ 5 48.5	2 21 36.3	- 0 32.7	-0.3858	.5409	+2879	+25	-66
73 Piscium	6½	0.48	0.5	+ 5 59.1	23 54.2	+ 1 40.5	+1.0735	.5422	.2870	+90	+14
ζ ¹ Piscium	4½	0.54	0.3	6 54.8	3 52.7	+ 5 30.9	+0.3205	.5445	.2853	+62	-27
ζ ² Piscium	6½	0.54	0.3	6 55.0	3 53.3	+ 5 31.5	+0.3157	.5445	.2853	+63	-28
88 Piscium	6	0.53	-0.2	6 20.0	4 19.8	+ 5 57.1	+1.0203	.5448	.2850	+90	+10
χ ¹ Tauri	5½	0.67	+ 6.8	25 20.1	6 8 7.6	+ 6 50.5	-0.0565	.6017	.1453	+41	-29
χ ² Tauri	8½	-0.67	+ 6.8	+25 20.3	8 7.8	+ 6 50.7	-0.0605	.6017	+1453	+41	-30
B. A. C. 1648	6½	0.47	9.0	27 49.8	7 5 14.9	+ 3 3.2	-0.1675	.6089	.0735	+35	-29
β Tauri	2	0.46	9.2	28 30.1	7 8.0	+ 4 51.3	-0.6958	.6091	.0691	+ 5	-60
B. A. C. 1709	6½	0.44	9.4	29 5.2	8 20.1	+ 6 0.3	-1.1954	.6092	.0647	-36	-61
B. A. C. 1746	6½	0.41	9.2	27 34.9	10 36.7	+ 8 10.9	+0.4336	.6093	.0570	+74	+ 3
B. A. C. 1772	6	0.40	9.7	29 8.6	11 47.3	+ 9 18.4	-1.0508	.6093	.0528	-21	-61
136 Tauri	5	-0.32	+ 9.5	+27 35.0	16 51.4	- 9 50.8	+0.7199	.6089	+0347	+90	+20
B. A. C. 1882	6½	0.30	9.8	28 55.4	17 59.3	- 8 45.8	-0.5753	.6088	.0308	+12	-50
κ Aurigæ	4½	0.22	10.2	29 32.7	8 0 45.6	- 2 17.2	-1.0705	.6081	+0071	-23	-61
B. A. C. 2097	6½	0.12	10.0	28 17.7	6 13.3	+ 2 56.3	+0.1636	.6048	-0119	+54	- 7
49 Aurigæ	5½	0.09	10.0	28 7.2	7 59.3	+ 4 37.8	+0.3116	.6040	.0180	+64	0
53 Aurigæ	6	0.08	10.3	29 5.5	9 7.7	+ 5 43.1	-0.6853	.6035	.0221	+ 5	-58
54 Aurigæ	6	-0.06	+10.1	+28 22.4	9 34.4	+ 6 8.7	+0.0244	.6034	-0235	+46	-15
28 Geminor.	6	-0.05	10.4	29 5.9	11 27.9	+ 7 57.4	-0.7535	.6022	.0290	+ 1	-61
47 Geminor.	6	+0.11	9.5	27 3.8	21 23.7	- 6 31.9	+0.8345	.5957	.0627	+90	+24
53 Geminor.	6	0.15	9.9	28 6.9	23 5.5	- 4 54.3	-0.3405	.5944	.0693	+25	-38
59 Geminor.	6½	0.20	9.7	27 52.8	9 2 21.3	- 1 46.7	-0.3420	.5916	.0786	+25	-39
ε Geminorum	4	0.21	9.7	28 2.8	2 48.3	- 1 20.8	-0.5471	.5913	.0793	+14	-52
δ ¹ Geminorum	5	+0.24	+ 9.8	+28 22.6	4 10.4	- 0 2.1	-0.9936	.5901	-0839	-16	-62
δ ² Geminorum	5	0.24	9.6	28 10.5	4 21.5	+ 0 8.7	-0.8046	.5900	.0845	- 2	-62
B. A. C. 2472	6	0.24	9.7	28 10.7	4 41.0	+ 0 27.3	-0.8356	.5897	.0855	- 4	-62
ν Geminorum	4½	0.28	9.5	27 10.4	6 42.6	+ 2 23.9	+0.0021	.5879	.0916	+45	-22
c Geminorum	6	0.33	8.9	26 4.9	9 55.3	+ 5 28.9	+0.8057	.5851	.1012	+90	+19
φ Geminorum	5	0.40	9.2	27 5.4	13 34.5	+ 8 59.3	-0.6097	.5816	.1105	+10	-58
ω ¹ Cancri	6	+0.43	+ 8.4	+25 44.1	16 32.6	+11 50.4	+0.4303	.5787	-1198	+72	- 3
ω ² Cancri	6½	0.43	8.4	25 26.0	16 52.2	+11 50.8	+0.7002	.5784	.1206	+90	+11
φ ¹ Cancri	6½	0.49	8.4	26 12.8	20 15.2	- 8 35.8	-0.5211	.5750	.1297	+16	-54
φ ² Cancri	6	0.49	8.4	25 53.2	20 21.5	- 8 29.7	-0.2005	.5749	.1299	+33	-36
λ Cancri	6	0.54	7.6	24 25.0	10 0 29.7	- 4 32.0	+0.7530	.5708	.1404	+90	+12
ν ¹ Cancri, mult	7	0.58	7.7	24 56.6	2 59.3	- 2 7.1	-0.1490	.5677	.1465	+36	-35
ν ² Cancri	6½	+0.60	+ 7.5	+24 33.6	3 48.0	- 1 20.2	+0.1259	.5669	-1485	+52	-21
ι ² Cancri	6	0.61	7.4	24 30.2	5 0.4	- 0 10.5	+0.0040	.5656	.1514	+45	-28
32 Cancri	6	0.64	7.4	24 30.6	5 37.6	+ 0 25.3	-0.0982	.5649	.1530	+39	-33
ξ Cancri	5	0.83	5.3	22 33.1	21 16.3	- 8 30.0	-0.7318	.5486	.1861	+ 4	-68
79 Cancri	6	0.84	5.2	22 30.2	21 42.7	- 8 4.5	-0.7644	.5482	.1869	+ 2	-64
B. A. C. 3138	6	0.86	4.9	21 47.9	23 10.8	- 6 39.5	-0.3053	.5466	.1897	+28	-47
7 Leonis	3½	+1.13	+ 1.1	+17 22.3	12 0 18.9	- 6 21.3	-0.9367	.5219	-2279	- 7	-73
37 Leonis	6	1.15	-0.3	14 21.0	4 57.0	+ 1 51.9	+1.2014	.5181	.2330	+90	+30
42 Leonis	6	1.18	0.2	15 36.3	7 30.2	+ 0 36.6	-0.7301	.5160	.2356	+ 6	-74
B. A. C. 3579	6	1.22	0.8	14 58.9	11 1.0	+ 4 1.0	-0.9014	.5131	.2392	- 4	-75
i Leonis	6	1.24	1.0	14 46.7	12 43.9	+ 5 40.7	-1.0967	.5118	.2409	-17	-75
l Leonis	5	1.29	3.2	11 12.3	21 31.8	- 9 47.2	+0.5709	.5055	.2481	+80	-13
B. A. C. 3837	6	+1.40	- 5.0	+ 8 44.6	12 10 38.6	+ 2 56.9	-0.0890	.4978	-2563	+40	-47
o Leonis	4	1.39	5.9	6 42.7	14 29.4	+ 6 41.2	+1.1158	.4959	.2580	+90	+18
10 Virginis	6	1.58	9.3	+ 2 35.8	14 17 17.6	+ 8 45.3	-1.4332	.4872	.2639	-52	-88
13 Virginis	6	1.59	10.3	- 0 5.7	22 20.2	-10 20.3	+0.1794	.4865	.2638	+54	-35
7 Virginis	3½	1.60	10.4	0 1.5	23 2.3	- 9 39.3	-0.1375	.4864	.2637	+38	-52
B. A. C. 4255	6½	+1.65	-11.9	- 3 41.3	15 9 38.0	+ 0 39.3	+1.1497	.4859	-2621	+87	+19

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

MAY.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.				
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	z'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d	h	m						
Δ Virginis	5	+1.84	-14.4	-9 31.4	16	16	2.3	+ 6 14.6	-0.2083	.4902	-.2484	+35	-56
86 Virginis	6	1.86	15.0	11 48.2	23	10.9		-10 48.6	+0.5592	.4924	.2431	+73	-16
B. A. C. 4679	6 $\frac{1}{2}$	1.94	15.8	14 22.4	17	9 15.8		- 1 0.4	+1.0009	.4961	.2345	+76	+10
B. A. C. 4896	6	2.09	15.7	17 16.4	18	10 11.5		- 0 47.5	-1.2874	.5082	.2058	-42	-90
δ Libræ	4 $\frac{1}{2}$	2.17	15.5	19 19.3	20	42.5		+ 9 24.7	-1.0970	.5141	.1906	-27	-90
42 Libræ	5 $\frac{1}{2}$	2.28	15.0	23 24.8	19	10 35.0		- 1 8.3	+0.9652	.5224	.1675	+67	+11
B. A. C. 5253	6	+2.29	-14.6	-24 9.7	17	11.2		+ 5 15.4	+0.7296	.5261	-.1554	+66	- 4
B. A. C. 5254	6	2.29	14.6	23 36.5	17	13.0		+ 5 17.2	+0.1090	.5262	.1553	+35	-38
B. A. C. 5286	6 $\frac{1}{2}$	2.30	14.7	24 28.9	19	26.2		+ 7 22.2	+0.7396	.5274	.1511	+65	- 3
B. A. C. 5335	6 $\frac{1}{2}$	2.30	14.5	23 16.4	23	4.0		+10 56.9	-1.1395	.5295	.1440	-37	-90
B. A. C. 5354	6 $\frac{1}{2}$	2.33	14.2	23 21.7	20	0 18.9		-11 50.6	-1.2187	.5302	.1416	-44	-90
σ Scorpii	3 $\frac{1}{2}$	2.35	13.5	25 17.7	6	9.2		- 6 11.6	+0.1371	.5336	.1296	+34	-37
α Scorpii	1 $\frac{1}{2}$	+2.36	-13.2	-26 9.4	9	58.7		- 2 29.7	+0.6133	.5357	-.1215	+59	-10
22 Scorpii	5	2.38	13.2	24 50.5	10	23.0		- 2 6.3	-0.8956	.5359	.1207	-22	-90
25 Scorpii	6	2.38	12.5	25 18.3	18	4.4		+ 5 19.9	-1.2419	.5377	.1035	-52	-90
B. A. C. 5800	6 $\frac{1}{2}$	2.42	10.9	26 50.1	21	6 28.6		- 6 41.1	-0.6476	.5451	.0743	-12	-90
A ¹ Ophiuchi	5 $\frac{1}{2}$	2.44	10.9	16 25.2	7	1.4		- 6 9.4	-1.1484	.5454	.0729	-45	-90
A ² Ophiuchi	6	2.44	10.9	26 25.1	7	1.5		- 6 9.3	-1.1495	.5454	.0729	-45	-90
38 Ophiuchi	6 $\frac{1}{2}$	+2.45	-10.8	-26 29.5	8	1.6		- 5 11.2	-1.1400	.5457	-.0705	-44	-90
43 Ophiuchi	6	2.45	10.3	23 1.3	10	32.5		- 2 45.5	+0.3846	.5467	.0643	+41	-23
3 Sagittarii	5	2.46	9.0	27 47.0	21	19.0		+ 7 38.5	-0.4266	.5500	.0371	- 4	-73
B. A. C. 6063	6 $\frac{1}{2}$	2.45	8.4	23 2.8	22	1 21.1		+11 32.1	-0.2645	.5506	.0271	+ 3	-61
B. A. C. 6072	6 $\frac{1}{2}$	8.46	8.1	28 44.5	2	11.2		-11 39.6	+0.4805	.5509	.0249	+44	-17
B. A. C. 6120	6 $\frac{1}{2}$	2.45	7.7	23 22.3	5	46.7		- 8 11.6	+0.0011	.5515	.0454	+16	-44
B. A. C. 6127	5	+2.44	- 7.6	-28 28.3	6	20.8		- 7 38.7	+0.1024	.5516	-.0138	+21	-39
B. A. C. 6190	6 $\frac{1}{2}$	2.43	7.2	23 41.5	10	25.8		- 3 42.4	+0.3113	.5522	.0029	+31	-27
B. A. C. 6191	6 $\frac{1}{2}$	2.43	7.2	23 19.6	10	26.1		- 3 42.1	-0.0916	.5522	-.0029	+10	-51
B. A. C. 6220	6 $\frac{1}{2}$	2.42	6.8	23 29.4	12	27.4		- 1 45.0	+0.0864	.5524	+0.024	+19	-40
ϕ Sagittarii	3 $\frac{1}{2}$	2.35	5.6	27 7.1	22	51.3		+ 8 16.9	-1.2549	.5527	.0295	-59	-90
τ Sagittarii	3 $\frac{1}{2}$	2.28	3.9	27 51.1	23	8 10.5		- 6 43.7	-0.0608	.5520	.0534	+16	-48
B. A. C. 6628	6	+2.26	- 2.8	-23 6.3	15	53.6		+ 0 43.0	+0.7066	.5505	+0.734	+62	- 4
B. A. C. 6666	6	2.23	2.6	27 14.4	18	16.9		+ 3 1.4	-0.0552	.5500	.0798	+19	-48
ω Sagittarii	5	2.11	1.0	26 37.8	24	5 49.0		- 9 50.7	+0.3619	.5472	.1082	+44	-24
A Sagittarii	5	2.09	-0.8	26 31.9	7	13.4		- 8 29.3	+0.4101	.5468	.1114	+47	-22
B. A. C. 7077	6	1.95	+0.9	25 21.8	22	33.9		+ 6 19.7	+1.1241	.5412	.1466	+65	+25
B. A. C. 7197	6	1.83	1.1	23 11.4	25	5 42.5		-10 46.1	-0.1174	.5384	.1619	+24	-51
γ Capricorni	6	+1.71	+ 1.9	-21 41.6	15	6.2		- 1 41.2	-0.1118	.5345	+1.809	+26	-51
27 Capricorni	6	1.67	1.9	21 3.4	15	34.3		- 1 14.0	-0.7103	.5343	.1819	- 4	-90
ϕ Capricorni	5 $\frac{1}{2}$	1.64	2.2	21 10.1	18	25.4		+ 1 31.5	-0.0632	.5332	.1872	+29	-48
33 Capricorni	5 $\frac{1}{2}$	1.61	2.7	21 22.8	22	26.0		+ 5 24.1	+0.9288	.5316	.1948	+69	+ 7
37 Capricorni	6	1.55	3.1	20 38.4	26	3 30.7		+10 18.8	+1.1474	.5297	.2037	+70	+24
ϵ Capricorni	4 $\frac{1}{2}$	1.53	3.0	20 1.4	4	34.6		+11 20.7	+0.7099	.5293	.2055	+70	- 6
κ Capricorni	5	+1.48	+ 3.0	-19 26.0	7	14.1		-10 5.0	+0.6340	.5284	+2.101	+69	-11
29 Aqua., mult.	6	1.34	3.6	17 33.9	16	46.5		- 0 50.9	+0.7271	.5251	.2252	+72	- 6
45 Aquarii	6	1.21	3.2	13 55.7	27	0 51.4		+ 6 58.6	-1.2402	.5223	.2368	-33	-90
50 Aquarii	6	1.19	3.7	14 9.7	3	30.5		+ 9 32.6	-0.3617	.5221	.2402	-21	-65
B. A. C. 7835	6 $\frac{1}{2}$	1.12	3.5	13 33.2	6	13.9		-11 49.1	-0.3410	.5214	.2438	+23	-64
70 Aquarii	6	1.00	3.6	11 12.8	15	20.3		- 2 59.7	-0.5156	.5198	.2545	+15	-76
74 Aquarii	6	+0.99	+ 4.2	-12 16.8	17	47.0		- 0 37.6	+1.2204	.5195	+2.571	+78	+26
A ¹ Aquarii	5 $\frac{1}{2}$	0.89	3.4	8 22.0	23	34.2		+ 4 58.8	-1.3440	.5189	.2628	-40	-90
A ² Aquarii	7	0.88	3.3	8 25.6	23	39.2		+ 5 3.7	-1.2607	.5189	.2629	-31	-90
A ³ Aquarii	7	0.88	3.5	8 36.5	23	55.8		+ 5 19.7	-0.9979	.5189	.2631	-11	-90
A ⁴ Aquarii	7 $\frac{1}{2}$	0.88	3.5	8 21.9	28	0 35.3		+ 5 58.0	-1.0777	.5188	.2637	-16	-90
χ Aquarii	5 $\frac{1}{2}$	+0.80	+ 3.9	- 8 24.4	5	21.3		+10 35.1	+0.2340	.5187	+2.679	+55	-32

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

MAY.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.		
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$								
B. A. C. 8184	5½	+0.72	+3.4	- 5 12.8	28 11 37.3	- 7 20.5	-1.3668	.5188	+2727	-42	-90
20 Piscium	6	0.61	3.5	3 27.3	20 42.4	+ 1 27.6	-0.6637	.5199	.2781	+10	-88
24 Piscium	6½	0.59	3.9	3 50.8	23 9.5	+ 3 50.1	+0.4213	.5204	.2794	+68	-23
B. A. C. 8365	6½	0.51	3.5	- 1 11.7	29 5 6.1	+ 9 35.5	-0.6192	.5218	.2817	+13	-83
B. A. C. 57	6½	0.42	3.3	+ 0 59.7	11 17.4	- 8 24.9	-1.0955	.5237	.2834	-15	-89
44 Piscium	6	0.38	3.5	1 14.9	14 58.7	- 4 50.6	-0.3046	.5249	.2839	+29	-61
B. A. C. 221	6	+0.25	+3.4	+ 4 38.3	30 1 53.9	+ 5 43.6	-0.6248	.5294	+2836	+13	-82
B. A. C. 274	6	0.17	3.4	5 48.5	7 19.8	+10 58.9	-0.2635	.5329	.2826	+31	-58
ϵ Piscium	4	0.15	3.0	7 13.0	8 47.0	-11 36.8	-1.2653	.5337	.2818	-28	-83
73 Piscium	6½	0.17	3.7	4 59.2	9 41.5	-10 44.1	+1.2260	.5343	.2814	+90	+25
ζ Piscium	4½	0.11	3.5	6 54.9	13 46.4	- 6 47.3	+0.4402	.5370	.2798	+70	-21
η Piscium	6½	0.11	3.5	6 55.1	13 47.2	- 6 46.5	+0.4239	.5370	.2798	+69	-22
88 Piscium	6	+0.11	+3.7	+ 6 20.1	14 14.4	- 6 20.2	+1.1500	.5473	+2795	+90	+20
π Piscium	6	-0.01	3.2	11 30.1	31 0 22.9	+ 3 27.6	-1.2006	.5446	.2729	-24	-79
B. A. C. 609	6	0.10	4.0	11 41.4	10 14.9	-11 1.0	+1.2627	.5525	.2634	+90	+34
19 Arietis	6	0.16	3.9	14 41.6	16 5.4	- 5 23.0	-0.1925	.5575	.2564	+34	-49
27 Arietis	6	-0.23	+4.0	+17 9.1	23 36.5	+ 1 51.5	-0.7283	.5644	+2455	+ 6	-73

JUNE.

40 Arietis	6	-0.27	+4.5	+17 45.9	1 6 52.2	+ 8 50.9	+0.4064	.5716	+2332	+69	-16
ρ^2 Arietis	6	0.28	4.8	17 49.5	9 49.3	+11 41.2	+1.0273	.5744	.2276	+90	+20
47 Arietis	6	0.31	4.5	20 10.0	10 41.5	-11 28.6	-1.0765	.5752	.2259	-17	-70
δ Arietis	4½	0.32	5.1	19 15.2	16 6.7	- 6 16.1	+1.0148	.5804	.2147	+90	+21
ζ Arietis	4½	0.35	5.1	20 34.9	17 20.4	- 5 5.5	-0.0067	.5815	.2120	+44	-34
B. A. C. 1032	6½	-0.35	+5.3	+20 3.4	19 44.1	- 2 47.3	+0.9901	.5838	+2066	+90	+20
τ^1 Arietis	5	0.35	5.2	20 41.8	19 52.0	- 2 39.6	+0.3896	.5839	.2063	+68	-13
τ^2 Arietis	6	0.34	5.3	20 17.7	20 28.4	- 2 4.7	+0.9084	.5845	+2052	+90	+15
B. A. C. 2097	6½	0.16	9.1	28 17.6	4 16 22.9	- 6 5.9	+0.0574	.6128	-0.138	+48	-12
49 Aurigæ	5½	0.14	9.0	28 7.2	18 6.6	- 7 26.8	+0.0355	.6121	.0198	+46	-14
53 Aurigæ	6½	0.14	9.3	29 5.5	19 13.5	- 6 22.9	-0.7870	.6117	.0239	- 2	-61
54 Aurigæ	6	-0.12	+9.2	+28 22.4	19 39.4	- 5 58.2	-0.0852	.6114	-0.255	+39	-21
28 Geminor.	6	-0.11	9.3	29 5.8	21 30.5	- 4 11.9	-0.8582	.6106	.0320	- 6	-61
47 Geminor.	6	+0.01	8.8	27 3.8	5 7 11.5	+ 5 3.9	+0.6958	.6047	.0651	+90	+16
53 Geminor.	6	0.03	9.1	28 6.9	8 50.7	+ 6 38.9	-0.4675	.6034	.0708	+18	-46
59 Geminor.	6½	0.06	8.9	27 52.8	12 1.3	+ 9 41.3	-0.4738	.6010	.0816	+18	-47
ϵ Geminorum	4	0.07	9.0	28 2.8	12 27.6	+10 6.5	-0.6769	.6006	.0831	+ 6	-60
β^1 Geminorum	5	+0.09	+9.2	+28 22.6	13 47.5	+11 23.0	-1.1200	.5998	-0.842	-27	-62
β^2 Geminorum	5	0.08	9.1	28 10.5	13 58.3	+11 33.4	-0.9337	.5992	.0873	-11	-62
B. A. C. 2472	6	0.08	9.1	28 10.6	14 17.3	+11 51.6	-0.9645	.5989	.0882	-13	-62
ν Geminorum	4½	0.11	8.8	27 10.4	16 16.6	-10 14.1	-0.1405	.5972	.0945	+36	-30
ϵ Geminorum	6	0.15	8.5	26 4.9	19 23.0	- 7 15.4	+0.6476	.5943	.1040	+90	+10
ϕ Geminorum	5	0.19	8.7	27 5.4	22 56.1	- 3 51.0	-0.7544	.5909	.1147	+ 1	-63
ω^1 Cancri	6	+0.22	+8.2	+25 44.1	6 1 49.2	- 1 5.1	+0.2673	.5880	-1.231	+61	-11
ω^2 Cancri	6½	0.22	8.2	25 26.0	2 8.2	- 0 46.8	+0.5332	.5877	.1240	+81	+ 2
ψ^1 Cancri	6½	0.27	8.1	26 12.8	5 25.4	+ 2 22.4	-0.6762	.5844	.1332	+ 6	-63
ψ^2 Cancri	6	0.27	8.1	25 53.2	5 31.6	+ 2 28.5	-0.3602	.5843	.1334	+25	-45
λ Cancri	6	0.31	7.4	24 25.0	9 31.7	+ 6 19.0	+0.5742	.5800	.1440	+84	+ 2
ν^1 Cancri, mult.	7	0.35	7.5	24 56.6	11 57.9	+ 8 39.5	-0.3183	.5774	.1502	+27	-44
ν^2 Cancri	6½	+0.36	+7.3	+24 33.6	12 45.2	+ 9 24.9	-0.0484	.5765	-1.522	+42	-30
ν^3 Cancri	6	0.37	7.3	24 30.2	13 55.5	+10 32.5	-0.1701	.5751	.1552	+35	-37
32 Cancri	6	0.34	7.2	24 30.6	14 30.7	+11 6.3	-0.2719	.5745	.1563	+28	-42
ξ Cancri	5	0.55	5.8	22 33.1	7 5 43.4	+ 1 44.9	-0.9156	.5572	.1900	- 7	-68
79 Cancri	6	0.56	5.8	22 30.2	6 9.0	+ 2 9.6	-0.9482	.5568	.1908	- 9	-68
B. A. C. 3138	6	+0.58	+5.4	+21 47.9	7 34.6	+ 3 32.1	-0.4972	.5552	-1.934	+18	-59

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

JUNE.

STAR'S—				AT CONJUNCTION IN R. A.							Limiting Parallels.		
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	x'	y'	N'n.	S'n.
		Δα	Δδ		d	h	m						
		"	"	"	"	"	"	"	"	"	"	"	"
7 Leonis	3½	+0.83	+ 2.4	+17 22.3	8	8	2.1	+ 3 9.6	-1.1445	.5292	-.2312	-22	-73
37 Leonis	6	0.86	1.0	14 21.1	12	33.3		+ 7 32.0	+0.9636	.5246	.2364	+90	+13
42 Leonis	6	0.89	1.2	15 36.3	15	2.9		+ 9 56.9	-0.9467	.5226	.2389	- 7	-75
B. A. C. 3579	6	0.92	0.6	14 58.9	18	28.7		-10 43.7	-1.1174	.5196	.2423	-19	-75
i Leonis	6	0.94	+ 0.4	14 46.7	20	9.2		- 9 6.3	-1.3116	.5181	.2439	-37	-75
l Leonis	5	0.99	- 1.6	11 12.3	9	4	45.7	- 0 45.6	+0.3336	.5111	.2508	+63	-24
B. A. C. 3837	6	+1.11	- 3.3	+ 8 44.6	17	37.3		+11 43.3	-0.3220	.5022	-.2522	+25	-60
σ Leonis	4	1.11	4.3	6 42.8	21	24.1		- 8 36.5	+0.8710	.5000	.2599	+90	+ 2
β Virginis	3½	1.25	7.1	2 28.0	10	13	18.7	+ 6 51.2	+1.2741	.4925	.2639	+90	+30
B. A. C. 4043	6½	1.28	7.8	+ 1 13.4	17	57.9		+11 22.7	+1.3928	.4909	.2643	+90	+44
13 Virginis	6	1.37	8.8	- 0 5.7	11	4	49.9	- 2 3.1	-0.0442	.4882	.2639	+42	-47
γ Virginis	3½	1.38	8.9	+ 0 1.5	5	31.6		- 1 22.4	-0.3590	.4881	.2638	+26	-65
B. A. C. 4255	6½	+1.47	-10.7	- 3 41.3	16	21		+ 8 51.0	+0.9302	.4867	-.2617	+87	- 5
h Virginis	5	1.73	13.9	9 31.4	12	22	18.2	- 9 42.0	-0.3849	.4897	.2476	+23	-67
86 Virginis	6	1.78	14.8	11 48.2	13	5	26.0	- 2 46.0	+0.3911	.4918	.2413	+62	-24
B. A. C. 4679	6½	1.89	15.6	14 22.4	15	30.1		+ 7 1.4	+0.8478	.4954	.2326	+76	0
μ Librae	4½	2.27	16.2	19 19.3	15	2	55.8	- 6 34.6	-1.1830	.5137	.1885	-34	-90
B. A. C. 5023	6	2.30	16.5	21 56.4	4	58.4		- 4 35.7	-1.3443	.5149	.1854	+68	+53
42 Librae	5½	+2.45	-16.1	-23 24.9	16	47.6		+ 6 51.7	+0.9039	.5223	-.1658	+67	+ 7
B. A. C. 5253	6	2.50	15.8	24 9.8	23	23.2		-10 45.2	+0.6817	.5264	.1537	+65	- 7
B. A. C. 5254	6	2.51	15.7	23 36.5	23	25.0		-10 43.4	+0.0615	.5264	.1536	+33	-41
B. A. C. 5286	6½	2.53	15.6	24 28.9	16	1	38.0	- 8 34.6	+0.6957	.5278	.1494	+66	- 6
B. A. C. 5335	6½	2.55	15.1	23 16.4	5	15.3		- 5 4.3	-1.1738	.5299	.1423	-40	-90
B. A. C. 5354	6½	2.68	15.1	23 21.7	6	30.1		- 3 51.9	-1.2503	.5307	.1399	-48	-90
σ Scorpii	3½	+2.65	-14.7	-25 17.7	12	19.6		+ 1 46.3	+0.1149	.5342	-.1279	+33	-38
α Scorpii	1½	2.68	14.5	26 9.4	16	8.4		+ 5 27.5	+0.5983	.5364	.1396	+59	-11
22 Scorpii	5	2.69	14.3	24 50.5	16	32.7		+ 5 51.0	-0.9080	.5366	.1387	-23	-90
25 Scorpii	6	2.75	13.5	25 18.3	17	0	12.5	-10 44.6	-1.2385	.5408	.1218	-51	-90
B. A. C. 5800	6½	2.86	11.9	26 50.2	12	33.8		+ 1 11.5	-0.6208	.5466	.0725	-11	-90
A' Ophiuchi	5½	2.87	11.7	26 25.2	13	6.5		+ 1 43.1	-1.1797	.5469	.0713	-43	-90
A² Ophiuchi	6	+2.87	-11.7	-26 25.1	13	6.6		+ 1 43.2	-1.1187	.5469	-.0713	-43	-90
38 Ophiuchi	6½	2.87	11.7	26 29.5	14	6.4		+ 2 40.9	-1.1097	.5473	.0689	-42	-90
43 Ophiuchi	6	2.91	11.3	28 1.3	16	36.6		+ 5 6.0	+0.4172	.5486	.0626	+43	-21
3 Sagittarii	5	2.95	9.8	27 47.0	18	3	19.8	- 8 33.2	-0.3721	.5521	.0353	- 2	-68
B. A. C. 6024	6½	2.94	9.6	27 1.3	4	35.0		- 7 20.7	-1.2546	.5524	.0319	-59	-90
B. A. C. 6063	6½	2.99	9.0	28 2.8	7	20.7		- 4 40.8	-0.2029	.5531	.0249	+ 6	-57
B. A. C. 6072	6½	+2.99	- 9.3	-28 44.5	8	10.5		- 3 52.8	+0.5421	.5533	-.0228	+48	-14
Mars				27 20.0	10	8.0		- 1 59.4	-1.0551	.5721	.0147	-43	-90
B. A. C. 6120	6½	3.00	8.3	28 22.3	11	44.8		- 0 26.0	+0.0706	.5541	.0135	+19	-40
B. A. C. 6127	5	3.01	8.3	28 28.3	12	18.7		+ 0 6.7	+0.1726	.5542	.0121	+25	-34
B. A. C. 6190	6½	3.02	7.5	28 41.6	16	22.3		+ 4 1.6	+0.3987	.5547	.0013	+36	-22
B. A. C. 6191	6½	3.02	7.5	28 19.6	16	22.6		+ 4 1.9	-0.0134	.5547	-.0013	+14	-45
B. A. C. 6220	6½	+3.02	- 7.1	-28 29.4	18	23.2		+ 5 58.3	+0.1682	.5549	+0.0040	+23	-35
φ Sagittarii	3½	2.99	5.4	27 7.1	19	4	43.5	- 8 3.6	-1.1516	.5553	.0315	-49	-90
τ Sagittarii	3½	2.99	3.6	27 51.1	13	59.5		+ 0 52.6	+0.0571	.5548	.0559	+22	-41
B. A. C. 6628	6	3.02	2.2	28 6.3	21	40.2		+ 8 17.1	+0.8377	.5534	.0757	+62	+ 5
B. A. C. 6666	6	2.98	- 1.8	-27 14.4	20	0	2.7	+10 34.5	+0.0811	.5529	.0817	+26	-40
ω Sagittarii	5	2.92	+ 0.3	26 37.7	11	31.8		- 2 20.5	+0.5183	.5494	.1103	+53	-15
A Sagittarii	5	+2.92	+ 0.6	-26 31.9	12	55.8		- 0 59.4	+0.5694	.5490	+1.135	+56	-12
B. A. C. 7077	6	2.78	3.1	25 21.8	21	4	13.9	-10 13.0	+1.3104	.5430	.1488	+65	+53
B. A. C. 7197	6	2.69	3.9	23 11.4	11	22.1		- 3 19.2	+0.0797	.5390	.1630	+34	-40
χ Capricorni	6	2.58	5.2	21 41.6	20	46.4		+ 5 46.3	+0.0996	.5354	.1826	+37	-39
27 Capricorni	6	2.53	5.2	21 3.3	21	14.5		+ 6 13.5	-0.4996	.5351	.1835	+ 7	-77
φ Capricorni	5½	+2.52	+ 5.6	-21 10.0	22	0	6.0	+ 8 59.2	+0.1533	.5338	+1.888	+41	-36

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

JUNE .

STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.				
Name.	Mag.	Red'ns from 1875.0		Apparent Declination.	Washington Mean Time.			Hour Angle <i>H</i>		Y	<i>x'</i>	<i>y'</i>	N'n.	S'n.
		Δα	Δδ		d	h	m	h	m					
33 Capricorni	5½	+2.50	+6.2	-21° 22.8	22	4	7.3	-11	7.3	+1.1537	.5318	+1963	+69	+25
ε Capricorni	4½	2.40	6.9	20 1.4	10	17.5	- 5	9.1	+0.9432	.5290	2068	+70	+ 8	
κ Capricorni	5	2.37	7.2	19 26.0	12	58.0	- 2	32.7	+0.8710	.5278	2110	+71	+ 3	
29 Aquar., mult.	6	2.24	8.0	17 33.8	22	34.5	+ 6	44.5	+0.9768	.5240	2256	+73	+10	
45 Aquarii	6	2.10	8.0	13 55.7	23	6 45.0	- 9	20.4	-0.9933	.5210	2368	-14	-90	
50 Aquarii	6	2.06	8.2	14 9.6	9	24.9	- 6	45.5	-0.1069	.5201	2400	+34	-50	
B. A. C. 7835	6½	+2.03	+8.4	-13 13.1	12	10.2	- 4	5.4	-0.0837	.5193	+2434	+36	-49	
70 Aquarii	6	1.90	9.0	11 12.7	21	24.1	+ 4	51.4	-0.2528	.5165	2536	+28	-59	
A ¹ Aquarii	5½	1.76	8.9	8 21.9	24	5 46.0	-11	2.0	-1.0854	.5151	2612	-17	-90	
A ² Aquarii	7	1.78	8.9	8 25.5	5	51.1	-10	57.0	-1.0012	.5151	2613	-11	-90	
A ³ Aquarii	7	1.77	9.0	8 36.4	6	8.0	-10	40.6	-0.7359	.5150	2615	+ 5	-90	
A ⁴ Aquarii	7½	1.76	9.0	8 21.8	6	48.2	-10	1.6	-0.8160	.5149	2620	0	-90	
γ Aquarii	5½	+1.70	+9.6	- 8 24.3	11	39.5	- 5	19.2	+0.5097	.5143	+2658	+72	-18	
B. A. C. 8184	5½	1.59	9.0	5 12.7	18	3.1	+ 0	52.7	-1.1069	.5139	2701	-17	-90	
20 Piscium	6	1.48	9.3	3 27.2	25	3 20.4	+ 9	53.2	-0.3968	.5146	2749	+24	-67	
24 Piscium	6½	1.46	9.7	3 50.8	5	50.9	-11	40.9	+0.7001	.5141	2758	+26	- 8	
B. A. C. 8365	6½	1.38	9.2	- 1 11.6	11	56.5	- 5	46.5	-0.3544	.5150	2777	+26	-64	
B. A. C. 57	6½	1.28	9.0	+ 0 59.8	18	17.5	+ 0	22.9	-0.8403	.5141	2788	+ 1	-89	
44 Piscium	6	+1.24	+9.2	+ 1 15.0	22	4.9	+ 4	3.2	-0.0421	.5779	+2794	+42	-47	
B. A. C. 221	6	1.10	8.8	4 38.4	26	9 18.9	- 9	3.7	-0.3770	.5221	2786	+25	-65	
B. A. C. 274	6	1.03	8.7	5 48.6	14	54.6	- 3	38.7	-0.0165	.5247	2769	+44	-44	
ε Piscium	4	1.00	8.3	7 13.1	16	24.5	- 2	11.6	-1.0354	.5252	2764	-11	-83	
ζ Piscium	4	0.95	8.7	6 55.0	21	33.2	+ 2	47.2	+0.6893	.5285	2742	+90	- 8	
η Piscium	6½	0.95	8.7	6 55.2	21	33.9	+ 2	47.9	+0.6996	.5285	2742	+90	- 8	
88 Piscium	6	+0.96	+9.0	+ 6 20.2	22	2.0	+ 3	15.1	+1.4090	.5288	+2739	+90	+50	
π Piscium	6	0.81	8.0	11 30.2	27	8 29.5	-10	38.0	-0.9931	.5355	2673	- 9	-79	
19 Arietis	6	0.63	7.9	11 41.7	28	0 41.7	+ 5	1.2	+0.0013	.5485	2505	+44	-39	
27 Arietis	6	0.55	7.5	17 9.1	8	26.5	-11	30.6	-0.5581	.5457	2399	+16	-68	
40 Arietis	6	0.48	7.8	17 45.8	15	55.1	- 4	18.3	+0.5793	.5628	2277	+22	- 7	
ρ ² Arietis	6	0.46	7.8	17 49.6	18	57.4	- 1	22.8	+1.1995	.5666	2222	+90	+34	
47 Arietis	6	+0.44	+7.1	+20 10.1	19	51.0	- 0	31.1	-0.9363	.5666	+2206	- 7	-70	
δ Arietis	4½	0.40	7.8	19 15.3	29	1 25.2	+ 4	50.4	+1.1711	.5722	2096	+90	+33	
ζ Arietis	4½	0.39	7.5	20 34.9	2	44.0	+ 6	6.2	-0.1247	.5736	2068	+52	-27	
B. A. C. 1032	6½	0.38	7.8	20 3.4	5	8.4	+ 8	25.0	+1.1368	.5759	2017	+90	+31	
τ ¹ Arietis	5	0.37	7.6	20 41.8	5	16.5	+ 8	32.8	+0.5283	.5760	2014	+79	- 6	
τ ² Arietis	5½	0.37	7.8	20 17.7	5	53.9	+ 9	8.7	+1.0522	.5766	2000	+90	+25	
65 Arietis	6	+0.36	+7.8	+20 21.6	6	34.0	+ 9	47.3	+1.1207	.5773	+1985	+90	+30	
66 Arietis	6½	0.33	7.4	22 22.4	8	7.6	+11	17.3	-0.5723	.5788	1949	+14	-63	
9 Tauri	6	0.30	7.4	22 47.9	11	29.1	- 9	29.2	-0.3511	.5822	1871	+25	-49	
g Pleiadum	5½	0.28	7.2	23 53.8	14	31.6	- 6	34.0	-0.8835	.5851	1795	- 6	-66	
h Pleiadum	4	0.28	7.2	23 43.2	14	33.4	- 6	32.3	-0.7034	.5851	1794	+ 6	-66	
e Pleiadum	5	0.28	7.1	24 4.5	14	40.7	- 6	25.2	-1.0330	.5852	1791	-16	-66	
c Pleiadum	5	+0.28	+7.2	+23 58.6	14	55.3	- 6	11.2	-0.8931	.5854	+1789	- 6	-66	
d Pleiadum	5	0.28	7.3	23 33.5	15	7.4	- 5	59.6	-0.4423	.5855	1782	+20	-53	
η Tauri	3	0.28	7.3	23 43.1	15	34.2	- 5	33.9	-0.5214	.5860	1749	+16	-58	
f Pleiadum	4	0.28	7.3	23 40.3	16	13.2	- 4	56.4	-0.3595	.5866	1751	+25	-49	
k Pleiadum	5½	0.27	7.3	23 45.3	16	13.7	- 4	56.0	-0.4409	.5866	1751	+20	-53	
33 Tauri	6	0.26	7.7	22 48.8	19	16.9	- 2	0.1	+1.0151	.5894	1673	+90	+26	
36 Tauri	6	+0.24	+7.6	+23 45.8	22	2.9	+ 0	39.1	+0.5261	.5918	+1596	+70	- 2	
χ ¹ Tauri	5½	0.19	7.5	25 20.1	30	4 52.7	+ 7	11.9	-0.0050	.5976	1401	+44	-27	
χ ² Tauri	8½	+0.19	+7.5	+25 20.3	4	52.9	+ 7	12.1	-0.0091	.5976	+1401	+44	-27	

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

JULY.

STAR'S—					AT CONJUNCTION IN R. A.						Limiting Parallels.		
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	z'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d	h	m						
ν^1 Cancri	7	+0.36	+ 6.8	+24 56.6	3	22	5.5	- 2 24.8	-0.4576	.5826	-.1535	+19	-52
ν^2 Cancri	5 $\frac{1}{2}$	0.36	6.7	24 33.6	22	52.2		- 2 39.9	-0.1912	.5819	.1556	+34	-37
ν^3 Cancri	6	0.37	6.7	24 30.1	4	0	1.4	- 1 33.5	-0.3140	.5804	.1586	+27	-45
32 Cancri	6	0.38	6.7	24 30.6	0	36.6		- 0 59.7	-0.4132	.5803	.1601	+22	-51
ξ Cancri	5	0.48	5.5	22 33.1	15	33.5		-10 36.9	-1.0892	.5638	.1939	-20	-68
79 Cancri	6	0.48	5.5	22 30.2	15	58.6		-10 12.7	-1.1231	.5634	.1947	-23	-68
B. A. C. 3138	6	+0.49	+ 5.3	+21 47.9	17	22.6		- 8 51.8	-0.6789	.5618	-.1975	+ 8	-68
η Leonis	3 $\frac{1}{2}$	0.66	2.8	17 22.3	5	17	19.7	- 9 44.8	-1.3677	.5362	.2356	-49	-73
37 Leonis	6	0.67	1.6	14 21.1	21	44.9		- 5 28.4	+0.7109	.5318	.2409	+90	- 3
42 Leonis	6	0.69	1.8	15 36.3	6	0	11.1	- 3 6.9	-1.1822	.5293	.2435	-24	-75
B. A. C. 3579	6	0.72	+ 1.4	14 58.9	3	32.3		+ 0 7.8	-1.3577	.5264	.2468	-44	-75
ι Leonis	5	0.78	- 0.4	11 12.4	13	35.2		+ 9 51.8	+0.0619	.5177	.2550	+48	-38
χ Leonis	5	+0.83	- 2.0	+ 8 0.6	21	34.2		- 6 23.8	+1.3680	.5116	-.2598	+90	+43
B. A. C. 3837	6	0.88	2.1	8 44.6	7	2	9.4	- 1 56.8	-0.6027	.5086	.2623	+14	-78
σ Leonis	4	0.89	3.1	6 42.8	5	51.2		+ 1 38.5	+0.5737	.5062	.2637	+80	-14
β Virginis	3 $\frac{1}{2}$	1.00	5.5	2 29.0	21	25.7		- 7 14.0	+0.9607	.4979	.2671	+90	+ 7
B. A. C. 4043	6 $\frac{1}{2}$	1.03	6.1	+ 1 13.4	8	1	59.4	- 2 48.0	+0.1762	.4960	.2669	+90	+14
13 Virginis	6	1.12	7.3	- 0 5.7	12	39.2		+ 7 33.9	-0.3507	.4925	.2663	+27	-64
η Virginis	3 $\frac{1}{2}$	+1.13	- 7.4	+ 0 1.6	13	20.1		+ 8 13.7	-0.6625	.4923	-.2662	+11	-87
B. A. C. 4255	6 $\frac{1}{2}$	1.21	9.2	- 3 41.2	23	40.0		- 5 43.4	+0.6156	.4903	.2635	+82	-13
B. A. C. 4294	6 $\frac{1}{2}$	1.24	10.2	5 37.2	9	4	31.6	- 0 59.8	+1.4388	.4899	.2617	+85	+56
B. A. C. 4394	6	1.36	11.6	8 19.0	16	6.5		+10 16.1	+1.3842	.4898	.2560	+82	+44
κ Virginis	5	1.50	12.7	9 31.4	10	5	32.5	- 0 40.1	-0.6744	.4915	.2469	+ 8	-90
86 Virginis	6	1.58	13.6	11 48.2	12	36.3		+ 6 11.9	+0.1046	.4932	.2412	+47	-39
B. A. C. 4679	6 $\frac{1}{2}$	+1.68	-14.8	-14 22.4	22	35.6		- 8 5.5	+0.5715	.4963	-.2319	+71	-15
B. A. C. 4700	6	1.72	15.2	15 42.9	11	1	59.8	- 4 47.0	+1.2674	.4976	.2284	+75	+32
B. A. C. 5023	6	2.17	16.7	21 56.5	12	11	53.7	+ 4 7.2	+1.1238	.5142	.1837	+68	+22
42 Libræ	5 $\frac{1}{2}$	2.35	16.4	23 24.9	23	41.4		- 8 26.9	+0.7096	.5215	.1637	+67	- 5
B. A. C. 5197	6	2.39	16.6	24 19.5	13	2	22.6	- 5 50.8	+1.2862	.5232	.1589	+66	+44
B. A. C. 5253	6	2.46	16.2	24 9.8	6	16.4		- 2 4.4	+0.5008	.5255	.1515	+56	-17
B. A. C. 5254	6	+2.44	-16.1	-23 36.5	6	18.2		- 2 2.6	-0.1181	.5256	-.1512	+23	-51
3 Scorpii	6	2.46	16.4	24 52.7	6	37.4		- 1 44.1	+1.2397	.5258	.1509	+65	+37
B. A. C. 5286	6 $\frac{1}{2}$	2.47	16.1	24 29.9	8	31.0		+ 0 5.9	+0.5195	.5269	.1472	+57	-16
σ Scorpii	3 $\frac{1}{2}$	2.64	15.5	25 17.7	19	11.5		+10 25.8	-0.0386	.5333	.1256	+24	-47
α Scorpii	1 $\frac{1}{2}$	2.70	15.3	26 9.4	23	0.0		- 9 53.3	+0.4515	.5356	.1175	+50	-20
22 Scorpii	5	2.69	15.0	24 50.5	23	24.2		- 9 30.0	-1.0505	.5358	.1166	-33	-90
B. A. C. 5800	6 $\frac{1}{2}$	+2.97	-12.9	-26 50.2	14	19	22.8	+ 9 48.1	-0.7216	.5465	-.0705	-17	-90
A ¹ Ophiuchi	5 $\frac{1}{2}$	2.97	12.7	26 25.2	19	55.5		+10 19.7	-1.2176	.5468	.0692	-52	-90
A ² Ophiuchi	6 $\frac{1}{2}$	2.97	12.7	26 25.2	19	55.6		+10 19.8	-1.2190	.5468	.0692	-52	-90
38 Ophiuchi	6 $\frac{1}{2}$	2.99	12.7	26 29.5	20	55.2		+11 17.3	-1.2061	.5472	.0667	-51	-90
43 Ophiuchi	6	3.04	12.5	28 1.4	23	25.0		-10 18.1	+0.3229	.5484	.0605	+37	-26
Mars				27 57.2	15	3	9.0	- 6 41.9	+0.0381	.5599	.0508	+21	-42
3 Sagittarii	5	+3.15	-10.9	-27 47.0	10	6.0		+ 0 0.5	-0.4411	.5525	-.0333	- 5	-74
B. A. C. 6063	6 $\frac{1}{2}$	3.20	10.2	28 2.8	14	5.9		+ 3 51.8	-0.2633	.5535	.0228	+ 3	-61
B. A. C. 6072	6 $\frac{1}{2}$	3.23	10.1	28 44.5	14	55.5		+ 4 39.7	+0.4814	.5537	.0207	+43	-17
B. A. C. 6120	6 $\frac{1}{2}$	3.25	9.4	28 22.3	18	28.9		+ 8 5.6	+0.0189	.5546	.0114	+16	-43
B. A. C. 6127	5	3.26	9.4	28 28.3	19	2.6		+ 8 38.1	+0.1222	.5547	-.0099	+22	-37
B. A. C. 6190	6 $\frac{1}{2}$	3.30	8.6	28 41.6	23	5.0		-11 28.1	+0.3464	.5555	+0.009	+33	-25
B. A. C. 6191	6 $\frac{1}{2}$	+3.29	- 8.5	-28 19.6	23	5.4		-11 27.7	-0.0545	.5555	+0.009	+11	-48
B. A. C. 6220	6 $\frac{1}{2}$	3.31	8.2	28 29.4	16	1	5.3	- 9 32.1	+0.1311	.5560	.0063	+22	-38
ϕ Sagittarii	3 $\frac{1}{2}$	3.34	6.1	27 7.1	11	21.9		+ 0 22.4	-1.1617	.5570	.0337	-49	-90
τ Sagittarii	3 $\frac{1}{2}$	3.42	4.1	27 51.1	20	34.1		+ 9 14.8	+0.0642	.5567	.0582	+23	-41
B. A. C. 6628	6	3.45	2.5	28 6.3	17	4	11.2	- 7 24.5	+0.8598	.5556	.0783	+62	+ 6
B. A. C. 6666	6	+3.43	- 1.9	-27 14.4	6	32.6		- 5 8.1	+0.1111	.5552	+0.844	+28	-39

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

JULY.

STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.	
Name.	Mag.	Red'ns from 1875.0.	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	z'	y'	N'n.	S'n.	
		Δα	Δδ	d h m	h m s						
<i>α</i> Sagittarii	5	+3.43	+ 0.5	-26 37.7	17 17 55.6	+ 5 50.8	+0.5724	.5525	+1130	+59	-18
A Sagittarii	5	3.43	0.9	26 31.9	19 18.8	+ 7 11.1	+0.6260	.5521	.1164	+60	- 9
17 Capricorni	6	3.27	5.0	21 57.9	18 16 33.2	+ 3 41.4	-1.2853	.5439	.1650	-50	-90
B. A. C. 7197	6	3.31	5.3	23 11.4	17 31.7	+ 4 37.9	+0.1900	.5436	.1671	+40	-34
<i>χ</i> Capricorni	6	3.22	7.0	21 41.5	19 2 50.1	-10 22.6	+0.2308	.5392	.1861	+44	-32
27 Capricorni	6	3.21	7.1	21 33.3	3 18.0	- 9 55.6	-0.3644	.5390	.1868	+14	-66
<i>φ</i> Capricorni	5½	+3.20	+ 7.6	-21 10.0	6 7.7	- 7 11.5	+0.2919	.5376	+1923	+48	-29
33 Capricorni	5½	3.17	8.4	21 22.7	10 6.5	- 3 20.6	+1.2272	.5355	.1955	+69	+41
<i>ε</i> Capricorni	4½	3.10	9.3	20 1.3	16 13.0	+ 2 33.9	+1.1010	.5326	.2102	+70	+19
<i>κ</i> Capricorni	5	3.08	9.7	19 25.9	18 51.9	+ 5 7.6	+1.0349	.5314	.2145	+71	+14
29 Aquarii, <i>mult.</i>	6	2.97	11.0	17 33.8	20 4 23.1	- 9 39.5	+1.1609	.5272	.2290	+73	+23
45 Aquarii	6	2.85	11.7	15 55.6	12 28.6	- 1 49.4	-0.7865	.5239	.2399	- 1	-90
50 Aquarii	6	+2.83	+12.1	-14 9.5	15 8.3	+ 0 45.2	+0.1022	.5229	+2432	+45	-39
B. A. C. 7835	6½	2.81	12.5	13 33.0	17 52.4	+ 3 24.2	+0.1304	.5220	.2465	+47	-38
70 Aquarii	6	2.69	13.2	11 12.7	21 3 3.0	-11 42.3	-0.0225	.5190	.2562	+40	-46
A ¹ Aquarii	5½	2.58	13.4	8 21.9	11 22.7	- 3 37.9	-0.8408	.5168	.2636	- 1	-90
A ² Aquarii	7	2.58	13.5	8 25.4	11 27.7	- 3 33.1	-0.7570	.5168	.2637	+ 4	-90
A ³ Aquarii	7	2.57	13.7	8 36.4	11 44.6	- 3 16.6	-0.4911	.5167	.2639	+18	-74
A ⁴ Aquarii	7½	+2.56	+13.8	- 8 21.7	12 25.1	- 2 37.3	-0.3932	.5166	+2644	+23	-67
<i>φ</i> Aquarii	4½	2.51	13.7	6 43.1	15 59.2	+ 0 50.2	-1.3375	.5159	.2670	-38	-90
<i>χ</i> Aquarii	5½	2.52	14.2	8 24.2	17 15.1	+ 2 3.8	+0.7617	.5157	.2679	+78	- 5
B. A. C. 8184	5½	2.42	14.1	5 12.6	23 38.3	+ 8 15.3	-0.8470	.5148	.2719	0	-90
20 Piscium	6	2.32	14.5	3 27.1	22 8 55.9	- 6 44.1	-0.1270	.5143	.2762	+38	-51
24 Piscium	6½	2.29	15.0	3 50.7	11 26.8	- 4 17.7	+0.9752	.5143	.2769	+86	+ 7
B. A. C. 8365	6½	+2.21	+14.7	- 1 11.5	17 33.5	+ 1 37.8	-0.0775	.5147	+2785	+41	-49
B. A. C. 57	6½	2.13	14.5	+ 0 59.9	23 56.7	+ 7 49.4	-0.5618	.5155	.2792	+16	-89
44 Piscium	6	2.09	14.8	1 15.1	23 3 45.7	+11 31.5	+0.2418	.5162	.2791	+58	-32
B. A. C. 221	6	1.96	14.3	4 38.5	15 5.9	- 1 29.4	-0.0921	.5192	.2774	+40	-49
B. A. C. 274	6	1.91	14.2	5 48.7	20 45.7	+ 3 59.8	+0.2706	.5214	.2755	+59	-30
<i>ε</i> Piscium	4	1.88	13.9	7 13.2	22 16.7	+ 5 27.9	-0.7561	.5220	.2749	+ 6	-80
<i>ζ</i> Piscium	4½	+1.83	+14.3	+ 6 55.1	24 3 29.8	+10 31.2	+0.9808	.5245	+2722	+90	+ 9
<i>η</i> Piscium	6½	1.83	14.3	6 55.2	3 30.5	+10 31.8	+0.9811	.5245	.2722	+90	+ 9
<i>π</i> Piscium	6	1.71	13.2	11 30.3	14 37.0	- 2 43.0	-0.7218	.5308	.2645	+ 7	-78
19 Arietis	6	1.52	12.7	14 41.8	25 7 9.0	-10 44.1	+0.2679	.5420	.2468	+60	-26
27 Arietis	6	1.44	11.9	17 9.2	15 4.8	- 3 4.7	-0.3080	.5485	.2358	+28	-54
B. A. C. 782	6½	1.44	11.5	18 19.9	16 14.9	- 1 57.0	-1.2266	.5495	.2340	-30	-72
40 Arietis	6	+1.38	+11.9	+17 45.9	22 44.7	+ 4 18.8	+0.8337	.5551	+2234	+90	+ 8
47 Arietis	6	1.33	11.1	20 10.1	2 46.7	+ 8 12.1	-0.7083	.5586	.2162	+ 6	-70
<i>ε</i> Arietis, <i>mult.</i>	4½	1.33	10.9	20 50.5	3 15.6	+ 8 40.0	-1.2838	.5591	.2153	-38	-69
<i>ζ</i> Arietis	4½	1.26	11.0	20 35.0	9 51.0	- 8 59.1	+0.3555	.5650	.2024	+66	-15
<i>η</i> Arietis	5	1.24	11.0	20 41.9	12 27.7	- 6 28.3	+0.7605	.5673	.1969	+90	+ 7
<i>π</i> Arietis	5½	1.24	11.1	20 17.8	13 6.1	- 5 51.4	+1.2903	.5679	.1955	+90	+47
66 Arietis	6½	+1.22	+10.6	+22 22.5	15 23.5	- 3 39.2	-0.3605	.5701	+1904	+25	-51
9 Tauri	6	1.19	10.4	22 47.9	18 50.8	- 0 19.8	-0.1425	.5731	.1825	+37	-39
<i>g</i> Pleiadum	5½	1.16	9.9	23 53.8	21 58.4	+ 2 40.5	-0.6882	.5758	.1751	+ 7	-66
<i>b</i> Pleiadum	4	1.16	10.0	23 43.3	22 0.3	+ 2 42.3	-0.5057	.5758	.1750	+17	-57
<i>e</i> Pleiadum	5	1.15	9.9	24 4.6	22 7.9	+ 2 49.6	-0.8403	.5769	.1747	- 3	-66
<i>c</i> Pleiadum	5	1.15	9.9	23 58.7	22 22.8	+ 3 4.0	-0.6982	.5762	.1741	+ 6	-66
<i>d</i> Pleiadum	5	+1.16	+10.1	+23 33.6	22 35.3	+ 3 16.0	-0.2418	.5764	+1736	+31	-42
<i>f</i> Tauri	3	1.15	10.0	23 43.2	23 2.9	+ 3 42.5	-0.3228	.5768	.1724	+27	-47
<i>γ</i> Pleiadum	4	1.14	10.1	23 40.3	23 43.0	+ 4 21.0	-0.1600	.5774	.1709	+36	-38
<i>h</i> Pleiadum	5½	1.14	10.1	23 45.3	23 43.5	+ 4 21.5	-0.2426	.5774	.1708	+31	-42
33 Tauri	6	1.12	10.2	22 48.8	27 2 51.9	+ 7 22.5	+1.2280	.5801	.1628	+90	+45
36 Tauri	6	+1.09	+ 9.9	+23 45.8	5 42.8	+10 6.7	+0.7268	.5826	+1554	+90	+ 9

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

JULY.

STAR'S—					AT CONJUNCTION IN R. A.						Limiting Parallels.	
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N'n.	S'n.	
		Δα	Δδ									
♄ Tauri	6	+1.06	+ 9.1	+26° 9.4	27 8 11.4	-11 30.6	-1.2987	.5846	+1490	-51	-64	
χ ¹ Tauri	5½	1.02	9.4	25 20.1	12 44.5	- 7 8.6	+0.1742	.5882	.1361	+55	-17	
χ ² Tauri	8½	1.02	9.4	25 20.5	12 44.7	- 7 8.4	+0.1700	.5882	.1361	+55	-17	
B. A. C. 1648	6½	0.87	8.4	27 49.8	28 10 35.3	-10 12.3	-0.0765	.6020	.0682	+40	-24	
β Tauri	2	0.86	8.1	28 30.1	12 31.2	- 8 21.3	-0.6233	.6028	.0619	+ 9	-55	
B. A. C. 1709	6½	0.85	8.0	29 5.2	13 44.8	- 7 10.8	-1.1361	.6033	.0577	-29	-61	
B. A. C. 1746	6½	+0.83	+ 8.4	+27 34.9	16 4.2	- 4 57.4	+0.4971	.6040	+0.0498	+78	+ 7	
B. A. C. 1772	6	0.82	8.0	29 8.6	17 16.1	- 3 48.6	-1.0106	.6044	.0458	-18	-61	
136 Tauri	5	0.79	8.2	27 34.9	22 25.0	+ 1 7.0	+0.7439	.6056	.0282	+90	+22	
B. A. C. 1882	6½	0.78	7.8	28 55.3	23 33.8	+ 2 12.9	-0.5684	.6057	.0242	+12	-49	
κ Aurigæ	4½	0.77	7.4	29 32.6	29 6 23.7	+ 8 45.1	-1.1069	.6062	+0.0005	-27	-61	
B. A. C. 2097	6½	0.73	7.4	28 17.6	11 52.5	-10 0.3	+0.0968	.6059	-0.184	+50	-11	
49 Aurigæ	5½	+0.72	+ 7.4	+28 7.2	13 38.4	- 8 18.9	+0.2333	.6055	-0.0246	+59	- 4	
53 Aurigæ	6	0.72	7.3	29 5.5	14 46.8	- 7 13.5	-0.7713	.6053	.0285	- 1	-61	
54 Aurigæ	6	0.71	7.3	28 22.4	15 13.4	- 6 48.1	-0.0642	.6051	.0301	+41	-20	
28 Geminor.	6	0.71	7.2	29 5.8	17 6.6	- 4 59.7	-0.8533	.6047	.0365	- 6	-61	
47 Geminor.	6	0.67	7.0	27 3.7	30 2 57.3	+ 4 25.9	+0.6670	.6012	.0637	+90	+14	
ι Geminorum	4	0.65	6.6	28 2.8	8 16.9	+ 9 32.0	-0.7396	.5984	.0870	+ 2	-62	
β ¹ Geminorum	5	+0.66	+ 6.4	+27 11.5	9 37.4	+10 49.1	-1.1918	.5976	-0.0912	-36	-63	
β ² Geminorum	5	0.66	6.4	27 10.5	9 48.4	+10 59.7	-1.0053	.5975	.0918	-17	-63	
B. A. C. 2472	6	+0.65	+ 6.4	+28 10.6	10 7.8	+11 18.3	-1.0375	.5974	-0.0928	-19	-62	

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37 Leonis	6	+0.65	+ 1.5	+14 21.0	2 7 27.4	+ 6 2.2	+0.5578	.5349	-2443	+80	-11
ι Leonis	5	0.70	+ 0.2	11 12.4	23 8.3	- 2 47.1	-0.1250	.5217	.2588	+38	-48
χ Leonis	5	0.71	- 1.3	8 0.6	3 7 1.4	+ 4 51.4	+1.1582	.5160	.2648	+90	+22
B. A. C. 3837	6	0.75	1.6	8 44.6	11 33.0	+ 9 14.7	-0.8114	.5130	.2663	+ 2	-68
σ Leonis	4	0.75	2.2	6 42.8	15 11.6	-11 13.2	+0.3513	.5107	.2678	+64	-26
β Virginis	3½	0.81	4.2	2 28.1	4 6 32.0	+ 3 40.3	+0.7093	.5026	.2710	+90	- 8
B. A. C. 4043	6½	0.84	4.9	+ 1 13.5	11 1.3	+ 8 1.9	+0.8172	.5008	.2714	+90	- 2
13 Virginis	6	+0.90	- 6.0	- 0 5.6	21 30.7	- 5 46.7	-0.6137	.4973	-2698	+13	-83
γ Virginis	3½	0.91	6.0	+ 0 1.6	22 11.0	- 5 7.5	-0.9241	.4971	.2697	- 4	-90
B. A. C. 4255	6½	0.96	7.6	- 3 41.2	5 8 20.8	+ 4 45.2	-0.3346	.4950	.2667	+63	-28
B. A. C. 4294	6½	0.99	8.6	5 37.2	13 7.8	+ 9 24.2	+1.1487	.4945	.2646	+85	+19
B. A. C. 4394	6	1.07	10.2	8 19.0	6 0 31.9	- 3 30.7	+1.0882	.4938	.2590	+82	+15
α Virginis	1	1.16	11.3	10 30.7	9 33.4	+ 5 15.7	+1.1722	.4942	.2522	+80	+21
Λ Virginis	5	+1.21	-11.2	- 9 31.4	13 46.5	+ 9 21.7	-0.9616	.4949	-2489	- 9	-90
86 Virginis	6	1.28	12.2	11 48.2	20 44.7	- 7 51.9	-0.1847	.4962	.2428	+32	-55
B. A. C. 4679	6½	1.38	13.2	14 22.4	7 6 37.1	+ 1 43.7	+0.2783	.4987	.2329	+54	-30
B. A. C. 4700	6	1.41	13.8	15 42.9	9 59.2	+ 5 0.1	+0.9729	.4997	.2232	+75	+ 8
B. A. C. 5023	6	1.87	16.1	21 56.4	8 19 38.1	-10 20.7	+0.8574	.5146	.1828	+68	+ 3
42 Libra	5½	2.06	16.3	23 24.9	9 7 23.3	+ 1 2.8	+0.4547	.5209	.1628	+55	-20
B. A. C. 5197	6	+2.12	-16.5	-24 19.5	10 4.1	+ 3 38.5	+1.0335	.5224	-1578	+66	+16
Α ² Scorpii	5	2.17	16.6	24 57.4	13 48.1	+ 7 15.4	+1.1556	.5244	.1506	+66	+27
B. A. C. 5253	6	2.16	16.3	24 9.8	13 57.5	+ 7 24.4	+0.2542	.5245	.1503	+42	-31
B. A. C. 5254	6	2.16	16.1	23 36.5	13 59.3	+ 7 26.2	-0.3630	.5245	.1503	+11	-67
B. A. C. 5255	6	2.17	16.6	25 2.5	14 5.1	+ 7 31.8	+1.2075	.5246	.1501	+65	+33
3 Scorpii	6	2.18	16.6	24 52.7	14 18.4	+ 7 44.7	+0.9924	.5247	.1496	+65	+13
B. A. C. 5286	6½	+2.21	-16.2	-24 28.9	16 11.8	+ 9 34.5	+0.2757	.5258	-1460	+43	-29
B. A. C. 5314	6	2.25	16.4	25 31.2	18 26.7	+11 45.0	+1.1005	.5271	.1415	+65	+23
B. A. C. 5347	5	2.29	16.4	25 59.7	20 41.5	-10 4.5	+1.3128	.5283	.1370	+64	+57
σ Scorpii	3½	2.39	15.8	25 17.7	10 2 51.9	- 4 6.2	-0.2677	.5320	.1242	+13	-61
α Scorpii	1½	2.46	15.6	26 9.4	6 40.4	- 0 25.3	+0.2278	.5342	.1160	+37	-32
22 Scorpii	5	+2.45	-15.1	-24 50.5	7 4.6	- 0 1.9	-1.2726	.5344	-1152	-54	-90

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

AUGUST.

STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.				
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	x'	y'	N'n.	S'n.	
		Δα	Δδ		d	h	m	h	m					
B. A. C. 5800	6½	+2.80	-13.6	-26 50.2	11	3	4.3	- 4	42.7	-0.9143	.5447	-.0688	-28	-90
43 Ophiuchi	6	2.87	13.2	28 1.4		7	6.8	- 0	48.5	+0.1362	.5465	.0588	+27	-37
Mars				27 44.2		13	47.4	+ 5	38.1	-0.5169	.5405	.0425	- 8	-80
3 Sagittarii	5	3.03	11.6	27 47.1		17	48.7	+ 9	31.0	-0.6099	.5505	.0317	-14	-90
B. A. C. 6063	6½	3.10	11.1	28 2.9		21	48.9	-10	37.4	-0.4256	.5517	.0211	- 5	-73
B. A. C. 6072	6½	3.13	11.1	28 44.5		22	38.6	- 9	49.5	+0.3202	.5520	.0189	+33	-26
γ Sagittarii	4	+3.20	-11.0	-29 35.2	12	1	24.2	- 7	9.7	+1.2036	.5527	-.0117	+61	+39
B. A. C. 6120	6½	3.17	10.6	28 22.4		2	12.1	- 6	23.5	-0.1360	.5529	.0096	+ 8	-53
B. A. C. 6127	5	3.18	10.3	28 28.3		2	45.9	- 5	50.9	-0.0319	.5530	-.0081	+13	-47
B. A. C. 6190	6½	3.24	9.7	28 41.6		6	48.7	- 1	56.7	+0.1922	.5539	+0.0226	+25	-33
B. A. C. 6191	6½	3.32	9.6	28 19.6		6	48.9	- 1	56.5	-0.2013	.5539	.0027	+ 4	-57
B. A. C. 6220	6½	3.27	9.3	28 29.4		8	48.9	- 0	0.8	-0.0124	.5543	.0080	+14	-45
τ Sagittarii	3½	+3.47	- 5.3	-27 51.1	13	4	17.5	- 5	14.0	-0.0440	.5555	+0.0601	+17	-47
B. A. C. 6628	6	3.55	3.7	28 6.3		11	53.8	+ 2	5.9	+0.7633	.5551	.0801	+62	0
B. A. C. 6666	6	3.54	3.0	27 14.4		14	14.8	+ 4	21.9	+0.0217	.5548	.0863	+23	-43
α Sagittarii	5	3.61	0.4	26 37.7	14	1	35.4	- 8	41.7	+0.5039	.5526	.1152	+52	-16
A Sagittarii	5	3.61	- 0.1	26 31.9		2	58.3	- 7	21.8	+0.5601	.5522	.1186	+56	-13
17 Capricorni	6	3.55	+ 5.1	21 57.9	15	0	4.3	-11	0.0	-1.2890	.5455	.1678	-52	-90
B. A. C. 7197	6	+3.60	+ 5.3	-23 11.4		1	2.4	-10	3.8	+0.1710	.5452	+1.693	+39	-35
χ Capricorni	6	3.56	7.3	21 41.5		10	15.5	- 1	9.6	+0.2313	.5415	.1893	+45	-32
27 Capricorni	6	3.55	7.5	21 3.3		10	43.0	- 0	43.0	-0.3595	.5414	.1898	+15	-66
φ Capricorni	5½	3.55	8.0	21 10.0		13	31.0	+ 1	59.4	+0.2990	.5401	.1953	+49	-28
33 Capricorni	5½	3.57	8.9	21 22.7		17	27.2	+ 5	47.7	+1.3068	.5385	.2027	+69	+42
ε Capricorni	4½	3.51	10.0	20 1.3		23	29.3	+11	37.9	+1.1246	.4360	.2135	+70	+21
δ Capricorni	5	+3.51	+10.6	-19 25.9	16	2	6.1	- 9	50.0	+1.0646	.5350	+2.180	+71	+16
κ Capricorni	3	3.43	11.0	16 41.4		4	11.6	- 7	49.2	-1.3677	.5341	.2215	-56	-90
29 Aquar., mult.	6	3.43	12.3	17 33.7		11	29.5	- 0	45.6	+1.2100	.5311	.2326	+73	+27
45 Aquarii	6	3.33	13.6	13 55.6		19	27.7	+ 6	57.2	-0.7057	.5279	.2440	+ 3	-90
50 Aquarii	6	3.32	14.0	14 9.5		22	5.0	+ 9	29.5	+0.1817	.5269	.2474	+49	-35
B. A. C. 7835	6½	3.31	14.4	13 33.0	17	0	46.5	-11	54.1	+0.2157	.5260	.2506	+52	-33
70 Aquarii	6	+3.23	+15.8	-11 12.6		9	48.1	- 3	9.6	+0.0826	.5234	+2.606	+46	-40
A¹ Aquarii	5½	3.14	16.7	8 21.8		17	59.5	+ 4	46.4	-0.7126	.5217	.2680	+ 6	-90
A² Aquarii	7	3.14	16.7	8 25.4		18	14.3	+ 5	1.1	-0.5835	.5216	.2682	+12	-81
A³ Aquarii	7	3.15	16.7	8 36.4		18	20.8	+ 5	7.1	-0.3589	.5216	.2683	+25	-65
A⁴ Aquarii	7½	3.15	16.7	8 21.8		19	0.2	+ 5	45.2	-0.4417	.5215	.2688	+21	-70
φ Aquarii	4½	3.10	17.1	6 43.1		22	31.4	+ 9	9.9	-1.1959	.5209	.2714	-24	-90
χ Aquarii	5½	+3.11	+17.4	- 8 24.2		23	45.9	+10	22.1	+0.8888	.5207	+2.724	+82	+ 1
B. A. C. 8184	5½	3.03	17.8	5 12.5	18	6	2.5	- 7	33.0	-0.6956	.5199	.2764	+ 8	-90
20 Piscium	6	2.96	18.4	3 27.1		15	10.7	+ 1	18.2	+0.0349	.5192	.2805	+46	-43
24 Piscium	6½	2.95	18.7	3 50.6		17	39.2	+ 3	42.2	+1.1334	.5192	.2813	+86	+17
B. A. C. 8365	6½	2.88	18.8	- 1 11.5		23	40.1	+ 9	31.9	+0.0976	.5194	.2826	+50	-40
B. A. C. 57	6½	2.81	19.0	+ 0 59.9	19	5	57.3	- 8	22.6	-0.3747	.5200	.2830	+26	-66
44 Piscium	6	+2.79	+19.1	+ 1 15.2		9	42.8	- 4	44.1	+0.4288	.5205	+2.829	+69	-23
B. A. C. 221	6	2.69	19.1	4 38.6		20	53.9	+ 6	6.0	+0.1105	.5232	.2807	+50	-38
B. A. C. 274	6	2.66	19.2	5 48.8		2	29.5	+11	31.1	-0.4769	.5249	.2783	+73	-20
ε Piscium	4	2.62	18.9	7 13.3	20	3	59.6	-11	1.7	-0.5440	.5254	.2779	+17	-75
ζ Piscium	4½	2.60	19.3	6 55.1		9	9.4	- 6	1.7	+1.1904	.5274	.2748	+90	+24
η Piscium	6½	2.60	19.3	6 55.3		9	10.1	- 6	1.1	+1.1907	.5274	.2748	+90	+24
π Piscium	6	+2.50	+18.3	+11 30.4		20	11.1	+ 4	38.4	-0.5007	.5327	+2.660	+19	-69
19 Arietis	6	2.37	17.5	14 41.9	21	12	39.0	- 3	26.8	+0.4919	.5428	.2475	+75	-14
27 Arietis	6	2.32	16.5	17 9.3		20	34.7	+ 4	12.5	-0.0848	.5482	.2359	+40	-42
B. A. C. 782	6½	2.31	16.1	18 20.0		21	44.8	+ 5	20.1	-1.0053	.5491	.2340	-11	-72
α Arietis	5½	2.28	15.7	19 28.9	22	1	33.7	+ 9	0.9	-1.2894	.5519	.2277	-37	-71
40 Arietis	6	+2.26	+16.3	+17 46.0		4	15.7	+11	37.1	+1.0583	.5539	+2.230	+90	+22

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.														
AUGUST.														
STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.				
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Hour Angle <i>H</i>		<i>Y</i>	<i>x'</i>	<i>y'</i>	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d	h	m	h	m					
47 Arietis	6	+2.21	+15.2	+20 10.2	22	8	18.8	-8	28.5	-0.4897	.5570	+2155	+19	-61
<i>c</i> Arietis, <i>mult.</i>	4½	2.21	14.9	20 50.6		8	47.8	-8	0.5	-1.0676	.5574	.2146	-17	-69
ζ Arietis	4½	2.15	14.9	20 35.0		15	25.7	-1	37.2	+0.5749	.5624	.2013	+84	-4
γ^1 Arietis	5	2.14	14.8	20 41.9		18	3.7	+0	55.0	+0.9804	.5645	.1957	+90	+20
66 Arietis	6½	2.12	14.1	22 22.5		21	1.2	+3	45.9	-0.1477	.5668	.1891	+36	-39
9 Tauri	6	2.10	13.8	22 48.0	22	0	30.5	+7	7.2	+0.0688	.5695	.1811	+48	-27
<i>g</i> Pleiadum	5½	+2.08	+13.4	+23 53.9		3	40.3	+10	9.9	-0.4821	.5719	+1734	+18	-56
<i>b</i> Pleiadum	4	2.08	13.4	23 43.3		3	42.2	+10	11.7	-0.2986	.5719	.1734	+28	-45
<i>c</i> Pleiadum	5	2.08	13.3	24 4.6		3	49.8	+10	19.0	-0.6356	.5720	.1729	+10	-64
<i>d</i> Pleiadum	5	2.08	13.3	23 58.7		4	5.0	+10	33.6	-0.4932	.5722	.1724	+18	-56
<i>c</i> Pleiadum	5	2.07	13.5	23 33.6		4	17.6	+10	45.8	-0.0335	.5723	.1719	+43	-32
η Tauri	3	2.06	13.4	23 43.2		4	45.4	+11	12.4	-0.1156	.5727	.1707	+38	-36
<i>f</i> Pleiadum	4	+2.06	+13.4	+23 40.4		5	26.1	+11	51.5	+0.0477	.5732	+1691	+47	-27
<i>k</i> Pleiadum	5½	2.06	13.4	23 45.4		5	26.6	+11	52.0	-0.0352	.5732	.1691	+43	-31
36 Tauri	6	1.99	13.0	23 45.8		11	30.7	-6	18.0	-0.9365	.5777	.1535	+90	+22
ρ Tauri	6	2.01	12.0	26 9.4		14	1.5	-3	53.2	-1.1071	.5797	.1467	-23	-64
χ^1 Tauri	5½	1.95	11.9	25 20.1		18	38.9	+0	33.3	+0.3733	.5827	.1340	+68	-7
χ^2 Tauri	8½	1.95	11.9	25 20.4		18	39.1	+0	33.5	+0.3785	.5827	.1340	+68	-16
B. A. C. 1648	6½	+1.76	+9.6	+27 49.8	24	16	55.2	-2	5.0	+0.0972	.5942	+0663	+50	-15
β Tauri	2	1.75	9.1	28 30.1		18	53.6	-0	11.4	-0.4579	.5948	.0600	+19	-44
B. A. C. 1709	6½	1.75	8.8	29 5.2		20	8.9	+1	0.7	-0.9777	.5952	.0558	-15	-61
B. A. C. 1746	6½	1.70	9.1	27 34.9		22	31.5	+3	17.4	+0.6701	.5959	.0481	+90	+15
B. A. C. 1772	6	1.71	8.5	29 8.6		23	45.1	+4	27.9	-0.8555	.5961	.0441	-6	-61
136 Tauri	5	1.64	8.5	27 34.9	25	5	1.2	+9	30.8	+0.9118	.5971	.0265	+90	+32
B. A. C. 1882	6½	+1.65	+7.9	+28 55.3		6	11.7	+10	38.4	-0.4171	.5972	+0225	+21	-39
κ Aurigæ	4½	1.58	7.2	29 32.6		13	11.8	-6	39.2	-0.9712	.5975	-.0009	-15	-61
B. A. C. 2097	6½	1.52	7.0	28 17.6		18	48.9	-1	16.3	+0.2394	.5970	.0197	+59	-4
49 Aurigæ	5½	1.50	6.8	28 7.2		20	37.5	+0	27.7	+0.3752	.5967	.0256	+69	+3
53 Aurigæ	6	1.50	6.5	29 5.4		21	47.6	+1	34.9	-0.6430	.5965	.0236	+8	-55
54 Aurigæ	6	1.49	6.5	28 22.4		22	14.9	+2	1.0	+0.0717	.5964	.0310	+49	-13
28 Geminor.	6	+1.47	+6.3	+29 5.8	26	0	11.0	+3	52.3	-0.7298	.5960	-.0365	+2	-61
47 Geminor.	6	1.36	6.0	27 3.7		10	16.9	-10	27.0	+0.7941	.5925	.0702	+90	+21
53 Geminor.	6	1.36	5.4	28 6.8		11	59.9	-8	48.2	-0.4014	.5918	.0756	+22	-43
59 Geminor.	6½	1.33	5.3	27 52.7		15	17.6	-5	38.5	-0.4281	.5900	.0859	+21	-45
ϵ Geminorum	4	1.33	5.2	28 2.7		15	44.8	-5	12.4	-0.6374	.5898	.0873	+9	-58
<i>b</i> Geminorum	5	1.32	4.8	28 22.5		17	7.4	-3	53.2	-1.0962	.5892	.0915	-24	-62
<i>b</i> Geminorum	5	+1.32	+4.9	+28 10.4		17	18.6	-3	42.5	-0.9080	.5891	-.0921	-9	-62
B. A. C. 2472	6	1.32	4.9	28 10.6		17	38.2	-3	23.6	-0.9415	.5889	.0931	-11	-62
ν Geminorum	4½	1.29	5.0	27 10.4		19	41.4	-1	25.4	-0.1170	.5877	.0993	+38	-29
ϵ Geminorum	6	1.26	5.1	26 4.9		22	53.6	+1	39.1	+0.6625	.5858	.1088	+90	+10
ϕ Geminorum	5	1.24	4.4	27 5.3	27	2	32.7	+5	9.4	-0.7823	.5832	.1196	0	-63
ω^1 Cancri	6	1.21	4.5	25 44.1		5	30.2	+7	59.9	+0.2338	.5812	.1272	+59	-14
ω^2 Cancri	6½	+1.20	+4.5	+25 25.9		5	49.7	+8	18.6	+0.5005	.5809	-.1287	+78	0
ψ^1 Cancri	6½	1.19	3.7	26 12.7		9	11.5	+11	32.5	-0.7442	.5785	.1380	+4	-63
ψ^2 Cancri	6	1.19	3.8	25 53.1		9	17.7	+11	38.5	-0.4258	.5784	.1382	+21	-50
λ Cancri	6	1.14	3.8	24 24.9		13	22.6	-8	26.2	+0.4911	.5754	.1491	+77	-3
ν^1 Cancri, <i>mult.</i>	7	1.12	3.5	24 56.5		15	51.3	-6	3.2	-0.4254	.5735	.1554	+21	-51
ν^2 Cancri	6½	1.12	3.5	24 33.5		16	39.4	-5	16.9	-0.1585	.5728	.1574	+36	-37
ω^3 Cancri	6	+1.11	+3.4	+24 30.1		17	50.7	-4	8.3	-0.2889	.5718	-.1604	+29	-44
32 Cancri	6	1.11	3.4	24 30.6		18	27.4	-3	33.0	-0.3954	.5713	.1619	+23	-50
ξ Cancri	5	1.00	2.4	22 33.1	28	9	46.1	+11	11.5	-1.1389	.5686	.1963	-27	-68
79 Cancri	6	1.00	2.3	22 30.2		10	11.8	+11	36.3	-1.1768	.5578	.1972	-27	-68
B. A. C. 3138	6	0.99	+2.3	21 48.0		11	37.4	-11	1.1	-0.7333	.5564	.1994	+5	-68
β Virginis	3½	0.75	-3.9	2 28.2	31	15	32.1	-9	31.7	+0.5674	.5041	.2734	+22	-14
B. A. C. 4043	6½	+0.75	-4.5	+1 13.5		20	0.2	-5	11.3	+0.7004	.5025	-.2736	+90	-9

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

SEPTEMBER.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1875.0 Δα Δδ	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N'n.	S'n.
13 Virginis	6	+0.78 - 5.4	- 0 5.6	d 6 26.6	+ 4 57.2	-0.7449	.4996	-2726	+ 6	-90
γ Virginis	3.4	0.79 5.4	+ 0 1.6	1 7 6.7	+ 5 36.2	-1.0556	.4994	2725	-12	-90
B. A. C. 4255	6.4	0.80 6.8	- 3 41.2	17 12.3	- 8 35.3	+0.1874	.4977	2695	+55	-35
B. A. C. 4294	6.4	0.81 7.5	5 37.1	21 56.9	- 3 58.8	+0.9929	.4972	2675	+85	+ 8
B. A. C. 4394	6	0.86 8.8	8 19.0	2 9 15.0	+ 7 0.3	+0.9196	.4969	2612	+82	+ 4
58 Virginis	6	0.88 9.3	9 53.4	14 2.3	+11 39.4	+1.3829	.4971	2578	+80	+44
α Virginis	1	+0.89 - 9.7	-10 30.7	18 11.3	- 8 18.6	+0.9954	.4976	-2548	+80	+ 9
λ Virginis	5	0.94 9.7	9 31.4	22 21.9	- 4 15.0	-1.1361	.4981	2513	-21	-90
86 Virginis	6	0.99 10.7	11 48.1	3 5 16.1	+ 2 27.4	-0.3691	.4994	2450	+23	-66
B. A. C. 4679	6.4	1.06 11.8	14 22.4	15 2.8	+11 57.3	+0.9901	.5016	2349	+44	-40
B. A. C. 4700	6	1.08 12.3	15 42.9	18 23.0	- 8 48.2	+0.7812	.5026	2310	+69	- 3
B. A. C. 4923	6	1.35 14.4	20 51.2	4 18 14.9	- 9 38.7	+1.2865	.5115	1989	+69	+38
B. A. C. 5023	6	+1.48 -14.9	-21 56.4	5 3 47.1	- 0 23.9	+0.6620	.5159	-1835	+67	- 9
42 Librae	5.4	1.65 15.1	23 24.8	15 29.5	+10 56.7	+0.2619	.5215	1630	+44	-30
B. A. C. 5197	6	1.68 15.5	24 19.5	18 9.8	-10 28.1	+0.8412	.5229	1579	+66	+ 3
A ² Scorpii	5	1.75 15.6	24 57.4	21 53.3	- 6 51.6	+0.9649	.5247	1507	+65	+11
B. A. C. 5253	6	1.75 15.3	24 9.8	22 2.7	- 6 42.6	+0.0634	.5248	1504	+32	-41
B. A. C. 5254	6	1.74 15.2	23 36.5	22 4.4	- 6 40.9	-0.5543	.5248	1502	+ 1	-82
B. A. C. 5255	6	+1.75 -15.6	-25 2.5	22 10.3	- 6 35.2	+1.0165	.5249	-1501	+65	+15
3 Scorpii	6	1.76 15.6	24 52.6	22 23.6	- 6 22.3	+0.8017	.5250	1498	+65	0
B. A. C. 5286	6.4	1.79 15.4	24 28.9	6 0 16.8	- 4 32.7	+0.0856	.5259	1460	+33	-40
B. A. C. 5314	6	1.83 15.7	25 31.2	2 31.5	- 2 22.3	+0.9114	.5271	1411	+65	+ 8
B. A. C. 5347	5	1.86 15.8	25 59.7	4 46.2	- 0 12.0	+1.1246	.5283	1366	+64	+25
σ Scorpii	3.4	1.97 15.1	25 17.7	10 56.6	+ 5 46.3	-0.4538	.5313	1236	+ 3	-74
α Scorpii	1.4	+2.04 -15.2	-26 9.4	14 45.3	+ 9 27.5	+0.0437	.5333	-1154	+27	-42
B. A. C. 5800	6.4	2.39 13.7	26 50.2	7 11 12.9	+ 5 13.7	-1.0889	.5422	0680	-40	-90
43 Ophiuchi	6	2.47 13.6	28 1.4	15 16.7	+ 9 9.1	-0.0341	.5437	0580	+18	-47
3 Sagittarii	5	2.65 12.2	27 47.1	8 2 2.5	- 4 27.4	-0.7745	.5473	0307	-23	-90
B. A. C. 6063	6.4	2.72 11.7	28 2.9	6 4.3	- 0 34.2	-0.5866	.5483	0204	-14	-87
B. A. C. 6072	6.4	2.75 11.9	28 44.5	6 54.4	+ 0 14.2	+0.1615	.5485	0182	+24	-35
γ Sagittarii	4	+2.82 -11.9	-29 35.2	9 41.2	+ 2 55.1	+1.0495	.5492	-0109	+61	+21
B. A. C. 6120	6.4	2.81 11.4	28 22.4	10 29.5	+ 3 41.8	-0.2929	.5493	0088	0	-64
B. A. C. 6127	5	2.82 11.4	28 28.3	11 3.6	+ 4 14.7	-0.1887	.5494	-0074	+ 5	-56
B. A. C. 6190	6.4	2.90 10.7	28 41.6	15 8.1	+ 8 10.5	+0.0468	.5502	+0034	+17	-42
B. A. C. 6191	6.4	2.88 10.5	28 19.7	15 8.5	+ 8 10.9	-0.3547	.5502	0034	- 4	-67
B. A. C. 6220	6.4	2.93 10.3	28 29.4	17 9.5	+10 7.7	-0.1637	.5506	0087	+ 6	-55
τ Sagittarii	3.4	+3.20 - 6.6	-27 51.1	9 12 47.8	+ 5 4.1	-0.1783	.5518	+0607	+11	-56
B. A. C. 6628	6	3.31 5.3	28 6.4	20 28.0	-11 32.0	+0.6384	.5512	0805	+58	- 8
B. A. C. 6666	6	3.31 4.5	27 14.5	22 50.1	- 9 14.8	-0.1026	.5510	0866	+17	-51
ω Sagittarii	5	3.43 1.8	26 37.8	10 16.0	+ 1 46.8	+0.3920	.5490	1155	+45	-23
A Sagittarii	5	3.44 - 1.4	26 31.9	11 39.5	+ 3 7.4	+0.4499	.5487	1189	+49	-20
B. A. C. 7077	6	3.54 + 1.9	25 21.8	11 2 48.6	- 6 15.2	+1.2662	.5448	1549	+65	+41
B. A. C. 7197	6	+3.53 + 4.1	-23 11.4	9 50.8	+ 0 32.6	+0.0856	.5427	+1705	+35	-40
χ Capricorni	6	3.55 6.1	21 41.6	19 5.3	+ 9 28.1	+0.1571	.5397	1897	+41	-36
φ Capricorni	6	3.54 6.4	21 3.3	19 32.9	+ 9 54.8	-0.4324	.5396	1906	+11	-71
ψ Capricorni	5.4	3.56 7.0	21 10.0	22 21.0	-11 22.7	+0.2287	.5387	1961	+45	-32
33 Capricorni	5.4	3.59 7.7	21 22.8	12 17.3	- 7 34.3	+1.2394	.5374	2137	+69	+32
ε Capricorni	4.4	3.56 9.2	20 1.3	8 19.1	- 1 44.5	+1.0654	.5354	2248	+70	+16
κ Capricorni	5	+3.56 + 9.8	-19 25.9	10 55.6	+ 0 46.8	+1.0083	.5346	+2294	+71	+12
29 Aquar., mult.	6	3.55 11.9	17 33.7	20 16.9	+ 9 49.7	+1.1649	.5316	2345	+73	+23
45 Aquarii	6	3.48 13.9	13 55.6	12 4 12.2	- 6 30.4	-0.7308	.5293	2460	+ 2	-90
50 Aquarii	6	3.49 14.2	14 9.5	6 48.3	- 3 59.2	+0.1558	.5286	2495	+48	-37
B. A. C. 7835	6.4	3.48 14.8	13 33.0	9 28.4	- 1 24.3	+0.1933	.5280	2530	+50	-35
70 Aquarii	6	+3.45 +16.4	-11 12.6	18 24.6	+ 7 14.8	+0.0740	.5262	+2633	+45	-41

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

SEPTEMBER.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.			
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Y	z'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d	h	m					
A ¹ Aquarii	5½	+3.40	+17.8	- 8 21.8	14	2 29.7	- 8 55.5	-0.7037	.5251	+2713	+ 7	-90
A ² Aquarii	7	3.41	17.8	8 25.4		2 34.4	- 8 51.0	-0.6201	.5251	.2713	+11	-84
A ³ Aquarii	7	3.40	17.8	8 36.4		2 50.8	- 8 35.1	-0.3576	.5251	.2716	+25	-65
A ⁴ Aquarii	7½	3.41	17.9	8 21.7		3 29.5	- 7 57.7	-0.4339	.5250	.2721	+21	-70
φ Aquarii	4½	3.37	18.5	6 43.0		6 57.6	- 4 36.1	-1.1768	.5247	.2748	-22	-90
χ Aquarii	5½	3.40	18.5	8 24.2		8 11.1	- 3 24.9	+0.8935	.5246	.2759	+22	+ 1
B. A. C. 8184	5½	+3.36	+19.5	- 5 12.5		14 21.5	+ 2 33.8	-0.6689	.5243	+2801	+10	-88
20 Piscium	6	3.32	20.5	3 27.0		23 19.8	+11 15.1	+0.0677	.5243	.2844	+48	-41
24 Piscium	6½	3.32	20.8	3 50.6	15	1 45.3	-10 24.0	+1.1580	.5244	.2853	+86	+19
B. A. C. 8365	6½	3.27	-21.3	- 1 11.4		7 38.8	- 4 41.6	+0.1406	.5250	.2869	+52	-37
B. A. C. 57	6½	3.25	21.7	+ 1 0.0		13 47.8	+ 1 15.7	-0.3184	.5261	.2877	+29	-62
44 Piscium	6	3.24	22.0	1 15.2		17 28.3	+ 4 49.2	+0.4808	.5269	.2876	+73	-20
60 Piscium	6	+3.18	+20.3	+ 6 3.9	16	3 57.9	- 9 1.5	-1.3801	.5299	+2855	-41	-84
B. A. C. 221	6	3.19	22.5	4 38.6		4 23.5	- 8 36.7	+0.1778	.5300	.2854	+54	-35
B. A. C. 274	6	3.17	22.5	5 48.9		9 50.9	- 3 19.9	+0.5458	.5320	.2832	+78	-16
ε Piscium	4	3.16	22.4	7 13.4		11 18.7	- 1 55.0	-0.4617	.5326	.2824	+21	-70
ζ Piscium	4½	3.16	22.6	6 55.2		16 20.7	+ 2 57.1	+1.2575	.5348	.2795	+90	+29
ζ Piscium	6½	3.16	22.6	7 55.4		16 21.4	+ 2 57.8	+1.2578	.5348	.2795	+90	+29
π Piscium	6	+3.10	+22.1	+11 30.5	17	3 5.7	-10 39.4	-0.4048	.5402	+2706	+24	-64
19 Arietis	6	3.05	21.3	14 41.9		19 9.2	+ 4 51.0	+0.5876	.5499	.2514	+43	-10
27 Arietis	6	3.04	20.5	17 9.3	18	2 53.7	-11 41.0	+0.0208	.5551	.2394	+86	-36
B. A. C. 782	6½	3.04	20.2	18 20.0		4 2.3	-10 34.9	-0.8898	.5560	.2375	- 4	-72
μ Arietis	5½	3.02	19.6	19 29.0		7 46.1	- 6 59.2	-1.1700	.5585	.2310	-24	-71
40 Arietis	6	3.00	19.9	17 46.0		10 24.5	- 4 26.6	+1.1561	.5603	.2261	+90	+29
47 Arietis	6	+3.00	+19.0	+20 10.3		14 22.6	- 0 37.2	-0.3765	.5632	+2183	+25	-54
ε Arietis, mult.	4½	3.01	18.9	20 50.6		14 51.0	- 0 9.8	-0.9488	.5636	.2174	- 8	-69
ζ Arietis	4½	2.96	18.6	20 35.1		21 21.2	+ 6 5.7	+0.6810	.5681	.2036	+90	+ 2
γ Arietis	5	2.95	18.3	20 42.0		23 56.2	+ 8 34.8	+1.0842	.5700	.1970	+90	+28
66 Arietis	6½	2.95	17.6	22 22.6	19	2 50.6	+11 22.6	-0.0350	.5720	.1910	+43	-33
τ Tauri, mult.	6	2.96	16.9	24 2.9		5 14.1	-10 19.4	-1.2642	.5736	.1853	-39	-66
9 Tauri	6	+2.94	+17.3	+22 48.0		6 16.4	- 9 19.5	+0.1807	.5743	+1827	+55	-22
g Pleiadum	5½	2.93	16.7	23 53.9		9 23.2	- 6 19.9	-0.3662	.5764	.1750	+25	-49
b Pleiadum	4	2.93	16.7	23 43.4		9 25.1	- 6 18.1	-0.1839	.5764	.1749	+35	-39
e Pleiadum	5	2.93	16.7	24 4.7		9 32.6	- 6 10.9	-0.5189	.5765	.1746	+16	-58
c Pleiadum	5	2.93	16.7	23 58.8		9 47.5	- 5 56.5	-0.3607	.5766	.1739	+25	-49
d Pleiadum	5	2.92	16.7	23 33.7		10 0.0	- 5 44.6	+0.0792	.5768	.1734	+49	-26
η Tauri	3	+2.91	+16.7	+23 43.3		10 27.4	- 5 18.2	-0.0021	.5771	+1723	+45	-30
f Pleiadum	4	2.92	16.5	23 40.4		11 7.5	- 4 39.7	+0.1600	.5776	.1705	+54	-22
h Pleiadum	5½	2.92	16.5	23 45.4		11 8.0	- 4 39.2	+0.0776	.5776	.1697	+49	-25
B. A. C. 1192	6	2.93	16.0	25 12.2		11 33.2	- 4 15.1	-1.3056	.5778	.1685	-49	-65
36 Tauri	6	2.88	15.9	23 45.9		17 7.1	+ 1 5.8	+1.0438	.5814	.1546	+90	+29
p Tauri	6	2.91	14.7	26 9.4		19 36.1	+ 3 22.8	-0.9884	.5828	.1478	-44	-64
χ ¹ Tauri	5½	+2.85	+14.5	+25 20.2	20	0 10.4	+ 7 52.2	+0.4841	.5854	+1348	+77	- 2
χ ² Tauri	8½	2.85	14.5	25 20.2		0 10.6	+ 7 52.4	+0.4800	.5854	.1348	+76	- 2
B. A. C. 1648	6½	2.71	10.7	27 49.9		22 18.6	+ 5 5.8	+0.2063	.5942	.0660	+57	- 9
β Tauri	2	2.69	10.1	28 30.1	21	0 16.9	+ 6 59.2	-0.3490	.5946	.0597	+25	-38
B. A. C. 1709	6½	2.69	9.8	29 5.2		1 32.1	+ 8 11.2	-0.8690	.5948	.0556	- 7	-61
B. A. C. 1746	6½	2.63	10.0	27 34.9		3 54.7	+10 27.9	+0.7780	.5950	.0477	+90	+22
B. A. C. 1772	6	+2.64	+ 9.2	+29 8.6		5 8.3	+11 38.4	-0.7482	.5952	+0436	+ 1	-61
136 Tauri	5	2.67	9.0	27 35.0		10 25.1	- 7 18.1	+1.0188	.5954	.0261	+90	+39
B. A. C. 1882	6½	2.58	8.3	28 55.3		11 35.7	- 6 10.5	-0.3119	.5954	+0222	+27	-33
κ Aurigæ	4½	2.51	6.9	29 32.6		18 37.7	+ 0 33.9	-0.8702	.5948	-0013	- 7	-61
B. A. C. 2097	6½	2.42	6.5	28 17.6	22	0 17.0	+ 5 59.2	+0.3414	.5936	.0200	+66	+ 2
49 Aurigæ	5½	+2.39	+ 6.2	+28 7.2		2 6.6	+ 7 44.2	+0.4767	.5932	-0256	+77	+ 8

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

SEPTEMBER.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.		
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N'n.	S'n.
		Δα	Δδ	° ' "	d h m	h m					
53 Aurigæ	6	+2.40	+ 5.8	+29 5.4	22 3 17.3	+ 8 52.0	-0.5453	.5928	-.0295	+14	-40
54 Aurigæ	6	2.39	5.8	28 22.4	3 44.8	+ 9 18.4	+0.1719	.5927	.0305	+55	- 8
28 Geminor.	6	2.37	5.4	29 5.8	5 42.0	+11 10.7	-0.6335	.5920	.0375	+ 8	-55
47 Geminor.	6	2.21	4.5	27 3.7	15 54.7	- 3 1.8	+0.8929	.5875	.0695	+90	+27
53 Geminor.	6	2.22	3.8	28 6.8	17 39.0	- 1 21.6	-0.3096	.5866	.0756	+27	-37
59 Geminor.	6½	2.18	3.5	27 52.7	20 59.4	+ 1 50.6	-0.3384	.5847	.0858	+26	-39
ε Geminorum	4	+2.18	+ 3.4	+28 2.7	21 27.0	+ 2 17.1	-0.5401	.5844	-.0871	+14	-52
δ¹ Geminorum	5	2.18	3.0	28 22.5	22 50.8	+ 3 37.4	-1.0113	.5835	.0913	-16	-62
δ² Geminorum	5	2.16	3.0	28 10.4	23 2.2	+ 3 48.5	-0.8220	.5834	.0919	- 3	-62
B. A. C. 2472	6	2.15	3.0	28 10.5	23 22.1	+ 4 7.6	-0.8557	.5832	.0929	- 5	-62
ν Geminorum	4½	2.10	3.0	27 10.3	23 1 27.1	+ 6 7.6	-0.0276	.5818	.0992	+43	-24
ε Geminorum	6	2.06	2.9	26 4.8	4 42.3	+ 9 15.1	+0.7551	.5797	.1085	+90	+15
φ Geminorum	5	+2.02	+ 2.1	+27 5.3	8 25.1	-11 10.9	-0.7012	.5770	-.1190	+ 5	-63
ω¹ Cancri	6	1.96	2.1	25 44.0	11 25.6	- 8 17.4	+0.3200	.5747	.1273	+65	-10
ω² Cancri	6½	1.95	2.1	25 25.9	11 45.5	- 7 58.2	+0.5883	.5745	.1282	+87	+ 4
ψ¹ Cancri	6½	1.93	1.5	26 12.7	15 10.8	- 4 40.9	-0.6674	.5718	.1372	+ 7	-63
ψ² Cancri	6	1.93	1.5	25 53.1	15 17.2	- 4 34.7	-0.3465	.5717	.1375	+26	-45
λ Cancri	6	1.85	1.4	24 24.9	19 26.6	- 0 34.7	+0.5753	.5684	.1482	+84	+ 2
ν¹ Cancri, mult	7	+1.82	+ 0.9	+24 23.5	21 58.1	+ 1 51.0	+0.0777	.5664	-.1544	+49	-24
ν² Cancri	6½	1.82	0.9	24 33.5	22 47.2	+ 2 38.4	-0.0816	.5658	.1564	+40	-33
ν³ Cancri	6	1.81	0.8	24 30.1	23 59.9	+ 3 48.3	-0.2139	.5648	.1593	+33	-40
ξ² Cancri	6	1.80	+ 0.7	24 30.5	24 0 37.3	+ 4 24.4	-0.3219	.5645	.1608	+27	-46
ξ Cancri	5	1.61	- 0.7	22 33.0	16 14.9	- 4 32.1	-1.0824	.5510	.1948	-19	-68
79 Cancri	6	1.60	0.8	22 30.1	16 41.1	- 4 6.8	-1.1184	.5507	.1956	-22	-68
B. A. C. 3138	6	+1.57	- 0.8	+21 47.8	18 5.8	- 2 42.5	-0.6732	.5494	-.1984	+ 8	-68
37 Leonis	6	1.24	2.3	14 21.0	25 23 24.6	+ 1 34.8	+0.5864	.5261	.2431	+82	-10
42 Leonis	6	1.24	2.8	15 36.2	26 1 53.9	+ 3 59.4	-1.3394	.5244	.2458	-40	-75
l Leonis	5	1.11	3.4	11 12.3	15 30.6	- 6 49.2	-0.1509	.5157	.2587	+37	-50
χ Leonis	5	1.03	3.7	8 0.6	23 33.6	+ 0 59.3	+1.1220	.5112	.2643	+90	+19
B. A. C. 3837	6	1.03	4.2	8 44.6	27 4 9.9	+ 5 27.3	-0.8776	.5089	.2669	- 1	-81
σ Leonis	4	+0.99	- 4.2	+ 6 42.8	7 52.1	+ 9 3.0	+0.2852	.5073	-.2687	+60	-29
Δ Virginis	5	0.85	9.0	- 9 31.4	30 6 25.5	+ 5 36.3	-1.1722	.4994	.2525	-23	-90
86 Virginis	6	0.87	9.8	11 48.2	13 18.9	-11 42.1	-0.4095	.5008	.2464	+20	-69
B. A. C. 4679	6½	+0.89	-10.7	14 22.4	23 3.9	- 2 13.9	+0.0480	.5035	.2363	+42	-42
MERCURY				-14 44.1	23 57.4	- 1 22.0	+0.2354	.4568	-.2127	+52	-32

OCTOBER.

B. A. C. 4700	6	+0.90	-10.9	-15 42.8	1 2 23.4	+ 0 59.9	+0.7382	.5046	-.2324	+74	- 6
B. A. C. 4923	6	1.06	12.8	20 51.2	2 2 9.5	+ 0 3.7	+1.2374	.5088	.2000	+69	+32
B. A. C. 5023	6	1.16	13.3	21 56.4	11 39.5	+ 9 16.3	+0.6112	.5179	.1847	+66	-12
42 Libræ	5½	1.29	13.7	23 24.8	23 19.6	- 3 25.5	+0.2101	.5233	.1635	+41	-33
B. A. C. 5197	6	1.31	14.0	24 19.5	3 1 59.6	- 0 50.5	+0.7902	.5245	.1585	+66	- 1
A² Scorpii	5	+1.36	-14.2	-24 57.4	5 42.6	+ 2 45.4	+0.9137	.5261	-.1513	+65	+ 8
B. A. C. 5253	6	1.36	13.9	24 9.7	5 51.9	+ 2 54.3	+0.0116	.5263	.1510	+30	-44
B. A. C. 5254	6	1.36	13.8	23 36.5	5 53.7	+ 2 56.1	-0.6070	.5263	.1509	- 2	-87
B. A. C. 5255	6	1.36	14.2	25 2.5	5 59.6	+ 3 1.8	+0.9659	.5263	.1507	+65	+11
3 Scorpii	6	1.37	14.1	24 52.6	6 12.8	+ 3 14.6	+0.7508	.5264	.1503	+64	- 3
B. A. C. 5286	6½	1.41	14.0	24 28.9	8 5.8	+ 5 4.0	+0.0337	.5273	.1466	+31	-43
B. A. C. 5314	6	+1.43	-14.3	-25 31.2	10 20.4	+ 7 14.2	+0.8606	.5283	-.1420	+65	+ 4
B. A. C. 5347	5	1.46	14.3	25 59.7	12 35.0	+ 9 24.5	+1.0742	.5282	.1374	+64	+20
σ Scorpii	3½	1.54	13.9	25 17.7	18 45.2	- 8 37.4	-0.5065	.5320	.1242	+ 1	-79
α Scorpii	1½	1.61	14.0	26 9.4	22 34.0	- 4 56.1	-0.0079	.5335	.1161	+25	-45
B. A. C. 5800	6	1.91	13.1	26 50.2	4 19 5.1	- 9 6.4	-1.1424	.5412	.0678	+45	-90
43 Ophiuchi	6	+1.99	-13.1	-28 1.4	23 10.1	- 5 9.7	-0.0834	.5424	-.0577	+15	-50

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF
PLANETS AND STARS BY THE MOON.

OCTOBER.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.		
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	z'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$								
3 Sagittarii	5	+2.18	-12.2	-27 47.1	5 10 0.5	+ 5 18.3	-0.8249	.5451	-.0304	-26	-90
B. A. C. 6063	6½	2.24	11.8	28 2.9	14 4.4	+ 9 13.6	-0.6359	.5457	.0199	-17	-90
B. A. C. 6072	6½	+2.0	11.9	28 44.5	14 54.9	+0.1157	.5458	.0179	+22	-39	
γ Sagittarii	4	2.33	11.8	29 35.2	17 43.3	-11 15.0	+1.0086	.5463	.0100	+61	+18
B. A. C. 6120	6½	2.33	11.4	28 22.4	18 32.2	-10 27.8	-0.3402	.5464	.0085	- 2	-66
B. A. C. 6127	5	2.32	11.4	28 23.3	19 6.5	- 9 54.7	-0.2351	.5464	-.0071	+ 3	-59
B. A. C. 6190	6½	+2.40	-11.0	-28 41.6	23 13.6	- 5 56.2	+0.0021	.5469	+0.0035	+15	-45
B. A. C. 6191	6½	2.39	10.9	28 19.7	23 14.0	- 5 55.8	-0.4016	.5469	.0035	- 6	-71
B. A. C. 6220	6½	2.43	10.6	28 29.4	6 1 16.4	- 3 57.7	-0.2094	.5473	.0088	+ 4	-58
τ Sagittarii	3½	2.72	7.4	27 51.2	21 10.5	- 8 45.4	-0.2200	.5468	.0606	+ 9	-58
B. A. C. 6628	6	2.86	6.3	28 6.4	7 4 57.9	- 1 14.3	+0.0638	.5458	.0801	+56	-11
B. A. C. 6666	6	2.87	5.6	27 14.5	7 22.4	+ 1 5.2	-0.1415	.5454	.0861	+15	-53
ω Sagittarii	5	+3.00	- 3.3	-26 37.8	19 0.1	-11 41.3	+0.3595	.5431	+1145	+44	-25
A Sagittarii	5	3.03	- 3.0	26 32.0	20 25.0	-10 19.4	+0.4181	.5428	.1179	+48	-21
B. A. C. 7077	6	3.19	+ 0.3	25 21.9	8 11 50.7	+ 4 34.8	+1.2445	.5388	.1537	+65	+38
B. A. C. 7197	6	2.20	2.2	23 11.4	19 0.6	+11 30.3	+0.0573	.5367	.1687	+33	-41
χ Capricorni	6	3.26	4.4	21 41.6	9 4 25.1	- 3 24.0	+0.1321	.5338	.1878	+40	-37
27 Capricorni	6	3.25	4.8	21 3.3	4 53.2	- 2 56.9	-0.4611	.5337	.1888	+10	-74
φ Capricorni	5½	+3.28	+ 5.4	-21 10.0	7 44.2	- 0 11.5	+0.2051	.5328	+1943	+44	-34
33 Capricorni	5½	3.33	6.0	21 22.8	11 44.5	+ 3 41.0	+1.2226	.5316	.2018	+69	+31
ε Capricorni	4½	3.34	7.5	20 1.4	17 52.1	+ 9 36.6	+1.0488	.5299	.2128	+70	+15
κ Capricorni	5	3.34	8.2	19 26.0	20 31.1	-11 49.6	+0.9922	.5291	.2173	+71	+11
29 Aqua., mult.	6	3.37	10.4	17 33.8	10 6 0.5	- 2 38.7	+1.1511	.5268	.2327	+73	+22
45 Aquarii	6	3.34	12.9	13 55.6	14 1.7	+ 5 7.1	-0.7502	.5251	.2444	+ 1	-90
50 Aquarii	6	+3.37	+13.1	-14 9.5	16 39.5	+ 7 40.0	+0.1403	.5246	+2479	+47	-37
B. A. C. 7835	6½	3.38	13.7	13 33.0	19 21.3	+10 16.7	+0.1786	.5242	.2514	+50	-35
70 Aquarii	6	3.39	15.5	11 12.6	11 4 22.0	- 4 59.7	+0.0612	.5232	.2622	+45	-41
A ¹ Aquarii	5½	3.38	17.4	8 21.8	12 29.9	+ 2 52.8	-0.7148	.5231	.2704	+ 6	-90
A ² Aquarii	7	3.37	17.4	8 25.4	12 34.6	+ 2 57.3	-0.6314	.5231	.2706	+11	-85
A ³ Aquarii	7	3.37	17.3	8 36.4	12 51.0	+ 3 13.3	-0.3685	.5231	.2708	+24	-66
A ⁴ Aquarii	7½	+3.37	+17.5	- 8 21.7	13 30.0	+ 3 51.0	-0.4439	.5231	+2712	+21	-71
φ Aquarii	4½	3.37	18.3	6 43.0	16 58.7	+ 7 13.1	-1.1863	.5230	.2743	-23	-90
χ Aquarii	5½	3.40	18.1	8 24.2	18 12.4	+ 8 24.5	+0.8837	.5231	.2753	+82	+ 1
B. A. C. 8184	5½	3.39	19.5	5 12.5	12 0 23.2	- 9 36.4	-0.6766	.5235	.2798	+10	-89
20 Piscium	6	3.39	20.8	3 27.0	9 20.5	- 0 56.1	+0.0607	.5248	.2849	+48	-42
24 Piscium	6½	3.41	21.0	3 50.6	11 45.4	+ 1 24.2	+1.1484	.5253	.2860	+86	+18
B. A. C. 8365	6½	+3.40	+22.0	- 1 11.4	17 36.9	+ 7 4.6	+0.1347	.5267	+2879	+52	-38
B. A. C. 57	6½	3.41	22.7	+ 1 0.0	23 42.8	-11 1.2	-0.3216	.5284	.2891	+28	-63
44 Piscium	6	3.42	23.6	1 15.2	13 3 21.0	- 7 30.1	+0.4735	.5296	.2892	+73	-21
60 Piscium	6	3.42	23.9	6 3.9	13 42.4	+ 2 31.1	-1.3734	.5339	.2878	-40	-84
B. A. C. 221	6	3.43	23.8	4 38.6	14 7.5	+ 2 55.4	+0.1732	.5341	.2877	+54	-35
B. A. C. 274	6	3.44	24.1	5 48.9	19 29.6	+ 8 6.8	+0.5382	.5367	.2857	+77	-17
ε Piscium	4	+3.43	+24.2	+ 7 13.4	20 55.9	+ 9 30.2	-0.4606	.5374	+2851	+21	-70
ζ Piscium	4½	3.45	24.3	6 55.2	14 1 52.2	- 9 43.6	+1.2425	.5402	.2824	+90	+28
η Piscium	6½	3.45	24.3	6 55.4	1 52.9	- 9 42.9	+1.2425	.5402	.2824	+90	+28
π Piscium	6	3.47	24.5	11 30.5	12 23.3	+ 0 26.2	-0.4036	.5469	.2741	+25	-64
19 Arietis	6	3.52	23.9	14 9.0	15 4 2.1	- 8 28.3	+0.5761	.5582	.2551	+81	-10
27 Arietis	6	3.55	23.3	17 42.4	11 33.3	- 1 13.6	+0.0160	.5640	.2431	+46	-37
B. A. C. 782	6½	+3.56	+23.1	+18 20.1	12 39.8	- 0 9.6	-0.8825	.5649	+2412	- 3	-72
μ Arietis	5½	3.58	22.8	19 29.0	16 17.0	+ 3 19.6	-1.1588	.5676	.2347	-23	-71
40 Arietis	6	3.56	22.7	17 46.1	18 50.6	+ 5 47.3	+1.1340	.5698	.2297	+90	+28
47 Arietis	6	3.59	22.1	20 10.3	22 41.2	+ 9 29.2	-0.3769	.5728	.2219	+25	-55
ε Arietis, mult.	4½	3.60	22.0	20 50.7	23 8.8	+ 9 55.8	-0.9408	.5732	.2210	- 8	-69
ζ Arietis	4½	+3.59	+21.3	+20 35.1	16 5 26.6	- 8 1.1	+0.6640	.5781	+2070	+90	+ 1

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

OCTOBER.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.				
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	z'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d	h	m						
γ^1 Arietis	5	+3.60	+21.1	+20 42.0	16	7	56.7	- 5 36.9	+1.0610	.5800	+2011	+90	+25
66 Arietis	6 $\frac{1}{2}$	3.62	20.5	22 22.6	10	45.5	- 2 54.7	-0.0420	.5822	.1943	+42	-34	
7 Tauri, <i>mult.</i>	6	3.66	20.0	24 2.9	13	4.4	- 0 41.3	-1.2537	.5838	.1885	-37	-66	
9 Tauri	6	3.63	20.0	22 48.1	14	4.5	+ 0 16.3	+0.1698	.5845	.1860	+55	-22	
g Pleiadum	5 $\frac{1}{2}$	3.65	19.5	23 54.0	17	5.5	+ 3 10.1	-0.3696	.5867	.1780	+25	-49	
b Pleiadum	4	3.65	19.5	23 43.4	17	7.3	+ 3 11.9	-0.1901	.5867	.1779	+34	-40	
e Pleiadum	5	+3.65	+19.2	+24 4.7	17	14.6	+ 3 18.9	-0.5200	.5868	+1776	+16	-58	
c Pleiadum	5	3.64	19.3	23 58.8	17	20.0	+ 3 32.6	-0.3805	.5869	.1769	+24	-50	
d Pleiadum	5	3.63	19.4	23 33.7	17	41.1	+ 3 44.3	+0.0693	.5871	.1764	+49	-96	
7 Tauri	3	3.64	19.3	23 43.3	18	7.6	+ 4 9.7	-0.0110	.5874	.1752	+44	-30	
f Pleiadum	4	3.63	19.2	23 40.5	18	46.4	+ 4 46.9	+0.1488	.5878	.1735	+53	-22	
k Pleiadum	5 $\frac{1}{2}$	3.63	19.2	23 45.5	18	46.9	+ 4 47.4	+0.0674	.5878	.1735	+49	-26	
B. A. C. 1192	6	+3.67	+18.8	+25 12.3	19	11.3	+ 5 10.8	-1.2951	.5881	+1724	-46	-65	
36 Tauri	6	3.62	18.3	23 45.9	17	0 34.4	+10 20.7	+1.0186	.5916	.1572	+90	+27	
p Tauri	6	3.68	17.3	26 9.5	2	58.7	-11 21.0	-0.9842	.5931	.1502	-13	-64	
x ¹ Tauri	5 $\frac{1}{2}$	3.63	16.7	25 20.2	7	24.3	- 7 6.3	+0.4659	.5956	.1375	+75	- 3	
x ² Tauri	5 $\frac{1}{2}$	3.63	16.7	25 20.5	7	24.5	- 7 6.1	+0.4612	.5956	.1375	+75	- 3	
B. A. C. 1648	6 $\frac{1}{2}$	3.59	12.0	27 49.9	18	4 53.1	-10 32.2	+0.1886	.6031	.0670	+56	-10	
β Tauri	2	+3.58	+11.3	+28 30.1	6	48.1	- 8 42.1	-0.3597	.6033	+0604	+24	-39	
B. A. C. 1700	6 $\frac{1}{2}$	3.59	11.0	29 5.2	8	1.3	- 8 32.0	-0.8732	.6034	.0561	- 7	-61	
B. A. C. 1746	6 $\frac{1}{2}$	3.55	11.0	27 34.9	10	20.1	- 5 19.2	+0.7521	.6037	.0481	+90	+21	
B. A. C. 1772	6	3.58	10.1	29 8.6	11	31.8	- 4 10.6	-0.7549	.6039	.0439	+ 1	-61	
136 Tauri	5	3.49	9.3	27 35.0	16	40.6	+ 0 45.0	+0.9898	.6031	.0260	+90	+37	
B. A. C. 1882	6 $\frac{1}{2}$	3.52	8.7	28 55.3	17	49.6	+ 1 51.0	-0.3251	.6030	+0224	+26	-33	
κ Aurigæ	4 $\frac{1}{2}$	+3.47	+ 6.9	+29 32.6	19	0 41.9	+ 8 25.6	-0.8786	.6015	-0019	- 8	-61	
B. A. C. 2097	6 $\frac{1}{2}$	3.35	6.2	28 17.6	6	14.2	-10 16.2	+0.3185	.5996	.0204	+65	0	
49 Aurigæ	5 $\frac{1}{2}$	3.33	5.6	28 7.1	8	1.6	- 8 33.4	+0.4526	.5989	.0265	+75	+ 7	
53 Aurigæ	6	3.36	5.1	29 5.4	9	11.0	- 7 26.9	-0.5597	.5985	.0303	+13	-49	
54 Aurigæ	6	3.33	5.1	28 22.4	9	38.0	- 7 1.1	+0.1506	.5982	.0318	+54	- 9	
28 Geminor.	6	3.33	4.6	29 5.8	11	33.0	- 5 11.0	-0.6473	.5973	.0382	+ 8	-56	
47 Geminor.	6	+3.16	+ 3.1	+27 3.7	21	35.8	+ 4 26.7	+0.8642	.5916	-0708	+90	+25	
53 Geminor.	6	3.16	2.3	28 6.8	23	18.7	+ 6 5.4	-0.3293	.5904	.0762	+26	-38	
59 Geminor.	6 $\frac{1}{2}$	3.12	1.8	27 52.7	20	2 36.5	+ 9 15.2	-0.3580	.5881	.0865	+25	-41	
i Geminorum	4	3.12	1.7	28 2.7	3	3.8	+ 9 41.3	+0.5678	.5877	.0879	+12	-53	
h Geminorum	5	3.11	1.1	28 22.4	4	26.6	+11 0.8	-1.0273	.5867	.0920	-18	-62	
g Geminorum	5	3.09	1.1	28 10.3	4	37.8	+11 11.5	-0.8395	.5865	.0926	- 4	-62	
B. A. C. 2472	6	+3.09	+ 1.1	+28 10.5	4	57.5	+11 30.5	-0.8728	.5863	-0936	- 6	-62	
v Geminorum	4 $\frac{1}{2}$	3.03	1.1	27 10.3	7	1.2	-10 30.9	-0.0504	.5847	.0995	+42	-25	
c Geminorum	6	2.97	+ 0.7	26 4.8	10	14.4	- 7 25.4	+0.7275	.5820	.1090	+90	+14	
q Geminorum	5	2.94	- 0.4	27 5.2	13	55.3	- 3 53.3	-0.7214	.5790	.1193	+ 4	-63	
u ¹ Cancri	6	2.87	0.5	25 44.0	16	54.5	- 1 1.1	+0.2942	.5762	.1276	+63	-11	
u ² Cancri	6 $\frac{1}{2}$	2.86	0.5	25 25.9	17	14.2	- 0 42.1	+0.5613	.5758	.1285	+24	- 3	
u ³ Cancri	6 $\frac{1}{2}$	+2.83	- 1.4	+25 12.6	20	38.3	+ 2 34.0	-0.6893	.5728	-1375	+ 6	-63	
u ⁴ Cancri	6	2.82	1.2	25 53.1	20	44.7	+ 2 40.1	-0.3697	.5727	.1377	+24	-46	
u ⁵ Cancri	6	2.72	1.6	24 24.8	21	0 53.0	+ 6 39.0	+0.5479	.5689	.1482	+22	0	
u ⁶ Cancri, <i>mult.</i>	7	2.70	2.3	24 56.4	3	24.0	+ 9 4.2	-0.3743	.5665	.1544	+23	-48	
u ⁷ Cancri	6 $\frac{1}{2}$	2.69	2.3	24 33.4	4	13.0	+ 9 51.4	-0.1069	.5657	.1563	+39	-34	
u ⁸ Cancri	6	2.67	2.5	24 30.0	5	25.5	+11 1.1	-0.2389	.5646	.1592	+32	-41	
32 Cancri	6	+2.66	- 2.6	+24 30.5	6	2.8	+11 37.0	-0.3464	.5640	-1607	+26	-47	
ξ Cancri	5	2.40	4.5	22 32.9	21	41.3	+ 2 41.6	-1.1087	.5491	.1940	-21	-68	
79 Cancri	6	2.39	4.6	22 30.1	22	7.6	+ 3 6.9	-1.1450	.5487	.1951	-24	-68	
B. A. C. 3138	6	2.36	4.6	21 47.7	23	35.3	+ 4 31.6	-0.7000	.5473	.1976	+ 7	-68	
37 Leonis	6	1.89	6.2	14 20.9	28	5 5.7	+ 9 3.4	+0.5622	.5222	.2411	+80	-11	
42 Leonis	6	+1.88	- 7.2	+15 36.2	7	36.7	+11 29.7	-1.3696	.5204	-2438	-46	-75	

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

OCTOBER.

STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.			
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	x'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d	h	m						
λ Leonis	5	+1.70	-7.2	+11 12.2	23	21	23.8	+ 0 51.4	-0.1751	.5109	-2562	+36	-51
χ Leonis	5	1.57	7.1	8 0.5	24	5	33.4	+ 8 46.5	+1.1064	.5062	.2615	+90	+18
B. A. C. 3837	6	1.54	7.6	8 44.5	10	13.7		-10 41.5	-0.9024	.5039	.2641	- 3	-81
σ Leonis	4	1.49	7.5	6 42.7	13	59.0		- 7 2.7	+0.2671	.5023	.2658	+59	-30
β Virginis	3 $\frac{1}{2}$	1.32	7.9	2 28.0	25	5	42.8	+ 8 14.3	+0.5939	.4974	.2702	+81	-14
B. A. C. 4043	6 $\frac{1}{2}$	1.29	7.9	+ 1 13.4	10	17.5		-11 18.8	+0.6921	.4964	.2700	+90	- 9
13 Virginis	6	+1.22	- 8.6	- 0 5.7	20	57.1		- 0 57.0	-0.7709	.4948	-2700	+ 5	-90
γ Virginis	3 $\frac{1}{2}$	1.22	8.8	+ 0 1.5	21	38.0		- 0 17.2	-1.0847	.4947	.2700	-14	-90
B. A. C. 4255	6 $\frac{1}{2}$	1.14	8.8	- 3 41.2	26	7	54.1	+ 9 41.7	+0.1672	.4942	.2677	+53	-36
B. A. C. 4294	6 $\frac{1}{2}$	1.11	9.0	5 37.2	12	42.9		- 9 37.5	+0.9793	.4943	.2660	+85	+ 7
B. A. C. 4394	6	1.06	9.5	8 19.0	27	0	9.0	+ 1 29.7	+0.9036	.4953	.2603	+82	+ 3
A ³ Scorpii	5	1.23	12.7	24 57.3	30	12	46.3	+11 36.7	+0.9757	.5279	.1510	-65	+12
B. A. C. 5253	6	+1.23	-12.6	-24 9.7	12	55.6		+11 45.7	+0.0713	.5280	-1504	+33	-41
B. A. C. 5254	6	1.22	12.4	23 36.4	12	57.4		+11 47.5	-0.5484	.5281	.1504	+ 1	-82
B. A. C. 5255	6	1.23	12.7	25 2.5	13	3.2		+11 53.1	+1.0278	.5282	.1502	+65	+16
β Scorpii	6	1.23	12.6	24 52.6	13	16.4		-11 54.2	+0.8122	.5283	.1498	+65	+ 1
B. A. C. 5286	6 $\frac{1}{2}$	1.25	12.6	24 28.9	15	9.3		-10 4.9	+0.0950	.5291	.1460	+33	-39
B. A. C. 5314	6	1.26	12.6	25 31.1	17	23.8		- 7 54.7	+0.9247	.5301	.1414	+65	+ 9
B. A. C. 5347	5	+1.29	-12.7	-25 59.6	19	38.2		- 5 44.7	+1.1405	.5312	-1368	+64	+27
σ Scorpii	3 $\frac{1}{2}$	1.34	12.5	25 17.7	31	1	48.1	+ 0 13.1	-0.4396	.5338	.1237	+ 4	-73
α Scorpii	1 $\frac{1}{2}$	+1.38	-12.7	-26 9.4	5	36.7		+ 3 54.2	+0.0621	.5353	-1141	+28	-41

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B. A. C. 5800	6 $\frac{1}{2}$	+1.62	-12.0	-26 50.2	1	2	8.4	- 0 15.4	-1.0641	.5422	-0671	-39	-90
43 Ophiuchi	6	1.67	12.0	28 1.4	6	13.9		+ 3 41.8	+0.0002	.5433	.0571	+19	-45
β Sagittarii	5	1.81	11.1	27 47.0	17	6.5		- 9 48.1	-0.7389	.5452	.0299	-21	-90
B. A. C. 6063	6 $\frac{1}{2}$	1.86	10.9	28 2.8	21	11.5		- 5 51.6	-0.5473	.5458	.0196	-12	-83
B. A. C. 6072	6 $\frac{1}{2}$	1.88	11.1	28 44.5	22	2.3		- 5 2.5	+0.2081	.5459	.0174	+27	-33
γ Sagittarii	4	1.93	11.1	29 35.2	2	0	51.6	- 2 21.1	+1.1069	.5460	.0095	+61	+27
B. A. C. 6120	6 $\frac{1}{2}$	1.93	10.7	28 22.4	1	40.7		- 1 31.7	-0.2483	.5462	.0081	+ 2	-60
B. A. C. 6127	5	+1.94	-10.7	-28 28.3	2	15.3		- 0 58.3	-0.1422	.5463	-0066	+ 8	-53
B. A. C. 6190	6 $\frac{1}{2}$	2.00	10.4	28 41.6	6	24.1		+ 3 1.9	+0.0981	.5464	+0040	+20	-39
B. A. C. 6191	6 $\frac{1}{2}$	1.99	10.3	28 19.6	6	20.5		+ 3 2.3	-0.3075	.5464	.0040	- 1	-64
B. A. C. 6220	6 $\frac{1}{2}$	2.03	10.0	28 29.4	8	27.7		+ 5 1.2	-0.1134	.5464	.0093	+ 9	-51
τ Sagittarii	3 $\frac{1}{2}$	2.28	7.6	27 51.2	3	4	33.9	+ 0 25.7	-0.1156	.5444	.0604	+14	-52
B. A. C. 6628	6	2.40	6.5	28 6.4	12	27.7		+ 8 3.2	+0.7176	.5428	.0801	+62	- 4
B. A. C. 6666	6	+2.42	- 5.9	-27 14.5	14	54.4		+10 24.9	-0.0327	.5420	+0859	+21	-47
ω Sagittarii	5	2.56	4.0	26 37.8	4	2	43.9	- 2 9.7	+0.4765	.5386	.1138	+51	-18
A Sagittarii	5	2.58	- 3.8	26 32.0	5	4	10.5	- 0 46.1	+0.5363	.5381	.1171	+55	-15
17 Capricorni	6	2.74	+ 1.2	21 58.0	5	2	14.6	- 3 26.0	-1.3204	.5305	.1646	-56	-90
B. A. C. 7197	6	2.78	0.9	23 11.4	3	15.3		- 2 27.2	+0.1774	.5301	.1666	+40	-35
χ Capricorni	6	2.86	3.0	21 41.6	12	53.8		+ 6 52.6	+0.2540	.5267	.1853	+46	-31
27 Capricorni	6	+2.85	+ 3.3	-21 3.3	13	22.6		+ 7 20.3	-0.3459	.5265	+1862	+16	-65
ϕ Capricorni	5 $\frac{1}{2}$	2.88	3.7	21 10.1	16	18.1		+10 10.3	+0.3279	.5256	.1916	+51	-27
33 Capricorni	5 $\frac{1}{2}$	2.92	4.2	21 22.8	20	24.7		- 9 51.0	+1.3574	.5242	.1980	+69	+55
ϵ Capricorni	4 $\frac{1}{2}$	2.96	5.7	20 1.4	6	2	42.3	- 3 45.3	+1.1817	.5222	.2096	+70	+26
κ Capricorni	5	2.98	6.4	19 26.0	5	25.6		- 1 7.2	+1.1241	.5214	.2140	+71	+21
δ Capricorni	3	2.93	7.7	16 41.5	7	36.2		+ 0 59.3	-1.3391	.5208	.2174	-48	-90
29 Aqua., mult	6	+3.02	+ 8.5	-17 33.8	15	10.9		+ 8 19.7	+1.2832	.5189	+2289	+73	+35
45 Aquarii	6	3.04	10.9	13 55.6	23	25.5		- 7 41.1	-0.6428	.5172	.2403	+ 7	-87
50 Aquarii	6	3.07	11.2	14 9.5	7	2	7.7	- 5 3.8	+0.2572	.5166	.2437	+53	-31
B. A. C. 7835	6 $\frac{1}{2}$	3.08	11.8	13 33.0	4	54.0		- 2 22.7	+0.2948	.5163	.2472	+56	-29
70 Aquarii	6	3.12	14.0	11 12.7	14	9.4		+ 6 35.7	+0.1717	.5156	.2577	+51	-36
A ¹ Aquarii	5 $\frac{1}{2}$	+3.15	+16.0	- 8 21.8	22	30.0		- 9 19.0	-0.6174	.5155	+2659	+12	-84

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

NOVEMBER.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.	
Name.	Mag.	Red'ns from 1875.0. Δ _a Δ _d	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	z'	y'	N'n.	S'n.
A ¹ Aquarii	7	+3.15 +15.9	- 8 25.4	7 22 34.9	- 9 14.3	-0.5329	.5155	+2659	+16	+77
A ² Aquarii	7	3.16 15.9	8 36.4	22 51.7	- 8 57.9	-0.2677	.5156	.2661	+29	-60
A ³ Aquarii	7½	3.16 16.0	8 21.8	23 31.6	- 8 19.3	-0.3443	.5156	.2667	+26	-64
φ Aquarii	4½	3.16 17.1	6 43.1	8 3 5.6	- 4 51.9	-1.0965	.5158	.2697	-16	-90
χ Aquarii	5½	3.19 16.6	8 24.2	4 21.1	- 3 38.6	+0.9933	.5159	.2707	+82	+ 8
96 Aquarii	5½	3.17 17.6	5 48.1	5 37.3	- 2 24.8	-1.3599	.5160	.2717	-40	-90
B. A. C. 8184	5½	+3.20 +18.4	- 5 12.5	10 40.7	+ 2 29.3	-0.5865	.5166	+2754	+14	-91
20 Piscium	6	3.26 19.8	3 27.1	19 49.5	+11 21.1	+0.1492	.5185	.2807	+52	-37
24 Piscium	6½	3.28 19.9	3 50.6	22 17.3	-10 15.7	+1.2428	.5192	.2818	+86	+26
B. A. C. 8365	6½	3.30 21.1	- 1 11.4	9 4 15.2	- 4 29.0	+0.2153	.5212	.2839	+56	-34
B. A. C. 57	6½	3.34 22.2	+ 1 0.0	10 27.1	+ 1 31.3	-0.2505	.5237	.2853	+32	-58
44 Piscium	6	3.36 22.5	+ 1 15.2	14 8.5	+ 5 5.6	+0.5453	.5253	.2857	+76	-17
60 Piscium	6	+3.42 +24.1	+ 6 3.9	10 0 37.1	- 8 45.9	-1.3222	.5309	+2849	-34	-84
B. A. C. 221	6	3.43 23.9	4 38.6	1 2.4	- 8 21.5	+0.2293	.5311	.2849	+57	-32
B. A. C. 274	6	3.47 24.3	5 48.9	6 27.0	- 3 7.5	+0.5880	.5344	.2833	+81	-14
ε Piscium	4	3.46 24.7	7 13.4	7 53.8	- 1 43.6	-0.4152	.5353	.2827	+23	-67
ζ ¹ Piscium	4½	3.52 24.7	6 55.2	12 51.6	+ 3 4.3	+1.2835	.5388	.2802	+90	+32
ζ ² Piscium	6½	3.52 24.7	6 55.4	12 52.3	+ 3 5.0	+1.2838	.5388	.2802	+90	+32
π Piscium	6	+3.61 +25.4	+11 30.5	23 23.5	-10 45.4	-0.3779	.5469	+2726	+25	-62
19 Arietis	6	3.76 25.3	14 42.0	11 14 57.4	+ 4 15.3	+0.5757	.5606	.2848	+82	-10
27 Arietis	6	3.84 25.0	17 9.4	22 23.8	+11 25.2	+0.0071	.5676	.2434	+45	-37
B. A. C. 782	6½	3.85 24.1	18 20.1	23 29.5	-11 31.6	-0.8872	.5687	.2414	- 4	-72
μ Arietis	5½	3.90 24.7	19 29.1	12 3 3.6	- 8 5.7	-1.1660	.5721	.2350	-24	-71
40 Arietis	6	3.90 24.4	17 46.1	5 34.9	- 5 40.1	+1.1061	.5746	.2302	+90	+25
47 Arietis	6	+3.96 +24.1	+20 10.4	9 21.7	- 2 2.1	-0.3985	.5782	+2226	+23	-56
ε Arietis	4½	3.98 24.1	20 50.7	9 48.8	- 1 36.0	-0.9587	.5786	.2217	- 9	-69
ζ Arietis	4½	4.00 23.2	20 35.2	15 59.4	+ 4 19.9	+0.6233	.5846	.2080	+88	- 1
η ¹ Arietis	5	4.03 22.8	20 42.1	18 26.4	+ 6 41.0	+1.0123	.5869	.2026	+90	+22
66 Arietis	6½	4.09 22.3	22 22.7	21 11.4	+ 9 19.4	-0.0832	.5894	.1953	+40	-36
7 Tauri, mult.	6	4.14 22.0	24 3.0	23 27.2	+11 29.6	-1.2847	.5915	.1896	-42	-66
9 Tauri	6	+4.12 +21.8	+22 48.1	12 0 26.1	-11 33.9	+0.1218	.5923	+1871	+52	-25
g Pleiadum	5½	4.16 21.3	23 54.0	3 22.5	- 8 44.7	-0.4152	.5950	.1789	+22	-52
b Pleiadum	4	4.16 21.3	23 43.5	3 24.3	- 8 43.0	-0.2391	.5950	.1789	+32	-42
e Pleiadum	5	4.17 21.3	24 4.7	3 31.3	- 8 36.3	-0.5641	.5952	.1785	+14	-60
c Pleiadum	5	4.17 21.2	23 58.9	3 45.4	- 8 22.8	-0.4266	.5954	.1779	+21	-52
d Pleiadum	5	4.16 21.2	23 33.8	3 57.1	- 8 11.6	+0.0177	.5955	.1774	+46	-29
7 Tauri	3	+4.16 +21.1	+23 43.4	4 23.0	- 7 46.7	-0.0623	.5959	+1763	+41	-33
f Pleiadum	4	4.16 21.1	23 40.5	5 0.8	- 7 10.5	+0.0946	.5964	.1746	+50	-25
k Pleiadum	5½	4.16 21.1	23 45.5	5 1.3	- 7 10.0	+0.0141	.5964	.1746	+46	-29
36 Tauri	6	4.19 19.9	23 46.0	10 39.7	- 1 45.9	+0.9452	.6009	.1582	+90	+23
p Tauri	6	4.28 19.2	26 9.5	12 59.9	+ 0 28.4	-1.0344	.6025	.1513	-17	-64
z ¹ Tauri	5½	4.27 18.2	25 20.2	17 17.9	+ 4 35.4	+0.3910	.6055	.1378	+69	- 6
z ² Tauri	6½	+4.27 +18.2	+25 20.5	17 18.1	+ 4 35.5	+0.3865	.6055	+1378	+69	- 6
B. A. C. 1648	6½	4.36 12.7	27 49.9	14 14 5.6	+ 0 28.2	+0.0915	.6146	.0668	+50	-15
β Tauri	2	4.38 12.0	28 30.2	15 56.7	+ 2 14.3	-0.4501	.6150	.0602	-19	-44
B. A. C. 1709	6½	4.39 11.6	29 5.3	17 7.4	+ 3 22.0	-0.9561	.6151	.0549	-13	-61
B. A. C. 1746	6½	4.35 11.2	27 34.9	19 21.4	+ 5 30.0	+0.6397	.6153	.0479	+90	+15
B. A. C. 1772	6	4.40 10.7	29 8.7	20 30.7	+ 6 36.3	-0.8439	.6154	.0437	- 4	-61
136 Tauri	5	+4.33 + 9.6	+27 35.0	15 1 28.6	+11 20.9	+0.8664	.6152	+0255	+90	+29
B. A. C. 1882	6½	4.37 9.0	28 55.3	2 35.2	-11 35.5	-0.4281	.6150	+0215	+20	-40
ε Aurigæ	4½	4.35 6.9	29 32.6	9 12.9	- 5 15.5	-0.9790	.6136	-0025	-15	-61
B. A. C. 2097	6½	4.27 5.5	28 17.6	14 33.5	- 0 9.2	+0.1921	.6115	.0219	+57	- 6
49 Aurigæ	5½	4.26 5.0	28 7.1	16 17.1	+ 1 30.0	+0.3219	.6107	.0279	+65	0
53 Aurigæ	6	+4.29 + 4.5	+29 5.4	17 24.0	+ 2 33.9	-0.6742	.6102	-0318	+ 6	-58

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.													
NOVEMBER.													
STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.			
Name.	Mag.	Red'ns from 1875.0 Δα Δδ		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	x'	y'	N'n.	S'n.
		s	"	"	d	h	m	h	m			"	"
54 Aurigæ	6	+4.25	+ 4.5	+28 22.3	15	17	50.1	+ 2 58.9	+0.0234	.6099	-.0336	+6	-16
28 Geminor.	6	4.27	3.8	29 5.8			19 41.0	+ 4 44.8	-0.7630	.6090	.0399	0	-61
47 Geminor.	6	4.11	1.5	27 3.6	16	5	23.1	- 9 58.3	+0.7143	.6027	.0729	+90	+17
53 Geminor.	6	4.14	+ 0.8	28 6.8			7 2.4	- 8 23.2	-0.4611	.6015	.0784	+19	-46
59 Geminor.	6½	4.07	- 0.2	27 52.6			10 13.6	- 5 20.1	-0.4929	.5989	.0887	+17	-49
ι Geminor.	4	4.08	0.4	28 2.6			10 39.9	- 4 54.9	-0.6993	.5986	.0900	+ 5	-62
β ¹ Geminor.	5	+4.08	- 0.9	+28 22.4			12 0.0	- 3 38.2	-1.1524	.5975	-.0942	-30	-62
β ² Geminor.	5	4.06	1.0	28 10.3			12 10.9	- 3 27.8	-0.9676	.5973	.0948	-13	-62
B. A. C. 2472	6	4.06	1.0	28 10.5			12 29.9	- 3 9.6	-1.0009	.5971	.0958	-16	-62
ν Geminor.	4½	4.00	1.2	27 10.3			14 29.5	- 1 15.0	-0.1937	.5951	.1015	+34	-33
ϕ Geminor.	6	3.93	1.7	26 4.7			17 36.5	+ 1 44.2	+0.5689	.5923	.1115	+85	+ 5
φ Geminorum	5	3.92	3.0	27 5.2			21 10.4	+ 5 9.4	-0.8598	.5890	.1220	- 5	-63
ω ¹ Cancri	6	+3.85	- 3.4	+25 43.9	17	0	4.1	+ 7 56.0	+0.1374	.5860	-.1302	+53	-19
ω ² Cancri	6½	3.82	3.4	25 25.8			0 23.2	+ 8 14.3	+0.4003	.5856	.1312	+70	- 5
ψ ¹ Cancri	6½	3.80	4.5	26 12.6			3 41.2	+11 24.5	-0.8341	.5822	.1402	- 3	-64
ψ ² Cancri	6	3.79	4.4	25 53.0			3 47.4	+11 30.4	-0.5193	.5821	.1405	+16	-54
λ Cancri	6	3.68	5.0	24 24.8			7 48.5	- 8 38.1	+0.3818	.5778	.1511	+69	- 8
ν ¹ Cancri, mult.	7	3.67	5.7	24 56.4			10 15.3	- 6 17.0	-0.5293	.5750	.1572	+15	-57
ν ² Cancri	6½	+3.66	- 5.8	+24 33.4			11 2.8	- 5 31.3	-0.2657	.5742	-.1592	+30	-42
ζ ² Cancri	6	3.63	6.1	24 29.9			12 13.4	- 4 23.5	-0.3968	.5730	.1621	+23	-50
32 Cancri	6	3.63	6.2	24 30.4			12 49.7	- 1 48.5	-0.5031	.5722	.1636	+17	-56
ξ Cancri	5	3.35	8.8	22 32.8	18	4	4.9	+10 52.7	-1.2653	.5553	.1964	-37	-68
79 Cancri	6	3.35	8.9	22 30.0			4 30.6	+11 27.5	-1.3017	.5551	.1972	-43	-68
B. A. C. 3138	6	3.30	9.0	21 47.6			5 56.5	-11 19.7	-0.8630	.5533	.1999	- 3	-68
34 Leonis	6	+2.76	-10.7	+13 58.1	19	8	31.9	- 9 38.5	+1.3593	.5267	-.2393	+90	+48
37 Leonis	6	2.75	11.3	14 20.8			10 57.5	- 7 17.4	+0.3801	.5245	.2420	+67	-20
l Leonis	5	2.50	12.4	11 12.2	20	3	7.1	+ 8 22.2	-0.3497	.5119	.2561	+27	-61
χ Leonis	5	2.35	12.2	8 0.5			11 14.3	- 7 45.2	+0.9294	.5066	.2610	+90	+ 6
B. A. C. 3837	6	2.32	13.0	8 44.4			15 53.8	- 3 14.0	-1.0695	.5042	.2632	-14	-81
σ Leonis	4	2.25	12.7	6 42.6			19 38.7	+ 0 24.4	+0.0984	.5022	.2646	+50	-38
89 Leonis	6	+2.12	-12.4	+ 3 45.0	21	2	40.7	+ 7 14.3	+1.3864	.4989	-.2669	+90	+43
β Virginis	3½	2.04	12.9	2 27.9			11 23.0	- 8 16.2	+0.4364	.4956	.2683	+70	-22
B. A. C. 4043	6½	1.99	12.8	+ 1 13.3			15 58.4	- 3 50.5	+0.5401	.4943	.2685	+77	-17
13 Virginis	6	1.89	13.1	- 0 5.8	22	2	40.7	+ 6 34.0	-0.9114	.4922	.2677	- 3	-90
γ Virginis	3½	1.89	13.2	+ 0 1.5			3 21.7	+ 7 13.9	-1.2252	.4921	.2676	-25	-90
B. A. C. 4255	6½	1.78	12.9	- 3 41.4			13 41.4	- 6 43.5	+0.0404	.4915	.2649	+46	-43
B. A. C. 4294	6½	+1.72	-12.6	- 5 37.2			18 32.1	- 2 0.8	+0.8596	.4916	-.2631	+85	0
B. A. C. 4394	6	1.64	12.5	8 19.0	23	6	2.9	+ 9 10.8	+0.8010	.4927	.2575	+72	- 3
58 Virginis	6	1.60	12.6	9 53.4			10 54.9	-10 5.2	+1.2753	.4935	.2544	+80	+30
α Virginis	1	1.57	12.7	10 30.7			15 7.5	- 5 59.6	+0.8913	.4945	.2515	+80	+ 2
Δ Virginis	5	1.58	13.1	9 31.4			19 21.5	- 1 52.7	-1.2497	.4955	.2483	-30	-90
86 Virginis	6	1.52	12.7	11 48.2	24	2	20.3	+ 4 54.3	-0.4642	.5976	.2424	+18	-72
B. A. C. 4679	6½	+1.48	-12.6	-14 22.4			12 12.0	- 9 30.8	+0.0178	.5007	-.2332	+40	-44
B. A. C. 4700	6	1.87	12.5	15 42.9			15 33.5	- 6 15.0	+0.7196	.5024	.2291	+74	- 7
B. A. C. 4923	6	1.43	12.3	20 51.1	25	15	29.1	- 7 1.6	+1.2767	.5137	.1975	+70	+37
3 Sagittarii	5	1.76	10.0	27 47.1	28	23	23.0	- 1 56.0	-0.6110	.5472	.0288	-14	-90
B. A. C. 6063	6½	1.80	9.9	28 2.8	29	3	27.8	+ 2 0.4	-0.4149	.5477	.0183	- 5	-72
B. A. C. 6072	6½	1.82	9.9	28 44.4			4 18.6	+ 2 49.5	+0.3432	.5477	.0162	+34	-25
γ ¹ Sagittarii	4	+1.86	- 9.5	-29 35.2			7 7.9	+ 5 32.8	+1.2482	.5479	-.0091	+61	+47
B. A. C. 6120	6½	1.87	9.4	28 22.3			7 57.0	+ 6 20.3	-0.1076	.5479	.0069	+ 9	-52
B. A. C. 6127	5	1.87	9.3	28 28.3			8 31.6	+ 6 53.6	-0.0004	.5478	-.0054	+15	-45
B. A. C. 6190	6½	1.90	9.0	28 41.6			12 40.3	+10 53.7	+0.2465	.5478	+0.0051	+27	-31
B. A. C. 6191	6½	1.89	9.0	28 19.6			12 40.7	+10 54.1	-0.1601	.5478	.0051	+ 6	-55
B. A. C. 6220	6½	+1.91	- 8.8	-28 29.4			14 44.0	-11 6.8	+0.0375	.5478	+0.104	+17	-43

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

NOVEMBER.

STAR'S—				AT CONJUNCTION IN R. A.					Limiting Parallels.		
Name.	Mag.	Red'ns from 1875.0. $\Delta\alpha$	$\Delta\delta$	Apparent Declination.	Washington Mean Time.	Hour Angle H	Y	x'	y'	N'n.	S'n.
		α	δ	$^{\circ}$ $'$	d h m	h m				$^{\circ}$	$^{\circ}$
ϕ Sagittarii	3 $\frac{1}{2}$	+1.97	- 7.6	-27 7.1	30 1 19.8	- 0 41.2	-1.2260	.5471	+.0377	-56	-90
τ Sagittarii	3 $\frac{1}{2}$	2.08	6.6	27 51.2	10 52.0	+ 8 31.2	+0.0641	.5451	.0617	+23	-41
B. A. C. 6628	6	2.17	5.8	28 6.4	18 47.7	- 7 49.3	+0.9112	.5460	.0813	+62	+ 9
B. A. C. 6666	6	+2.17	- 5.4	-27 14.5	21 15.1	- 5 27.0	+0.1611	.5423	+.0871	+31	+35

DECEMBER.

ω Sagittarii	5	+2.28	- 3.7	-26 37.8	1 9 9.2	+ 6 3.1	+0.6884	.5380	+1.148	+63	- 6
A Sagittarii	5	2.29	- 3.6	26 32.0	10 36.5	+ 7 27.4	+0.7502	.5375	.1181	+64	- 2
17 Capricorni	6	2.42	+ 0.8	21 58.0	9 55.7	+ 5 2.7	-1.0942	.5280	.1647	-30	-90
B. A. C. 7197	6	2.45	0.6	23 11.5	9 57.3	+ 6 2.4	+0.4160	.5275	.1667	+53	-22
η Capricorni	5 $\frac{1}{2}$	2.47	2.5	20 20.8	17 45.6	-10 24.2	-1.3320	.5240	.1812	-55	-90
χ Capricorni	6	2.52	2.3	21 41.6	19 45.2	- 8 23.5	+0.5022	.5231	.1848	+60	-18
27 Capricorni	6	+2.51	+ 2.5	-21 3.3	20 14.6	- 8 0.0	-0.1028	.5229	+1.856	+28	-50
ϕ Capricorni	5 $\frac{1}{2}$	2.54	2.9	21 10.1	23 13.2	- 5 7.1	+0.5799	.5216	.1915	+65	-13
γ Capricorni	3 $\frac{1}{2}$	2.58	5.5	17 13.4	11 22.1	+ 6 39.2	-1.2610	.5166	.2104	-39	-90
δ Capricorni	3	2.61	6.4	16 41.5	14 50.7	+10 1.4	-1.0947	.5154	.2156	-24	-90
ϵ Aquarii	4	2.66	8.4	14 28.4	4 0 40.3	- 4 26.8	-1.2954	.5117	.2291	-40	-90
42 Aquarii	6	2.70	9.3	13 27.1	5 57.4	+ 0 40.7	-1.1604	.5106	.2358	-26	-90
45 Aquarii	6	+2.71	+ 9.4	-13 55.6	7 4.5	+ 1 45.8	-0.3853	.5103	+2.371	+20	-67
50 Aquarii	6	2.75	9.6	14 9.6	9 51.2	+ 4 27.5	+0.5271	.5097	.2404	+69	-17
B. A. C. 7835	6 $\frac{1}{2}$	2.76	10.2	13 33.1	12 42.3	+ 7 13.4	+0.6658	.5090	.2436	+72	-15
58 Aquarii	6	2.76	11.1	11 32.5	13 35.3	+ 8 4.9	-1.3658	.5087	.2447	-46	-90
64 Aquarii	6 $\frac{1}{2}$	2.76	11.9	10 40.4	17 29.9	+11 52.5	-1.3243	.5081	.2488	-40	-90
70 Aquarii	6	2.81	12.2	11 12.7	22 14.5	- 7 31.5	+0.4407	.5075	.2535	+66	-22
λ Aquarii	5 $\frac{1}{2}$	+2.86	+14.4	- 8 21.8	5 6 51.1	+ 0 49.9	-0.3624	.5071	+2.611	+25	-65
λ Aquarii	7	2.86	14.2	8 25.5	6 56.2	+ 0 54.8	-0.2768	.5071	.2612	+29	-60
λ Aquarii	7	2.87	14.1	8 36.4	7 13.6	+ 1 11.7	-0.0079	.5071	.2614	+42	-45
λ Aquarii	7 $\frac{1}{2}$	2.88	14.1	8 21.8	7 54.8	+ 1 51.7	-0.0857	.5071	.2619	+38	-49
ϕ Aquarii	4 $\frac{1}{2}$	2.88	15.2	6 43.1	11 35.8	+ 5 26.1	-0.8507	.5070	.2648	-1	-90
χ Aquarii	5 $\frac{1}{2}$	2.91	14.8	8 24.2	12 53.8	+ 6 41.9	+1.2700	.5071	.2657	+32	+29
96 Aquarii	5 $\frac{1}{2}$	+2.89	+15.7	- 5 48.1	14 12.5	+ 7 58.2	-1.1197	.5072	+2.666	-18	-90
B. A. C. 8134	6 $\frac{1}{2}$	2.90	16.1	5 21.1	15 14.3	+ 8 58.1	-1.3186	.5073	.2674	-35	-90
B. A. C. 8184	5 $\frac{1}{2}$	2.93	16.6	5 12.6	19 26.2	-10 57.3	-0.3383	.5077	.2699	+27	-64
20 Piscium	6	3.01	18.0	3 27.1	6 4 53.8	- 1 46.7	+0.4014	.5094	.2748	+67	-24
B. A. C. 8365	6 $\frac{1}{2}$	3.07	19.5	- 1 11.5	13 37.0	+ 6 40.9	+0.4590	.5120	.2778	+71	-21
B. A. C. 57	6 $\frac{1}{2}$	3.12	20.7	+ 1 0.0	20 1.6	-11 6.2	-0.9227	.5144	.2791	+43	-46
44 Piscium	6	+3.16	+21.0	+ 1 15.2	23 50.5	- 7 24.3	+0.7798	.5160	+2.794	+90	- 4
60 Piscium	6	3.26	23.1	6 3.9	7 10 39.8	+ 3 4.8	-1.1329	.5218	.2785	-18	-84
B. A. C. 221	6	3.27	22.7	4 38.6	11 5.9	+ 3 30.1	+0.4408	.5220	.2784	+70	-21
B. A. C. 274	6	3.33	23.3	5 48.9	16 40.7	+ 8 54.3	+0.7943	.5256	.2768	+90	- 2
ϵ Piscium	4	3.34	23.8	7 13.4	18 10.2	+10 20.9	-0.2257	.5256	.2763	+33	-56
π Piscium	6	3.53	25.3	11 30.5	8 10 6.3	+ 1 45.6	-0.2203	.5393	.2668	+33	-53
19 Arietis	6	+3.75	+25.4	+14 42.0	9 2 1.8	- 6 52.0	+0.7061	.5546	+2.498	+90	- 3
27 Arietis	6	3.90	25.4	17 9.4	9 36.5	+ 0 26.2	+0.1136	.5623	.2337	+51	-31
B. A. C. 782	6 $\frac{1}{2}$	3.92	25.5	18 20.1	10 43.3	+ 1 30.5	-0.7907	.5635	.2369	+ 2	-72
μ Arietis	5 $\frac{1}{2}$	3.99	25.4	19 29.1	14 20.7	+ 4 59.8	-1.0802	.5675	.2308	-17	-71
40 Arietis	6	4.00	24.8	17 46.1	16 54.1	+ 7 27.4	+1.2014	.5702	.2261	+90	+34
47 Arietis	6	4.09	24.9	20 10.4	20 43.8	+11 8.3	-0.3229	.5746	.2187	+27	-51
ϵ Arietis, mult.	4 $\frac{1}{2}$	+4.11	+25.0	+20 50.7	21 11.2	+11 34.7	-0.8872	.5749	+2.178	- 5	-69
ζ Arietis	4 $\frac{1}{2}$	4.19	24.0	20 35.2	10 3 25.5	- 6 25.7	+0.6269	.5819	.2044	+90	- 3
γ Arietis	5	4.22	23.6	20 42.1	5 53.7	- 4 3.4	+1.0705	.5845	.1988	+90	+27
66 Arietis	6 $\frac{1}{2}$	4.30	23.5	22 22.7	8 31.8	- 1 23.9	-0.0364	.5876	.1921	+43	-33
7 Tauri	6	4.37	23.4	24 3.0	11 56.2	+ 0 46.9	-1.2465	.5901	.1865	-37	-66
9 Tauri	6	+4.35	+23.1	+22 48.1	11 55.4	+ 1 43.7	+0.1607	.5909	+1.840	+54	-22

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.													
DECEMBER.													
STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.			
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.			Hour Angle H	Y	x'	y'	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$		d	h	m	h	m				
<i>g</i> Pleiadum	5½	+4.42	+22.7	+23 54.0	10	14	52.4	+ 4	33.5	-0.3852	.5942	+1.762	+24 -50
<i>b</i> Pleiadum	4	4.41	22.6	23 43.5		14	54.2	+ 4	35.2	-0.2076	.5942	+1.762	+33 -40
<i>c</i> Pleiadum	5	4.43	22.6	24 4.8		15	1.3	+ 4	42.0	-0.5344	.5944	+1.759	+15 -58
<i>c</i> Pleiadum	5	4.43	22.5	23 58.9		15	15.4	+ 4	55.4	-0.3972	.5946	+1.752	+23 -51
<i>d</i> Pleiadum	5	4.42	22.5	23 33.8		15	27.2	+ 5	6.8	+0.0469	.5948	+1.747	+47 -27
<i>η</i> Tauri	3	4.42	22.4	23 43.4		15	53.1	+ 5	31.6	-0.0342	.5952	+1.736	+43 -31
<i>f</i> Pleiadum	4	+4.43	+22.2	+23 40.5		16	31.0	+ 6	8.0	+0.1214	.5958	+1.718	+52 -23
<i>h</i> Pleiadum	5½	4.43	22.2	23 45.5		16	31.4	+ 6	8.4	+0.0409	.5958	+1.718	+47 -27
B. A. C. 1192	6	4.47	22.4	25 12.3		16	55.3	+ 6	31.2	-1.3682	.5961	+1.709	-50 -65
36 Tauri	6	4.51	21.0	23 46.0		22	9.9	+11	32.6	+0.9574	.6012	+1.559	+90 +24
<i>p</i> Tauri	6	4.62	20.7	26 9.5	11	0	30.0	-10	13.2	-1.0273	.6034	+1.489	-17 -64
<i>χ</i> ¹ Tauri	5½	4.65	19.7	25 20.3		4	47.2	- 6	7.1	+0.3552	.6070	+1.356	+69 - 6
<i>χ</i> ² Tauri	8½	+4.65	+19.7	+25 20.5		4	47.4	- 6	6.9	+0.3913	.6070	+1.356	+69 - 6
B. A. C. 1648	6½	4.91	13.9	27 49.9	12	1	23.0	-10	26.0	+0.0345	.6198	+0.650	+46 -18
<i>β</i> Tauri	2	4.95	13.3	28 30.2		3	12.4	- 8	41.6	-0.5077	.6204	+0.583	+16 -47
B. A. C. 1709	6½	4.98	13.0	29 5.3		4	22.0	- 7	35.1	-1.0132	.6208	+0.541	-18 -61
B. A. C. 1746	6½	4.92	12.3	27 35.0		6	33.9	- 5	20.3	+0.5656	.6213	+0.460	+85 +11
B. A. C. 1772	6	4.98	11.7	29 8.7		7	42.0	- 4	24.2	-0.9091	.6216	+0.418	-10 -61
136 Tauri	5	+4.96	+10.2	+27 35.0		12	34.5	+ 0	14.9	+0.7745	.6221	+0.236	+90 +24
B. A. C. 1882	6½	5.02	9.5	28 55.4		13	39.7	+ 1	17.2	-0.5101	.6223	+0.193	+15 -45
<i>κ</i> Aurigæ	4½	5.05	7.3	29 32.6		20	9.1	+ 7	28.9	-1.0700	.6216	-0.049	-23 -61
B. A. C. 2097	6½	5.00	5.7	28 17.6	12	1	22.2	-11	32.2	+0.0763	.6204	+0.244	+49 -12
49 Aurigæ	5½	5.00	5.1	28 7.1		3	3.2	- 9	55.8	+0.2009	.6198	+0.305	+57 - 6
53 Aurigæ	6	5.04	4.6	29 5.4		4	8.5	- 8	53.4	-0.7857	.6194	+0.346	- 1 -61
54 Aurigæ	6	+5.01	+ 4.5	+28 22.3		4	33.9	- 8	29.2	-0.0977	.6193	-0.361	+39 -22
28 Geminor.	6	5.04	3.6	29 5.8		6	22.0	- 6	45.9	-0.8784	.6184	+0.427	- 8 -61
47 Geminor.	6	4.91	+ 0.4	27 3.6		15	48.0	+ 2	14.8	+0.5580	.6131	+0.763	+24 + 8
53 Geminor.	6	4.95	- 0.2	28 6.7		17	24.5	+ 3	47.1	-0.5993	.6119	+0.819	+10 -55
59 Geminor.	6½	4.92	1.2	27 52.6		20	30.0	+ 6	44.4	-0.6427	.6095	+0.923	+ 8 -58
<i>ι</i> Geminorum	4	4.93	1.4	28 2.6		20	55.5	+ 7	8.8	-0.8468	.6092	+0.938	- 5 -62
<i>β</i> ² Geminorum	5	+4.92	- 1.9	+28 10.3		22	23.7	+ 8	33.1	-1.1143	.6080	-0.996	-26 -62
B. A. C. 2472	6	4.92	2.0	28 10.5		22	42.2	+ 8	50.8	-1.1479	.6077	+0.996	-30 -62
<i>ν</i> Geminorum	4½	4.86	2.5	27 10.2	14	0	38.1	+10	41.8	-0.3567	.6060	+0.109	+25 -42
<i>c</i> Geminorum	6	4.81	3.3	26 4.7		3	39.3	-10	24.8	+0.3879	.6032	+1.156	+69 - 4
<i>φ</i> Geminorum	5	4.81	4.8	27 5.2		7	6.3	- 7	6.6	-1.0266	.5998	+1.262	-18 -63
<i>ω</i> ¹ Cancri	6	4.73	5.4	25 43.9		9	54.3	- 4	25.6	-0.0506	.5970	+1.346	+42 -28
<i>ω</i> ² Cancri	6½	+4.72	- 5.5	+25 25.8		10	12.8	- 4	8.0	+0.2075	.5968	-1.355	+57 -16
<i>ψ</i> ¹ Cancri	6½	4.71	6.6	26 12.5		13	24.3	- 1	4.4	-1.0132	.5931	+1.446	-16 -64
<i>ψ</i> ² Cancri	6	4.70	6.5	25 53.0		13	30.2	- 0	58.7	-0.7042	.5931	+1.448	+ 5 -64
<i>λ</i> Cancri	6	4.60	7.5	24 24.7		17	23.3	+ 2	44.8	+0.1744	.5888	+1.555	+55 -19
<i>ν</i> ¹ Cancri	7	4.59	8.3	24 56.3		19	45.1	+ 5	0.8	-0.7261	.5861	+1.618	+ 4 -65
<i>ν</i> ² Cancri	6½	4.57	8.3	24 33.3		20	31.1	+ 5	45.0	-0.4690	.5852	+1.638	+19 -54
<i>ν</i> ³ Cancri	6	+4.56	- 8.7	+24 29.9		21	39.2	+ 6	50.4	-0.5999	.5839	-1.667	+12 -61
32 Cancri	6	4.55	8.9	24 30.4		22	14.3	+ 7	24.0	-0.7057	.5833	+1.682	+ 5 -66
<i>γ</i> Cancri	4½	4.41	9.5	21 54.8	15	2	21.4	+11	21.4	+1.1717	.5785	+1.784	+90 +37
B. A. C. 3138	6	4.25	12.8	21 47.6		14	45.8	- 0	42.6	-1.0899	.5642	+2.050	-19 -68
34 Leonis	6	3.71	16.0	13 58.0	16	16	28.5	+ 0	6.0	+1.0568	.5357	+2.439	+90 +18
37 Leonis	6	3.69	16.6	14 20.8		18	49.4	+ 2	22.2	+0.0912	.5333	+2.466	+50 -35
<i>ι</i> Leonis	5	+3.43	-18.0	+11 12.1	17	10	30.8	- 6	26.5	-0.6412	.5192	-2.600	+11 -78
<i>χ</i> Leonis	5	3.22	18.2	8 0.4		18	25.1	+ 1	13.2	+0.6160	.5132	+2.644	+24 -12
B. A. C. 3337	6	3.24	19.0	8 44.3		22	57.8	+ 5	37.7	-1.3586	.5101	+2.664	-39 -81
<i>σ</i> Leonis	4	3.17	18.7	6 42.5	18	2	37.4	+ 9	10.8	-0.2064	.5076	+2.675	+34 -55
89 Leonis	6	3.04	18.4	3 45.0		9	30.2	- 8	8.6	+1.0661	.5038	+2.693	+90 +14
<i>β</i> Virginis	3½	+2.95	-18.8	+ 2 27.8		18	2.3	+ 0	8.7	+0.1286	.5000	-2.700	+51 -38

ELEMENTS FOR FACILITATING THE PREDICTION OF OCCULTATIONS OF PLANETS AND STARS BY THE MOON.

DECEMBER.

STAR'S—				AT CONJUNCTION IN R. A.						Limiting Parallels.	
Name.	Mag.	Red'ns from 1875.0.		Apparent Declination.	Washington Mean Time.	Hour Angle <i>H</i>	<i>Y</i>	<i>x'</i>	<i>y'</i>	N'n.	S'n.
		$\Delta\alpha$	$\Delta\delta$								
B. A. C. 4043	6½	+2.89	-18.6	+ 1° 13.2	18 22 33.0	+ 4 31.6	+0.2327	.4982	-.2699	+57	-33
13 Virginis	6	2.77	19.0	- 0 5.9	19 9 5.4	- 9 13.9	-1.2012	.4951	.2633	-23	-90
B. A. C. 4255	6½	2.65	18.5	3 41.4	19 53.0	+ 1 20.6	-0.2477	.4933	.2649	+31	-58
B. A. C. 4294	6½	2.59	18.0	5 37.3	20 0 45.8	+ 6 0.4	+0.5716	.4929	.2628	+78	-16
B. A. C. 4394	6	2.49	17.6	8 19.1	20 12 11.2	+ 6 53.4	+0.5230	.4932	.2564	+74	-18
53 Virginis	6	2.44	17.3	9 53.5	20 17 1.5	- 2 11.1	+1.0074	.4937	.2530	+80	+ 9
<i>a</i> Virginis	1	+2.42	-17.1	-10 30.8	21 12.9	+ 1 53.3	+0.6318	.4942	-.2498	+78	-12
86 Virginis	6	2.34	17.0	11 48.2	21 8 23.5	-11 15.0	-0.6996	.4968	.2404	+ 5	-90
B. A. C. 4679	6½	2.27	16.4	14 22.5	21 18 14.3	- 1 41.0	-0.2008	.5002	.2304	+29	-56
B. A. C. 4700	6	2.26	16.2	15 42.9	21 35.6	+ 1 34.4	+0.5063	.5014	.2266	+66	-18
B. A. C. 4923	6	2.15	14.8	20 51.2	22 21 32.5	+ 0 49.2	+1.1158	.5123	.1948	+69	+21
B. A. C. 5023	6	2.12	14.4	21 56.4	23 7 5.3	+10 4.6	+0.5325	.5174	.1795	+61	-16
42 Libræ	5½	+2.09	-13.6	-23 24.8	18 47.6	- 2 34.9	+0.1854	.5238	-.1588	+39	-34
B. A. C. 5197	6	2.09	13.4	24 19.5	21 27.9	+ 0 0.3	+0.7796	.5252	.1538	+66	- 1
<i>A</i> Scorpii	5	2.08	13.1	24 57.3	24 1 11.3	+ 3 36.6	+0.9210	.5273	.1466	+65	+ 8
B. A. C. 5253	6	2.08	13.3	24 9.7	1 20.6	+ 3 45.6	+0.0167	.5274	.1463	+29	-44
B. A. C. 5254	6	2.07	13.4	23 36.5	1 22.4	+ 3 47.4	-0.6033	.5274	.1462	- 2	-87
B. A. C. 5255	6	2.08	13.2	25 2.5	1 28.3	+ 3 53.1	+0.9746	.5275	.1461	+65	+12
3 Scorpii	6	+2.09	-13.2	-24 52.6	1 41.5	+ 4 5.8	+0.7601	.5276	-.1456	+65	- 2
B. A. C. 5286	6½	2.07	13.2	24 28.9	3 34.7	+ 5 55.4	+0.0498	.5286	.1419	+31	+ 2
B. A. C. 5314	6	2.08	12.8	25 31.1	5 49.4	+ 8 5.8	+0.8896	.5298	.1373	+65	+ 7
B. A. C. 5347	5	2.07	12.6	25 59.6	8 4.0	+10 16.1	+1.1146	.5309	.1327	+64	+24
σ Scorpii	3½	2.08	12.4	25 17.7	14 14.2	- 7 45.8	-0.4418	.5341	.1197	+ 3	-73
<i>a</i> Scorpii	1½	2.08	12.1	26 9.4	18 2.9	- 4 4.7	+0.0759	.5359	.1114	+29	-40
B. A. C. 5800	6½	+2.09	-10.6	-26 50.1	25 14 33.1	- 8 15.8	-0.9685	.5445	-.0635	-33	-90
43 Ophiuchi	6	2.11	10.1	28 1.3	18 38.0	- 4 19.2	+0.1115	.5457	.0535	+25	-38
A Sagittarii	5	2.29	2.6	26 32.0	25 16 28.4	- 8 53.2	+0.9133	.5399	.1208	+64	+ 9
B. A. C. 7049	6	2.31	- 0.3	22 48.3	29 6 49.3	+ 4 59.2	-1.2308	.5336	.1260	-45	-90
17 Capricorni	6	2.32	+ 1.0	21 58.0	14 44.8	-11 20.8	+0.8833	.5296	.1673	-16	-90
B. A. C. 7197	6	2.35	0.9	23 11.5	15 46.3	-10 21.3	+0.6304	.5291	.1622	+64	-10
η Capricorni	5½	+2.36	+ 2.3	-20 20.8	23 34.6	- 2 47.8	-1.1036	.5253	-.1835	-29	-90
χ Capricorni	6	2.39	2.5	21 41.6	30 1 34.3	- 0 51.9	+0.7377	.5244	.1870	+68	- 4
27 Capricorni	6	2.38	2.4	21 3.3	2 3.7	- 0 23.4	+0.1323	.5242	.1879	+40	-37
ϕ Capricorni	5½	2.40	2.7	21 10.1	5 2.5	+ 2 29.7	+0.8224	.5227	.1930	+69	+ 1
γ Capricorni	3½	2.40	5.3	17 13.5	17 13.6	- 9 41.8	-1.0018	.5170	.2121	-17	-90
δ Capricorni	3	2.42	5.8	16 41.5	20 43.2	- 6 18.7	-0.8293	.5155	.2170	- 6	-90
<i>t</i> Aquarii	4	+2.45	+ 7.5	-14 28.4	31 6 36.7	+ 3 16.9	-1.0162	.5113	-.2302	-16	-90
42 Aquarii	6	2.46	8.5	13 27.1	11 56.5	+ 8 27.2	-0.8736	.5093	.2365	- 6	-90
45 Aquarii	6	2.48	8.4	13 55.6	13 4.3	+ 9 33.0	-0.0925	.5088	.2378	+35	-50
50 Aquarii	6	2.52	8.6	14 9.6	15 52.7	-11 43.7	+0.8299	.5080	.2409	+76	- 1
B. A. C. 7835	6½	2.52	9.1	13 33.1	18 45.7	- 8 55.8	+0.8724	.5072	.2439	+77	+ 2
58 Aquarii	6	2.50	9.8	11 32.5	19 39.2	- 8 3.8	-1.0718	.5070	.2448	-18	-90
64 Aquarii	6½	+2.52	+10.5	-10 40.5	23 36.9	- 4 13.0	-1.0247	.5059	-.2487	-14	-90

NOTE.—B. A. C., British Association Catalogue.

448 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.

JANUARY.

		d	h	m	s			d	h	m	s
I.	Shadow	Ingress	1	9	53			II.	Occult.	Reapp.	8 23 10
I.	Transit	Ingress	1	11	6			III.	Eclipse	Disapp.	9 8 23 50.9
I.	Shadow	Egress	1	12	8			I.	Eclipse	Disapp.	9 9 8 44.4
I.	Transit	Egress	1	13	19			III.	Eclipse	Reapp.	9 10 42 6.9
II.	Eclipse	Disapp. W.	1	15	45 18.3			I.	Occult.	Reapp.	9 12 32
II.	Occult.	Reapp.	1	20	34			III.	Occult.	Disapp.	9 13 21
III.	Eclipse	Disapp.	2	4	26 12.2			III.	Occult.	Reapp. W.	9 15 32
III.	Eclipse	Reapp.	2	6	45 31.2			I.	Shadow	Ingress	10 6 15
I.	Eclipse	Disapp.	2	7	15 23.7			I.	Transit	Ingress	10 7 28
III.	Occult.	Disapp.	2	9	14			I.	Shadow	Egress	10 8 29
I.	Occult.	Reapp.	2	10	37			I.	Transit	Egress	10 9 41
III.	Occult.	Reapp.	2	11	29			II.	Shadow	Ingress	10 13 19
I.	Shadow	Ingress	3	4	21			II.	Transit	Ingress W.	10 15 44
I.	Transit	Ingress	3	5	34			II.	Shadow	Egress W.	10 15 51
I.	Shadow	Egress	3	6	36			II.	Transit	Egress W.	10 18 13
I.	Transit	Egress	3	7	47			I.	Eclipse	Disapp.	11 3 37 6.2
II.	Shadow	Ingress	3	10	44			I.	Occult.	Reapp.	11 7 1
II.	Transit	Ingress	3	13	6			I.	Shadow	Ingress	12 0 43
II.	Shadow	Egress	3	13	16			I.	Transit	Ingress	12 1 56
II.	Transit	Egress W.	3	15	36			I.	Shadow	Egress	12 2 57
I.	Eclipse	Disapp.	4	1	43 46.4			I.	Transit	Egress	12 4 10
I.	Occult.	Reapp.	4	5	6			II.	Eclipse	Disapp.	12 7 35 4.9
I.	Shadow	Ingress	4	22	50			II.	Occult.	Reapp.	12 12 28
I.	Transit	Ingress	5	0	3			III.	Shadow	Ingress	12 22 1
I.	Shadow	Egress	5	1	4			I.	Eclipse	Disapp.	12 22 5 23.7
I.	Transit	Egress	5	2	16			III.	Shadow	Egress	13 0 33
II.	Eclipse	Disapp.	5	5	1 51.6			I.	Occult.	Reapp.	13 1 29
II.	Occult.	Reapp.	5	9	52			III.	Transit	Ingress	13 3 8
III.	Shadow	Ingress W.	5	18	4			III.	Transit	Egress	13 5 17
I.	Eclipse	Disapp.	5	20	12 4.3			I.	Shadow	Ingress	13 19 11
III.	Shadow	Egress	5	20	36			I.	Transit	Ingress	13 20 25
III.	Shadow	Ingress	5	23	3			I.	Shadow	Egress	13 21 25
I.	Occult.	Reapp.	5	23	35			I.	Transit	Egress	13 22 38
III.	Transit	Egress	6	1	16			II.	Shadow	Ingress	14 2 36
I.	Shadow	Ingress W.	6	17	18			II.	Transit	Ingress	14 5 4
I.	Transit	Ingress W.	6	18	31			II.	Shadow	Egress	14 5 8
I.	Shadow	Egress	6	19	32			II.	Transit	Egress	14 7 32
I.	Transit	Egress	6	20	44			I.	Eclipse	Disapp. W.	14 16 33 46.6
II.	Shadow	Ingress	7	0	1			I.	Occult.	Reapp.	14 19 58
II.	Transit	Ingress	7	2	26			I.	Shadow	Ingress W.	15 13 40
II.	Shadow	Egress	7	2	33			I.	Transit	Ingress W.	15 14 54
II.	Transit	Egress	7	4	55			I.	Shadow	Egress W.	15 15 53
I.	Eclipse	Disapp. W.	7	14	40 28.0			I.	Transit	Egress W.	15 17 6
I.	Occult.	Reapp. W.	7	18	3			II.	Eclipse	Disapp.	15 20 51 47.7
I.	Shadow	Ingress	8	11	46			II.	Occult.	Reapp.	16 1 46
I.	Transit	Ingress	8	13	0			I.	Eclipse	Disapp.	16 11 2 2.4
I.	Shadow	Egress W.	8	14	0			III.	Eclipse	Disapp.	16 12 21 13.4
I.	Transit	Egress W.	8	15	13			I.	Occult.	Reapp. W.	16 14 26
II.	Eclipse	Disapp. W.	8	18	18 29.8			III.	Eclipse	Reapp. W.	16 14 38 26.4

W.—Visible at Washington.

JUPITER'S SATELLITES, 1875. 449

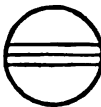

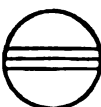
WASHINGTON MEAN TIME.

JANUARY.

		d	h	m	s			d	h	m	s
III. Occult.	Disapp. W.	16	17	24		I. Transit	Egress W.	24	13	27	
III. Occult.	Reapp.	16	19	31		II. Shadow	Ingress	24	18	29	
I. Shadow	Ingress	17	8	8		II. Transit	Ingress	24	20	57	
I. Transit	Ingress	17	9	23		II. Shadow	Egress	24	21	1	
I. Shadow	Egress	17	10	21		II. Transit	Egress	24	23	25	
I. Transit	Egress	17	11	35		I. Eclipse	Disapp.	25	7	23	39.4
II. Shadow	Ingress W.	17	15	54		I. Occult.	Reapp.	25	10	47	
II. Transit	Ingress W.	17	18	22		I. Shadow	Ingress	26	4	30	
II. Shadow	Egress	17	18	26		I. Transit	Ingress	26	5	44	
II. Transit	Egress	17	20	50		I. Shadow	Egress	26	6	43	
I. Eclipse	Disapp.	18	5	30	23.8	I. Transit	Egress	26	7	55	
I. Occult.	Reapp.	18	8	55		II. Eclipse	Disapp. W.	26	12	41	52.3
I. Shadow	Ingress	19	2	36		II. Occult.	Reapp. W.	26	17	35	
I. Transit	Ingress	19	3	51		I. Eclipse	Disapp.	27	1	51	56.5
I. Shadow	Egress	19	4	50		I. Occult.	Reapp.	27	5	15	
I. Transit	Egress	19	6	3		III. Shadow	Ingress	27	5	57	
II. Eclipse	Disapp.	19	10	8	24.9	III. Shadow	Egress	27	8	27	
II. Occult.	Reapp. W.	19	15	3		III. Transit	Ingress	27	11	7	
I. Eclipse	Disapp.	19	23	58	40.9	III. Transit	Egress W.	27	13	8	
III. Shadow	Ingress	20	1	59		I. Shadow	Ingress	27	22	58	
I. Occult.	Reapp.	20	3	23		I. Transit	Ingress	28	0	12	
III. Shadow	Egress	20	4	30		I. Shadow	Egress	28	1	11	
III. Transit	Ingress	20	7	10		I. Transit	Egress	28	2	23	
III. Transit	Egress	20	9	15		II. Shadow	Ingress	28	7	45	
I. Shadow	Ingress	20	21	5		II. Transit	Ingress	28	10	13	
I. Transit	Ingress	20	22	19		II. Shadow	Egress	28	10	17	
I. Shadow	Egress	20	23	18		II. Transit	Egress W.	28	12	41	
I. Transit	Egress	21	0	31		I. Eclipse	Disapp.	28	20	20	18.7
II. Shadow	Ingress	21	5	11		I. Occult.	Reapp.	28	23	44	
II. Transit	Ingress	21	7	39		I. Shadow	Ingress W.	29	17	26	
II. Shadow	Egress	21	7	43		I. Transit	Ingress	29	18	40	
II. Transit	Egress	21	10	7		I. Shadow	Egress	29	19	39	
I. Eclipse	Disapp.	21	18	27	3.4	I. Transit	Egress	29	20	51	
I. Occult.	Reapp.	21	21	51		II. Eclipse	Disapp.	30	1	58	45.9
I. Shadow	Ingress W.	22	15	33		II. Occult.	Reapp.	30	6	51	
I. Transit	Ingress W.	22	16	48		I. Eclipse	Disapp. W.	30	14	48	34.0
I. Shadow	Egress W.	22	17	46		I. Occult.	Reapp.	30	18	12	
I. Transit	Egress	22	18	59		III. Eclipse	Disapp.	30	20	16	34.5
II. Eclipse	Disapp.	22	23	25	11.5	III. Eclipse	Reapp.	30	22	31	41.5
II. Occult.	Reapp.	23	4	19		III. Occult.	Disapp.	31	1	18	
I. Eclipse	Disapp. W.	23	12	55	18.9	III. Occult.	Reapp.	31	3	18	
III. Eclipse	Disapp. W.	23	16	18	39.3	I. Shadow	Ingress	31	11	54	
I. Occult.	Reapp. W.	23	16	19		I. Transit	Ingress W.	31	13	8	
III. Eclipse	Reapp.	23	18	34	49.3	I. Shadow	Egress W.	31	14	8	
III. Occult.	Disapp.	23	21	23		I. Transit	Egress W.	31	15	19	
III. Occult.	Reapp.	23	23	26		II. Shadow	Ingress	31	21	3	
I. Shadow	Ingress	24	10	1		II. Transit	Ingress	31	23	30	
I. Transit	Ingress	24	11	16		II. Shadow	Egress	31	23	35	
I. Shadow	Egress	24	12	14							

W.—Visible at Washington.

450 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.						
JANUARY.						
Phases of the Eclipses of the Satellites for an Inverting Telescope.						
I.	d *			III.	d r * *	
II.	d *			IV.	Not Eclipsed.	
FEBRUARY.						
		d h m s				d h m s
II. Transit	Egress	1 1 57		III. Eclipse	Disapp.	7 0 14 19.9
I. Eclipse	Disapp.	1 9 16 54.3		III. Eclipse	Reapp.	7 2 28 24.1
I. Occult.	Reapp. W.	1 12 40		III. Occult.	Disapp.	7 5 9
I. Shadow	Ingress	2 6 22		III. Occult.	Reapp.	7 7 4
I. Transit	Ingress	2 7 36		I. Shadow	Ingress W.	7 13 47
I. Shadow	Egress	2 8 36		I. Transit	Ingress W.	7 14 59
I. Transit	Egress	2 9 47		I. Shadow	Egress W.	7 16 0
II. Eclipse	Disapp. W.	2 15 15 28.6		I. Transit	Egress W.	7 17 10
II. Occult.	Reapp.	2 20 6		II. Shadow	Ingress	7 23 37
I. Eclipse	Disapp.	3 3 45 10.7		II. Transit	Ingress	8 2 1
I. Occult.	Reapp.	3 7 7		II. Shadow	Egress	8 2 9
III. Shadow	Ingress	3 9 54		II. Transit	Egress	8 4 27
III. Shadow	Egress W.	3 12 23		I. Eclipse	Disapp.	8 11 10 8.3
III. Transit	Ingress W.	3 14 59		I. Occult.	Reapp. W.	8 14 30
III. Transit	Egress W.	3 16 57		I. Shadow	Ingress	9 8 15
I. Shadow	Ingress	4 0 50		I. Transit	Ingress	9 9 27
I. Transit	Ingress	4 2 4		I. Shadow	Egress	9 10 28
I. Shadow	Egress	4 3 4		I. Transit	Egress	9 11 38
I. Transit	Egress	4 4 15		II. Eclipse	Disapp. W.	9 17 49 14.9
II. Shadow	Ingress	4 10 20		II. Occult.	Reapp.	9 22 35
II. Transit	Ingress W.	4 12 45		I. Eclipse	Disapp.	10 5 38 24.8
II. Shadow	Egress W.	4 12 52		I. Occult.	Reapp.	10 8 58
II. Transit	Egress W.	4 15 12		III. Shadow	Ingress W.	10 13 52
I. Eclipse	Disapp.	4 22 13 32.7		III. Shadow	Egress W.	10 16 20
I. Occult.	Reapp.	5 1 35		III. Transit	Ingress	10 18 49
I. Shadow	Ingress	5 19 19		III. Transit	Egress	10 20 43
I. Transit	Ingress	5 20 31		I. Shadow	Ingress	11 2 44
I. Shadow	Egress	5 21 32		I. Transit	Ingress	11 3 54
I. Transit	Egress	5 22 42		I. Shadow	Egress	11 4 57
II. Eclipse	Disapp.	6 4 32 28.8		I. Transit	Egress	11 6 5
II. Occult.	Reapp.	6 9 21		II. Shadow	Ingress W.	11 12 54
I. Eclipse	Disapp. W.	6 16 41 48.2		II. Transit	Ingress W.	11 15 15
I. Occult.	Reapp.	6 20 3		II. Shadow	Egress W.	11 15 26

W.—Visible at Washington.

JUPITER'S SATELLITES, 1875. 451

WASHINGTON MEAN TIME.

FEBRUARY.

		d	h	m	s			d	h	m	s
II. Transit	Egress W.	11	17	41		I. Shadow	Egress	20	1	18	
I. Eclipse	Disapp.	12	0	6	46.6	I. Transit	Egress	20	2	22	
I. Occult.	Reapp.	12	3	26		II. Eclipse	Disapp.	20	9	40	27.9
I. Shadow	Ingress	12	21	12		II. Occult.	Reapp. W.	20	14	15	
I. Transit	Ingress	12	22	22		I. Eclipse	Disapp.	20	20	28	17.6
I. Shadow	Egress	12	23	25		I. Occult.	Reapp.	20	23	42	
I. Transit	Egress	13	0	33		III. Eclipse	Disapp.	21	8	10	18.8
II. Eclipse	Disapp.	13	7	6	22.4	III. Eclipse	Reapp.	21	10	22	17.8
II. Occult.	Reapp.	13	11	49		III. Occult.	Disapp. W.	21	12	36	
I. Eclipse	Disapp.	13	18	35	2.5	III. Occult.	Reapp. W.	21	14	26	
I. Occult.	Reapp.	13	21	53		I. Shadow	Ingress W.	21	17	34	
III. Eclipse	Disapp.	14	4	12	37.7	I. Transit	Ingress	21	18	37	
III. Eclipse	Reapp.	14	6	25	39.1	I. Shadow	Egress	21	19	47	
III. Occult.	Disapp.	14	8	55		I. Transit	Egress	21	20	49	
III. Occult.	Reapp.	14	10	47		II. Shadow	Ingress	22	4	45	
I. Shadow	Ingress W.	14	15	40		II. Transit	Ingress	22	6	55	
I. Transit	Ingress W.	14	16	49		II. Shadow	Egress	22	7	17	
I. Shadow	Egress	14	17	53		II. Transit	Egress	22	9	20	
I. Transit	Egress	14	19	0		I. Eclipse	Disapp. W.	22	14	56	37.8
II. Shadow	Ingress	15	2	12		I. Occult.	Reapp.	22	18	9	
II. Transit	Ingress	15	4	29		I. Shadow	Ingress W.	23	12	2	
II. Shadow	Egress	15	4	43		I. Transit	Ingress W.	23	13	4	
II. Transit	Egress	15	6	55		I. Shadow	Egress W.	23	14	15	
I. Eclipse	Disapp. W.	15	13	3	22.4	I. Transit	Egress W.	23	15	16	
I. Occult.	Reapp. W.	15	16	20		II. Eclipse	Disapp.	23	21	57	22.1
I. Shadow	Ingress	16	10	9		II. Occult.	Reapp.	24	3	26	
I. Transit	Ingress	16	11	16		I. Eclipse	Disapp.	24	9	24	55.1
I. Shadow	Egress W.	16	12	22		I. Occult.	Reapp. W.	24	12	36	
I. Transit	Egress W.	16	13	27		III. Shadow	Ingress	24	21	48	
II. Eclipse	Disapp.	16	20	23	12.3	III. Shadow	Egress	25	0	14	
II. Occult.	Reapp.	17	1	2		III. Transit	Ingress	25	2	10	
I. Eclipse	Disapp.	17	7	31	39.4	III. Transit	Egress	25	3	59	
I. Occult.	Reapp.	17	10	47		I. Shadow	Ingress	25	6	30	
III. Shadow	Ingress	17	17	50		I. Transit	Ingress	25	7	31	
III. Shadow	Egress	17	20	17		I. Shadow	Egress	25	8	43	
III. Transit	Ingress	17	22	32		I. Transit	Egress	25	9	43	
III. Transit	Egress	18	0	23		II. Shadow	Ingress	25	18	2	
I. Shadow	Ingress	18	4	37		II. Transit	Ingress	25	20	6	
I. Transit	Ingress	18	5	43		II. Shadow	Egress	25	20	34	
I. Shadow	Egress	18	6	50		II. Transit	Egress	25	22	31	
I. Transit	Egress	18	7	55		I. Eclipse	Disapp.	26	3	53	17.6
II. Shadow	Ingress W.	18	15	28		I. Occult.	Reapp.	26	7	3	
II. Transit	Ingress W.	18	17	42		I. Shadow	Ingress	27	0	59	
II. Shadow	Egress	18	18	0		I. Transit	Ingress	27	1	58	
II. Transit	Egress	18	20	7		I. Shadow	Egress	27	3	12	
I. Eclipse	Disapp.	19	2	0	1.4	I. Transit	Egress	27	4	10	
I. Occult.	Reapp.	19	5	15		II. Eclipse	Disapp. W.	27	12	14	46.4
I. Shadow	Ingress	19	23	5		II. Occult.	Reapp. W.	27	16	38	
I. Transit	Ingress	20	0	10		I. Eclipse	Disapp.	27	22	21	34.4


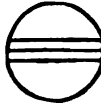
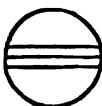
452 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.

FEBRUARY.

I. Occult.	Reapp.	d	h	m	s		
III. Eclipse	Disapp. W.	28	12	7	57.7	I. Shadow	Ingress
III. Eclipse	Reapp. W.	28	14	18	54.9	I. Transit	Ingress
III. Occult.	Disapp. W.	28	16	12		I. Shadow	Egress
III. Occult.	Reapp.	28	18	0		I. Transit	Egress
							d
							h
							m
							s

Phases of the Eclipses of the Satellites for an Inverting Telescope.

<p>I. d * </p>	<p>III. d r * * </p>
<p>II. d * </p>	<p>IV. Not Eclipsed.</p>

MARCH.

<p>II. Shadow Ingress d h m s 1 7 20</p> <p>II. Transit Ingress 1 9 17</p> <p>II. Shadow Egress 1 9 51</p> <p>II. Transit Egress W. 1 11 42</p> <p>I. Eclipse Disapp. W. 1 16 49 55.1</p> <p>I. Occult. Reapp. 1 19 56</p> <p>I. Shadow Ingress W. 2 13 55</p> <p>I. Transit Ingress W. 2 14 52</p> <p>I. Shadow Egress W. 2 16 8</p> <p>I. Transit Egress W. 2 17 4</p> <p>II. Eclipse Disapp. 3 1 31 44.8</p> <p>II. Occult. Reapp. 3 5 49</p> <p>I. Eclipse Disapp. W. 3 11 18 13.0</p> <p>I. Occult. Reapp. W. 3 14 23</p> <p>III. Shadow Ingress 4 1 45</p> <p>III. Shadow Egress 4 4 10</p> <p>III. Transit Ingress 4 5 44</p> <p>III. Transit Egress 4 7 30</p> <p>I. Shadow Ingress 4 8 24</p> <p>I. Transit Ingress 4 9 19</p> <p>I. Shadow Egress W. 4 10 37</p> <p>I. Transit Egress W. 4 11 30</p> <p>II. Shadow Ingress 4 20 37</p> <p>II. Transit Ingress 4 22 28</p> <p>II. Shadow Egress 4 23 8</p> <p>II. Transit Egress 5 0 52</p>	<p>I. Eclipse Disapp. d h m s 5 5 46 36.1</p> <p>I. Occult. Reapp. 5 8 50</p> <p>I. Shadow Ingress 6 2 52</p> <p>I. Transit Ingress 6 3 46</p> <p>I. Shadow Egress 6 5 5</p> <p>I. Transit Egress 6 5 57</p> <p>II. Eclipse Disapp. W. 6 14 49 18.2</p> <p>II. Occult. Reapp. 6 19 0</p> <p>I. Eclipse Disapp. 7 0 14 53.9</p> <p>I. Occult. Reapp. 7 3 16</p> <p>III. Eclipse Disapp. W. 7 16 5 27.2</p> <p>III. Eclipse Reapp. 7 18 15 23.0</p> <p>III. Occult. Disapp. 7 19 44</p> <p>I. Shadow Ingress 7 21 20</p> <p>III. Occult. Reapp. 7 21 29</p> <p>I. Transit Ingress 7 22 12</p> <p>I. Shadow Egress 7 23 33</p> <p>I. Transit Egress 8 0 23</p> <p>II. Shadow Ingress 8 9 54</p> <p>II. Transit Ingress W. 8 11 38</p> <p>II. Shadow Egress W. 8 12 25</p> <p>II. Transit Egress W. 8 14 3</p> <p>I. Eclipse Disapp. 8 18 43 15.1</p> <p>I. Occult. Reapp. 8 21 43</p> <p>I. Shadow Ingress W. 9 15 49</p> <p>I. Transit Ingress W. 9 16 39</p>
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WASHINGTON MEAN TIME.

MARCH.

		d	h	m	s			d	h	m	s
I. Shadow	Egress	9	18	2		I. Occult.	Reapp.	17	17	55	
I. Transit	Egress	9	18	50		III. Shadow	Ingress W.	18	9	42	
II. Eclipse	Disapp.	10	4	6	21.8	III. Shadow	Egress W.	18	12	4	
II. Occult.	Reapp.	10	8	10		I. Shadow	Ingress W.	18	12	11	
I. Eclipse	Disapp. W.	10	13	11	34.0	III. Transit	Ingress W.	18	12	39	
I. Occult.	Reapp. W.	10	16	9		I. Transit	Ingress W.	18	12	51	
III. Shadow	Ingress	11	5	43		III. Transit	Egress W.	18	14	23	
III. Shadow	Egress	11	8	7		I. Shadow	Egress W.	18	14	24	
III. Transit	Ingress	11	9	13		I. Transit	Egress W.	18	15	2	
I. Shadow	Ingress W.	11	10	17		II. Shadow	Ingress	19	1	44	
III. Transit	Egress W.	11	10	59		II. Transit	Ingress	19	3	6	
I. Transit	Ingress W.	11	11	5		II. Shadow	Egress	19	4	16	
I. Shadow	Egress W.	11	12	30		II. Transit	Egress	19	5	30	
I. Transit	Egress W.	11	13	16		I. Eclipse	Disapp. W.	19	9	33	22.6
II. Shadow	Ingress	11	23	10		I. Occult.	Reapp. W.	19	12	21	
II. Transit	Ingress	12	0	48		I. Shadow	Ingress	20	6	40	
II. Shadow	Egress	12	1	41		I. Transit	Ingress	20	7	17	
II. Transit	Egress	12	3	12		I. Shadow	Egress	20	8	52	
I. Eclipse	Disapp.	12	7	39	57.6	I. Transit	Egress W.	20	9	28	
I. Occult.	Reapp. W.	12	10	36		II. Eclipse	Disapp.	20	19	59	4.8
I. Shadow	Ingress	13	4	45		II. Occult.	Reapp.	20	23	38	
I. Transit	Ingress	13	5	32		I. Eclipse	Disapp.	21	4	1	42.6
I. Shadow	Egress	13	6	58		I. Occult.	Reapp.	21	6	47	
I. Transit	Egress	13	7	43		III. Eclipse	Disapp.	22	0	1	19.4
II. Eclipse	Disapp. W.	13	17	24	4.1	I. Shadow	Ingress	22	1	8	
II. Occult.	Reapp.	13	21	19		I. Transit	Ingress	22	1	44	
I. Eclipse	Disapp.	14	2	8	16.5	III. Eclipse	Reapp.	22	2	9	13.4
I. Occult.	Reapp.	14	5	2		III. Occult.	Disapp.	22	2	34	
III. Eclipse	Disapp.	14	20	3	5.8	I. Shadow	Egress	22	3	21	
III. Eclipse	Reapp.	14	22	12	0.6	I. Transit	Egress	22	3	55	
III. Occult.	Disapp.	14	23	11		III. Occult.	Reapp.	22	4	19	
I. Shadow	Ingress	14	23	14		II. Shadow	Ingress W.	22	15	1	
I. Transit	Ingress	14	23	58		II. Transit	Ingress W.	22	16	14	
III. Occult.	Reapp.	15	0	55		II. Shadow	Egress	22	17	33	
I. Shadow	Egress	15	1	27		II. Transit	Egress	22	18	38	
I. Transit	Egress	15	2	9		I. Eclipse	Disapp.	22	22	30	5.6
II. Shadow	Ingress W.	15	12	27		I. Occult.	Reapp.	23	1	13	
II. Transit	Ingress W.	15	13	57		I. Shadow	Ingress	23	19	36	
II. Shadow	Egress W.	15	14	58		I. Transit	Ingress	23	20	10	
II. Transit	Egress W.	15	16	21		I. Shadow	Egress	23	21	49	
I. Eclipse	Disapp.	15	20	36	38.4	I. Transit	Egress	23	22	21	
I. Occult.	Reapp.	15	23	29		II. Eclipse	Disapp. W.	24	9	16	19.2
I. Shadow	Ingress	16	17	42		II. Occult.	Reapp. W.	24	12	47	
I. Transit	Ingress	16	18	25		I. Eclipse	Disapp. W.	24	16	58	26.5
I. Shadow	Egress	16	19	55		I. Occult.	Reapp.	24	19	40	
I. Transit	Egress	16	20	36		III. Shadow	Ingress W.	25	13	40	
II. Eclipse	Disapp.	17	6	41	12.9	I. Shadow	Ingress W.	25	14	5	
II. Occult.	Reapp. W.	17	10	29		I. Transit	Ingress W.	25	14	36	
I. Eclipse	Disapp. W.	17	15	4	58.0	III. Transit	Ingress W.	25	16	0	

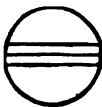


454 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.

MARCH.

		d	h	m	°			d	h	m	°
III. Shadow	Egress W.	25	16	1		I. Transit	Ingress	29	3	29	
I. Shadow	Egress W.	25	16	18		III. Eclipse	Disapp.	29	3	59	29.3
I. Transit	Egress W.	25	16	47		I. Shadow	Egress	29	5	15	
III. Transit	Egress	25	17	45		I. Transit	Egress	29	5	40	
II. Shadow	Ingress	26	4	18		III. Occult.	Reapp.	29	7	39	
II. Transit	Ingress	26	5	22		II. Shadow	Ingress	29	17	35	
II. Shadow	Egress	26	6	50		II. Transit	Ingress	29	18	29	
II. Transit	Egress	26	7	46		II. Shadow	Egress	29	20	6	
I. Eclipse	Disapp. W.	26	11	26	52.1	II. Transit	Egress	29	20	53	
I. Occult.	Reapp. W.	26	14	6		I. Eclipse	Disapp.	30	0	23	38.0
I. Shadow	Ingress	27	8	33		I. Occult.	Reapp.	30	2	58	
I. Transit	Ingress W.	27	9	3		I. Shadow	Ingress	30	21	30	
I. Shadow	Egress W.	27	10	46		I. Transit	Ingress	30	21	55	
I. Transit	Egress W.	27	11	14		I. Shadow	Egress	30	23	43	
II. Eclipse	Disapp.	27	22	34	20.9	I. Transit	Egress	31	0	6	
II. Occult.	Reapp.	28	1	55		II. Eclipse	Disapp. W.	31	11	51	41.1
I. Eclipse	Disapp.	28	5	55	13.9	II. Occult.	Reapp. W.	31	15	3	
I. Occult.	Reapp.	28	8	32		I. Eclipse	Disapp.	31	18	52	0.3
I. Shadow	Ingress	29	3	2		I. Occult.	Reapp.	31	21	24	

Phases of the Eclipses of the Satellites for an Inverting Telescope.

I.	d *		III.	d * r *	
II.	d *		IV.	Not Eclipsed.	

APRIL.

		d	h	m	°			d	h	m	°
I. Shadow	Ingress W.	1	15	59		I. Eclipse	Disapp. W.	2	13	20	27.1
I. Transit	Ingress W.	1	16	21		I. Occult.	Reapp. W.	2	15	50	
III. Shadow	Ingress	1	17	38		I. Shadow	Ingress W.	3	10	27	
I. Shadow	Egress	1	18	12		I. Transit	Ingress W.	3	10	47	
I. Transit	Egress	1	18	32		I. Shadow	Egress W.	3	12	40	
III. Transit	Ingress	1	19	19		I. Transit	Egress W.	3	12	58	
III. Shadow	Egress	1	19	58		II. Eclipse	Disapp.	4	1	9	52.3
III. Transit	Egress	1	21	5		II. Occult.	Reapp.	4	4	11	
II. Shadow	Ingress	2	6	52		I. Eclipse	Disapp.	4	7	48	50.3
II. Transit	Ingress	2	7	36		I. Occult.	Reapp. W.	4	10	16	
II. Shadow	Egress W.	2	9	23		I. Shadow	Ingress	5	4	56	
II. Transit	Egress W.	2	10	1		I. Transit	Ingress	5	5	13	

WASHINGTON MEAN TIME.

APRIL.

		d	h	m	s			d	h	m	s
I.	Shadow Egress	5	7	9		II.	Transit Egress	13	1	21	
I.	Transit Egress	5	7	24		I.	Eclipse Disapp.	13	4	10	59.1
III.	Eclipse Disapp. W.	5	7	58	14.6	I.	Occult. Reapp.	13	6	25	
III.	Occult. Reapp. W.	5	10	59		I.	Shadow Ingress	14	1	18	
III.	Shadow Ingress	5	20	9		I.	Transit Ingress	14	1	23	
II.	Transit Ingress	5	20	43		I.	Shadow Egress	14	3	31	
II.	Shadow Egress	5	22	40		I.	Transit Egress	14	3	34	
II.	Transit Egress	5	23	8		II.	Eclipse Disapp.	14	17	3	10.1
I.	Eclipse Disapp.	6	2	17	15.5	II.	Occult. Reapp.	14	19	34	
I.	Occult. Reapp.	6	4	42		I.	Eclipse Disapp.	14	22	39	24.4
I.	Shadow Ingress	6	23	24		I.	Occult. Reapp.	15	0	51	
I.	Transit Ingress	6	23	39		I.	Shadow Ingress	15	19	47	
I.	Shadow Egress	7	1	37		I.	Transit Ingress	15	19	49	
I.	Transit Egress	7	1	50		I.	Shadow Egress	15	22	0	
II.	Eclipse Disapp. W.	7	14	27	18.0	I.	Transit Egress	15	22	0	
II.	Occult. Reapp.	7	17	19		III.	Shadow Ingress	16	1	35	
I.	Eclipse Disapp.	7	20	45	39.4	III.	Transit Ingress	16	1	51	
I.	Occult. Reapp.	7	23	8		III.	Transit Egress	16	3	42	
I.	Shadow Ingress	8	17	53		III.	Shadow Egress	16	3	53	
I.	Transit Ingress	8	18	5		II.	Shadow Ingress W.	16	12	0	
I.	Shadow Egress	8	20	6		II.	Transit Ingress W.	16	12	3	
I.	Transit Egress	8	20	16		II.	Transit Egress W.	16	14	28	
III.	Shadow Ingress	8	21	36		II.	Shadow Egress W.	16	14	31	
III.	Transit Ingress	8	22	35		I.	Occult. Disapp.	16	17	6	
III.	Shadow Egress	8	23	56		I.	Occult. Reapp.	16	19	17	
III.	Transit Egress	9	0	23		I.	Transit Ingress W.	17	14	15	
II.	Shadow Ingress W.	9	9	26		I.	Shadow Ingress W.	17	14	15	
II.	Transit Ingress W.	9	9	50		I.	Transit Egress W.	17	16	26	
II.	Shadow Egress W.	9	11	57		I.	Shadow Egress W.	17	16	28	
II.	Transit Egress W.	9	12	14		II.	Occult. Disapp.	18	6	17	
I.	Eclipse Disapp. W.	9	15	14	7.4	II.	Eclipse Reapp. W.	18	8	48	46.9
I.	Occult. Reapp.	9	17	34		I.	Occult. Disapp. W.	18	11	32	
I.	Shadow Ingress W.	10	12	21		I.	Eclipse Reapp. W.	18	13	44	14.8
I.	Transit Ingress W.	10	12	31		I.	Transit Ingress W.	19	8	41	
I.	Shadow Egress W.	10	14	34		I.	Shadow Ingress W.	19	8	44	
I.	Transit Egress W.	10	14	42		I.	Transit Egress W.	19	10	52	
II.	Eclipse Disapp.	11	3	45	38.7	I.	Shadow Egress W.	19	10	57	
II.	Occult. Reapp.	11	6	27		III.	Occult. Disapp. W.	19	15	42	
I.	Eclipse Disapp. W.	11	9	42	32.4	III.	Eclipse Reapp.	19	17	58	38.8
I.	Occult. Reapp. W.	11	11	59		II.	Transit Ingress	20	1	9	
I.	Shadow Ingress	12	6	50		II.	Shadow Ingress	20	1	17	
I.	Transit Ingress	12	6	57		II.	Transit Egress	20	3	34	
I.	Shadow Egress W.	12	9	3		II.	Shadow Egress	20	3	48	
I.	Transit Egress W.	12	9	8		I.	Occult. Disapp.	20	5	58	
III.	Eclipse Disapp. W.	12	11	56	28.0	I.	Eclipse Reapp. W.	20	8	12	41.8
III.	Occult. Reapp. W.	12	14	16		I.	Transit Ingress	21	3	7	
II.	Shadow Ingress	12	22	43		I.	Shadow Ingress	21	3	12	
II.	Transit Ingress	12	22	56		I.	Transit Egress	21	5	18	
II.	Shadow Egress	13	1	14		I.	Shadow Egress	21	5	25	

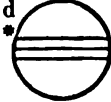

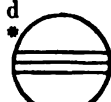
456 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.

APRIL.

		d	h	m	s			d	h	m	s
II. Occult.	Disapp.	21	19	25		III. Occult.	Disapp.	26	18	56	
II. Eclipse	Reapp.	21	22	6	24.2	III. Eclipse	Reapp.	26	21	55	51.0
I. Occult.	Disapp.	22	0	24		II. Transit	Ingress	27	3	22	
I. Eclipse	Reapp.	22	2	41	7.4	II. Shadow	Ingress	27	3	50	
I. Transit	Ingress	22	21	33		II. Transit	Egress	27	5	48	
I. Shadow	Ingress	22	21	41		II. Shadow	Egress	27	6	22	
I. Transit	Egress	22	23	44		I. Occult.	Disapp. W.	27	7	41	
I. Shadow	Egress	22	23	54		I. Eclipse	Reapp. W.	27	10	6	32.7
III. Transit	Ingress	23	5	6		I. Transit	Ingress	28	4	51	
III. Shadow	Ingress	23	5	34		I. Shadow	Ingress	28	5	6	
III. Transit	Egress	23	7	1		I. Transit	Egress	28	7	2	
III. Shadow	Egress W.	23	7	52		I. Shadow	Egress	28	7	19	
II. Transit	Ingress W.	23	14	16		II. Occult.	Disapp.	28	21	40	
II. Shadow	Ingress W.	23	14	34		II. Eclipse	Reapp.	29	0	42	44.9
II. Transit	Egress W.	23	16	41		I. Occult.	Disapp.	29	2	7	
II. Shadow	Egress	23	17	5		I. Eclipse	Reapp.	29	4	35	0.3
I. Occult.	Disapp.	23	18	50		I. Transit	Ingress	29	23	17	
I. Eclipse	Reapp.	23	21	9	37.1	I. Shadow	Ingress	29	23	35	
I. Transit	Ingress W.	24	15	59		I. Transit	Egress	30	1	28	
I. Shadow	Ingress W.	24	16	9		I. Shadow	Egress	30	1	48	
I. Transit	Egress	24	18	10		III. Transit	Ingress W.	30	8	23	
I. Shadow	Egress	24	18	22		III. Shadow	Ingress W.	30	9	33	
II. Occult.	Disapp.	25	8	33		III. Transit	Egress W.	30	10	21	
II. Eclipse	Reapp. W.	25	11	25	2.1	III. Shadow	Egress W.	30	11	50	
I. Occult.	Disapp. W.	25	13	16		II. Transit	Ingress	30	16	29	
I. Eclipse	Reapp. W.	25	15	38	4.4	II. Shadow	Ingress	30	17	8	
I. Transit	Ingress W.	26	10	25		II. Transit	Egress	30	18	55	
I. Shadow	Ingress W.	26	10	38		II. Shadow	Egress	30	19	39	
I. Transit	Egress W.	26	12	36		I. Occult.	Disapp.	30	20	33	
I. Shadow	Egress W.	26	12	51		I. Eclipse	Reapp.	30	23	3	31.3

Phases of the Eclipses of the Satellites for an Inverting Telescope.

I.		III.	
II.		IV.	Not Eclipsed.

JUPITER'S SATELLITES, 1875. 457

WASHINGTON MEAN TIME.

MAY.

		d	h	m	s			d	h	m	s
I. Transit	Ingress	1	17	43		I. Eclipse	Reapp.	9	19	26	2.8
I. Shadow	Ingress	1	18	4		I. Transit	Ingress W.	10	13	55	
I. Transit	Egress	1	19	53		I. Shadow	Ingress W.	10	14	27	
I. Shadow	Egress	1	20	17		I. Transit	Egress	10	16	7	
II. Occult.	Disapp. W.	2	10	49		I. Shadow	Egress	10	16	40	
II. Eclipse	Reapp. W.	2	14	1	30.8	III. Occult.	Disapp.	11	1	31	
I. Occult.	Disapp. W.	2	14	59		III. Occult.	Reapp.	11	3	35	
I. Eclipse	Reapp.	2	17	32	0.5	III. Eclipse	Disapp.	11	3	50	14.4
I. Transit	Ingress W.	3	12	9		III. Eclipse	Reapp.	11	5	51	19.6
I. Shadow	Ingress W.	3	12	32		II. Transit	Ingress W.	11	7	50	
I. Transit	Egress W.	3	14	21		II. Shadow	Ingress W.	11	8	59	
I. Shadow	Egress W.	3	14	45		II. Transit	Egress W.	11	10	17	
III. Occult.	Disapp.	3	22	13		I. Occult.	Disapp. W.	11	11	10	
III. Eclipse	Reapp.	4	1	53	15.9	II. Shadow	Egress W.	11	11	30	
II. Transit	Ingress	4	5	36		I. Eclipse	Reapp. W.	11	13	54	34.0
II. Shadow	Ingress	4	6	25		I. Transit	Ingress W.	12	8	21	
II. Transit	Egress W.	4	8	2		I. Shadow	Ingress W.	12	8	56	
II. Shadow	Egress W.	4	8	56		I. Transit	Egress W.	12	10	33	
I. Occult.	Disapp. W.	4	9	26		I. Shadow	Egress W.	12	11	9	
I. Eclipse	Reapp. W.	4	12	0	30.8	II. Occult.	Disapp.	13	2	14	
I. Transit	Ingress	5	6	35		I. Occult.	Disapp.	13	5	37	
I. Shadow	Ingress	5	7	1		II. Eclipse	Reapp.	13	5	56	3.8
I. Transit	Egress W.	5	8	47		I. Eclipse	Reapp. W.	13	8	23	5.0
I. Shadow	Egress W.	5	9	14		I. Transit	Ingress	14	2	48	
II. Occult.	Disapp.	5	23	56		I. Shadow	Ingress	14	3	24	
II. Eclipse	Reapp.	6	3	19	18.6	I. Transit	Egress	14	5	0	
I. Occult.	Disapp.	6	3	52		I. Shadow	Egress	14	5	37	
I. Eclipse	Reapp.	6	6	28	59.5	III. Transit	Ingress W.	14	15	0	
I. Transit	Ingress	7	1	2		III. Transit	Egress	14	17	7	
I. Shadow	Ingress	7	1	30		III. Shadow	Ingress	14	17	32	
I. Transit	Egress	7	3	14		III. Shadow	Egress	14	19	47	
I. Shadow	Egress	7	3	43		II. Transit	Ingress	14	20	58	
III. Transit	Ingress W.	7	11	41		II. Shadow	Ingress	14	23	16	
III. Shadow	Ingress W.	7	13	32		II. Transit	Egress	14	23	26	
III. Transit	Egress W.	7	13	43		I. Occult.	Disapp.	15	0	3	
III. Shadow	Egress W.	7	15	48		II. Shadow	Egress	15	0	47	
II. Transit	Ingress	7	18	43		I. Eclipse	Reapp.	15	2	51	38.7
II. Shadow	Ingress	7	19	42		I. Transit	Ingress	15	21	14	
II. Transit	Egress	7	21	10		I. Shadow	Ingress	15	21	53	
II. Shadow	Egress	7	22	13		I. Transit	Egress	15	23	26	
I. Occult.	Disapp.	7	22	18		I. Shadow	Egress	16	0	6	
I. Eclipse	Reapp.	8	0	57	32.0	II. Occult.	Disapp.	16	15	24	
I. Transit	Ingress	8	19	28		I. Occult.	Disapp.	16	18	29	
I. Shadow	Ingress	8	19	58		II. Eclipse	Reapp.	16	19	15	3.0
I. Transit	Egress	8	21	40		I. Eclipse	Reapp.	16	21	20	11.3
I. Shadow	Egress	8	22	11		I. Transit	Ingress	17	15	41	
II. Occult.	Disapp. W.	9	13	5		I. Shadow	Ingress	17	16	22	
II. Eclipse	Reapp.	9	16	38	11.4	I. Transit	Egress	17	17	53	
I. Occult.	Disapp.	9	16	44		I. Shadow	Egress	17	18	35	

458 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.

MAY.

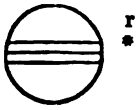
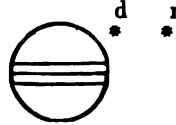

		d	h	m	s			d	h	m	s
III. Occult.	Disapp.	18	4	52		III. Occult.	Disapp. W.	25	8	18	
III. Occult.	Reapp.	18	7	1		III. Occult.	Reapp. W.	25	10	30	
III. Eclipse	Disapp. W.	18	7	49	8.0	III. Eclipse	Disapp. W.	25	11	48	36.4
III. Eclipse	Reapp. W.	18	9	49	17.2	II. Transit	Ingress W.	25	12	24	
II. Transit	Ingress W.	18	10	7		III. Eclipse	Reapp. W.	25	13	47	50.2
II. Shadow	Ingress W.	18	11	33		II. Shadow	Ingress W.	25	14	7	
II. Transit	Egress W.	18	12	34		I. Occult.	Disapp.	25	14	42	
I. Occult.	Disapp. W.	18	12	56		II. Transit	Egress	25	14	53	
II. Shadow	Egress W.	18	14	4		II. Shadow	Egress	25	16	38	
I. Eclipse	Reapp.	18	15	48	44.0	I. Eclipse	Reapp.	25	17	42	59.4
I. Transit	Ingress W.	19	10	7		I. Transit	Ingress W.	26	11	55	
I. Shadow	Ingress W.	19	10	50		I. Shadow	Ingress W.	26	12	46	
I. Transit	Egress W.	19	12	19		I. Transit	Egress W.	26	14	7	
I. Shadow	Egress W.	19	13	3		I. Shadow	Egress	26	14	59	
II. Occult.	Disapp.	20	4	34		II. Occult.	Disapp.	27	6	55	
I. Occult.	Disapp.	20	7	22		I. Occult.	Disapp. W.	27	9	9	
II. Eclipse	Reapp. W.	20	8	33	0.2	II. Eclipse	Reapp. W.	27	11	10	4.6
I. Eclipse	Reapp. W.	20	10	17	16.5	I. Eclipse	Reapp. W.	27	12	11	33.2
I. Transit	Ingress	21	4	34		I. Transit	Ingress	28	6	22	
I. Shadow	Ingress	21	5	19		I. Shadow	Ingress	28	7	15	
I. Transit	Egress	21	6	46		I. Transit	Egress W.	28	8	34	
I. Shadow	Egress	21	7	32		I. Shadow	Egress W.	28	9	28	
III. Transit	Ingress	21	18	24		III. Transit	Ingress	28	21	50	
III. Transit	Egress	21	20	34		III. Transit	Egress	29	0	5	
III. Shadow	Ingress	21	21	30		III. Shadow	Ingress	29	1	29	
II. Transit	Ingress	21	23	15		II. Transit	Ingress	29	1	34	
III. Shadow	Egress	21	23	45		II. Shadow	Ingress	29	3	24	
II. Shadow	Ingress	22	0	50		I. Occult.	Disapp.	29	3	36	
II. Transit	Egress	22	1	43		III. Shadow	Egress	29	3	43	
I. Occult.	Disapp.	22	1	49		II. Transit	Egress	29	4	3	
II. Shadow	Egress	22	3	21		II. Shadow	Egress	29	5	55	
I. Eclipse	Reapp.	22	4	45	51.3	I. Eclipse	Reapp.	29	6	40	9.0
I. Transit	Ingress	22	23	1		I. Transit	Ingress	30	0	49	
I. Shadow	Ingress	22	23	48		I. Shadow	Ingress	30	1	43	
I. Transit	Egress	23	1	13		I. Transit	Egress	30	3	1	
I. Shadow	Egress	23	2	1		I. Shadow	Egress	30	3	56	
II. Occult.	Disapp.	23	17	44		II. Occult.	Disapp.	30	20	7	
I. Occult.	Disapp.	23	20	16		I. Occult.	Disapp.	30	22	3	
II. Eclipse	Reapp.	23	21	52	4.3	II. Eclipse	Reapp.	31	0	29	13.4
I. Eclipse	Reapp.	23	23	14	25.6	I. Eclipse	Reapp.	31	1	8	44.8
I. Transit	Ingress	24	17	28		I. Transit	Ingress	31	19	16	
I. Shadow	Ingress	24	18	17		I. Shadow	Ingress	31	20	12	
I. Transit	Egress	24	19	40		I. Transit	Egress	31	21	28	
I. Shadow	Egress	24	20	30		I. Shadow	Egress	31	22	25	

JUPITER'S SATELLITES, 1875. 459

WASHINGTON MEAN TIME.

MAY.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

<p>I. </p>	<p>III. </p>
<p>II. </p>	<p>IV. Not Eclipsed.</p>

JUNE.

		d	h	m	s			d	h	m	s
III. Occult.	Disapp. W.	1	11	47		I. Shadow	Ingress	6	3	38	
III. Occult.	Reapp.	1	14	2		I. Transit	Egress	6	4	49	
II. Transit	Ingress	1	14	44		I. Shadow	Egress	6	5	51	
III. Eclipse	Disapp.	1	15	47	31.5	II. Occult.	Disapp.	6	22	31	
I. Occult.	Disapp.	1	16	30		I. Occult.	Disapp.	6	23	51	
II. Shadow	Ingress	1	16	41		I. Eclipse	Reapp.	7	3	3	8.4
II. Transit	Egress	1	17	14		II. Eclipse	Reapp.	7	3	6	28.1
III. Eclipse	Reapp.	1	17	45	50.7	I. Transit	Ingress	7	21	5	
II. Shadow	Egress	1	19	12		I. Shadow	Ingress	7	22	7	
I. Eclipse	Reapp.	1	19	37	19.6	I. Transit	Egress	7	23	17	
I. Transit	Ingress	2	13	43		I. Shadow	Egress	8	0	20	
I. Shadow	Ingress	2	14	41		III. Occult.	Disapp.	8	15	20	
I. Transit	Egress	2	15	55		II. Transit	Ingress	8	17	6	
I. Shadow	Egress	2	16	54		III. Occult.	Reapp.	8	17	39	
II. Occult.	Disapp. W.	3	9	18		I. Occult.	Disapp.	8	18	18	
I. Occult.	Disapp. W.	3	10	57		II. Shadow	Ingress	8	19	15	
II. Eclipse	Reapp.	3	13	47	16.6	II. Transit	Egress	8	19	36	
I. Eclipse	Reapp.	3	14	5	54.7	III. Eclipse	Disapp.	8	19	46	24.5
I. Transit	Ingress W.	4	8	10		I. Eclipse	Reapp.	8	21	31	44.3
I. Shadow	Ingress W.	4	9	9		III. Eclipse	Reapp.	8	21	43	49.9
I. Transit	Egress W.	4	10	22		II. Shadow	Egress	8	21	46	
I. Shadow	Egress W.	4	11	22		I. Transit	Ingress	9	15	32	
III. Transit	Ingress	5	1	22		I. Shadow	Ingress	9	16	35	
III. Transit	Egress	5	3	40		I. Transit	Egress	9	17	44	
II. Transit	Ingress	5	3	55		I. Shadow	Egress	9	18	48	
I. Occult.	Disapp.	5	5	24		II. Occult.	Disapp. W.	10	11	44	
III. Shadow	Ingress	5	5	29		I. Occult.	Disapp. W.	10	12	46	
II. Shadow	Ingress	5	5	58		I. Eclipse	Reapp.	10	16	0	20.5
II. Transit	Egress	5	6	25		II. Eclipse	Reapp.	10	16	24	33.8
III. Shadow	Egress	5	7	42		I. Transit	Ingress W.	11	10	0	
II. Shadow	Egress W.	5	8	29		I. Shadow	Ingress W.	11	11	4	
I. Eclipse	Reapp. W.	5	8	34	31.5	I. Transit	Egress W.	11	12	12	
I. Transit	Ingress	6	2	37		I. Shadow	Egress W.	11	13	17	

W.—Visible at Washington.

460 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.

JUNE.

		d	h	m	s		d	h	m	s
III. Transit	Ingress	12	4	59		II. Transit	Egress W.	19	11	15
II. Transit	Ingress	12	6	18		I. Eclipse	Reapp. W.	19	12	23 28.6
I. Occult.	Disapp.	12	7	13		III. Shadow	Ingress	19	13	28
III. Transit	Egress	12	7	19		II. Shadow	Egress	19	13	37
II. Shadow	Ingress W.	12	8	32		III. Shadow	Egress	19	15	39
II. Transit	Egress W.	12	8	49		I. Transit	Ingress	20	6	19
III. Shadow	Ingress W.	12	9	28		I. Shadow	Ingress	20	7	28
I. Eclipse	Reapp. W.	12	10	28 58.2		I. Transit	Egress W.	20	8	32
II. Shadow	Egress W.	12	11	3		I. Shadow	Egress W.	20	9	41
III. Shadow	Egress W.	12	11	40		II. Occult.	Disapp.	21	3	27
I. Transit	Ingress	13	4	28		I. Occult.	Disapp.	21	3	31
I. Shadow	Ingress	13	5	33		I. Eclipse	Reapp.	21	6	52 7.8
I. Transit	Egress	13	6	40		II. Eclipse	Reapp. W.	21	8	21 10.0
I. Shadow	Egress	13	7	46		I. Transit	Ingress	22	0	47
II. Occult.	Disapp.	14	0	58		I. Shadow	Ingress	22	1	57
I. Occult.	Disapp.	14	1	41		I. Transit	Egress	22	3	0
I. Eclipse	Reapp.	14	4	57 36.3		I. Shadow	Egress	22	4	10
II. Eclipse	Reapp.	14	5	43 47.6		II. Transit	Ingress	22	21	57
I. Transit	Ingress	14	22	55		I. Occult.	Disapp.	22	21	59
I. Shadow	Ingress	15	0	2		III. Occult.	Disapp.	22	22	40
I. Transit	Egress	15	1	8		II. Shadow	Ingress	23	0	24
I. Shadow	Egress	15	2	15		II. Transit	Egress	23	0	29
III. Occult.	Disapp.	15	18	58		III. Occult.	Reapp.	23	1	4
II. Transit	Ingress	15	19	30		I. Eclipse	Reapp.	23	1	20 45.0
I. Occult.	Disapp.	15	20	8		II. Shadow	Egress	23	2	53
III. Occult.	Reapp.	15	21	19		III. Eclipse	Disapp.	23	3	44 7.2
II. Shadow	Ingress	15	21	50		III. Eclipse	Reapp.	23	5	39 48.0
II. Transit	Egress	15	22	1		I. Transit	Ingress	23	19	15
I. Eclipse	Reapp.	15	23	26 13.2		I. Shadow	Ingress	23	20	26
III. Eclipse	Disapp.	15	23	45 11.3		I. Transit	Egress	23	21	28
II. Shadow	Egress	16	0	20		I. Shadow	Egress	23	22	39
III. Eclipse	Reapp.	16	1	41 43.9		I. Occult.	Disapp.	24	16	27
I. Transit	Ingress	16	17	23		II. Occult.	Disapp.	24	16	42
I. Shadow	Ingress	16	18	31		I. Eclipse	Reapp.	24	19	49 23:1
I. Transit	Egress	16	19	36		II. Eclipse	Reapp.	24	21	39 18.6
I. Shadow	Egress	16	20	44		I. Transit	Ingress	25	13	43
II. Occult.	Disapp.	17	14	12		I. Shadow	Ingress	25	14	55
I. Occult.	Disapp.	17	14	36		I. Transit	Egress	25	15	56
I. Eclipse	Reapp.	17	17	54 50.3		I. Shadow	Egress	25	17	7
II. Eclipse	Reapp.	17	19	1 55.1		I. Occult.	Disapp. W.	26	10	55
I. Transit	Ingress W.	18	11	51		II. Transit	Ingress W.	26	11	11
I. Shadow	Ingress W.	18	13	0		III. Transit	Ingress	26	12	24
I. Transit	Egress	18	14	4		II. Shadow	Ingress	26	13	41
I. Shadow	Egress	18	15	13		II. Transit	Egress	26	13	43
III. Transit	Ingress W.	19	8	39		I. Eclipse	Reapp.	26	14	18 2.0
II. Transit	Ingress W.	19	8	43		III. Transit	Egress	26	14	49
I. Occult.	Disapp. W.	19	9	3		II. Shadow	Egress	26	16	12
III. Transit	Egress W.	19	11	3		III. Shadow	Ingress	26	17	27
II. Shadow	Ingress W.	19	11	7		III. Shadow	Egress	26	19	37

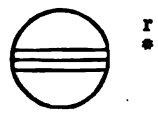
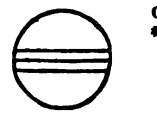

JUPITER'S SATELLITES, 1875. 461

WASHINGTON MEAN TIME.

JUNE.

		d	h	m	s			d	h	m	s
I. Transit	Ingress W.	27	8	11		I. Occult.	Disapp.	29	23	51	
I. Shadow	Ingress W.	27	9	24		II. Transit	Ingress	30	0	26	
I. Transit	Egress W.	27	10	24		III. Occult.	Disapp.	30	2	27	
I. Shadow	Egress W.	27	11	36		II. Transit	Egress	30	2	58	
I. Occult.	Disapp.	28	5	23		II. Shadow	Ingress	30	2	59	
II. Occult.	Disapp.	28	5	58		I. Eclipse	Reapp.	30	3	15	19.6
II. Occult.	Reapp. W.	28	8	31		III. Occult.	Reapp.	30	4	54	
II. Eclipse	Disapp. W.	28	8	31	34.5	II. Shadow	Egress	30	5	29	
I. Eclipse	Reapp. W.	28	8	46	41.7	III. Eclipse	Disapp.	30	7	43	37.9
II. Eclipse	Reapp. W.	28	10	58	33.3	III. Eclipse	Reapp. W.	30	9	38	27.9
I. Transit	Ingress	29	2	39		I. Transit	Ingress	30	21	7	
I. Shadow	Ingress	29	3	53		I. Shadow	Ingress	30	22	22	
I. Transit	Egress	29	4	52		I. Transit	Egress	30	23	20	
I. Shadow	Egress	29	6	5							

Phases of the Eclipses of the Satellites for an Inverting Telescope.

<p>I. </p>	<p>III. </p>
<p>II. </p>	<p>IV. Not Eclipsed.</p>

JULY.

		d	h	m	s			d	h	m	s
I. Shadow	Egress	1	0	33		II. Shadow	Egress	3	18	46	
I. Occult.	Disapp.	1	18	19		III. Shadow	Ingress	3	21	27	
II. Occult.	Disapp.	1	19	14		III. Shadow	Egress	3	23	37	
I. Eclipse	Reapp.	1	21	43	58.3	I. Transit	Ingress W.	4	10	4	
II. Occult.	Reapp.	1	21	47		I. Shadow	Ingress W.	4	11	20	
II. Eclipse	Disapp.	1	21	49	44.9	I. Transit	Egress	4	12	17	
II. Eclipse	Reapp.	2	0	16	42.9	I. Shadow	Egress	4	13	31	
I. Transit	Ingress	2	15	35		I. Occult.	Disapp.	5	7	16	
I. Shadow	Ingress	2	16	51		II. Occult.	Disapp. W.	5	8	32	
I. Transit	Egress	2	17	49		I. Eclipse	Reapp. W.	5	10	41	18.1
I. Shadow	Egress	2	19	2		II. Occult.	Reapp. W.	5	11	5	
I. Occult.	Disapp.	3	12	47		II. Eclipse	Disapp. W.	5	11	8	59.3
II. Transit	Ingress	3	13	41		II. Eclipse	Reapp.	5	13	35	56.3
I. Eclipse	Reapp.	3	16	12	37.4	I. Transit	Ingress	6	4	32	
II. Transit	Egress	3	16	14		I. Shadow	Ingress	6	5	48	
III. Transit	Ingress	3	16	15		I. Transit	Egress	6	6	46	
II. Shadow	Ingress	3	16	16		I. Shadow	Egress	6	8	0	
III. Transit	Egress	3	18	42		I. Occult.	Disapp.	7	1	44	

W.—Visible at Washington.

462 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.

JULY.

		d	h	m	s			d	h	m	s	
II.	Transit	Ingress	7	2	57		I.	Eclipse	Reapp.	14	7	4 35.1
I.	Eclipse	Reapp.	7	5	9	56.5	II.	Transit	Egress W.	14	8	4
II.	Transit	Egress	7	5	30		II.	Shadow	Ingress W.	14	8	8
II.	Shadow	Ingress	7	5	33		III.	Occult.	Disapp. W.	14	10	16
III.	Occult.	Disapp.	7	6	19		II.	Shadow	Egress W.	14	10	38
II.	Shadow	Egress W.	7	8	4		III.	Occult.	Reapp.	14	12	45
III.	Occult.	Reapp. W.	7	8	47		III.	Eclipse	Disapp.	14	15	42 43.0
III.	Eclipse	Disapp.	7	11	42	55.9	III.	Eclipse	Reapp.	14	17	35 54.0
III.	Eclipse	Reapp.	7	13	36	55.9	I.	Transit	Ingress	15	0	55
I.	Transit	Ingress	7	23	0		I.	Shadow	Ingress	15	2	12
I.	Shadow	Ingress	8	0	17		I.	Transit	Egress	15	3	9
I.	Transit	Egress	8	1	14		I.	Shadow	Egress	15	4	24
I.	Shadow	Egress	8	2	29		I.	Occult.	Disapp.	15	22	6
I.	Occult.	Disapp.	8	20	12		II.	Occult.	Disapp.	16	0	26
II.	Occult.	Disapp.	8	21	49		I.	Eclipse	Reapp.	16	1	33 14.8
I.	Eclipse	Reapp.	8	23	38	35.6	II.	Occult.	Reapp.	16	2	59
II.	Occult.	Reapp.	9	0	22		II.	Eclipse	Disapp.	16	3	4 31.2
II.	Eclipse	Disapp.	9	0	27	9.4	II.	Eclipse	Reapp.	16	5	31 25.2
II.	Eclipse	Reapp.	9	2	54	5.4	I.	Transit	Ingress	16	19	24
I.	Transit	Ingress	9	17	29		I.	Shadow	Ingress	16	20	41
I.	Shadow	Ingress	9	18	46		I.	Transit	Egress	16	21	37
I.	Transit	Egress	9	19	43		I.	Shadow	Egress	16	22	53
I.	Shadow	Egress	9	20	58		I.	Occult.	Disapp.	17	16	35
I.	Occult.	Disapp.	10	14	41		II.	Transit	Ingress	17	18	48
II.	Transit	Ingress	10	16	14		I.	Eclipse	Reapp.	17	20	1 54.2
I.	Eclipse	Reapp.	10	18	7	15.0	II.	Transit	Egress	17	21	22
II.	Transit	Egress	10	18	47		II.	Shadow	Ingress	17	21	25
II.	Shadow	Ingress	10	18	50		II.	Shadow	Egress	17	23	56
III.	Transit	Ingress	10	20	9		III.	Transit	Ingress	18	0	7
II.	Shadow	Egress	10	21	21		III.	Transit	Egress	18	2	37
III.	Transit	Egress	10	22	38		III.	Shadow	Ingress	18	5	26
III.	Shadow	Ingress	11	1	27		III.	Shadow	Egress	18	7	34
III.	Shadow	Egress	11	3	35		I.	Transit	Ingress	18	13	53
I.	Transit	Ingress	11	11	57		I.	Shadow	Ingress	18	15	10
I.	Shadow	Ingress	11	13	14		I.	Transit	Egress	18	16	6
I.	Transit	Egress	11	14	11		I.	Shadow	Egress	18	17	22
I.	Shadow	Egress	11	15	26		I.	Occult.	Disapp.	19	11	4
I.	Occult.	Disapp. W.	12	9	9		II.	Occult.	Disapp.	19	13	45
II.	Occult.	Disapp.	12	11	8		I.	Eclipse	Reapp.	19	14	30 36.2
I.	Eclipse	Reapp.	12	12	35	56.5	II.	Occult.	Reapp.	19	16	19
II.	Occult.	Reapp.	12	13	41		II.	Eclipse	Disapp.	19	16	23 40.5
II.	Eclipse	Disapp.	12	13	46	21.8	II.	Eclipse	Reapp.	19	18	50 33.5
II.	Eclipse	Reapp.	12	16	13	16.8	I.	Transit	Ingress W.	20	8	22
I.	Transit	Ingress	13	6	26		I.	Shadow	Ingress W.	20	9	39
I.	Shadow	Ingress	13	7	43		I.	Transit	Egress	20	10	35
I.	Transit	Egress W.	13	8	40		I.	Shadow	Egress	20	11	51
I.	Shadow	Egress W.	13	9	55		I.	Occult.	Disapp.	21	5	33
I.	Occult.	Disapp.	14	3	38		II.	Transit	Ingress W.	21	8	6
II.	Transit	Ingress	14	5	31		I.	Eclipse	Reapp. W.	21	8	59 14.8

W.—Visible at Washington.

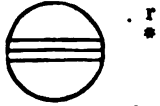


JUPITER'S SATELLITES, 1875. 463

WASHINGTON MEAN TIME.

JULY.

		d	h	m	s			d	h	m	s
II.	Transit	Egress	21	10	40	II.	Occult.	Disapp.	26	16	25
II.	Shadow	Ingress	21	10	42	I.	Eclipse	Reapp.	26	16	25 16.5
II.	Shadow	Egress	21	13	13	II.	Occult.	Reapp.	26	18	58
III.	Occult.	Disapp.	21	14	16	II.	Eclipse	Disapp.	26	19	0 54.2
III.	Occult.	Reapp.	21	16	46	II.	Eclipse	Reapp.	26	21	27 44.8
III.	Eclipse	Disapp.	21	19	41 52.5	I.	Transit	Ingress	27	10	18
III.	Eclipse	Reapp.	21	21	34 15.3	I.	Shadow	Ingress	27	11	34
I.	Transit	Ingress	22	2	51	I.	Transit	Egress	27	12	32
I.	Shadow	Ingress	22	4	7	I.	Shadow	Egress	27	13	46
I.	Transit	Egress	22	5	4	I.	Occult.	Disapp.	28	7	29
I.	Shadow	Egress	22	6	20	II.	Transit	Ingress	28	10	44
I.	Occult.	Disapp.	23	0	1	I.	Eclipse	Reapp.	28	10	53 55.2
II.	Occult.	Disapp.	23	3	4	II.	Transit	Egress	28	13	17
I.	Eclipse	Reapp.	23	3	27 54.9	II.	Shadow	Ingress	28	13	17
II.	Occult.	Reapp.	23	5	38	II.	Shadow	Egress	28	15	48
II.	Eclipse	Disapp.	23	5	41 46.9	III.	Occult.	Disapp.	28	18	19
II.	Eclipse	Reapp. W.	23	8	8 40.7	III.	Occult.	Reapp.	28	20	50
I.	Transit	Ingress	23	21	20	III.	Eclipse	Disapp.	28	23	40 55.1
I.	Shadow	Ingress	23	22	36	III.	Eclipse	Reapp.	29	1	32 30.5
I.	Transit	Egress	23	23	33	I.	Transit	Ingress	29	4	47
I.	Shadow	Egress	24	0	49	I.	Shadow	Ingress	29	6	3
I.	Occult.	Disapp.	24	18	30	I.	Transit	Egress	29	7	1
II.	Transit	Ingress	24	21	25	I.	Shadow	Egress W.	29	8	15
I.	Eclipse	Reapp.	24	21	56 34.3	I.	Occult.	Disapp.	30	1	58
II.	Transit	Egress	24	23	58	I.	Eclipse	Reapp.	30	5	22 35.6
II.	Shadow	Ingress	25	0	0	II.	Occult.	Disapp.	30	5	44
II.	Shadow	Egress	25	2	30	II.	Occult.	Reapp. W.	30	8	18
III.	Transit	Ingress	25	4	10	II.	Eclipse	Disapp. W.	30	8	19 1.0
III.	Transit	Egress	25	6	40	II.	Eclipse	Reapp.	30	10	45 50.4
III.	Shadow	Ingress W.	25	9	26	I.	Transit	Ingress	30	23	17
III.	Shadow	Egress	25	11	33	I.	Shadow	Ingress	31	0	32
I.	Transit	Ingress	25	15	49	I.	Transit	Egress	31	1	31
I.	Shadow	Ingress	25	17	5	I.	Shadow	Egress	31	2	44
I.	Transit	Egress	25	18	3	I.	Occult.	Disapp.	31	20	27
I.	Shadow	Egress	25	19	17	I.	Eclipse	Reapp.	31	23	51 14.7
I.	Occult.	Disapp.	26	13	0						

Phases of the Eclipses of the Satellites for an Inverting Telescope.

<p>I. </p>	<p>III. </p>
<p>II. </p>	<p>IV. Not Eclipsed.</p>

464 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.

AUGUST.

		d	h	m	s			d	h	m	s
II. Transit	Ingress	1	0	3		III. Transit	Egress	8	14	57	
II. Shadow	Ingress	1	2	35		III. Shadow	Ingress	8	17	26	
II. Transit	Egress	1	2	37		III. Shadow	Egress	8	19	32	
II. Shadow	Egress	1	5	5		I. Transit	Ingress	8	19	43	
III. Transit	Ingress W.	1	8	16		I. Shadow	Ingress	8	20	55	
III. Transit	Egress	1	10	47		I. Transit	Egress	8	21	57	
III. Shadow	Ingress	1	13	26		I. Shadow	Egress	8	23	8	
III. Shadow	Egress	1	15	32		I. Occult.	Disapp.	9	16	54	
I. Transit	Ingress	1	17	46		I. Eclipse	Reapp.	9	20	14	38.0
I. Shadow	Ingress	1	19	0		II. Occult.	Disapp.	9	21	48	
I. Transit	Egress	1	20	0		II. Eclipse	Reapp.	10	2	41	46.1
I. Shadow	Egress	1	21	13		I. Transit	Ingress	10	14	13	
I. Occult.	Disapp.	2	14	56		I. Shadow	Ingress	10	15	24	
I. Eclipse	Reapp.	2	18	19	57.3	I. Transit	Egress	10	16	27	
II. Occult.	Disapp.	2	19	5		I. Shadow	Egress	10	17	36	
II. Eclipse	Reapp.	3	0	4	49.3	I. Occult.	Disapp.	11	11	23	
I. Transit	Ingress	3	12	15		I. Eclipse	Reapp.	11	14	43	16.6
I. Shadow	Ingress	3	13	29		II. Transit	Ingress	11	16	4	
I. Transit	Egress	3	14	29		II. Shadow	Ingress	11	18	27	
I. Shadow	Egress	3	15	42		II. Transit	Egress	11	18	38	
I. Occult.	Disapp. W.	4	9	25		II. Shadow	Egress	11	20	58	
I. Eclipse	Reapp.	4	12	48	36.2	III. Occult.	Disapp.	12	2	37	
II. Transit	Ingress	4	13	23		III. Occult.	Reapp.	12	5	8	
II. Shadow	Ingress	4	15	52		III. Eclipse	Disapp. W.	12	7	38	49.2
II. Transit	Egress	4	15	57		I. Transit	Ingress W.	12	8	42	
II. Shadow	Egress	4	18	23		III. Eclipse	Reapp.	12	9	28	52.8
III. Occult.	Disapp.	4	22	26		I. Shadow	Ingress	12	9	52	
III. Occult.	Reapp.	5	0	57		I. Transit	Egress	12	10	56	
III. Eclipse	Disapp.	5	3	39	49.3	I. Shadow	Egress	12	12	5	
III. Eclipse	Reapp.	5	5	30	38.1	I. Occult.	Disapp.	13	5	39	
I. Transit	Ingress	5	6	45		I. Eclipse	Reapp. W.	13	9	11	57.1
I. Shadow	Ingress W.	5	7	58		II. Occult.	Disapp.	13	11	9	
I. Transit	Egress	5	8	59		II. Eclipse	Reapp.	13	15	59	46.9
I. Shadow	Egress	5	10	10		I. Transit	Ingress	14	3	12	
I. Occult.	Disapp.	6	3	55		I. Shadow	Ingress	14	4	21	
I. Eclipse	Reapp.	6	7	17	17.0	I. Transit	Egress	14	5	26	
II. Occult.	Disapp. W.	6	8	26		I. Shadow	Egress	14	6	34	
II. Eclipse	Reapp.	6	13	22	52.6	I. Occult.	Disapp.	15	0	22	
I. Transit	Ingress	7	1	14		I. Eclipse	Reapp.	15	3	40	35.7
I. Shadow	Ingress	7	2	26		II. Transit	Ingress	15	5	25	
I. Transit	Egress	7	3	28		II. Shadow	Ingress W.	15	7	45	
I. Shadow	Egress	7	4	39		II. Transit	Egress W.	15	7	59	
I. Occult.	Disapp.	7	22	24		II. Shadow	Egress	15	10	15	
I. Eclipse	Reapp.	8	1	45	55.5	III. Transit	Ingress	15	16	39	
II. Transit	Ingress	8	2	43		III. Transit	Egress	15	19	10	
II. Shadow	Ingress	8	5	10		III. Shadow	Ingress	15	21	26	
II. Transit	Egress	8	5	17		I. Transit	Ingress	15	21	42	
II. Shadow	Egress W.	8	7	40		I. Shadow	Ingress	15	22	50	
III. Transit	Ingress	8	12	26		III. Shadow	Egress	15	23	31	

W.—Visible at Washington.

JUPITER'S SATELLITES, 1875. 465

WASHINGTON MEAN TIME.

AUGUST.

		d	h	m	s			d	h	m	s		
I.	Transit	Egress	15	23	56		II.	Eclipse	Reapp. W.	24	7	55	11.9
I.	Shadow	Egress	16	1	3		I.	Transit	Ingress	24	18	10	
I.	Occult.	Disapp.	16	18	51		I.	Shadow	Ingress	24	19	14	
I.	Eclipse	Reapp.	16	22	9	18.4	I.	Transit	Egress	24	20	24	
II.	Occult.	Disapp.	17	0	32		I.	Shadow	Egress	24	21	27	
II.	Eclipse	Reapp.	17	5	18	33.9	I.	Occult.	Disapp.	25	15	20	
I.	Transit	Ingress	17	16	11		I.	Eclipse	Reapp.	25	18	32	35.8
I.	Shadow	Ingress	17	17	19		II.	Transit	Ingress	25	21	30	
I.	Transit	Egress	17	18	25		II.	Shadow	Ingress	25	23	37	
I.	Shadow	Egress	17	19	32		II.	Transit	Egress	26	0	4	
I.	Occult.	Disapp.	18	13	21		II.	Shadow	Egress	26	2	8	
I.	Eclipse	Reapp.	18	16	37	56.6	III.	Occult.	Disapp.	26	11	7	
II.	Transit	Ingress	18	18	46		I.	Transit	Ingress	26	12	40	
II.	Shadow	Ingress	18	21	2		III.	Occult.	Reapp.	26	13	37	
II.	Transit	Egress	18	21	20		I.	Shadow	Ingress	26	13	43	
II.	Shadow	Egress	18	23	33		I.	Transit	Egress	26	14	54	
III.	Occult.	Disapp.	19	6	51		III.	Eclipse	Disapp.	26	15	37	34.2
III.	Occult.	Reapp.	19	9	21		I.	Shadow	Egress	26	15	55	
I.	Transit	Ingress	19	10	41		III.	Eclipse	Reapp.	26	17	26	11.6
III.	Eclipse	Disapp.	19	11	38	20.8	I.	Occult.	Disapp.	27	9	50	
I.	Shadow	Ingress	19	11	48		I.	Eclipse	Reapp.	27	13	1	16.1
I.	Transit	Egress	19	12	55		II.	Occult.	Disapp.	27	16	39	
III.	Eclipse	Reapp.	19	13	27	40.6	II.	Eclipse	Reapp.	27	21	13	6.5
I.	Shadow	Egress	19	14	1		I.	Transit	Ingress W.	28	7	10	
I.	Occult.	Disapp. W.	20	7	51		I.	Shadow	Ingress W.	28	8	11	
I.	Eclipse	Reapp.	20	11	6	36.9	I.	Transit	Egress	28	9	24	
II.	Occult.	Disapp.	20	13	54		I.	Shadow	Egress	28	10	24	
II.	Eclipse	Reapp.	20	18	36	31.9	I.	Occult.	Disapp.	29	4	19	
I.	Transit	Ingress	21	5	11		I.	Eclipse	Reapp. W.	29	7	29	53.9
I.	Shadow	Ingress	21	6	17		II.	Transit	Ingress	29	10	52	
I.	Transit	Egress W.	21	7	25		II.	Shadow	Ingress	29	12	55	
I.	Shadow	Egress W.	21	8	29		II.	Transit	Egress	29	13	27	
I.	Occult.	Disapp.	22	2	20		II.	Shadow	Egress	29	15	26	
I.	Eclipse	Reapp.	22	5	35	15.2	III.	Transit	Ingress	30	1	10	
II.	Transit	Ingress W.	22	8	8		I.	Transit	Ingress	30	1	40	
II.	Shadow	Ingress	22	10	20		I.	Shadow	Ingress	30	2	40	
II.	Transit	Egress	22	10	42		III.	Transit	Egress	30	3	40	
II.	Shadow	Egress	22	12	50		I.	Transit	Egress	30	3	54	
III.	Transit	Ingress	22	20	53		I.	Shadow	Egress	30	4	53	
III.	Transit	Egress	22	23	23		III.	Shadow	Ingress	30	5	23	
I.	Transit	Ingress	22	23	40		III.	Shadow	Egress W.	30	7	27	
I.	Shadow	Ingress	23	0	45		I.	Occult.	Disapp.	30	22	49	
III.	Shadow	Ingress	23	1	24		I.	Eclipse	Reapp.	31	1	58	36.2
I.	Transit	Egress	23	1	54		II.	Occult.	Disapp.	31	6	2	
I.	Shadow	Egress	23	2	58		II.	Eclipse	Reapp.	31	10	31	39.0
III.	Shadow	Egress	23	3	29		I.	Transit	Ingress	31	20	10	
I.	Occult.	Disapp.	23	20	50		I.	Shadow	Ingress	31	21	9	
I.	Eclipse	Reapp.	24	0	3	57.9	I.	Transit	Egress	31	22	24	
II.	Occult.	Disapp.	24	3	17		I.	Shadow	Egress	31	23	21	

W.—Visible at Washington.

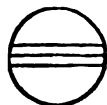
466 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.

AUGUST.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

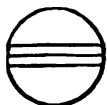
I.



III.



II.



IV.

Not Eclipsed.

SEPTEMBER.

		d	h	m	s			d	h	m	s
I. Occult.	Disapp.	1	17	19		III. Transit	Egress	6	7	59	
I. Eclipse	Reapp.	1	20	27	13.8	III. Shadow	Ingress	6	9	23	
II. Transit	Ingress	2	0	14		III. Shadow	Egress	6	11	26	
II. Shadow	Ingress	2	2	12		I. Occult.	Disapp.	7	0	49	
II. Transit	Egress	2	2	49		I. Eclipse	Reapp.	7	3	53	13.2
II. Shadow	Egress	2	4	43		II. Occult.	Disapp.	7	8	49	
I. Transit	Ingress	2	14	40		II. Eclipse	Reapp.	7	13	7	54.5
III. Occult.	Disapp.	2	15	26		I. Transit	Ingress	7	22	10	
I. Shadow	Ingress	2	15	37		I. Shadow	Ingress	7	23	3	
I. Transit	Egress	2	16	54		I. Transit	Egress	8	0	24	
I. Shadow	Egress	2	17	50		I. Shadow	Egress	8	1	16	
III. Occult.	Reapp.	2	17	55		I. Occult.	Disapp.	8	19	19	
III. Eclipse	Disapp.	2	19	37	12.0	I. Eclipse	Reapp.	8	22	21	50.4
III. Eclipse	Reapp.	2	21	25	8.2	II. Transit	Ingress	9	3	1	
I. Occult.	Disapp.	3	11	49		II. Shadow	Ingress	9	4	48	
I. Eclipse	Reapp.	3	14	55	53.9	II. Transit	Egress	9	5	35	
II. Occult.	Disapp.	3	19	25		II. Shadow	Egress W.	9	7	19	
II. Eclipse	Reapp.	3	23	49	29.9	I. Transit	Ingress	9	16	40	
I. Transit	Ingress	4	9	10		I. Shadow	Ingress	9	17	32	
I. Shadow	Ingress	4	10	6		I. Transit	Egress	9	18	54	
I. Transit	Egress	4	11	24		I. Shadow	Egress	9	19	45	
I. Shadow	Egress	4	12	19		III. Occult.	Disapp.	9	19	47	
I. Occult.	Disapp.	5	6	19		III. Occult.	Reapp.	9	22	15	
I. Eclipse	Reapp.	5	9	24	31.1	III. Eclipse	Disapp.	9	23	36	8.9
II. Transit	Ingress	5	13	37		III. Eclipse	Reapp.	10	1	23	25.5
II. Shadow	Ingress	5	15	30		I. Occult.	Disapp.	10	13	49	
II. Transit	Egress	5	16	12		I. Eclipse	Reapp.	10	16	50	30.3
II. Shadow	Egress	5	18	1		II. Occult.	Disapp.	10	22	13	
I. Transit	Ingress	6	3	40		II. Eclipse	Reapp.	11	2	25	41.4
I. Shadow	Ingress	6	4	35		I. Transit	Ingress	11	11	10	
III. Transit	Ingress	6	5	30		I. Shadow	Ingress	11	12	1	
I. Transit	Egress	6	5	54		I. Transit	Egress	11	13	24	
I. Shadow	Egress	6	6	47		I. Shadow	Egress	11	14	13	

W.—Visible at Washington.

JUPITER'S SATELLITES, 1875. 467

WASHINGTON MEAN TIME.

SEPTEMBER.

		d	h	m	s			d	h	m	s	
I.	Occult.	Disapp.	12	8	19		II.	Shadow	Egress	19	23	12
I.	Eclipse	Reapp.	12	11	19	6.6	I.	Transit	Ingress	20	7	40
II.	Transit	Ingress	12	16	24		I.	Shadow	Ingress	20	8	24
II.	Shadow	Ingress	12	18	6		I.	Transit	Egress	20	9	54
II.	Transit	Egress	12	18	59		I.	Shadow	Egress	20	10	37
II.	Shadow	Egress	12	20	36		III.	Transit	Ingress	20	14	16
I.	Transit	Ingress	13	5	40		III.	Transit	Egress	20	16	42
I.	Shadow	Ingress	13	6	30		III.	Shadow	Ingress	20	17	21
I.	Transit	Egress	13	7	54		III.	Shadow	Egress	20	19	22
I.	Shadow	Egress	13	8	42		I.	Occult.	Disapp.	21	4	49
III.	Transit	Ingress	13	9	52		I.	Eclipse	Reapp.	21	7	42 21.3
III.	Transit	Egress	13	12	20		II.	Occult.	Disapp.	21	14	25
III.	Shadow	Ingress	13	13	22		II.	Eclipse	Reapp.	21	18	19 48.0
III.	Shadow	Egress	13	15	24		I.	Transit	Ingress	22	2	11
I.	Occult.	Disapp.	14	2	49		I.	Shadow	Ingress	22	2	53
I.	Eclipse	Reapp.	14	5	47 48.3		I.	Transit	Egress	22	4	25
II.	Occult.	Disapp.	14	11	37		I.	Shadow	Egress	22	5	5
II.	Eclipse	Reapp.	14	15	43 57.6		I.	Occult.	Disapp.	22	23	19
I.	Transit	Ingress	15	0	10		I.	Eclipse	Reapp.	23	2	10 57.3
I.	Shadow	Ingress	15	0	58		II.	Transit	Ingress	23	8	36
I.	Transit	Egress	15	2	24		II.	Shadow	Ingress	23	9	59
I.	Shadow	Egress	15	3	11		II.	Transit	Egress	23	11	10
I.	Occult.	Disapp.	15	21	19		II.	Shadow	Egress	23	12	30
I.	Eclipse	Reapp.	16	0	16 24.9		I.	Transit	Ingress	23	20	41
II.	Transit	Ingress	16	5	48		I.	Shadow	Ingress	23	21	21
II.	Shadow	Ingress	16	7	23		I.	Transit	Egress	23	22	55
II.	Transit	Egress	16	8	23		I.	Shadow	Egress	23	23	34
II.	Shadow	Egress	16	9	54		III.	Occult.	Disapp.	24	4	33
I.	Transit	Ingress	16	18	40		III.	Occult.	Reapp.	24	6	58
I.	Shadow	Ingress	16	19	27		III.	Eclipse	Disapp.	24	7	33 32.6
I.	Transit	Egress	16	20	54		III.	Eclipse	Reapp.	24	9	19 34.0
I.	Shadow	Egress	16	21	39		I.	Occult.	Disapp.	24	17	50
III.	Occult.	Disapp.	17	0	9		I.	Eclipse	Reapp.	24	20	39 36.3
III.	Occult.	Reapp.	17	2	36		II.	Occult.	Disapp.	25	3	49
III.	Eclipse	Disapp.	17	3	34 55.4		II.	Eclipse	Reapp.	25	7	37 26.2
III.	Eclipse	Reapp.	17	5	21 33.8		I.	Transit	Ingress	25	15	11
I.	Occult.	Disapp.	17	15	49		I.	Shadow	Ingress	25	15	50
I.	Eclipse	Reapp.	17	18	45 4.4		I.	Transit	Egress	25	17	25
II.	Occult.	Disapp.	18	1	1		I.	Shadow	Egress	25	18	3
II.	Eclipse	Reapp.	18	5	1 40.3		I.	Occult.	Disapp.	26	12	50
I.	Transit	Ingress	18	13	10		I.	Eclipse	Reapp.	26	15	8 11.2
I.	Shadow	Ingress	18	13	55		II.	Transit	Ingress	26	22	0
I.	Transit	Egress	18	15	24		II.	Shadow	Ingress	26	23	17
I.	Shadow	Egress	18	16	8		II.	Transit	Egress	27	0	35
I.	Occult.	Disapp.	19	10	19		II.	Shadow	Egress	27	1	48
I.	Eclipse	Reapp.	19	13	13 40.1		I.	Transit	Ingress	27	9	41
II.	Transit	Ingress	19	19	12		I.	Shadow	Ingress	27	10	19
II.	Shadow	Ingress	19	20	41		I.	Transit	Egress	27	11	55
II.	Transit	Egress	19	21	47		I.	Shadow	Egress	27	12	31




468 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.

SEPTEMBER.

		d	h	m	s			d	h	m	s
III. Transit	Ingress	27	18	41		I. Transit	Egress	29	6	25	
III. Transit	Egress	27	21	6		I. Shadow	Egress	29	7	0	
III. Shadow	Ingress	27	21	21		I. Occult.	Disapp.	30	1	20	
III. Shadow	Egress	27	23	22		I. Eclipse	Reapp.	30	4	5	27.3
I. Occult.	Disapp.	28	6	50		II. Transit	Ingress	30	11	24	
I. Eclipse	Reapp.	28	9	36	51.9	II. Shadow	Ingress	30	12	34	
II. Occult.	Disapp.	28	17	13		II. Transit	Egress	30	13	59	
II. Eclipse	Reapp.	28	20	55	25.0	II. Shadow	Egress	30	15	5	
I. Transit	Ingress	29	4	11		I. Transit	Ingress	30	22	41	
I. Shadow	Ingress	29	4	47		I. Shadow	Ingress	30	23	16	

Phases of the Eclipses of the Satellites for an Inverting Telescope.

I.		III.	
II.		IV.	Not Eclipsed.

OCTOBER.

I. Transit	Egress	1	0	55		II. Transit	Ingress	4	0	48	
I. Shadow	Egress	1	1	29		II. Shadow	Ingress	4	1	52	
III. Occult.	Disapp.	1	8	58		II. Transit	Egress	4	3	23	
III. Occult.	Reapp.	1	11	22		II. Shadow	Egress	4	4	23	
III. Eclipse	Disapp.	1	11	32	13.3	I. Transit	Ingress	4	11	43	
III. Eclipse	Reapp.	1	13	17	39.1	I. Shadow	Ingress	4	12	14	
I. Occult.	Disapp.	1	19	51		I. Transit	Egress	4	13	56	
I. Eclipse	Reapp.	1	22	34	5.8	I. Shadow	Egress	4	14	26	
II. Occult.	Disapp.	2	6	37		III. Transit	Ingress	4	23	7	
II. Eclipse	Reapp.	2	10	12	58.5	III. Shadow	Ingress	5	1	19	
I. Transit	Ingress	2	17	12		III. Transit	Egress	5	1	30	
I. Shadow	Ingress	2	17	45		III. Shadow	Egress	5	3	20	
I. Transit	Egress	2	19	26		I. Occult.	Disapp.	5	8	52	
I. Shadow	Egress	2	19	57		I. Eclipse	Reapp.	5	11	31	20.0
I. Occult.	Disapp.	3	14	21		II. Occult.	Disapp.	5	20	2	
I. Eclipse	Reapp.	3	17	2	40.6	II. Eclipse	Reapp.	5	23	30	48.6

The Satellites are not visible from October 5th to December 1st, Jupiter being too near the Sun.

JUPITER'S SATELLITES, 1875. 469

WASHINGTON MEAN TIME.

DECEMBER.

		d	h	m	s			d	h	m	s	
I.	Eclipse	Disapp.	1	0	37	20.7	III.	Transit	Egress	8	17	21
I.	Occult.	Reapp.	1	3	14		II.	Eclipse	Disapp.	8	20	13 18.2
III.	Shadow	Ingress	1	9	6		I.	Shadow	Ingress	8	23	47
III.	Transit	Ingress	1	10	51		II.	Occult.	Reapp.	8	23	51
III.	Shadow	Egress	1	11	3		I.	Transit	Ingress	9	0	21
III.	Transit	Egress	1	12	58		I.	Shadow	Egress	9	1	59
II.	Eclipse	Disapp.	1	17	39	47.1	I.	Transit	Egress	9	2	33
II.	Occult.	Reapp.	1	21	4		I.	Eclipse	Disapp.	9	20	59 41.5
I.	Shadow	Ingress	1	21	53		I.	Occult.	Reapp.	9	23	45
I.	Transit	Ingress	1	22	21		II.	Shadow	Ingress	10	14	33
I.	Shadow	Egress	2	0	5		II.	Transit	Ingress	10	15	43
I.	Transit	Egress	2	0	33		II.	Shadow	Egress	10	17	5
I.	Eclipse	Disapp.	2	19	5	47.4	I.	Shadow	Ingress W.	10	18	15
I.	Occult.	Reapp.	2	21	44		II.	Transit	Egress W.	10	18	17
II.	Shadow	Ingress	3	11	57		I.	Transit	Ingress	10	18	51
II.	Transit	Ingress	3	12	53		I.	Shadow	Egress	10	20	27
II.	Shadow	Egress	3	14	29		I.	Transit	Egress	10	21	3
II.	Transit	Egress	3	15	27		I.	Eclipse	Disapp.	11	15	28 12.6
I.	Shadow	Ingress	3	16	22		I.	Occult.	Reapp. W.	11	18	15
I.	Transit	Ingress	3	16	51		III.	Eclipse	Disapp.	12	3	17 53.8
I.	Shadow	Egress W.	3	18	34		III.	Eclipse	Reapp.	12	4	58 55.0
I.	Transit	Egress	3	19	3		III.	Occult.	Disapp.	12	5	38
I.	Eclipse	Disapp.	4	13	34	19.0	III.	Occult.	Reapp.	12	7	41
I.	Occult.	Reapp.	4	16	15		II.	Eclipse	Disapp.	12	9	30 0.9
III.	Eclipse	Disapp.	4	23	19	18.3	I.	Shadow	Ingress	12	12	43
III.	Eclipse	Reapp.	5	1	0	37.3	II.	Occult.	Reapp.	12	13	14
III.	Occult.	Disapp.	5	1	11		I.	Transit	Ingress	12	13	21
III.	Occult.	Reapp.	5	3	17		I.	Shadow	Egress	12	14	55
II.	Eclipse	Disapp.	5	6	56	34.7	I.	Transit	Egress	12	15	33
II.	Occult.	Reapp.	5	10	28		I.	Eclipse	Disapp.	13	9	56 36.1
I.	Shadow	Ingress	5	10	50		I.	Occult.	Reapp.	13	12	45
I.	Transit	Ingress	5	11	21		II.	Shadow	Ingress	14	3	52
I.	Shadow	Egress	5	13	2		II.	Transit	Ingress	14	5	8
I.	Transit	Egress	5	13	33		II.	Shadow	Egress	14	6	23
I.	Eclipse	Disapp.	6	8	2	43.4	I.	Shadow	Ingress	14	7	12
I.	Occult.	Reapp.	6	10	45		II.	Transit	Egress	14	7	41
II.	Shadow	Ingress	7	1	16		I.	Transit	Ingress	14	7	51
II.	Transit	Ingress	7	2	19		I.	Shadow	Egress	14	9	24
II.	Shadow	Egress	7	3	47		I.	Transit	Egress	14	10	3
II.	Transit	Egress	7	4	53		I.	Eclipse	Disapp.	15	4	25 7.4
I.	Shadow	Ingress	7	5	18		I.	Occult.	Reapp.	15	7	15
I.	Transit	Ingress	7	5	51		III.	Shadow	Ingress	15	17	1
I.	Shadow	Egress	7	7	30		III.	Shadow	Egress	15	18	58
I.	Transit	Egress	7	8	3		III.	Transit	Ingress	15	19	42
I.	Eclipse	Disapp.	8	2	31	15.5	III.	Transit	Egress	15	21	44
I.	Occult.	Reapp.	8	5	15		II.	Eclipse	Disapp.	15	22	46 39.4
III.	Shadow	Ingress	8	13	3		I.	Shadow	Ingress	16	1	40
III.	Shadow	Egress	8	15	0		I.	Transit	Ingress	16	2	21
III.	Transit	Ingress	8	15	17		II.	Occult.	Reapp.	16	2	37

470 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME.

D E C E M B E R.


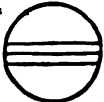

		d	h	m	s			d	h	m	s
I. Shadow	Egress	16	3	52		I. Occult.	Reapp.	24	3	45	
I. Transit	Egress	16	4	33		II. Shadow	Ingress	24	19	46	
I. Eclipse	Disapp.	16	22	53	32.3	II. Transit	Ingress	24	21	20	
I. Occult.	Reapp.	17	1	45		I. Shadow	Ingress	24	22	2	
II. Shadow	Ingress	17	17	9		II. Shadow	Egress	24	22	17	
II. Transit	Ingress W.	17	18	31		I. Transit	Ingress	24	22	50	
II. Shadow	Egress	17	19	41		II. Transit	Egress	24	23	53	
I. Shadow	Ingress	17	20	8		I. Shadow	Egress	25	0	14	
I. Transit	Ingress	17	20	51		I. Transit	Egress	25	1	2	
II. Transit	Egress	17	21	5		I. Eclipse	Disapp.	25	19	15	49.1
I. Shadow	Ingress	17	22	20		I. Occult.	Reapp.	25	22	15	
I. Transit	Egress	17	23	3		III. Eclipse	Disapp.	26	11	13	29.5
I. Eclipse	Disapp. W.	18	17	22	2.5	III. Eclipse	Reapp.	26	12	54	0.1
I. Occult.	Reapp.	18	20	15		III. Occult.	Disapp.	26	14	26	
III. Eclipse	Disapp.	19	7	15	47.7	II. Eclipse	Disapp.	26	14	36	25.6
III. Eclipse	Reapp.	19	8	56	32.7	III. Occult.	Reapp.	26	16	24	
III. Occult.	Disapp.	19	10	2		I. Shadow	Ingress	26	16	30	
II. Eclipse	Disapp.	19	12	3	17.4	I. Transit	Ingress W.	26	17	20	
III. Occult.	Reapp.	19	12	4		I. Shadow	Egress	26	18	42	
I. Shadow	Ingress	19	14	37		II. Occult.	Reapp.	26	18	44	
I. Transit	Ingress	19	15	21		I. Transit	Egress	26	19	32	
II. Occult.	Reapp.	19	16	0		I. Eclipse	Disapp.	27	13	44	10.8
I. Shadow	Egress	19	16	49		I. Occult.	Reapp.	27	16	45	
I. Transit	Egress W.	19	17	33		II. Shadow	Ingress	28	9	4	
I. Eclipse	Disapp.	20	11	50	25.2	II. Transit	Ingress	28	10	43	
I. Occult.	Reapp.	20	14	45		I. Shadow	Ingress	28	10	58	
II. Shadow	Ingress	21	6	28		II. Shadow	Egress	28	11	36	
II. Transit	Ingress	21	7	56		I. Transit	Ingress	28	11	49	
II. Shadow	Egress	21	9	0		I. Shadow	Egress	28	13	10	
I. Shadow	Ingress	21	9	5.		II. Transit	Egress	28	13	17	
I. Transit	Ingress	21	9	51		I. Transit	Egress	28	14	1	
II. Transit	Egress	21	10	30		I. Eclipse	Disapp.	29	8	12	40.2
I. Shadow	Egress	21	11	17		I. Occult.	Reapp.	29	11	15	
I. Transit	Egress	21	12	3		III. Shadow	Ingress	30	0	57	
I. Eclipse	Disapp.	22	6	18	55.7	III. Shadow	Egress	30	2	53	
I. Occult.	Reapp.	22	9	15		II. Eclipse	Disapp.	30	3	52	56.3
III. Shadow	Ingress	22	20	59		III. Transit	Ingress	30	4	28	
III. Shadow	Egress	22	22	55		I. Shadow	Ingress	30	5	27	
III. Transit	Ingress	23	0	6		I. Transit	Ingress	30	6	19	
II. Eclipse	Disapp.	23	1	19	51.8	III. Transit	Egress	30	6	25	
III. Transit	Egress	23	2	6		I. Shadow	Egress	30	7	39	
I. Shadow	Ingress	23	3	33		II. Occult.	Reapp.	30	8	6	
I. Transit	Ingress	23	4	20		I. Transit	Egress	30	8	31	
II. Occult.	Reapp.	23	5	22		I. Eclipse	Disapp.	31	2	41	3.4
I. Shadow	Egress	23	5	45.		I. Occult.	Reapp.	31	5	44	
I. Transit	Egress	23	6	32		II. Shadow	Ingress	31	22	22	
I. Eclipse	Disapp.	24	0	47	19.9	I. Shadow	Ingress	31	23	55	

JUPITER'S SATELLITES, 1875. 471

WASHINGTON MEAN TIME.

DECEMBER.

Phases of the Eclipses of the Satellites for an Inverting Telescope.

<p>I. d * </p>	<p>III. d r * * </p>
<p>II. d * </p>	<p>IV. Not Eclipsed.</p>

472 JUPITER'S SATELLITES, 1875.

WASHINGTON MEAN TIME OF GEOCENTRIC SUPERIOR CONJUNCTION.

SATELLITE I.

Jan.	h m	Mar.	h m	June	h m	Aug.	h m
2	9 30.6	21	5 41.7	7	0 57.4	23	21 57.0
4	3 59.5	23	0 7.9	8	19 24.7	25	16 26.7
5	22 28.3	24	18 34.0	10	13 52.1	27	10 56.5
7	16 57.1	26	13 0.2	12	8 19.5	29	5 26.3
9	11 25.8	28	7 26.2	14	2 47.1	30	23 56.2
11	5 54.5	30	1 52.3	15	21 14.6	Sept. 1	18 26.0
13	0 23.1	31	20 18.3	17	15 42.2	3	12 55.9
14	18 51.7	April 2	14 44.3	19	10 10.0	5	7 25.8
16	13 20.0	4	9 10.3	21	4 37.7	7	1 55.8
18	7 48.5	6	3 36.2	22	23 5.5	8	20 25.7
20	2 16.8	7	22 2.1	24	17 33.4	10	14 55.8
21	20 45.1	9	16 28.0	26	12 1.3	12	9 25.8
23	15 13.2	11	10 53.8	28	6 29.4	14	3 55.9
25	9 41.4	13	5 19.7	30	0 57.5	15	22 25.9
27	4 9.4	14	23 45.5	July 1	19 25.7	17	16 55.9
28	22 37.6	16	18 11.4	3	13 53.9	19	11 26.0
30	17 5.6	18	12 37.2	5	8 22.3	21	5 56.2
Feb. 1	11 33.7	20	7 3.2	7	2 50.7	23	0 26.3
3	6 1.5	22	1 29.1	8	21 19.0	24	18 56.6
5	0 29.4	23	19 55.1	10	15 47.5	26	13 26.7
6	18 57.0	25	14 21.1	12	10 16.0	28	7 57.0
8	13 24.6	27	8 47.0	14	4 44.5	30	2 27.2
10	7 52.1	29	3 13.0	15	23 13.1	Oct. 1	20 57.5
12	2 19.7	30	21 39.1	17	17 41.6	3	15 27.8
13	20 47.0	May 2	16 5.2	19	12 10.4	5	9 58.2
15	15 14.3	4	10 31.3	21	6 39.3	Dec. 1	2 7.9
17	9 41.6	6	4 57.4	23	1 8.2	2	20 38.1
19	4 8.8	7	23 23.7	24	19 37.3	4	15 8.3
20	22 35.9	9	17 49.9	26	14 6.4	6	9 38.4
22	17 3.0	11	12 16.2	28	8 35.5	8	4 8.7
24	11 30.0	13	6 42.6	30	3 4.7	9	22 38.7
26	5 57.0	15	1 8.9	31	21 33.9	11	17 8.8
28	0 23.8	16	19 35.4	Aug. 2	16 3.1	13	11 38.8
Mar. 1	18 50.7	18	14 1.9	4	10 32.3	15	6 8.9
3	13 17.5	20	8 28.5	6	5 1.7	17	0 39.0
5	7 44.2	22	2 55.2	7	23 31.0	18	19 9.0
7	2 10.8	23	21 21.8	9	18 0.5	20	13 38.8
8	20 37.4	25	15 48.5	11	12 29.8	22	8 8.8
10	15 3.9	27	10 15.2	13	6 59.3	24	2 38.8
12	9 30.3	29	4 42.0	15	1 28.7	25	21 8.7
14	3 56.7	30	23 8.9	16	18 58.3	27	15 38.5
15	22 23.1	June 1	17 35.9	18	14 27.9	29	10 8.4
17	16 49.3	3	12 3.0	20	8 57.5	31	4 38.1
19	11 15.6	5	6 30.2	22	3 27.2		

SATELLITE II.

Jan.	h m	Jan.	h m	Feb.	h m	Mar.	h m
1	19 18.6	23	3 5.6	13	10 36.3	6	17 47.4
5	8 37.5	26	16 21.8	16	23 49.5	10	6 57.7
8	21 55.9	30	5 37.6	20	13 2.2	13	20 7.0
12	11 13.9	Feb. 2	18 52.8	24	2 13.8	17	9 17.2
16	0 31.5	6	8 7.8	27	15 25.4	20	22 26.4
19	13 48.6	9	21 22.2	Mar. 3	4 36.3	24	11 34.6

JUPITER'S SATELLITES, 1875. 473

WASHINGTON MEAN TIME OF GEOCENTRIC SUPERIOR CONJUNCTION.

SATELLITE II.

Mar. 28	h m	0 43.2	May 23	h m	18 58.7	July 19	h m	15 2.1	Sept. 14	h m	12 54.3
31		13 50.9	27		8 9.3	23		4 21.1	18		2 18.0
April 4		2 59.2	30		21 21.5	26		17 41.5	21		15 42.3
7		16 6.6	June 3		10 33.0	30		7 1.3	25		5 6.2
11		5 14.7	6		23 46.3	Aug. 2		20 22.4	28		18 30.6
14		18 21.8	10		12 59.0	6		9 43.1	Oct. 2		7 54.6
18		7 29.9	14		2 13.4	9		23 5.0	5		21 18.9
21		20 37.2	17		15 27.2	13		12 26.5	Dec. 1		19 47.5
25		9 45.6	21		4 42.8	17		1 49.1	5		9 10.9
28		22 53.1	24		17 57.8	20		15 11.1	8		22 34.2
May 2		12 1.8	28		7 14.6	24		4 34.1	12		11 57.2
6		1 9.6	July 1		20 30.7	27		17 56.5	16		1 20.1
9		14 18.8	5		9 48.4	31		7 19.8	19		14 42.8
13		3 27.6	8		23 5.5	Sept. 3		20 42.8	23		4 5.3
16		16 37.9	12		12 24.3	7		10 6.6	26		17 27.6
20		5 47.6	16		1 42.5	10		23 30.1	30		6 49.6

SATELLITE III.

Jan. 2	h m	10 21.3	Mar. 22	h m	3 26.4	June 8	h m	16 29.3	Aug. 26	h m	12 22.1
9		14 26.4	29		6 46.6	15		20 8.5	Sept. 2		16 40.8
16		18 27.3	April 5		10 5.2	22		23 52.0	9		21 1.0
23		22 24.4	12		13 21.8	30		3 40.6	17		1 22.6
31		2 17.9	19		16 38.1	July 7		7 32.7	24		5 45.9
Feb. 7		6 6.6	26		19 54.5	14		11 30.5	Oct. 1		10 10.4
14		9 51.4	May 3		23 12.6	21		15 30.9	Dec. 5		2 14.0
21		13 31.0	11		2 33.1	28		19 34.7	12		6 39.2
28		17 5.9	18		5 56.5	Aug. 4		23 41.9	19		11 2.7
Mar. 7		20 36.5	25		9 23.7	12		3 52.4	26		15 24.6
15		0 2.9	June 1		12 54.5	19		8 6.0			

In the following Tables x and y are the rectangular coördinates for each Satellite, referred to the centre of the primary and the major and minor axes of the apparent ellipse described by the Satellite. x is positive on the *east* side of the planet; negative on the *west* side. y is positive when *north*; negative when *south*.

x' and y' are the coördinates which correspond to a constant value of the major axis and maximum value of the minor axis, as seen from the sun at its mean distance.

The factors by which x' and y' must be multiplied to obtain the coördinates x and y at any time, are given for each Satellite on pages 478-479.

p is the inclination of the minor axis of the apparent ellipse to the circle of declination; reckoned from the *north*, + towards the *east*.

COORDINATES IN THE MEAN APPARENT ELLIPSE DESCRIBED BY THE
SATELLITE, AND FOR THE MEAN DISTANCE OF JUPITER
FROM THE SUN, FOR THE TIME (t) AFTER GEO-
CENTRIC SUPERIOR CONJUNCTION.

SATELLITE I.

t	x'	y'	t	x'	y'	t	x'	y'
d h m			d h m			d h m		
0 0 0	+ 0.0	+ 6.6	0 15 0	+ 87.1	- 4.0	1 6 0	-105.1	- 1.8
0 0 20	5.4	6.6	0 15 20	83.7	4.3	1 6 20	106.4	1.5
0 0 40	10.8	6.6	0 15 40	80.1	4.5	1 6 40	107.5	1.2
0 1 0	16.1	6.6	0 16 0	76.4	4.7	1 7 0	108.3	0.8
0 1 20	21.4	6.5	0 16 20	72.5	5.0	1 7 20	108.8	0.5
0 1 40	26.6	6.4	0 16 40	68.4	5.2	1 7 40	109.1	- 0.2
0 2 0	+ 31.8	+ 6.3	0 17 0	+ 64.1	- 5.4	1 8 0	-109.1	+ 0.1
0 2 20	36.9	6.2	0 17 20	59.6	5.5	1 8 20	108.9	0.5
0 2 40	42.0	6.1	0 17 40	55.0	5.7	1 8 40	108.4	0.8
0 3 0	46.9	6.0	0 18 0	50.3	5.9	1 9 0	107.6	1.1
0 3 20	51.7	5.8	0 18 20	45.5	6.0	1 9 20	106.6	1.4
0 3 40	56.4	5.7	0 18 40	40.5	6.1	1 9 40	105.3	1.8
0 4 0	+ 60.9	+ 5.5	0 19 0	+ 35.5	- 6.3	1 10 0	-103.8	+ 2.1
0 4 20	65.3	5.3	0 19 20	30.4	6.4	1 10 20	102.0	2.4
0 4 40	69.5	5.1	0 19 40	25.2	6.4	1 10 40	99.9	2.7
0 5 0	73.6	4.9	0 20 0	19.9	6.5	1 11 0	97.6	3.0
0 5 20	77.5	4.7	0 20 20	14.6	6.6	1 11 20	95.1	3.3
0 5 40	81.2	4.4	0 20 40	9.2	6.6	1 11 40	92.3	3.5
0 6 0	+ 84.7	+ 4.2	0 21 0	+ 3.8	- 6.6	1 12 0	- 89.3	+ 3.8
0 6 20	88.0	3.9	0 21 20	- 1.5	6.6	1 12 20	86.1	4.1
0 6 40	91.1	3.7	0 21 40	6.9	6.6	1 12 40	82.7	4.3
0 7 0	94.0	3.4	0 22 0	12.3	6.6	1 13 0	79.1	4.6
0 7 20	96.6	3.1	0 22 20	17.6	6.5	1 13 20	75.3	4.8
0 7 40	99.0	2.8	0 22 40	22.9	6.5	1 13 40	71.3	5.0
0 8 0	+101.1	+ 2.5	0 23 0	- 28.1	- 6.4	1 14 0	- 67.1	+ 5.2
0 8 20	103.0	2.2	0 23 20	33.3	6.3	1 14 20	62.8	5.4
0 8 40	104.7	1.9	0 23 40	38.4	6.2	1 14 40	58.3	5.6
0 9 0	106.1	1.6	1 0 0	43.4	6.1	1 15 0	53.7	5.8
0 9 20	107.3	1.3	1 0 20	48.3	5.9	1 15 20	49.0	5.9
0 9 40	108.1	0.9	1 0 40	53.1	5.8	1 15 40	44.1	6.1
0 10 0	+108.7	+ 0.6	1 1 0	- 57.7	- 5.6	1 16 0	- 39.1	+ 6.2
0 10 20	109.1	+ 0.3	1 1 20	62.2	5.4	1 16 20	34.0	6.3
0 10 40	109.1	- 0.1	1 1 40	66.6	5.2	1 16 40	28.9	6.4
0 11 0	109.0	0.4	1 2 0	70.8	5.0	1 17 0	23.7	6.5
0 11 20	108.6	0.7	1 2 20	74.8	4.8	1 17 20	18.4	6.5
0 11 40	107.9	1.0	1 2 40	78.6	4.6	1 17 40	13.0	6.6
0 12 0	+106.9	- 1.3	1 3 0	- 82.2	- 4.4	1 18 0	- 7.7	+ 6.6
0 12 20	105.7	1.7	1 3 20	85.6	4.1	1 18 20	- 2.3	6.6
0 12 40	104.2	2.0	1 3 40	88.9	3.8	1 18 40	+ 3.1	6.6
0 13 0	102.5	2.3	1 4 0	91.9	3.6	1 19 0	8.5	6.6
0 13 20	100.5	2.6	1 4 20	94.7	3.3	1 19 20	13.8	6.6
0 13 40	98.3	2.9	1 4 40	97.3	3.0	1 19 40	19.1	6.5
0 14 0	+ 95.8	- 3.2	1 5 0	- 99.6	- 2.7	1 20 0	+ 24.4	+ 6.5
0 14 20	93.1	3.5	1 5 20	101.7	2.4			
0 14 40	+ 90.2	- 3.7	1 5 40	-103.5	- 2.1			

COÖRDINATES IN THE MEAN APPARENT ELLIPSE.

SATELLITE II.

<i>t</i>	<i>x'</i>	<i>y'</i>	<i>t</i>	<i>x'</i>	<i>y'</i>	<i>t</i>	<i>x'</i>	<i>y'</i>
d h m	+ 0.0	+12.2	d h m	+139.5	- 7.3	d h m	-166.4	- 3.5
0 0 0	8.5	12.2	1 6 0	134.2	7.7	2 12 0	168.6	2.9
0 0 40	17.0	12.1	1 7 20	128.6	8.2	2 13 20	170.4	2.3
0 1 20	25.5	12.1	1 8 0	122.7	8.6	2 14 0	171.9	1.8
0 2 0	33.9	12.0	1 8 40	116.5	9.0	2 14 40	173.0	1.2
0 2 40	42.2	11.8	1 9 20	110.1	9.4	2 15 20	173.6	- 0.6
0 3 20								
0 4 0	+ 50.5	+11.7	1 10 0	+103.4	- 9.8	2 16 0	-173.8	0.0
0 4 40	58.6	11.5	1 10 40	96.4	10.1	2 16 40	173.6	+ 0.6
0 5 20	66.5	11.3	1 11 20	89.2	10.5	2 17 20	172.9	1.2
0 6 0	74.3	11.0	1 12 0	81.7	10.8	2 18 0	171.8	1.8
0 6 40	81.9	10.8	1 12 40	74.1	11.0	2 18 40	170.3	2.4
0 7 20	89.4	10.5	1 13 20	66.3	11.3	2 19 20	168.4	3.0
0 8 0	+ 96.6	+10.1	1 14 0	+ 58.3	-11.5	2 20 0	-166.2	+ 3.5
0 8 40	103.6	9.8	1 14 40	50.2	11.7	2 20 40	163.5	4.1
0 9 20	110.3	9.4	1 15 20	42.0	11.8	2 21 20	160.4	4.7
0 10 0	116.7	9.0	1 16 0	33.7	12.0	2 22 0	156.9	5.2
0 10 40	122.9	8.6	1 16 40	25.3	12.1	2 22 40	153.0	5.8
0 11 20	128.8	8.2	1 17 20	16.8	12.1	2 23 20	148.8	6.3
0 12 0	+134.4	+ 7.7	1 18 0	+ 8.3	-12.2	3 0 0	-144.2	+ 6.8
0 12 40	139.6	7.3	1 18 40	- 0.2	12.2	3 0 40	139.3	7.3
0 13 20	144.5	6.8	1 19 20	8.8	12.2	3 1 20	134.1	7.8
0 14 0	149.0	6.3	1 20 0	17.3	12.1	3 2 0	128.5	8.2
0 14 40	153.2	5.7	1 20 40	25.7	12.1	3 2 40	122.6	8.6
0 15 20	157.0	5.2	1 21 20	34.1	12.0	3 3 20	116.4	9.0
0 16 0	+160.5	+ 4.7	1 22 0	- 42.4	-11.8	3 4 0	-109.9	+ 9.4
0 16 40	163.6	4.1	1 22 40	50.6	11.7	3 4 40	103.1	9.8
0 17 20	166.3	3.5	1 23 20	58.7	11.5	3 5 20	96.1	10.1
0 18 0	168.6	3.0	2 0 0	66.7	11.3	3 6 0	88.9	10.5
0 18 40	170.5	2.4	2 0 40	74.5	11.0	3 6 40	81.5	10.8
0 19 20	171.9	1.8	2 1 20	82.1	10.7	3 7 20	73.9	11.0
0 20 0	+172.9	+ 1.2	2 2 0	- 89.5	-10.4	3 8 0	- 66.1	+11.3
0 20 40	173.6	+ 0.6	2 2 40	96.7	10.1	3 8 40	58.1	11.5
0 21 20	173.8	0.0	2 3 20	103.7	9.8	3 9 20	50.0	11.7
0 22 0	173.6	- 0.6	2 4 0	110.4	9.4	3 10 0	41.8	11.8
0 22 40	172.9	1.2	2 4 40	116.8	9.0	3 10 40	33.5	12.0
0 23 20	171.8	1.8	2 5 20	123.0	8.6	3 11 20	25.1	12.1
1 0 0	+170.4	- 2.4	2 6 0	-128.9	- 8.2	3 12 0	- 16.6	+12.1
1 0 40	168.5	3.0	2 6 40	134.5	7.7	3 12 40	- 8.1	12.2
1 1 20	166.2	3.5	2 7 20	139.7	7.2	3 13 20	+ 0.4	12.2
1 2 0	163.5	4.1	2 8 0	144.6	6.7	3 14 0	9.0	12.2
1 2 40	160.4	4.7	2 8 40	149.1	6.2	3 14 40	17.5	12.1
1 3 20	157.0	5.2	2 9 20	153.3	5.7	3 15 20	26.0	12.1
1 4 0	+153.2	- 5.8	2 10 0	-157.1	- 5.2	3 16 0	+ 34.4	+12.0
1 4 40	149.0	6.3	2 10 40	160.6	4.6			
1 5 20	+144.4	- 6.8	2 11 20	-163.7	- 4.1			

COORDINATES IN THE MEAN APPARENT ELLIPSE.

SATELLITE III.

<i>t</i>	<i>x'</i>	<i>y'</i>	<i>t</i>	<i>x'</i>	<i>y'</i>	<i>t</i>	<i>x'</i>	<i>y'</i>
d h m			d h m			d h m		
0 0 0	+ 0.0	+17.4	2 12 0	+225.4	-10.1	5 0 0	-262.3	- 5.6
0 1 20	13.5	17.4	2 13 20	217.3	10.8	5 1 20	266.4	4.8
0 2 40	26.9	17.3	2 14 40	208.6	11.5	5 2 40	269.8	4.0
0 4 0	40.3	17.2	2 16 0	199.5	12.1	5 4 0	272.6	3.2
0 5 20	53.6	17.1	2 17 20	189.9	12.7	5 5 20	274.7	2.3
0 6 40	66.8	16.9	2 18 40	179.9	13.3	5 6 40	276.2	1.5
0 8 0	+ 79.8	+16.7	2 20 0	+169.4	-13.8	5 8 0	-277.0	- 0.6
0 9 20	92.7	16.4	2 21 20	158.5	14.3	5 9 20	277.2	+ 0.2
0 10 40	105.3	16.1	2 22 40	147.2	14.8	5 10 40	276.7	1.1
0 12 0	117.6	15.8	3 0 0	135.6	15.2	5 12 0	275.5	1.9
0 13 20	129.7	15.4	3 1 20	123.7	15.6	5 13 20	273.7	2.7
0 14 40	141.5	15.0	3 2 40	111.5	16.0	5 14 40	271.2	3.6
0 16 0	+153.0	+14.5	3 4 0	+ 99.0	-16.3	5 16 0	-268.1	+ 4.4
0 17 20	164.1	14.0	3 5 20	86.3	16.6	5 17 20	264.4	5.2
0 18 40	174.7	13.5	3 6 40	73.3	16.8	5 18 40	261.0	6.0
0 20 0	184.9	13.0	3 8 0	60.2	17.0	5 20 0	255.1	6.8
0 21 20	194.7	12.4	3 9 20	47.0	17.2	5 21 20	249.5	7.6
0 22 40	204.1	11.8	3 10 40	33.6	17.3	5 22 40	243.3	8.3
1 0 0	+213.0	+11.1	3 12 0	+ 20.2	-17.4	6 0 0	-236.6	+ 9.1
1 1 20	221.4	10.5	3 13 20	+ 6.7	17.4	6 1 20	229.3	9.8
1 2 40	229.3	9.8	3 14 40	- 6.8	17.4	6 2 40	221.4	10.5
1 4 0	236.6	9.1	3 16 0	20.3	17.4	6 4 0	213.0	11.1
1 5 20	243.3	8.3	3 17 20	33.7	17.3	6 5 20	204.1	11.8
1 6 40	249.5	7.6	3 18 40	47.1	17.2	6 6 40	194.7	12.4
1 8 0	+255.1	+ 6.8	3 20 0	- 60.3	-17.0	6 8 0	-184.9	+13.0
1 9 20	260.0	6.0	3 21 20	73.4	16.8	6 9 20	174.7	13.5
1 10 40	264.3	5.2	3 22 40	86.3	16.6	6 10 40	164.1	14.0
1 12 0	268.0	4.4	4 0 0	99.0	16.3	6 12 0	153.0	14.5
1 13 20	271.1	3.6	4 1 20	111.5	16.0	6 13 20	141.5	15.0
1 14 40	273.6	2.7	4 2 40	123.7	15.6	6 14 40	129.7	15.4
1 16 0	+275.5	+ 1.9	4 4 0	-135.7	-15.2	6 16 0	-117.6	+15.8
1 17 20	276.7	1.1	4 5 20	147.2	14.8	6 17 20	105.2	16.1
1 18 40	277.2	+ 0.2	4 6 40	158.4	14.3	6 18 40	92.6	16.4
1 20 0	277.0	- 0.6	4 8 0	169.3	13.8	6 20 0	79.8	16.7
1 21 20	276.2	1.5	4 9 20	179.8	13.3	6 21 20	66.8	16.9
1 22 40	274.7	2.3	4 10 40	189.9	12.7	6 22 40	53.6	17.1
2 0 0	+272.6	- 3.2	4 12 0	-199.5	-12.1	7 0 0	- 40.3	+17.2
2 1 20	269.8	4.0	4 13 20	208.6	11.5	7 1 20	26.9	17.3
2 2 40	266.4	4.8	4 14 40	217.3	10.8	7 2 40	- 13.4	17.4
2 4 0	262.3	5.6	4 16 0	225.5	10.1	7 4 0	+ 0.1	17.4
2 5 20	257.6	6.4	4 17 20	233.1	9.4	7 5 20	13.6	17.4
2 6 40	252.3	7.2	4 18 40	240.1	8.7	7 6 40	27.0	17.3
2 8 0	+246.4	- 8.0	4 20 0	-246.5	- 8.0	7 8 0	+ 40.4	+17.2
2 9 20	240.0	8.7	4 21 20	252.3	7.2			
2 10 40	+233.0	- 9.4	4 22 40	-257.6	- 6.4			

COÖRDINATES IN THE MEAN APPARENT ELLIPSE.

SATELLITE IV.

<i>t</i>	<i>x'</i>	<i>y'</i>	<i>t</i>	<i>x'</i>	<i>y'</i>	<i>t</i>	<i>x'</i>	<i>y'</i>
d h	+ 0.0	+34.8	d h	+406.2	-19.3	d h	-449.0	-13.5
0 0	22.8	34.8	5 18	393.1	20.6	11 12	457.4	12.0
0 3	45.6	34.7	6 0	379.2	21.9	11 15	464.8	10.5
0 6	68.3	34.5	6 3	364.4	23.1	11 21	471.2	8.9
0 9	90.9	34.2	6 6	348.8	24.3	12 0	476.5	7.3
0 12	113.2	33.9	6 9	332.5	25.5	12 3	480.8	5.7
0 18	+135.3	+33.5	6 12	+315.4	-26.6	12 6	-484.0	- 4.1
0 21	157.1	33.0	6 15	297.6	27.6	12 9	486.2	2.5
1 0	178.5	32.4	6 18	279.2	28.5	12 12	487.3	- 0.8
1 3	199.6	31.8	6 21	263.2	29.4	12 15	487.3	+ 0.8
1 6	220.3	31.1	7 0	240.6	30.3	12 18	486.3	2.4
1 9	240.4	30.3	7 3	220.5	31.1	12 21	484.2	4.0
1 12	+260.0	+29.5	7 6	+199.9	-31.8	13 0	-480.9	+ 5.7
1 15	279.0	28.6	7 9	178.8	32.4	13 3	476.6	7.3
1 18	297.4	27.6	7 12	157.4	33.0	13 6	471.3	8.9
1 21	315.2	26.6	7 15	135.6	33.5	13 9	465.0	10.5
2 0	332.3	25.5	7 18	113.5	33.9	13 12	457.6	12.0
2 3	348.6	24.3	7 21	91.2	34.2	13 15	449.3	13.5
2 6	+364.1	+23.1	8 0	+ 68.7	-34.5	13 18	-440.0	+15.0
2 9	378.9	21.9	8 3	46.0	34.7	13 21	429.7	16.4
2 12	392.9	20.6	8 6	23.2	34.8	14 0	418.5	17.8
2 15	406.0	19.3	8 9	+ 0.3	34.8	14 3	406.3	19.2
2 18	418.2	17.9	8 12	- 22.5	34.8	14 6	393.2	20.6
2 21	429.5	16.5	8 15	45.3	34.7	14 9	379.3	21.9
3 0	+439.8	+15.0	8 18	- 68.0	-34.5	14 12	+364.6	+23.1
3 3	449.1	13.5	8 21	90.5	34.2	14 15	349.1	24.3
3 6	457.5	12.0	9 0	112.9	33.9	14 18	332.8	25.4
3 9	464.9	10.5	9 3	135.0	33.5	14 21	315.7	26.5
3 12	471.3	8.9	9 6	156.8	33.0	15 0	298.0	27.5
3 15	476.6	7.3	9 9	178.2	32.4	15 3	279.6	28.5
3 18	+480.8	+ 5.7	9 12	-199.3	-31.8	15 6	-260.5	+29.4
3 21	484.0	4.1	9 15	220.0	31.1	15 9	240.9	30.3
4 0	486.2	2.5	9 18	240.1	30.3	15 12	220.8	31.1
4 3	487.3	+ 0.8	9 21	259.7	29.5	15 15	200.2	31.8
4 6	487.3	- 0.8	10 0	278.7	28.6	15 18	179.2	32.4
4 9	486.3	2.4	10 3	297.2	27.6	15 21	157.7	33.0
4 12	+484.2	- 4.1	10 6	-315.0	-26.6	16 0	-135.9	+33.5
4 15	480.9	5.7	10 9	332.1	25.5	16 3	113.8	33.9
4 18	476.6	7.3	10 12	348.4	24.4	16 6	91.5	34.2
4 21	471.3	8.9	10 15	363.9	23.2	16 9	69.0	34.5
5 0	465.0	10.4	10 18	378.7	21.9	16 12	46.3	34.7
5 3	457.7	12.0	10 21	392.7	20.6	16 15	23.5	34.8
5 6	+449.3	-13.5	11 0	-405.8	-19.3	16 18	- 0.6	+34.8
5 9	439.9	15.0	11 3	418.0	17.9	16 21	+ 22.2	34.8
5 12	429.6	16.4	11 6	429.3	16.5	17 0	+ 45.0	+34.7
5 15	+418.4	-17.9	11 9	-439.6	-15.0			

SATELLITE I.											
Date, 1875.	AT GEOCENTRIC SUPERIOR CONJUNCTION.			AT TIME OF ECLIPSE.		Date, 1875.	AT GEOCENTRIC SUPERIOR CONJUNCTION.			AT TIME OF ECLIPSE.	
	Factor for z'.	Factor for y'.	P.	z.	y.		Factor for z'.	Factor for y'.	P.	z.	y.
Jan. 2	0.920	-0.783	+22 ⁰ 1.0	-31 ¹¹	-5 ¹¹	June 14	1.065	-0.885	+23 ⁰ 22.1	+37 ¹¹	-5 ¹¹
9	0.939	0.810	21 50.3	34	5	21	1.044	0.858	23 22.3	37	5
16	0.959	0.838	21 41.2	35	5	23	1.023	0.832	23 21.0	37	5
23	0.980	0.866	21 33.7	36	5	July 5	1.002	0.808	23 18.3	37	5
30	1.001	0.895	21 28.0	36	6	12	0.981	0.785	23 14.0	36	5
Feb. 6	1.023	-0.924	+21 24.3	-36	-6	19	0.961	-0.765	+23 8.2	+35	-5
13	1.045	0.953	21 22.8	36	6	26	0.942	0.747	23 0.9	34	5
20	1.066	0.981	21 23.5	36	6	Aug. 2	0.925	0.731	22 52.2	33	5
28	1.087	1.007	21 26.4	35	6	9	0.909	0.717	22 41.9	32	4
Mar. 7	1.109	1.030	21 31.4	34	6	16	0.893	0.705	22 30.2	31	4
14	1.127	1.050	21 38.2	32	6	23	0.879	0.695	22 16.9	30	4
21	1.142	-1.066	+21 46.7	-30	-6	30	0.866	-0.686	+22 2.0	+29	-4
28	1.154	1.075	21 56.5	28	6	Sept. 7	0.854	0.679	21 45.6	27	4
Apr. 4	1.163	1.079	22 7.1	25	6	14	0.844	0.673	21 27.8	25	4
11	1.169	1.079	22 18.1	-22	6	21	0.835	0.669	21 8.4	24	4
18	1.171	1.073	22 29.1	+21	6	23	0.828	0.667	20 47.6	22	4
25	1.168	1.060	22 39.7	24	6	Oct. 5	0.822	0.666	20 25.3	+20	4
May 2	1.161	-1.043	+22 49.6	+27	-6	Dec. 1	0.823	-0.700	+16 47.2	-20	-4
9	1.152	1.022	22 58.5	29	6	8	0.829	0.709	16 17.0	22	4
16	1.139	0.998	23 6.2	32	6	15	0.837	0.720	15 47.0	23	4
23	1.123	0.971	23 12.4	34	6	22	0.846	0.732	15 17.3	25	5
30	1.105	0.943	23 17.1	35	6	29	0.857	-0.746	+14 48.1	-26	-5
June 7	1.086	-0.914	+23 20.4	+36	-6						

SATELLITE II.											
Date, 1875.	AT GEOCENTRIC SUPERIOR CONJUNCTION.			AT TIME OF ECLIPSE.		Date, 1875.	AT GEOCENTRIC SUPERIOR CONJUNCTION.			AT TIME OF ECLIPSE.	
	Factor for z'.	Factor for y'.	P.	z.	y.		Factor for z'.	Factor for y'.	P.	z.	y.
Jan. 1	0.919	-0.680	+21 ⁰ 36.0	-41 ¹¹	-5 ¹¹	June 14	1.065	-0.774	+22 ⁰ 56.2	+47 ¹¹	-6 ¹¹
8	0.937	0.702	21 25.1	43	8	21	1.044	0.750	22 56.4	48	9
16	0.957	0.724	21 15.8	44	9	23	1.023	0.727	22 55.1	48	8
23	0.978	0.747	21 8.2	45	9	July 5	1.002	0.705	22 52.2	+17, +48	8
30	1.000	0.771	21 2.3	46	9	12	0.981	0.684	22 47.9	17 47	8
Feb. 6	1.021	-0.796	+20 58.5	-46	-9	19	0.961	-0.664	+22 42.1	+17, +46	-8
13	1.043	0.820	20 56.8	46	10	26	0.942	0.646	22 34.8	16 45	8
20	1.065	0.844	20 57.4	45	10	Aug. 2	0.924	0.631	22 25.9	43	7
27	1.086	0.866	21 0.2	44	10	9	0.907	0.617	22 15.5	41	7
Mar. 6	1.107	0.886	21 5.1	42	11	17	0.892	0.614	22 3.7	39	7
13	1.126	0.904	21 11.9	39	11	24	0.878	0.593	21 50.3	37	7
20	1.142	-0.919	+21 20.3	-36	-11	31	0.865	-0.583	+21 35.4	+35	-7
28	1.154	0.929	21 30.0	32	11	Sept. 7	0.853	0.575	21 19.0	33	7
Apr. 4	1.163	0.934	21 40.6	27	11	14	0.842	0.568	21 1.0	31	7
11	1.169	0.934	21 51.7	-22	11	21	0.833	0.562	20 41.6	29	7
18	1.171	0.930	22 2.8	+20	11	23	0.827	0.558	20 20.7	26	7
25	1.163	0.922	22 13.5	25	11	Oct. 5	0.822	0.555	19 58.4	+23	7
May 2	1.162	-0.909	+22 23.4	+30	-11	Dec. 1	0.823	-0.563	+16 20.9	-23	-7
9	1.152	0.891	22 32.3	34	11	8	0.830	0.569	15 50.7	26	7
16	1.139	0.871	22 40.0	33	10	16	0.838	0.576	15 21.3	23	7
23	1.123	0.848	22 46.3	41	10	23	0.847	0.584	14 52.1	30	7
30	1.105	0.824	22 51.1	44	10	30	0.858	-0.593	-14 23.0	-32	-7
June 6	1.086	-0.799	+22 54.4	+46	-9						

THE APPARENT ELEMENTS OF SATURN'S RING.

Washington Mean Noon.	<i>a</i> Outer Major Axis.	<i>b</i> Outer Minor Axis.	<i>p</i> Inclination of Northern Semi-minor Axis to Circle of Declination from North to East.	<i>l</i> The Elevation of the Earth above the Plane of the Ring.	<i>l'</i> The Elevation of the Sun above the Plane of the Ring.	<i>u</i> <i>u'</i> Earth's Longitude from Saturn counted on Plane of Ring from the Ring's Ascending Node on	
						Equator.	Ecliptic.
Jan. 0	35.02	10.04	-7° 17.0	+16° 34.6	+15° 28.2	348° 41'	305° 47'
20	34.60	9.39	7 11.8	15 45.0	15 14.1	346 33	303 39
Feb. 9	34.50	8.80	7 5.8	14 46.5	14 59.8	344 17	301 23
March 1	34.73	8.28	6 59.3	13 48.0	14 45.6	342 3	299 9
21	35.27	7.87	6 52.8	12 53.5	14 31.0	340 1	297 7
April 10	36.11	7.58	6 47.0	12 7.1	14 16.5	338 13	295 19
30	37.19	7.44	6 42.3	11 32.6	14 1.8	336 58	294 4
May 20	38.45	7.48	6 39.5	11 13.2	13 47.1	336 10	293 16
June 9	39.75	7.71	6 36.7	11 11.0	13 32.2	335 56	293 2
29	40.99	8.12	6 40.2	11 25.9	13 17.3	336 19	293 25
July 19	41.93	8.66	6 43.6	11 55.4	13 2.2	337 12	294 18
Aug. 8	42.42	9.23	6 48.1	12 34.2	12 47.1	338 27	295 33
28	42.34	9.70	6 52.9	13 14.5	12 31.9	339 49	296 55
Sept. 17	41.73	9.96	6 56.8	13 48.5	12 16.5	341 1	298 7
Oct. 7	40.69	9.96	6 59.3	14 9.8	12 1.1	341 49	298 58
27	39.41	9.69	6 60.0	14 14.4	11 45.6	342 2	299 9
Nov. 16	38.10	9.23	6 58.6	14 1.4	11 30.5	341 36	298 43
Dec. 6	30.89	8.63	6 55.3	13 31.8	11 14.3	340 36	297 43
26	35.91	7.96	6 50.1	12 48.0	10 58.6	339 6	296 13
31	35.71	7.79	-6 48.6	+12 35.4	+10 54.2	338 39	295 46

Factors which are to be multiplied by *a* and *b* to obtain the axes of

The inner ellipse of the outer Ring =0.8801 log. Factor=9.9445

The outer ellipse of the inner Ring =0.8599 " =9.9344

The inner ellipse of the inner Ring =0.6650 " =9.8228

The inner ellipse of Bond's dusky Ring=0.5486 " =9.7392

NOTE.—The sign of *l* indicates whether the visible surface of the Ring is northern or southern.

THE APPARENT DISCS OF VENUS AND MARS.

The Versed Sines of their Illuminated Portions, divided by their Apparent Diameters.

1875.	Venus.	Mars.	1875.	Venus.	Mars.
January 1	.155	.920	July 30	.966	.928
31	.397	.902	August 29	.993	.872
March 2	.560	.891	September 28	.999	.842
April 1	.680	.897	October 28	.988	.846
May 1	.777	.926	November 27	.961	.860
31	.856	.981	December 27	.921	.881
June 30	.909	.993			

WASHINGTON MEAN TIME.

PLANETARY CONSTELLATIONS.

	d	h	m									
Jan.	1	6	14	♂	♂	♄	.....	♂	+	2	32
	4	3	45	♂	♂	♄	.....	♀	+	8	39
	6	13	11	♂	♂	♄	.....	♀	+	3	21
	7	19	-	♂	♂	♄	stationary.					
	8	22	18	♂	♂	♄	.....	♂	+	3	58
	9	23	30				♂ in Perihelion.					
	12	-	-				♂ at greatest brilliancy.					
	14	12	1	♂	♂	♄	.....	♂	-	2	33
	14	19	31	♂	♂	♄	♄ Sup.					
	17	18	37	♂	♂	♄	♄					
	20	3	26	♂	♂	♄	♄					
	21	9	2	♂	♂	♄	♄					
	21	20	8	♂	♂	♄	.....	♂	-	4	8
	26	15	46	♂	♂	♄	.....	♂	-	1	1
	28	4	47	♂	♂	♄	.....	♂	+	2	32
	30	1	30	♂	♂	♄	.....	♂	+	4	6
	Feb.	1	2	10	♂	♂	♄	♄				
		1	17	8	♂	♂	♄	♀	+	9	5
		1	20	18	♂	♂	♄	♀	+	9	5
		5	4	30	♂	♂	♄	♄				
5		12	4	♂	♂	♄	.....	♂	+	3	48
6		18	26	♂	♂	♄	.....	♀	+	3	22
9		8	50	♂	♂	♄	in ♄					
10		18	6	♂	♂	♄	.....	♂	-	2	50
13		8	15	♂	♂	♄	♄					
13		22	44	♂	♂	♄	♄					
	14	19	-	♂	♂	♄	♄					
	17	15	30	♂	♂	♄	♄					
	18	2	25	♂	♂	♄	.....	♂	-	4	11
	20	4	-	♂	♂	♄	stationary.					
	24	6	17	♂	♂	♄	♄					
	24	13	55	♂	♂	♄	.....	♂	+	2	55
	25	21	50	♂	♂	♄	♄					
	27	16	29	♂	♂	♄	.....	♂	+	4	52
	Mar.	1	3	44	♂	♂	♄	♄				
		3	9	42	♂	♂	♄	♀	+	7	21
5		3	27	♂	♂	♄	.....	♂	+	3	41
6		4	20	♂	♂	♄	.....	♀	+	7	16
10		2	24	♂	♂	♄	.....	♂	-	3	2
14		13	-	♂	♂	♄	stationary.					
17		6	7	♂	♂	♄	.....	♂	-	4	18
19		18	2	♂	♂	♄	in ♄					
20		7	13	♂	♂	♄	♄ enters ♀, spring com.					
23		17	42	♂	♂	♄	.....	♂	+	2	55
	26	14	0	♂	♂	♄	.....	♀	+	1	16
	28	2	10	♂	♂	♄	.....	♂	+	5	2
	28	11	54	♂	♂	♄	♄					
	29	3	41	♂	♂	♄	♄					
	29	22	24	♂	♂	♄	♄					
	April	1	18	32	♂	♂	♄	♂	+	3	33
		2	7	19	♂	♂	♄	♀	+	3	56
	April	3	13	49	♂	♂	♄	♀	+	0	33
		5	-	-	♂	♂	♄	eclipsed, invis. at Wash.				
6		9	19	♂	♂	♄	in ♄					
6		13	31	♂	♂	♄	.....	♂	-	3	9
13		11	38	♂	♂	♄	.....	♂	-	4	2
16		12	9	♂	♂	♄	♄					
18		1	-	♂	♂	♄	stationary.					
19		8	18	♂	♂	♄	♄					
19		17	36	♂	♂	♄	.....	♂	+	2	36
20		7	17	♂	♂	♄	♄					
	25	3	18	♂	♂	♄	.....	♂	+	4	24
	29	7	15	♂	♂	♄	.....	♂	+	3	20
	30	9	43	♂	♂	♄	.....	♀	+	0	26
	May	1	8	6	♂	♂	♄	♄				
		2	6	0	♂	♂	♄	♄				
	2	7	30	♂	♂	♄	.....	♀	-	0	38
	4	2	5	♂	♂	♄	.....	♂	-	3	14
	4	15	40	♂	♂	♄	.....	♀	-	2	52
	8	8	6	♂	♂	♄	in ♄					
	8	13	49	♂	♂	♄	♄					
10	18	35	♂	♂	♄	.....	♂	-	4	17	
12	22	1	♂	♂	♄	in Perihelion.						
	16	9	23	♂	♂	♄	♄					
	16	17	10	♂	♂	♄	.....	♂	+	2	16
	17	22	-	♂	♂	♄	stationary.					
	22	14	51	♂	♂	♄	.....	♂	+	2	53
	23	5	33	♂	♂	♄	♄					
	24	8	6	♂	♂	♄	.....	♂	+	0	7
	25	2	30	♂	♂	♄	♄					
	26	16	20	♂	♂	♄	.....	♂	+	3	0
	31	14	4	♂	♂	♄	.....	♂	-	3	14
	June	1	4	58	♂	♂	♄	♀	-	4	12
4		21	2	♂	♂	♄	.....	♀	-	3	14
5		12	-	♂	♂	♄	stationary.					
7		4	34	♂	♂	♄	.....	♂	-	4	5
9		1	26	♂	♂	♄	♄					
12		20	13	♂	♂	♄	.....	♂	+	2	10
15		17	18	♂	♂	♄	in ♄					
18		8	-	♂	♂	♄	stationary.					
18		10	18	♂	♂	♄	.....	♂	+	0	57
19		15	21	♂	♂	♄	♄					
	21	3	39	♂	♂	♄	♄ enters ♄, summer com.					
	22	21	52	♂	♂	♄	.....	♂	+	2	41
	23	0	-	♂	♂	♄	stationary.					
	25	21	39	♂	♂	♄	in Aphelion.					
	27	23	50	♂	♂	♄	.....	♂	-	3	42
	29	13	-	♂	♂	♄	♄					
	29	13	-	♂	♂	♄	♄					
	30	22	39	♂	♂	♄	.....	♀	-	5	21
	July	2	12	19	♂	♂	♄	♄				
		2	19	40	♂	♂	♄	♀	-	9	17
4		16	41	♂	♂	♄	.....	♂	-	3	52

WASHINGTON MEAN TIME.									
PLANETARY CONSTELLATIONS.									
July	6	5	32	♂	♃	♁	Inf.		
	10	4	44	♂	♃	♁	..... ♃+ 2 21		
	15	1	35	♁	♃	♁	..... ♃- 0 2		
	15	3	8	♂	♃	♁	..... ♃- 0 2		
	16	7	34				♃ greatest Hel. Lat. S.		
	16	21	-				♃ stationary.		
	20	1	2	♂	♃	♀	..... ♃- 3 40		
	20	1	23	♂	♃	♁	..... ♃+ 2 30		
	20	6	58				♀ in ♄		
	24	20	-				♃ stationary.		
	25	6	55	♂	♃	♁	..... ♃- 4 1		
	25	18	59	♁	♃	♁	..... ♃- 4 1		
	27	6	55				♃ greatest elong. W. 19 42		
	30	8	28	♂	♃	♁	..... ♃- 6 14		
	30	16	42	♂	♃	♁	..... ♃- 4 35		
Aug.	1	5	16	♂	♃	♁	..... ♃- 3 43		
	4	7	21				♃ in ♄		
	5	15	-				♃ stationary.		
	6	18	23	♂	♃	♁	..... ♃+ 2 45		
	7	21	34	♂	♃	♁	..... ♃+ 2 45		
	8	21	17				♃ in Perihelion.		
	10	4	38	♂	♃	♀	..... ♃+ 0 16		
	11	14	47	♂	♃	♁	..... ♃+ 0 28		
	15	2	17	♂	♃	♁	..... ♃+ 0 58		
	15	8	3	♂	♃	♁	..... ♃+ 2 31		
	16	5	1	♂	♃	♀	..... ♃- 0 25		
	18	8	43				♃ greatest Hel. Lat. N.		
	19	4	49				♃ greatest Hel. Lat. N.		
	21	12	22	♂	♃	♁	..... ♃- 4 16		
	21	12	25	♂	♃	♁	Sup.		
	22	14	11				♃ in Perihelion.		
	28	17	3	♂	♃	♁	..... ♃- 3 35		
	29	16	39	♂	♃	♁	..... ♃- 2 8		
	30	23	3	♂	♃	♁	..... ♃- 0 47		
Sept.	3	11	30	♂	♃	♁	..... ♃+ 3 12		
	8	18	35	♂	♃	♁	..... ♃+ 1 33		
	10	2	52				♃ greatest Hel. Lat. S.		
	11	16	33				♃ in ♃		
	12	10	18	♂	♃	♁	..... ♃+ 2 41		
	13	18	52				♃ greatest Hel. Lat. N.		
	17	18	12	♂	♃	♁	..... ♃- 4 19		
	21	20	55				♃ in Aphelion.		
	22	15	0	♂	♃	♁	Sup.		
	22	18	7	♁	♃	♁	enters ♄ autumn com.		
	25	2	0	♂	♃	♁	..... ♃- 3 38		
	29	0	28	♂	♃	♁	..... ♃+ 1 24		
	29	-	-				♃ eclipsed, vis. at Wash.		
	30	23	58	♂	♃	♁	..... ♃- 0 13		
Oct.	1	6	17	♂	♃	♁	..... ♃+ 3 38		
	4	4	15				♃ in Perihelion.		
Oct.	4	12	26	♂	♃	♁	..... ♃- 3 56		
	5	23	56				♃ greatest elong. E. 25 25		
	7	9	49	♂	♃	♁	..... ♃+ 2 23		
	9	17	43	♂	♃	♁	..... ♃+ 2 47		
	12	6	50				♃ greatest Hel. Lat. S.		
	15	1	59	♂	♃	♁	..... ♃- 4 19		
	17	23	-				♃ stationary.		
	22	9	27	♂	♃	♁	..... ♃- 3 32		
	22	19	6	♁	♃	♁	stationary.		
	23	16	-				♃ stationary.		
	24	16	18	♂	♃	♁	..... ♃- 0 22		
	24	18	12	♂	♃	♁	..... ♃- 0 22		
	25	7	10	♂	♃	♀	..... ♃- 2 38		
	25	19	45	♂	♃	♁	..... ♃- 2 52		
	28	17	20	♂	♃	♁	..... ♃+ 1 49		
	29	1	17	♂	♃	♁	..... ♃+ 4 2		
	29	11	18	♂	♃	♁	..... ♃+ 3 52		
	29	12	29	♂	♃	♁	Inf.		
	31	6	37				♃ in ♄		
Nov.	4	5	22	♂	♃	♁	..... ♃+ 3 52		
	4	20	33				♃ in Perihelion.		
	5	6	2	♂	♃	♁	..... ♃+ 2 37		
	6	2	31	♂	♃	♁	..... ♃+ 2 42		
	7	18	-				♃ stationary.		
	8	20	27				♃ in ♃		
	11	11	41	♂	♃	♁	..... ♃- 4 15		
	11	19	4	♁	♃	♁	..... ♃- 4 15		
	11	22	59	♁	♃	♁	..... ♃- 4 15		
	14	18	0				♃ greatest elong. W. 19 17		
	15	4	5				♃ greatest Hel. Lat. N.		
	18	16	30	♂	♃	♁	..... ♃- 3 15		
	21	10	45	♂	♃	♁	..... ♃- 0 13		
	24	18	19	♂	♃	♁	..... ♃+ 0 44		
	25	3	-				♃ stationary.		
	25	19	43	♂	♃	♁	..... ♃+ 4 26		
	25	22	39	♂	♃	♁	..... ♃+ 5 8		
	28	20	34	♂	♃	♁	..... ♃+ 4 8		
Dec.	3	12	4	♂	♃	♁	..... ♃+ 2 25		
	4	4	13	♂	♃	♁	..... ♃+ 1 58		
	8	15	49				♃ in ♃		
	8	21	40	♂	♃	♁	..... ♃- 4 19		
	12	22	10				♃ in Aphelion.		
	16	0	40	♂	♃	♁	..... ♃- 3 3		
	18	20	11				♃ in Aphelion.		
	21	12	8				♁ enters ♃, winter com.		
	23	13	12	♂	♃	♁	..... ♃+ 4 54		
	25	15	47	♂	♃	♁	Sup.		
	27	3	28	♂	♃	♁	..... ♃+ 3 14		
	29	4	49	♂	♃	♁	..... ♃+ 2 52		
	30	22	26	♂	♃	♁	..... ♃+ 2 3		

POSITIONS OF THE PRINCIPAL OBSERVATORIES.

(North Latitudes and West Longitudes are considered as positive.)

Place.	Latitude.	Longitude from Washington in Time.	Longitude from Washington in Days.	Longitude from Washington in Arc.
° Abo,	+60° 26' 56.8"	— 6 ^h 37 ^m 20.32 ^s	— .2759296	260° 39' 55.2"
Albany,	+42 39 49.5	— 0 13 12.87	— .0091767	356 41 47.0
Allegheny,	+40 27 36.0	+ 0 11 50.66	+ .0082252	2 57 39.9
Altona,	+53 32 45.3	— 5 47 58.54	— .2416498	273 0 21.9
Ann Arbor,	+42 16 48.0	+ 0 26 42.67	+ .0185494	6 40 40.0
Armagh,	+54 21 12.7	— 4 41 36.92	— .1955662	289 35 46.2
Athens,	+37 58 20.0	— 6 43 7.58	— .2799488	259 13 6.3
Berlin,	+52 30 16.7	— 6 1 47.77	— .2512473	269 33 3.4
Bilk,	+51 12 25.0	— 5 35 17.77	— .2328445	276 10 33.4
Bonn,	+50 43 45.0	— 5 36 36.02	— .2337502	275 50 59.7
Breslau,	+51 6 56.5	— 6 16 22.19	— .2613679	265 54 27.1
Brussels,	+50 51 10.7	— 5 25 41.29	— .2261723	278 34 40.7
Cambridge, (Eng.),	+52 12 51.8	— 5 8 35.08	— .2142949	282 51 13.8
Cambridge, (Mass.),	+42 22 48.1	— 0 23 41.54	— .0164530	354 4 36.9
Cape of Good Hope,	—33 56 3.2	— 6 22 8.09	— .2653711	264 27 58.7
Chicago,	+41 50 1.0	+ 0 42 14.26	+ .0293317	10 33 33.9
Cincinnati,	+39 6 26.5	+ 0 29' 46.94	+ .0206822	7 26 44.1
Christiania,	+59 54 43.7	— 5 51 6.69	— .2438274	272 13 19.6
Clinton,	+43 3 16.5	— 0 6 35.08	— .0045727	358 21 13.8
Copenhagen,	+55 41 13.6	— 5 58 31.05	— .2489703	270 22 14.3
Cracow,	+50 3 50.0	— 6 28 2.80	— .2694768	262 59 18.0
Dorpat,	+58 22 47.0	— 6 55 6.02	— .2882641	256 13 29.7
Dublin,	+53 23 13.0	— 4 42 50.39	— .1964165	289 17 24.1
Durham,	+54 46 6.4	— 5 1 52.64	— .2096370	284 31 50.4
Edinburgh,	+55 57 23.2	— 4 55 29.34	— .2052007	286 7 39.9
Florence,	+43 46 40.8	— 5 53 15.12	— .2453139	271 41 13.2
Geneva,	+46 11 58.8	— 5 32 49.24	— .2311344	276 47 41.4
Georgetown,	+38 54 26.2	+ 0 0 6.20	+ .0000718	0 1 33.0
Göttingen,	+51 31 47.8	— 5 47 58.49	— .2416492	273 0 22.7
Gotha,	+50 56 37.5	— 5 51 3.39	— .2437892	272 14 9.2
Greenwich,	+51 28 38.2	— 5 8 12.39	— .2140323	282 56 54.2
Hamburg,	+53 33 7.0	— 5 48 5.95	— .2417355	272 58 30.8
Helsingfors	+60 9 42.6	— 6 48 1.32	— .2833486	257 59 40.2
Hudson,	+41 14 42.6	+ 0 17 32.06	+ .0121766	4 23 0.9
Kasan,	+55 47 24.2	— 8 24 41.14	— .3504761	233 49 42.9
Königsberg,	+54 42 50.6	— 6 30 11.87	— .2709707	262 27 0.2
Kremsmünster,	+48 3 23.7	— 6 4 45.03	— .2532990	268 48 44.6
Leipsic,	+51 20 6.3	— 5 57 46.87	— .2484592	270 33 17.0
Leyden,	+52 9 20.3	— 5 26 8.57	— .2264881	278 27 51.5
Liverpool,	+53 24 47.7	— 4 56 12.34	— .2056984	285 56 54.9
Madras,	+13 4 9.2	—10 29 9.67	— .4369175	202 42 35.0
Madrid,	+40 24 29.7	— 4 53 27.00	— .2037847	286 38 15.0
Mannheim,	+49 29 12.9	— 5 42 3.06	— .2375354	274 29 14.1

Place.	Latitude.	Longitude from Washington in Time.			Longitude from Washington in Days.	Longitude from Washington in Arc.
		^h	^m	^s	^d	[°] ['] ["]
Markree,	+54° 10' 31.8"	— 4	34	24.00	— .1905556	291° 24' 0.0"
Marseilles,	+43 17 49.0	— 5	29	40.55	— .2289415	277 34 51.8
Milan,	+45 28 0.7	— 5	44	58.20	— .2395625	273 45 27.0
Modena,	+44 38 52.8	— 5	51	55.53	— .2443927	272 1 7.1
Moscow,	+55 45 18.9	— 7	38	29.29	— .3183946	245 22 40.7
Munich,	+48 8 45.0	— 5	54	38.00	— .2462731	271 20 30.0
Naples,	+40 51 46.6	— 6	5	10.95	— .2535990	268 42 15.8
New York,	+40 43 48.5	— 0	12	15.47	— .0085124	356 56 0.8
Nicolajew,	+46 58 20.6	— 7	16	6.53	— .3028534	250 58 22.1
Olmütz,	+49 35 43.0	— 6	17	15.43	— .2619841	265 41 8.6
Oxford,	+51 45 35.5	— 5	3	9.79	— .2105300	284 12 33.2
Padua,	+45 24 2.5	— 5	55	41.17	— .2470043	271 4 42.5
Palermo,	+38 6 44.0	— 6	1	37.00	— .2511227	269 35 45.0
Paramatta,	—33 48 49.8	—15	12	18.64	— .6335491	131 55 20.4
Paris,	+48 50 11.0	— 5	17	33.02	— .2205211	280 36 44.7
Philadelphia,	+39 57 7.5	— 0	7	33.64	— .0052505	358 6 35.4
Prague,	+50 5 18.5	— 6	5	53.52	— .2540917	268 31 37.2
Pulkowa,	+59 46 18.1	— 7	9	31.06	— .2982757	252 37 14.1
Rome,	+41 53 53.7	— 5	58	8.53	— .2487098	270 27 52.1
San Fernando,	+36 27 45.0	— 4	43	22.42	— .1967873	289 9 23.7
Santiago,	—33 26 42.0	— 0	25	30.00	— .0177083	353 37 30.0
Senftenberg,	+50 5 10.1	— 6	14	3.00	— .2597570	266 29 15.0
Speyer,	+49 18 55.4	— 5	41	58.00	— .2374769	274 30 30.0
Stockholm,	+59 20 33.8	— 6	20	26.35	— .2641939	264 53 24.7
St. Petersburg,	+59 56 29.7	— 7	9	25.87	— .2982161	252 38 32.0
Upsala,	+59 51 31.5	— 6	18	42.70	— .2629942	265 19 19.5
Utrecht,	+50 5 10.5	— 5	28	43.67	— .2282832	277 49 5.0
Vienna,	+48 12 35.5	— 6	13	44.09	— .2595381	266 33 58.7
Washington,	+38 53 38.8	0	0	0.00	.0000000	0 0 0.0
Wilna,	+54 50 59.1	— 6	49	23.33	— .2842987	257 39 10.1

The authorities for these positions are given in the volumes for 1871 and 1872.

By a more recent telegraphic determination, made by the *United States Coast Survey* in 1867, Cambridge, Mass., is East of Washington 0^h 23^m 41^s.08, instead of 0^h 23^m 41^s.54.

The correction therefore to be applied to the longitudes of the preceding table, except those of Albany, Cincinnati, Georgetown, Hudson, New York, Philadelphia, and Washington, is +0^s.46 = +0^d.0000053 = +6^{''}.9.

ON THE ARRANGEMENT AND USE OF THE TABLES IN THIS EPHEMERIS.

THE NAUTICAL PART.

THIS Part of the AMERICAN EPHEMERIS AND NAUTICAL ALMANAC is designed for the special use of NAVIGATORS and adapted to the Meridian of Greenwich. It contains the Ephemeris of the sun and moon; the distances of the moon from the centres of the sun and the four most conspicuous planets, and from certain Fixed Stars; the Ephemeris of the planets Venus, Mars, Jupiter, and Saturn; and the Mean Places of 198 principal Fixed Stars for the beginning of the year 1875.

Time.—Astronomers make use of several different kinds of time; an explanation of the nature of which, and of the method of passing from one to another, properly precedes an explanation of the uses of the Ephemeris.

Sidereal Time.—Sidereal Time is measured by the daily motion of the stars, or as it is used by astronomers, by the daily motion of that point in the equator from which the true right ascensions of the stars are counted. This point is the vernal equinox, and its hour angle is called the *Sidereal Time*. Astronomical clocks are regulated to sidereal time.

A *Sidereal Day* is the interval of time between the transit of the vernal equinox over any meridian, and its next succeeding return to the same meridian. It is divided into 24 hours. The sidereal hours are counted from 0 to 24, commencing with the instant of the passage of the true vernal equinox over the upper meridian, and ending with its return to the same meridian.

The vernal equinox is not a fixed, but a movable, point on the equator. Its motion is composed of two parts: precession, which is proportional to the time, and is combined with the daily motion of the heavens; and nutation, which is periodical. In consequence of the latter, the daily motion of the equinox is not strictly a uniform measure of time, and the sidereal time in common use might therefore be called *Apparent Sidereal Time*; and *Mean Sidereal Time* would be that reckoned from the transit of the mean equinox; but the irregularity referred to cannot exceed 2'.3 in a period of nineteen years, and is, therefore, of no practical importance.

Solar Time.—Solar Time is measured by the daily motion of the sun. A *Solar Day* is the interval of time between two successive transits of the sun over the same meridian; and the hour angle of the sun is called *Solar Time*. This is the most natural and direct measure of time. But the intervals between the successive returns of the sun to the meridian are not exactly equal, but depend upon the variable motion of the sun in right ascension.

The want of uniformity in the sun's motion in right ascension arises from two different causes; one, that the sun does not move in the equator, but in the ecliptic; the other, that the sun's motion in the ecliptic is not uniform.

To avoid the irregularity in time caused by the want of uniformity in the sun's motion, a fictitious sun, called a *Mean Sun*, is supposed to move in the equator with a uniform velocity.

Mean Time, which is perfectly equable in its increase, is measured by the motion of this *Mean Sun*; the latter at certain periods agrees with the real sun, then again is in advance of it, and at other times is behind it. The clocks in ordinary use, and chronometers used by Navigators, are regulated to *mean* time.

True or Apparent Time is measured by the motion of the real sun.

The difference between the *apparent* and *mean* time is called the *Equation of Time*. By means of it we change *apparent* to *mean* time, or the reverse. Thus, if the *apparent* time be given, the *mean* time corresponding to it will be obtained by adding or subtracting the equation of time, according to the precept at the head of the column in which it is found, on page I. of the Calendar. If the *mean* time be given, the *apparent* time is obtained by applying the equation of time as directed by the precept on page II. of the Calendar.

Day.—The *civil day*, according to the customs of society, commences at midnight, and comprises twenty-four hours from one midnight to the next following. The hours are counted from 0 to 12 from midnight to noon, after which they are again reckoned from 0 to 12 from noon to midnight. Thus the day is divided into two periods of 12 hours each; the first of which is marked A. M., the last is marked P. M.

The *astronomical day* commences at noon of the civil day of the same date. It also comprises twenty-four hours, but they are reckoned from 0 to 24, and from the noon of one day to that of the next following. The astronomical, as well as the civil, time may be either *apparent* or *mean*, according as it is reckoned from *apparent* noon, or from *mean* noon.

The civil day begins twelve hours before the astronomical day; therefore the first part of the *civil day* answers to the last part of the preceding *astronomical day*, and the last part of the *civil day* to the first part of the same *astronomical day*. Thus, January 9th, 2^h A. M., *civil time*, is January 8th, 14^h, *astronomical time*; and January 9th, 2^h P. M., *civil time*, is also January 9th, 2^h, *astronomical time*. The rule, then, for the transformation of the civil time into astronomical time is this: If the civil time is marked A. M., take one from the date, and add twelve to the hours, and the result is the astronomical time wanted; if the civil time is marked P. M., take away the designation P. M., and the astronomical time is had without further change.

If the longitude from Greenwich be expressed in time, and, when it is *west*, added to the local time, or, when it is *east*, subtracted from the local time, the result is the corresponding Greenwich time. If the local astronomical time is used, the result is the *Greenwich astronomical time*, which ordinarily is required for the use of this Part of the Ephemeris.

THE CALENDAR.—The Calendar is divided into twelve months, and to each month are assigned eighteen pages, of which the contents are as follows:

Page I. contains the *Apparent Right Ascension and Declination* of the Sun and the *Equation of Time* for each Greenwich *apparent* noon. Adjoining columns contain the differences of these quantities for one hour. By multiplying this difference by the hours and parts of an hour from Greenwich *apparent* noon, and adding the amount to, or subtracting it from, the quantity at noon, according as that quantity is increasing or decreasing, we obtain the value of the quantity for a given *Greenwich apparent time*. The hourly differences are given for the instant of *apparent* noon at Greenwich, and, when great accuracy is required, should be first interpolated for *half* the hours and parts of an hour of the Greenwich *apparent* time.

This page is chiefly used when the sun is observed on the meridian, and the local *apparent* time is 0. The longitude from Greenwich expressed in time, if *west*, is at that instant the Greenwich *apparent* time, or time *after* Greenwich *apparent* noon; if *east*, it is time *before* Greenwich *apparent* noon. The longitude is therefore employed in reducing the quantities on this page to *apparent* noon at any place.

The Right Ascension of the sun thus reduced is the *Sidereal Time of Local Apparent Noon*. The difference between it and the clock time of the meridian passage of the sun is the error of the clock on *Sidereal* time.

The Declination of the sun reduced to the meridian, or apparent noon, of the place, is needed in finding the latitude from a meridian altitude of the sun.

As an example of the use of this page, let the sun's declination be required at noon of January 3d, 1875, in longitude $146^{\circ} 4' W.$, or $+9^h 44^m 16^s$. We first find—

For January 3d, at Greenwich <i>apparent</i> noon, \odot 's declination	$= 22^{\circ} 50' 39.7'' S.$
The diff. for 1 hour, $+14''.60$, multiplied by 9, is	$131.40''$
The proportional part for $30^m = \frac{1}{2}^h$,	7.30
" " " $12^m = \frac{1}{5}^h$,	2.92
" " " $2^m = \frac{1}{30}^h$,	$.49$
" " " $15^s = \frac{1}{4}$ of 2^m ,	$.06$
The sum to be subtracted,	142.17 or $2\ 22.2$ N.
The sun's declination required,	<u><u>$22\ 48\ 17.5$</u></u> S.

The longitude $9^h 44^m 16^s = 9^h 44^m.27 = 9^h.738$; and $14''.60 \times 9.738 = 142''.17 = 2' 22''.17$; which is also the reduction obtained in another way.

If the longitude is $146^{\circ} 4' E.$, the reduction, $2' 22''.2$, should be added, and the resulting declination becomes $22^{\circ} 53' 1''.9 S.$

If greater precision is required, the hourly difference may be first interpolated for $4^h 52^m$ (or half the longitude) *after* noon for the *west* longitude, or for $4^h 52^m$ *before* noon for the *east* longitude. This will give, in the first case, the hourly difference $14''.83$, and the resulting declination $22^{\circ} 48' 15''.3 S.$; and, in the second case, the hourly difference $14''.37$, and the declination $22^{\circ} 52' 59''.6 S.$

At sea, however, it is ordinarily sufficient to have the declination to the nearest half minute; and the reduction may be found by Table V. of BOWDITCH'S *American Practical Navigator*.

The *Equation of Time*, as has been before explained, is the number of minutes and seconds to be added to or subtracted from the *apparent* time, or the time given by an observation of the sun, to obtain the *mean* time. The heading of the column directs the manner in which the equation is to be applied. Where there is a change in the course of the month from addition to subtraction, or the reverse, as in the months of April and June, the two different directions are separated by a line, while a corresponding line below points out the date at which the change takes place. As given on page I. the equation of time is also the *mean* time of *apparent* noon.

On page I. are also given the *Sun's Semidiameter*, which is used in reducing the altitude of a limb of the sun, or the angular distance of the limb from the moon or some other object, to the altitude, or distance, of the centre of the sun; and the *Sidereal Time of the Semidiameter passing the Meridian*, which is employed in obtaining the passage of the sun's centre over the wires of a transit-instrument, when the passage of one limb only has been observed. The quantity found in this column is to be added to the time of transit of the *first*, or western, limb, to be subtracted from the time of transit of the *second*, or eastern, limb.

Page II. contains for each Greenwich *mean* noon the *Apparent Right Ascension* and *Declination of the Sun*, the *Equation of Time*, and the *Sidereal Time of Mean Noon*. The hourly changes of these quantities are also given for noon, and may be used in reducing them to any given Greenwich *mean* time. The hourly changes may be first interpolated for *half* the Greenwich time, when great precision is required.

The Right Ascension and Declination on pages I. and II. are affected by *Aberration*, and therefore denote the *apparent* position of the *true* sun. Page II. is more conveniently used when the *mean* time is known. This is the case in most observations of the sun out of the meridian, when the times have been noted by a clock or chronometer regulated to *mean* time. The quantities can be reduced to mean noon of any place by interpolating for the longitude, as in the example of the sun's declination on the preceding page.

The sun's declination is required for finding the latitude of the place, the local time, and the sun's azimuth and amplitude, from observations of the sun.

The equation of time is needed in finding the local time from observations of the sun, and the latitude from other than meridian observations. The heading of the column directs the manner in which it is to be applied to *mean* time to obtain the *apparent* time.

As given on page II., the equation is the apparent time of mean noon; and in general it is the hour angle of the *true* sun at the instant of *mean* noon.

The *Sidereal Time of Mean Noon* is also the *Right Ascension of the Mean Sun*. It may be reduced for the longitude, or to any Greenwich *mean* time, by using the hourly difference, $9^{\circ}.8565$; or by Table III. in the appendix of the *American Ephemeris* for *reducing intervals of mean solar to sidereal time*. Table LI. of BOWDITCH'S *Navigator* may be used for the same purpose when the nearest quarter of a second only is required.

The sun's right ascension and the sidereal time of mean noon, or right ascension of the mean sun, are useful in converting solar time to sidereal time. If we add the right ascension of the *true* sun to the *apparent* time, or the right ascension of the *mean* sun to the *mean* time, the result will be the *sidereal* time.

The sidereal time of mean noon reduced for the longitude of the place, is also used in converting sidereal time to mean time. Subtracting the reduced value from the given sidereal time, gives the interval of sidereal time from noon. Subtracting from this the corresponding reduction of a *sidereal interval to a mean time interval* in Table II. of the *American Ephemeris*, or Table LII. of BOWDITCH'S *Navigator*, will give the mean time required. This reduction may also be found by multiplying $9^{\circ}.8296$ by the hours and parts of an hour of the given *sidereal* time.

As examples of the use of page II. :—

1. Let the sun's right ascension and the equation of time be required for 1875, Feb. 3, $6^{\text{h}} 12^{\text{m}} 13^{\text{s}}$ A. M. mean time at a place whose longitude is $118^{\circ} 14' \text{ E}$.

The local astronomical <i>mean</i> time is		Feb. 2, $18^{\text{h}} 12^{\text{m}} 13^{\text{s}}$
The longitude in time,		— $7 52 56$
The Greenwich <i>mean</i> time,		Feb. 2, $10 19 17$ or Feb. 2, 10.3214
	<i>Sun's R. A.</i>	<i>Equation of time.</i>
Feb. 2, <i>Noon</i> ,	$21^{\text{h}} 3^{\text{m}} 2.49^{\text{s}}$	Feb. 2, <i>Noon</i> ,
H. D. $10^{\circ}.159 \times 10.3214$	$+ 1 44.85$	$13^{\text{m}} 57.64$ <i>Subtractive.</i>
	<hr style="width: 50%; margin: 0 auto;"/>	$+ 3.12$
	$21 4 47.34$	<hr style="width: 50%; margin: 0 auto;"/>
		$14 0.76$

If greater precision is required, the hourly differences interpolated to $5^{\text{h}}.2$, or $10^{\circ}.152$ for the right ascension, and $0^{\circ}.295$ for the equation of time, should be used.

The equation of time in this example is *subtractive* from mean time. Its reduction could have been found by Table VI. A. of BOWDITCH'S *Navigator* to seconds only.

2. If the sidereal time is required for the same date and time, we have—

Feb. 2, <i>Noon</i> , the R. A. of the mean sun is		$20^{\text{h}} 49^{\text{m}} 4.85^{\text{s}}$
Add the H. D. $9^{\circ}.8565 \times 10.3214$, or		$+ 1 41.73$
Add the local <i>astronomical</i> mean time		$18 12 13.00$
		<hr style="width: 50%; margin: 0 auto;"/>
The required sidereal time is, (rejecting 24^{h} .)		$15 2 59.58$

The reduction $1^{\text{m}} 41.73$ could have been found in Table III. corresponding to the Greenwich mean time, $10^{\text{h}} 19^{\text{m}} 17^{\text{s}}$. By Table LI. of BOWDITCH'S *Navigator*, the reduction is $1^{\text{m}} 41.7$.

3. 1875, Feb. 3, A. M., at a place whose longitude is $118^{\circ} 14' E.$, suppose the sidereal time to be $15^h 2^m 59^s.58$, and that the corresponding mean time is required.

The astronomical day is Feb. 2; the longitude in time $-7^h 52^m 56^s$, or $-7^h.882$.

Feb. 2, the sidereal time of Greenwich mean noon is	20 ^h 49 ^m 4.85
The H. D. $9^s.8565 \times (-7.882)$, or the red. for $7^h 52^m 56^s$ in Table III.	— 1 17.69
<hr/>	
The sidereal time of local noon,	20 47 47.16
The given sidereal time (+ 24 ^h , if necessary)	39 2 59.58
<hr/>	
Subtracting the first from the second gives the <i>sidereal interval</i> from noon	18 15 12.42 = $18^h.254$
$-9^s.8296 \times 18.254$, or the red. for $18^h 15^m 12^s$ in Table II.,	— 2 59.42
<hr/>	
The required astronomical mean time,	Feb. 2, 18 12 13.00

Page III. contains the *Longitude* and *Latitude of the Sun*, and the *Logarithm of its Distance from the Earth*, at Greenwich Mean Noon of each day. The Longitude is given in two columns, headed λ and λ' ; λ representing the sun's longitude counted from the true equinox of the date; and λ' the same coördinate counted from the mean equinox of the beginning of the year. A column of hourly differences enables the computer to obtain the sun's longitude for any hour from noon. The hourly differences of the logarithm of the radius vector are likewise given. The longitudes of the sun are the true longitudes, not affected by aberration. The latitude is referred to the ecliptic of the date.

The last column on page III. contains the *Mean Time of Sidereal 0^h*, or 24^h—the right ascension of the mean sun. It may be reduced to any meridian by interpolating for the longitude, or to any Greenwich *sidereal* time by means of the hourly difference, $-9^s.8296$. The reduction, however, can be taken directly from Table II. of the American Ephemeris, for *reducing intervals of sidereal time to mean solar time*, or approximately, from Table LII. of BOWDITCH'S *Navigator*.

This column is used in converting sidereal time to mean time. As an illustration, let us take Example 3, above.

Feb. 2, the mean time of Greenwich sidereal 0 ^h is	3 ^h 10 ^m 23.87
The H. D. $-9^s.8296 \times (-7.882)$, or the red. for long., Table II.,	+ 1 17.48
<hr/>	
The mean time of local sid. 0 ^h ,	3 11 41.35
Add the given sidereal time,	15 2 59.58 = $15^h.066$
<hr/>	
The sum is	18 14 40.93
$-9^s.8296 \times 15.066$, or the red. for $15^h 2^m 59^s$ in Table II.,	— 2 27.93
<hr/>	
The required astronomical mean time,	Feb. 2, 18 12 13.00

It was readily seen, in advance, that the sum of the mean time of sidereal 0^h and the given sidereal time would be less than 24^h. Were it more than 24^h, the mean time of sidereal 0^h should be taken out for Feb. 1, that is the *preceding* astronomical day.

Page IV. contains the *Moon's Semidiameter* and *Equatorial Horizontal Parallax* for every mean noon and midnight at Greenwich. Columns adjoining those of the Horizontal Parallax give the change of this quantity in one hour, by means of which it can be reduced to any other Greenwich mean time in the same way as the sun's declination and the equation of time in the preceding examples. The sign *plus* or *minus* (+ or -) prefixed to the hourly differences, shows whether the horizontal parallax is increasing or decreasing.

The reduction of the moon's semidiameter may be readily found by multiplying the reduction of the horizontal parallax by 0.273. It may also be obtained from Table XI. of BOWDITCH'S *Navigator*, or by simply computing the proportional part.

If, for example, the semidiameter of the moon is to be taken out for 1875, Jan. 5, 9^h P. M. Greenwich mean time, we see that the difference of the semidiameters at noon and midnight of Jan. 5 is 3''.9; then
as $12^h : 9^h = 3''.9 : 2''.9$
which is the correction to be *added* to the semidiameter at noon, because the semidiameter is *increasing*. The moon's semidiameter then, for Jan. 5, 9^h, is $15' 3''.1 + 2''.9$, or $15' 6''.0$.

The moon's semidiameter and horizontal parallax are required for all observations of the moon. When great precision is needed, the hourly differences should be first interpolated for *half* the interval of Greenwich time from noon or midnight, and a correction applied to the horizontal parallax for the latitude of the place of observation.

The *Mean Time of the Moon's Meridian Passage* at Greenwich, which is given on page IV. to minutes and tenths of minutes, is also accompanied with a column of differences for one hour of longitude, by means of which, having the longitude turned into time, the time of the moon's meridian passage at any other place may be computed. The reduction may be taken from BOWDITCH'S Table XXVIII. by simple inspection. The last column of this page contains the *Age* of the Moon, or the time elapsed since the preceding new moon, to tenths of days.

Pages V. to XII., inclusive, contain the *Moon's Right Ascension and Declination* for each day and hour of Greenwich *mean* time. They are accompanied with columns of *differences for one minute*, which are also given at each hour. The right-ascension and declination of the moon change so rapidly, that, if they were not given at frequent intervals, the moon would cease to be useful to the practical navigator as a means of determining the latitude and time. The Greenwich mean time, which is required for taking out these quantities, may be taken directly from a well-regulated chronometer, or obtained by applying the longitude, turned into time, to the local mean time of the observer. Each is taken out for the day and hour of the Greenwich *mean* time; the *diff. for 1^m* multiplied by the *minutes* and parts of a minute of the Greenwich time; and the product added to, or subtracted from, the quantity, according as the quantity is increasing or decreasing.

Thus, suppose the moon's right ascension and declination are required for 1875, Jan. 7, 15^h 15^m 20^s, astronomical mean time at Greenwich :

	Right Ascension.		Declination.
Jan. 7, 15 ^h	19 40 21.94		26 31 24.4 S.
Diff. 2 ^s .3792 × 15.333	= + 36.48	5 ^h .482 × 15.333	= 1 24.1 N.
Jan. 7, 15 ^h 15 ^m 20 ^s	19 40 58.42		26 30 0.3 S.

The differences interpolated for 7^m.67 = 0^h.13 are for the right ascension 2^s.3789, and for the declination 5^h.502, which may be used for greater precision.

Page XII. contains also the *Phases of the Moon* and the dates of the *Moon's Perigee and Apogee*, or least and greatest distances from the earth.

Pages XIII. to XVIII., inclusive, contain the *Lunar Distances*, or the angular distances of the centre of the moon from the centre of the sun, the four larger planets, and certain fixed stars, as they would appear to an observer at the centre of the earth. They are given for every third hour of Greenwich mean time, beginning at noon; the dates are therefore *astronomical*. All the distances that can be observed on the same day are grouped together under that date; and the columns are read from left to right, across both pages of the same opening. The letter W., or E., is affixed to the name of the sun, planet, or star, to indicate that it is on the west, or east, side of the moon.

An observer on the earth's surface having measured a *Lunar Distance*, corrected it for errors of his instrument and for the semidiameter of the objects, and cleared it from the effects of refraction and parallax, finds the *true*, or *geocentric*, distance. With this distance and the distances in the Ephemeris of the same bodies on the same day, the *Greenwich mean time* of the observation can be found.

To lessen the labor of computation, there is given in the Ephemeris between every two successive distances the *logarithm of the seconds of time in which the distance changes 1"*, or, as it is usually called, the *proportional logarithm of the difference*. It is given for the *middle* instant of the two hours between which it is placed.

For computing the *Greenwich time* we have the following rule:

Find in the Almanac the two distances between which the true distance falls; take out the nearest of these, the hours of Greenwich time over it, and the *P. L. of Diff.* between them:

Find the difference between the true distance and the distance taken from the Almanac; and from the *proportional logarithm* of this difference subtract the *P. L. of Diff.* taken from the Almanac:

The result is the *proportional logarithm* of an interval of time to be *added* to the hours of Greenwich time, taken from the Almanac, when the *earlier* Almanac distance is used; to be *subtracted* from the hours of Greenwich time, when the *later* Almanac distance is used.

Or, we may *add* the *common logarithm* of the difference of the true and the Almanac distances to the *P. L. of Diff.* of the Almanac; and the sum will be the *common logarithm* of the correction to be applied to the hours of Greenwich time. The Table of *Logarithms of small Arcs in Space or Time*, given at the end of the volume for 1871, saves the operation of reducing degrees (or hours) and minutes to seconds, and the reverse.

As the *P. L. of Diff.* in the Ephemeris varies, the Greenwich time, found by the methods just described, may not be sufficiently exact. To correct it for such variation, or *2d difference*, take the difference between the *P. L. of Diff.* used and the one which follows it in the Ephemeris, (or, more strictly, half the difference of the preceding and following ones.) With this difference, and the first correction of the Greenwich time already found, enter Table I. Appendix, and take out the corresponding seconds, which are to be *added* to the approximate Greenwich time if the *Prop. Logs.* in the Ephemeris are *decreasing*; to be *subtracted* if they are *increasing*.

Thus the *Greenwich mean time* of the observation can be obtained. If the observer has noted the time of observation by a chronometer, the difference of this chronometer time and the Greenwich mean time will be the *error* of the chronometer as found from the Lunar Distance. The agreement or disagreement of this error with that brought up from the error and rate of a previous date, may show whether the chronometer has run well or ill. In this way Lunar Distances can be used as a check upon the chronometer. By a series of carefully observed Lunar Distances on both sides of the moon, the chronometer error can be tolerably well ascertained.

If the observer has found the *local mean time* of observation from the observed altitude of one of the bodies, or by a watch regulated to that time by recent observations and corrected for change of longitude in the interval, the difference of this local time and the Greenwich time found from the Lunar Distance will be his longitude.

As an example of finding the Greenwich mean time from a Lunar Distance, suppose that in 1875, Jan. 14, about 5^h of Greenwich astronomical time, the corrected distance of the moon's centre from α Pegasi is 35° 17' 43" :

Corrected distance,	35° 17' 43"		
Distance in the Ephemeris, Jan. 14, 6 ^h 0 ^m 0 ^s ,	35 44 52	P. L.	.3504
Difference,	0 27 9	P. L.	.8215
Time from 6 ^h (<i>before</i>)	- 1 0 50	P. L.	.4711
Corr. for 2d Diff., Table L,	+ 30	Diff. of P. Logs.	- 111
Greenwich Mean Time, Jan. 14,	4 59 40		

By a Table of common logarithms, or a Table of logarithms of small arcs, the reduction of the Greenwich time would be found thus:

P. L. from Ephemeris,			0.3504
Diff. of distances,	0° 27' 9" = 1629"	log	3.2119
Red. of Greenwich time,	- 1 ^h 0 ^m 50 ^s = 3650"	log	3.5623

the result being the same as by the previous method.

Pages 218 to 241, inclusive, contain the Ephemerides of the four principal planets, Venus, Mars, Jupiter, and Saturn. The Ephemeris of each consists of its *apparent right ascension and declination*, and their *variations in one hour*, for each Greenwich mean noon; the *mean time of meridian passage*; and, at the bottom of the page, the *semidiameter and horizontal parallax*.

North declinations are marked +, south declinations —. + prefixed to the hourly change of declination of the sun, moon, or a planet, indicates that north declinations are increasing, and south declinations are decreasing; — indicates that north declinations are decreasing, south declinations increasing.

The right ascension and declination are needed in all observations of the planet for time, latitude, or azimuth. The mode of reducing them to any instant of Greenwich mean time is the same as in the examples of the sun previously given. The mean time of passage across any meridian can be found by dividing the *daily* difference by 24, and using the *hourly* difference thus obtained, as in the case of the moon; or, the reduction can be found by the proportion: As 24^{h} (or 360°) is to the longitude, so is the daily difference to the reduction required.

Pages 242 to 245 contain the Moon's *true Longitude and Latitude* for each Greenwich mean noon and midnight. The right ascensions and declinations of the moon have been computed from them.

Pages 259 to 263 contain the *Mean Places*, with their *annual variations*, of one hundred and ninety-eight Fixed Stars for the beginning of the year 1875. North declinations are marked +; south declinations —.

The right ascension of a star is also the *sidereal time* of its meridian passage. From this we may roughly find the mean time of meridian passage by adding the *mean time of sidereal 0^h* on page III. of the Calendar, or subtracting the *sidereal time of mean noon* on page II., (disregarding seconds;) but we can find it more exactly by the processes already given for converting sidereal time to mean time.

The right ascension and declination of a star are generally needed in observations of it for time, latitude, or azimuth. The mean places are sufficiently accurate for most observations at sea; but for more exact observations, the *apparent places* given in the larger Ephemeris should be used.

THE ASTRONOMICAL PART.

This part is adapted to the meridian of Washington; and Washington time, *astronomical* or *sidereal*, is required in its use. The longitude of Washington from Greenwich is assumed to be $+ 5^h 8^m 12^s$.

Obliquity of the Ecliptic, &c., page 248.—This page contains for every ten days of the year the *Apparent Obliquity*, which is required for the transformation of longitudes and latitudes to right ascensions and declinations, or the reverse; the *Equation of Equinoxes* in longitude and right ascension, or the reduction from the *mean* to the *true* equinox of the date; the *Precession of Equinoxes* in longitude, or the reduction of longitudes from the mean equinox of the *beginning* of the year to the mean equinox of the *date*; the *Sun's Aberration*, which is to be applied to the *true* longitude of the sun, as given in the Ephemeris, to obtain its *apparent* longitude; the *Sun's Horizontal Parallax*; and the *Mean Longitude of the Moon's Ascending Node*.

At the bottom of the page are given the *Mean Obliquity* for the beginning of the year; the *Annual Precession* for the middle of the year, the precession in a sidereal and in a solar day, and the *daily motion* of the moon's node in longitude.

Fixed Stars.—Pages 249–257 contain for each mean midnight the logarithms of *A, B, C, D*, also *f, G, H, i*, and logarithms of *g, h, and i*, (following BESSEL's notation,) for reducing the *mean* places of the Fixed Stars at the beginning of the year to their *apparent* places on any day.

The formulæ from which they are derived, and those in which they are used, are given on page 258. The coefficients are those of PETERS and STRUVE. In terms of right ascension they are expressed in time.

The first set of quantities require for the star the logarithms of *a, b, c, d, a', b', c', d'*, which are to be found in the Star Catalogues. The other set require no other star constants than the right ascensions and declinations. *f, G, and H* are given in time, as well as arc, to facilitate their use with tables of sines, &c., which have the argument in time.

Tables IV., VI. and VII., in the Appendix, facilitate the computation of terms depending on 2ζ and $\zeta - \Gamma'$.

For a star near the pole, it is best to compute the reductions with the time constants and the mean right ascension and declination at the date, instead of the beginning of the year, (or the logarithms of *a, b, c, &c.*, reduced to the date), and add such of the following terms as may be of sufficient magnitude:

In Right Ascension.	In Declination.
$+0^s.000003 \tau^2 \sin a \} \tan \delta$	$+0''.000975 \tau^2 \sin^2 \alpha$
$-0^s.000149 \tau^2 \cos a \} \tan \delta$	$-0''.000023 \cos 2 \Omega$
$-0^s.0000650 \tau^2 \sin 2 a \} \tan^2 \delta$	$-0''.000080 \cos 2 \Omega \cos 2 a$
$+0^s.0000103 \sin 2 \Omega \cos 2 a \} \tan^2 \delta$	$-0''.000077 \sin 2 \Omega \sin 2 a$
$-0^s.0000107 \cos 2 \Omega \sin 2 a \} \tan^2 \delta$	$+0''.000040 \cos 2 \odot$
$+0^s.0000620 \sin 2 \odot \cos 2 a \} \sec^2 \delta$	$-0''.000467 \cos 2 \odot \cos 2 a$
$-0^s.0000622 \cos 2 \odot \sin 2 a \} \sec^2 \delta$	$-0''.000465 \sin 2 \odot \sin 2 a$
$+0^s.0000513 \sin (\odot + \Omega) \cos 2 a \} \tan \delta \sec \delta$	$-0''.000004 \cos (\odot + \Omega)$
$-0^s.0000507 \cos (\odot + \Omega) \sin 2 a \} \tan \delta \sec \delta$	$-0''.00038 \cos (\odot + \Omega) \cos 2 a$
$+0^s.0000097 \sin (\odot - \Omega) \cos 2 a \} \tan \delta \sec \delta$	$-0''.00038 \sin (\odot + \Omega) \sin 2 a$
$-0^s.0000053 \cos (\odot - \Omega) \sin 2 a \} \tan \delta \sec \delta$	$-0''.00038 \cos (\odot - \Omega)$
	$-0''.000004 \cos (\odot - \Omega) \cos 2 a$
	$-0''.000007 \sin (\odot - \Omega) \sin 2 a$

Pages 259–262 contain the *mean places* and *annual variations* of 196 Fixed Stars for 1875, Jan. 0^d +.047, or the instant when the sun's mean longitude is 280°. τ on the preceding pages is reckoned from the same epoch. Stars within 25° of either pole are designated by a *.

The *apparent* places of α, δ , and λ Ursæ Minoris, and of 51 Cephei, are given on pages 263–274 for every upper transit at Washington. They include the terms depending on 2ζ and $\zeta - \Gamma'$, as well as other small terms on pages 258 and 497, so far as they were of sufficient importance.

The *apparent* places of the remaining 194 stars follow on pages 275–323, in the order of their right ascensions. They are given for every tenth transit, together with *ten times* their *daily* motion at transit; and include all terms of the preceding formulæ exceeding 0^o.003 in right ascension, or 0^o.03 in declination, except those which depend on 2 C and C—1', The mean solar time of transit is also given to the nearest tenth of a day.

Solar Ephemeris.—Pages 324–329 contain the *Apparent Right Ascension* and *Declination* of the SUN for each mean and apparent noon at Washington; the *Hourly Motion* at mean noon; the *Equation of Time* at apparent noon with the sign of its application to apparent time; the SUN's *Semidiameter* and the *Sidereal Time of its passing the Meridian*; and the *Sidereal Time of Mean Noon*. The explanation of these quantities and their use has already been given on pages 490–492.

The SUN's *Horizontal Parallax* is on page 248.

Moon Culminations.—Pages 330–332 contain the mean solar time of the *Upper Transit* of the MOON's centre at Washington, expressed to hundredths of a minute, the *difference* for *one hour* of longitude, and the *Sidereal Time of Semidiameter passing the Meridian*, both given for the instant of transit at Washington. The numbers in the fifth column indicate the four STARS in the list of *Moon Culminating Stars*, pages 333–336, the two preceding and the two next following the moon, proper to be observed with the moon at each transit. The *bright Limb* of the Moon is indicated by the Roman numerals in the last column.

The time of transit at any place, within six hours of Washington in longitude, may be found with sufficient accuracy from the time of the Washington transit by using the hourly difference interpolated for a longitude *half* that of the given place. With this time, reduced to Greenwich time, the moon's right ascension can be taken from the Lunar Ephemeris, pages V.–XII of each month, as in the example on page 494. If greater precision is required, or the place is more than six hours from Washington, we may, from the right ascension thus obtained, (which is nearly the *local sidereal time*,) find the *local mean time*, as on page 493, more accurately than before, and thence the *Greenwich mean time*, and with this revise the computation.

As an example, suppose the right ascension of the bright limb of the moon to be required at the transit of January 24, 1875, at Paramatta, in longitude

$$\begin{array}{r} 15^{\text{h}} 12^{\text{m}} 18.18^{\text{s}} = 15.2050 = 0.6335 \text{ East of Washington.} \\ 10 \quad 4 \quad 6.18 \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \text{" Greenwich.} \end{array}$$

Transit at Washington, (p. 330)	Jan. 24, 15	6.35
Corr. for longitude	—15.2050 × 1 ^m .793	— 27.27
Transit at Paramatta,	Jan 24, 14	39.08
Longitude from Greenwich,	— 10	4.10
Greenwich mean time,	Jan. 24, 4	34.98
Moon's R. A., Jan. 24, 4	0	18.17
Reduction for	+ 34.98	+ 1 7.98
Moon's R. A., Jan. 24, 4	34.98	10 53 26.15
Sid. time of semidiameter passing,		+ 1 4.47
R. A. of II, or bright limb,		10 54 30 62

The diff. for 1^h of long., 1^m.793, is found by interpolating *back* 0^d.317 from that given on page 330; and 1^d.9434, the change of R. A. in 1^m, by interpolating *forward* 17^m from that given on page 11 for Jan. 24, 4^h. The time of the semidiameter passing the meridian is interpolated *forward* 0^d.3665 from that given on page 330, for Jan. 23, and is added to the right ascension of the centre, as the bright limb is II., or the following one.

The Greenwich mean time computed from the right ascension of the centre is 4^h 34^m 58^s.95, so that no further correction is necessary.

Moon-Culminating Stars, pages 333–336.—The *mean* places, with their annual variations, of 174 stars near the moon's path are given for the beginning of the fictitious year (1875, Jan. 0^d+.047). The names of 35 of them, whose *apparent* places are given in the Ephemeris of the *Fixed Stars*, are printed in SMALL CAPITALS.

The *apparent* places of the others may be obtained by the quantities and formulæ on pages 249–258. To illustrate the use of these, suppose the apparent place of No. 81, α Leonis, one of the four stars proper to be observed with the moon on January 24, be required at its transit of that date at Paramatta.

The Washington mean time of the transit at Paramatta is January 23, 23^h 27^m, or 0^h.48 after midnight of January 23. The quantities from page 249, or page 252, are to be taken out for this time.

1st Method.

(Star Tables)	log <i>a</i>	0.492	log <i>b</i>	7.886 π	log <i>c</i>	8.818 π	log <i>d</i>	8.120
(p. 249)	log <i>A</i>	8.503 π	log <i>B</i>	0.920 π	log <i>C</i>	1.025 π	log <i>D</i>	1.227
(Star Tables)	log <i>a'</i>	1.294 π	log <i>b'</i>	9.293 π	log <i>c'</i>	9.610	log <i>d'</i>	9.059 π
	log <i>A a</i>	8.995 π	log <i>B b</i>	8.806	log <i>C c</i>	9.843	log <i>D d</i>	9.347
	log <i>A a'</i>	9.797	log <i>B b'</i>	0.213	log <i>C c'</i>	0.635 π	log <i>D d'</i>	0.286 π
(p. 334)	$a = 11^{\text{h}} 14^{\text{m}} 41.43^{\text{s}}$			$\delta = + 6^{\circ} 42' 50.0''$				
	<i>A a</i>	=	-.099	<i>A a'</i>	=	+ 0.63		
	<i>B b</i>	=	+ .064	<i>B b'</i>	=	+ 1.63		
	<i>C c</i>	=	+ .697	<i>C c'</i>	=	- 4.32		
	<i>D d</i>	=	+ .222	<i>D d'</i>	=	- 1.93		
	<i>E</i>	=	-.001	μ'	=	- 0 ^h .02	$\tau \mu'$	= .00
	μ	=	- 0 ^h .004	$\tau \mu$	=	.000		
	<i>Apparent Place, a' = 11 14 42.32</i>			$\delta' = + 6 42 46.0$				

2d Method.

(p. 334)	$a = 11^{\text{h}} 14^{\text{m}}$	$\delta = + 6^{\circ} 42.8'$			
(p. 252)	$G = 17 42.5$	$G + a = 4^{\text{h}} 57.2 = 74^{\circ} 18'$			
	$H = 21 51.5$	$H + a = 9 6.2 = 136 33$			
log $\frac{1}{r}$	8.8239	log $\frac{1}{r}$	8.8239	$a = 11^{\text{h}} 14^{\text{m}} 41.43^{\text{s}}$	
log <i>g</i>	0.9214	log <i>h</i>	1.2993	<i>f</i> =	- .098
l. sin (<i>G</i> + <i>a</i>)	9.9835	l. sin (<i>H</i> + <i>a</i>)	9.8374	(<i>g</i>) =	+ .063
l. tan δ	9.0708	l. sec δ	0.0039	(<i>h</i>) =	+ .920
log (<i>g</i>)	8.7996	log (<i>h</i>)	9.9636	$\tau \mu$ =	.000
<i>Apparent Right Ascension</i>		. . . . .		$a' = 11 14 42.32$	
log <i>g</i>	0.9214	log <i>h</i>	1.2993	$\delta = + 6^{\circ} 42' 50.0''$	
l. cos (<i>G</i> + <i>a</i>)	9.4323	l. cos (<i>H</i> + <i>a</i>)	9.8609 π	(<i>g'</i>) =	+ 2.26
log (<i>g'</i>)	0.3537	l. sin δ	9.0678	(<i>h'</i>) =	- 1.69
		log (<i>h'</i>)	0.2280 π	(<i>i</i>) =	- 4.56
log <i>i</i>	0.6621 π			$\tau \mu' =$	0.00
l. cos δ	9.9970				
log (<i>i</i>)	0.6591 π				
<i>Apparent Declination</i>		. . . . .		$\delta' = + 6 42.46.0$	

The Moon's *Semidiameter* and *Equatorial Horizontal Parallax* for each mean noon and midnight are on pages 337–340.* In the moon's Ephemeris, as in that of the sun, the hourly motions belong to the instants for which they are given. The hourly change of semidiameter is equal to .2723 times that of the horizontal parallax.

*For eclipses and occultations, BURCKHARDT'S value of the semidiameter, which is 2^h.5 less, is preferred.

The times of the *Moon's Phases, Apogee, Perigee, and greatest Libration*, are given on page 341; and the position of the *Moon's Equator* and the *Moon's mean longitude* on page 342; and a Table for computing the *Libration* of the Moon on page 343.

The *Ephemerids of the seven principal Planets* (pages 344–365) are given both for *mean noon* and the time of *transit*. The *hourly differences* are also given for the same instants. Third differences were used in their computation.

The *Horizontal Parallaxes, Vertical Semidiameters, and Sidereal Times of the Semidiameters passing the Meridian*, are on pages 386 and 387.

The *Sun's Coördinates* (pages 388–399) are given for each mean noon and midnight, referred to the apparent equinox and equator, and also to the mean equinox and equator at the beginning of the year, (Jan. 0^d.0.) In the case of the rectangular coördinates, only the last four decimals are given for the mean equinox and equator, and the first three places are to be taken from the apparent equinox and equator. When a change of a unit is to be made in the third place, it is indicated by a corresponding colon (:). The latitude is referred to the ecliptic of the date. The reduction to the mean ecliptic of Jan. 0, is $+0''.488 \tau \sin (\odot + 187^\circ)$, in which τ is the time from Jan. 0, in parts of a year.

The *Heliocentric Coördinates* of the Planets (pages 400–406) are referred to the mean equinox and ecliptic of the mean noon of the 2405,000th day of the Julian Period, or 1872, July 25.

The columns $-\frac{k^2}{r^2}x$, &c., contain the quantities $-1600 m \frac{k^2}{r^2}x$, $-1600 m \frac{k^2}{r^2}y$, $-1600 m \frac{k^2}{r^2}z$, in units of the 7th decimal place, in which m denotes the mass of the planet, and k^2 the unit of attractive force in the solar system, or $\log k=8.2355814$.

Page 407 contains the *Inclinations and Longitudes of the Ascending Nodes* at the same epoch, and the *Masses* of the several Planets with their logarithms. The changes of the Inclinations and Nodes in 100 days include the motions of the ecliptic and equinox.

The Heliocentric Coördinates and Masses of the Planets are given for the computation of perturbations.

Eclipses.—Pages 408–414 contain the elements necessary for computation and the principal phases of each eclipse of the Sun and Moon. The semidiameters of the moon are $2''.5$, and those of the sun $2''.2$, less than those in the Ephemeris.

The charts of the *Solar Eclipses* show the part of the world in which each is visible. The dotted curves pass through places where the eclipse begins, or ends, at an exact hour of Washington mean time, and aid in finding an appropriate time of the beginning, or end, at any place. The limits and central line will give some idea of the magnitude of the eclipse. The longitudes are reckoned west from Washington.

The Tables of *Data of the Solar Eclipses* contain certain quantities* derived from the elements and independent of the place of observation. They are given for successive times at the Washington meridian; and if their values for the *Penumbra* be taken out for a time T_0 , assumed near that of the beginning, or end, of the eclipse at any place, the prediction for that place may be computed quite accurately by the following formulæ:

$$\begin{aligned} \text{Let } \varphi &= \text{the latitude of the place, } + \text{ when north,} \\ \lambda &= \text{its longitude from Washington, } + \text{ when west,} \\ (\text{Bessel,}) \log e &= 8.912205, & \log (1-e^2) &= 9.9970916, & \sin \chi &= e \sin \varphi, \\ h &= \sec \chi \cos \varphi, & k &= (1-e^2) \sec \chi \sin \varphi, \\ a &= A - h \sin (\mu - \lambda), \\ b &= B - E k + G h \cos (\mu - \lambda), \\ c &= -C + F k - H h \cos (\mu - \lambda), \\ m &= \sqrt{bc} \quad (\text{usually with same sign as } a). \end{aligned}$$

*The formulæ are given in CHAUVENET'S *Spherical and Practical Astronomy*, Vol. I, page 513. The changes of A , B , and C for *one minute*, or *one second*, are expressed in units of the sixth decimal place.

If $m = a$, the time T_0 is correctly chosen. If m differ from a , a correction t of the assumed time may be obtained in seconds by the formulæ,

$$\begin{aligned} \log \mu' &= 1.86167, & a' &= A' - \mu' h \cos (\mu - \lambda) \\ \tan \frac{1}{2} Q &= \frac{c}{m} = \frac{m}{b} & b' &= B' - \mu' G h \sin (\mu - \lambda) \end{aligned}$$

$$t = \frac{1000000 (m - a)}{a' + b' \cot Q}$$

and a new approximation to the actual Washington time will be

$$T_0' = T_0 + t,$$

with which the computation may be revised.

Thus successive approximations are made until for the last assumed time T_0 , $m = a$ very closely, and t is quite small. The local mean time of the phenomenon will be, using the last values of T_0 and t ,

$$T_0 + t - \lambda.$$

Q must be taken of the same sign with a , and is a sufficiently near approximation to the angular distance of the point of contact reckoned from the *north* point of the sun's limb, \pm towards the *east*.

For a total or annular eclipse, the prediction of the interior contacts may be made in the same way, using the *Data* for the *Shadow*; except that Q will have a sign opposite that of a in a total eclipse.

To find V , the angular distance of the point of contact from the *Vertex* of the sun's limb, \pm towards the *left*, we have the formulæ

$$\begin{aligned} p \sin P &= \sin \varphi & c \sin C &= \cos P \tan (\mu - \lambda) \\ p \cos P &= \cos \varphi \cos (\mu - \lambda) & c \cos C &= \sin (P - \delta') \\ & & V &= Q - C, \end{aligned}$$

in which δ' is the sun's declination.

If the values of Q at the beginning and at the end of the eclipse be found, and their difference (with regard to signs) be denoted by 2θ , the number of digits eclipsed is

$$12 (1 + n) \sin^2 \frac{1}{2} \theta, \quad \text{or } 12 (1 + n) \cos^2 \frac{1}{2} \theta,$$

according as θ is acute or obtuse; n being the quotient of the semidiameter of the moon divided by that of the sun.

θ may also be found from the formulæ:

$$\tan R = \frac{b'}{a'} \quad \cdot \quad \theta = Q + R$$

(in which R has the sign of b'); and the expression of t may be changed to

$$t = 1000000 \cdot \frac{m - a}{a'} \cdot \frac{\sin Q \cos R}{\sin \theta}.$$

The following is an example of the computation of the end of the Eclipse of September 28, 1875, for the Observatory at Washington, for which

	$\lambda = 0^\circ 0' 0''.0$
(1) $\log e = 8.912205$	
(2) $l. \sin \varphi = 9.7978798$	(1) + (2) $l. \sin \chi = 8.710084$
(3) $\log (1 - e^2) = 9.9970916$	
(4) $l. \sec \chi = 0.0005721$	(2) + (3) + (4) $\log k = 9.7955425$
(5) $l. \cos \varphi = 9.8911513$	(4) + (5) $\log h = 9.8917234$

By the chart, the Washington mean time of the end of the eclipse at Washington is $19^h 5^m$, for which we take from the table for *Penumbra*, on page 412, the values of A , B , C , &c.

Computation of *t*, the correction of *T*₀.

	$\mu = 288^{\circ} 39' 20.0$	(9)	$\log E = 9.999548$
	$\mu - \lambda = 288^{\circ} 39' 20.0$	(10)	$\log k = 9.795542$
		(11)	$\log F = 9.999715$
(1)	$\text{l. sin } (\mu - \lambda) = 9.9765603 \pi$	(9) + (10)	$\log Ek = 9.795090$
(2)	$\log k = 9.8917234$	(10) + (11)	$\log Fk = 9.795257$
(3)	$\text{l. cos } (\mu - \lambda) = 9.5049846$		
		(12)	$A = -0.22371$
(4) = (1) + (2)	$\log k \sin (\mu - \lambda) = 9.8682837 \pi$	(13)	$-k \sin (\mu - \lambda) = +0.73839$
(5)	$\log \mu' = 1.86167$		
(6)	$\log G = 8.66101 \pi$	(14)	$B = +0.96218$
(7) = (2) + (3)	$\log k \cos (\mu - \lambda) = 9.3967080$	(15)	$-Ek = -0.62366$
(8)	$\log H = 8.56205 \pi$	(16)	$Gk \cos (\mu - \lambda) = -0.01142$
(6) + (7)	$\log Gk \cos (\mu - \lambda) = 8.05772 \pi$	(17)	$-C = +0.15825$
(7) + (8)	$\log Hk \cos (\mu - \lambda) = 7.95876 \pi$	(18)	$Fk = +0.62410$
		(19)	$-Hk \cos (\mu - \lambda) = +0.00909$
(5) + (7)	$\log \mu' k \cos (\mu - \lambda) = 1.25838$	(12) + (13)	$a = +0.51468$
(4) + (5) + (6)	$\log \mu' Gk \sin (\mu - \lambda) = 0.39096$	(14) + (15) + (16)	$b = +0.32690$
		(17) + (18) + (19)	$c = +0.79144$
(20)	$\log b = 9.514415$		$m = +0.50865$
(21)	$\log c = 9.898418$		$m - a = -0.00603$
(22) = $\frac{1}{2} [(20) + (21)]$	$\log m = 9.706416$		
(22) - (20) = (21) - (22)	$\text{l. tan } \frac{1}{2} Q = 0.192001$		
Angle from <i>N. point</i> ,	$Q = 114^{\circ} 32'.6$	(23)	$A' = +127.34$
(29)	$\text{l. cot } Q = 9.65967 \pi$	(24)	$-\mu' k \cos (\mu - \lambda) = -18.13$
(30)	$\log b' = 1.83410 \pi$	(25)	$B' = -70.71$
(29) + (30)	$\log b' \cot Q = 1.49367$	(26)	$-\mu' Gk \sin (\mu - \lambda) = +2.46$
		(25) + (26)	$b' = -68.25$
(31)	$\log (m - a) + 6 = 3.78003 \pi$	(27) = (23) + (24)	$a' = +109.21$
(32)	$\log (a' + b' \cot Q) = 2.1472$	(28)	$b' \cot Q = +31.16$
(31) - (32)	$\log t = 1.6331 \pi$	(27) + (28)	$a' + b' \cot Q = +140.37$

Assumed time, $T_0 = 19^{\text{h}} 5^{\text{m}} 0.00$
 Correction of the assumed time, $t = -42.96$
 Washington time of the end Sept. 28, 19 4 17.04

With this as a nearer approximation the computation may be verified. We have also $C = -49^{\circ} 9'$; the angle from the *Vertex*, $V = 163^{\circ} 22'$; $\theta = 82^{\circ} 13'$, and the magnitude of the eclipse 10.1 digits, or 0.84 of the sun's disc, on the south limb.

Occultations.—Pages 414–415 contain a list of such occultations and near approaches as will be visible at Washington during the year 1875. For the latter, the time of nearest approach, the nearest point of the moon's limb, and the distance of the star from the moon's limb, are stated.

Pages 416–447 contain *Elements for facilitating the Prediction of Occultations of Planets and Stars by the Moon*. The list includes all stars to the $6\frac{1}{2}$ magnitude in the *Catalogue of the British Association*, and a few others of less magnitude, contained in the *Almanac Catalogue of Zodiacal Stars* and chiefly belonging to clusters, which can be occulted during the year 1875.

The elements comprise the *Date, the Name, Magnitude and Declination of the Star*; the *Limiting Latitudes* within which the occultation may be visible; and, at the time of geocentric conjunction of the moon and star in right ascension, the following quantities:

$$\begin{aligned} \delta &= \text{Washington mean time,} \\ H &= \text{Hour angle of the star at Washington, } + \text{ when west;} \\ X &= \frac{15(a - a')}{\pi} \cos \delta = 0, \quad Y = \frac{\delta - \delta'}{\pi}, \\ x' &= \frac{15 \Delta \alpha}{\pi} \cos \delta, \quad y' = \frac{\Delta \delta}{\pi}, \text{ the hourly changes of } x \text{ and } y; \end{aligned}$$

in which α and δ are the true right ascension and declination of the moon,
 $\Delta \alpha$ and $\Delta \delta$, their motions in one hour of mean time,
 π , the moon's equatorial horizontal parallax,
 α' and δ' , the apparent right ascension and declination of the star.

The reductions of the mean place of the star at the beginning of the year to its apparent place at the date, are also given to facilitate the reduction of observed occultations.

For any other Washington mean time $T = \zeta + t$, we have (μ being the sidereal equivalent of t , and t as a coefficient being expressed in hours)

$$h = H + \mu, \text{ the star's hour angle at Washington,}$$

$$x = t x', \quad y = Y + t y'.$$

As the moon's motion is here regarded as uniform, the expressions for x and y are more nearly correct the smaller the interval t . The exact values, to be employed in the reduction of an observed occultation, are

$$x = \frac{\sin(\alpha - \alpha') \cos \delta}{\sin \pi}$$

$$y = \frac{\sin(\delta - \delta') \cos^2 \frac{1}{2}(\alpha - \alpha') + \sin(\delta + \delta') \sin^2 \frac{1}{2}(\alpha - \alpha')}{\sin \pi}$$

in which α , δ and π are to be taken from the Ephemeris for the time T . But for predicting the times of *immersion* and *emersion*, and the points on the moon's limb where these appearances take place, the preceding expressions suffice to enable the observer to determine when and where to watch for these phenomena.

For the place of observation, let

$$\varphi = \text{its latitude, } + \text{ when north;}$$

$$\lambda = \text{its longitude from Washington, } + \text{ when west;}$$

(*Bessel.*) $\log e = 8.9122 \ 05, \quad \log(1 - e^2) = 9.9970 \ 916,$
 $\sin \chi = e \sin \varphi, \quad E = (1 - e^2) \sec \chi, \quad F = \sec \chi.$
 $\mu' = 54147.8 \sin 1'', \quad \log \mu' = 9.41916.$

The constants for the place, required both in the prediction of occultations and the reduction of those observed, are φ , λ , and $E \sin \varphi$, $F \cos \varphi$, $\mu' F \cos \varphi$, or their logarithms.

The values of E and F and their logarithms are given for different latitudes in the following table :

φ	E .	F .	Log E .	Log F .
0°	1—.0067	1.0000	9.9971	0.0000
±10	1—.0066	1.0000	9.9971	0.0000
20	1—.0063	1.0004	9.9973	0.0002
30	1—.0059	1.0008	9.9975	0.0004
40	1—.0053	1.0014	9.9977	0.0006
50	1—.0047	1.0020	9.9979	0.0009
60	1—.0042	1.0025	9.9982	0.0011
70	1—.0037	1.0030	9.9984	0.0013
80	1—.0034	1.0033	9.9985	0.0014
90	1—.0033	1.0034	9.9985	0.0014

An occultation will not be visible unless,

1. The latitude of the place is included within the limiting parallels;
2. At the time of occultation, or the local mean time ($T - \lambda$), the sun is sufficiently below the horizon;

3. At that time the star is above the horizon, or its local hour angle ($h-\lambda$) is numerically less than τ found by the formulæ

$$\cos \tau = -\tan \varphi \tan \delta',$$

A table of τ , or the hour angle of a body in the horizon, computed for the latitude of the place and different declinations, will be useful for such comparisons.

These conditions can generally be determined in advance, as in latitudes less than 60° ($\delta-\lambda$) may be used instead of ($T-\lambda$) except within two hours of sunrise or sunset; and ($H-\lambda$) instead of ($h-\lambda$) except within half an hour of the star's rising or setting. For these exceptional cases, which, however, are not favorable for observation, the time of *apparent* conjunction in right ascension, or some nearer approximation to the time of occultation, can be subsequently employed.

Having ascertained that an occultation will be visible, we may proceed to compute the times of immersion and emersion by the following formulæ:

1. To find approximately the time* of *apparent* conjunction in right ascension, as affected by parallax;

$$u = F \cos \varphi \sin (H-\lambda)$$

$$u' = \mu' F \cos \varphi \cos (H-\lambda)$$

In hours, $(t) = \frac{u}{x' - u'}$

Washington time of *apparent* conjunction, (T) = $\delta + (t)$
 Local " " " " (T) - λ

The value of (T) to the nearest tenth of an hour is sufficiently accurate. If a closer approximation is desired, the computation may be repeated, using $h = H + (\mu)$ instead of H , (μ) being the sidereal equivalent of (t),

$$x = (t) x'$$

$$(t') = -\frac{x-u}{x'-u'}$$

$$(T') = (T) + (t')$$

2. To find a nearer approach to the time of either phase, let us assume the Washington mean time T , which for the first computation may be the computed time of *apparent* conjunction, or some conjectural time near it. For this time find

$$t = T - \delta \qquad h = H + \mu, \text{ or } h - \lambda = H - \lambda + \mu$$

$$x = t x' \qquad y = Y + t y',$$

and then T_1 and T_2 , the approximate Washington mean times of immersion and emersion, by the following formulæ. The local mean times will be found by subtracting from T_1 and T_2 the longitude of the place.

$$A \sin B = E \sin \varphi \qquad u = F \cos \varphi \sin (h - \lambda)$$

$$A \cos B = F \cos \varphi \cos (h - \lambda) \dagger \qquad v = A \sin (B - \delta')$$

$$\qquad \qquad \qquad u' = \mu' A \cos B$$

$$\qquad \qquad \qquad v' = \mu' u \sin \delta'$$

[or, with other auxiliaries than A and B ,

$$b = F \cos \varphi \cos (h - \lambda) \qquad u' = b \mu' \qquad v = E \sin \varphi \cos \delta' - b \sin \delta']$$

$$m \sin M = x - u \qquad n \sin N = x' - u'$$

$$m \cos M = y - v \qquad n \cos N = y' - v'$$

Burckhardt. $k = 27227 \qquad \log k = 9.43500$

$$\cos \phi = \frac{m \sin M - N}{k} \qquad \phi < 180^\circ$$

* It is convenient, but not necessary, to have this time.

† If ($h-\lambda$) be restricted to values numerically less than 12° , or 180° , B may be taken in the same quadrant with ($h-\lambda$), and have the same sign as the latitude. For a place where many occultations are observed, tables of A , B , u and u' for different values of ($h-\lambda$), or of $E \sin \varphi \cos \delta'$ for different declinations, would be convenient.

	For Immersion.	For Emersion.
In hours,	$t_1 = -\frac{m \cos (M-N)}{n} - \frac{k \sin \psi}{n}$	$t_2 = -\frac{m \cos (M-N)}{n} + \frac{k \sin \psi}{n}$
Washington mean time, $T_1 = T + t_1$		$T_2 = T + t_2$
Local " " $T_1 - \lambda$		$T_2 - \lambda$

3. Assuming now $T_1 = \zeta + t + t_1$ for the Immersion, or $T_2 = \zeta + t + t_2$ for the Emersion, as the Washington time instead of T , and recomputing, we can obtain nearer approximation to the times of these phenomena. But the first operation will give the times usually within one or two minutes, which is sufficiently accurate for watching for an immersion. For an emersion a more accurate knowledge is desirable. But for this purpose it will often be sufficient to substitute $(h_2 - \lambda) = (h - \lambda + \frac{1}{2} \mu_2)$ for $(h - \lambda)$ in the computation of u' and v' , and, using the same m and M as before, recompute n , N , ψ and t_2 , a new correction to be added to T .

If $\log. m \sin (M-N) = 9.4350$ nearly, a recalculation will generally be necessary to determine whether, numerically, $\cos \psi < 1$, or $\cos \psi > 1$. In the latter case the impossible value of $\cos \psi$ indicates that an occultation at the given place is impossible, unless the computed distance from the moon's limb is within the errors of the Ephemeris of the moon and star.

In such cases of near approach to the moon's limb, we may take $\psi = 0^\circ$, or 180° , according as $m \sin (M-N)$ is + or -; and for finding the time of nearest approach,

$$t = -\frac{m \cos (M-N)}{n}$$

The distance from the moon's limb is then

$$\pi [m \sin (M-N) - k],$$

disregarding the sign of $m \sin (M-N)$; or, allowing for the augmentation of the semi-diameter,

$$\pi [m \sin (M-N) - k] [1 + z \sin \pi],$$

where

$$z = A \cos (B - \delta').$$

4. Having found satisfactorily the times of immersion and emersion, and therefore N and ψ in each case, we have as the angle from the *North point* of the moon's limb and reckoned towards the *West*,

$$\begin{aligned} Q &= 90^\circ - N - \psi && \text{for an Immersion,} \\ Q &= 90^\circ - N + \psi && \text{for an Emersion;} \end{aligned}$$

and, taking

$$\begin{aligned} c \sin C &= u + t u' \\ c \cos C &= v + t v', \end{aligned}$$

in which the last value of t for the particular phase is properly used, we have as the angle from the *Vertex* of the moon's limb, or that point which is nearest the zenith,

$$V = Q + C$$

also reckoned in the same direction as Q .

For the image as seen through an inverting telescope, these angles should be increased by 180° .

5. As a check on the accuracy of the work, we have, using the last computed values of the several quantities,

$$[(x-u) + t(x'-u')]^2 + [(y-v) + t(y'-v')]^2 = k^2 = 0.07413;$$

Or, we may compute u , v , x , and y , with the last determined time of immersion, or of emersion, and we should have for either, as the condition of the phenomenon,

$$\begin{aligned} (x-u)^2 + (y-v)^2 &= k^2 = 0.07413 \\ \text{or, } \log m &= \log k = 9.4350 \end{aligned}$$

Greater values than these indicate that the computed time of an immersion is too early, of an emersion too late, by a quantity nearly proportional to the difference.

Example.—It is required to find the times of immersion and emersion of B. A. C. 5800, February 1, 1875, at Paramatta, New South Wales, for which

$$\phi = -33^\circ 48'.8 \qquad \lambda = -15^h 12^m.3$$

The data for the computation are given on page 418. We see in advance that ϕ is between the limiting latitudes; that $(\phi - \lambda)$, the local time of *geocentric* conjunction, is 16^h , or more than one hour before sunrise; and that $(H - \lambda)$, the hour angle, is about four hours east of the meridian, and the moon above the horizon.

The constants of the place are :

	$l. \sin \phi = 9.7454 \pi$	$l. \cos \phi = 9.9195$	$\log F \cos \phi = 9.9200$
	$\log E = 9.9976$	$\log F = 0.0005$	$\log \mu' = 9.4192$
(1)	$\log E \sin \phi = 9.7430 \pi$	(2) $\log F \cos \phi = 9.9200$	(3) $\log \mu' F \cos \phi = 9.3392$

From page 418, we have for the time of *geocentric* conjunction :

<i>Washington time,</i>	$\phi = \text{Feb. 1, } 1^h 22.2^m$	$Y = -.3939$	$\delta' = -26^{\circ} 50'$
<i>Local time,</i>	$\phi - \lambda = \text{ " } 1, 16^h 34.5^m$	$x' = +.5502$	$l. \sin \delta' = 9.6546 \pi$
	$H = + 5^h 2.0^m$	$y' = -.0771$	
	$H - \lambda = - 3^h 45.7^m = -56^{\circ} 25'$		

1. For an approximation to the time of *apparent* conjunction, we have :

(2)	$\log F \cos \phi = 9.920$	(3)	$\log \mu' F \cos \phi = 9.339$	$x' = +.550$
(4)	$l. \sin (H - \lambda) = 9.921 \pi$	(5)	$l. \cos (H - \lambda) = 9.743$	$u' = +.121$
(6)=(2)+(4)	$\log u = 9.841 \pi$	(7)=(3)+(5)	$\log u' = 9.082$	$x' - u' = +.429$
(8)	$\log (x' - u') = 9.632$			
(6)-(8)	$\log (t) = 0.209 \pi$	(t) =	$-1.62^h = -1^h 37.2^m$	
		$\phi =$	$\text{Feb. 1, } 1^h 22.2^m$	
		(T) = $\phi + (t) =$	$\text{Jan. 31, } 23^h 45.0^m$	

Washington mean time,

2. Assuming this time, for which $t = (-1^h 37.2^m)$, we proceed as follows to find the times of immersion and emersion :

(9) Sid. eq. of t .	$\mu = -1^h 37.5^m$	(33)	$x' = +.5502$		
(10)	$H - \lambda = -3^h 45.7^m$	(34)	$u' = +.0349$		
(11)=(9)+(10)	$k - \lambda = -5^h 23.2^m = -80^{\circ} 48'$	(35)	$y' = -.0771$		
		(36)	$v' = +.0973$		
(12)	$l. \sin (k - \lambda) = 9.9944 \pi$	(37)=(33)-(34)	$x' - u' = \pi \sin N = +.5153$		
(13)=(2)	$\log F \cos \phi = 9.9200$	(38)=(35)-(36)	$y' - v' = \pi \cos N = -.1744$		
(14)	$l. \cos (k - \lambda) = 9.2038$	(39)	$\log m \sin M = 8.8463 \pi$		
(15)	$l. \sin \delta' = 9.6546 \pi$	(40)	$\log m \cos M = 9.2167$		
(16)=(12)+(13)	$\log u = 9.9144 \pi$	(41)	$l. \tan M = 9.6296 \pi \quad M = -23^{\circ} 5'$		
(17) <i>Constant,</i>	$\log \mu' = 9.4192$	(42)	$l. \sin M = 9.5934 \pi$		
(18)=(13)+(14)	$\log A \cos B = 9.1238$	(43)	$\log m \sin N = 9.7121$		
(19)=(1)	$\log A \sin B = 9.7430 \pi$	(44)	$\log n \cos N = 9.2415 \pi$		
(20)=(19)-(18)	$l. \tan B = 0.6192 \pi \quad B = -76^{\circ} 29'$	(45)	$l. \tan N = 0.4706 \pi \quad N = +108^{\circ} 49'$		
(21)	$l. \sin B = 9.9878 \pi \quad \delta' = -26^{\circ} 50'$	(46)	$l. \sin N = 9.9765 \pi \quad M - N = -131^{\circ} 47'$		
(22)=(19)-(21)	$\log A = 9.7552 \pi \quad B - \delta' = -49^{\circ} 39'$				
(23)	$l. \sin (B - \delta') = 9.8820 \pi$				
(24)=(22)+(23)	$\log v = 9.6372 \pi$	(47)=(39)-(42)	$\log m = 9.2527$		
(25) $t x' = -1.62 \times .5502 = z = -.8913$	(48) <i>Constant,</i>	$\log \frac{1}{h} = 0.5650$	(51)=(46)-(43)	$\log \frac{1}{h} = 0.2644$	
(26)	$u = -.8211$	(49)	$l. \sin (M - N) = 9.8726$	(52)	$l. \cos (M - N) = 9.8237 \pi$
(27)	$Y = -.3939$	(50)=(47)+(48)+(49)	$l. \cos \psi = 9.9603 \pi$	(53)	$\log \frac{m}{n} \cos (M - N) = 9.3408 \pi$
(28) $t y' = -1.62 \times -.0771 = +.1249$					
(29)=(27)+(28)	$y = -.2690$	(54)	$\psi = 119^{\circ} 21'$	(56)	$l. \sin \psi = 9.9403$
(30)	$v = -.4337$	(55)	$90^{\circ} - N = -18^{\circ} 42'$	(57)=(51)-(48)	$\log \frac{1}{h} \sin \psi = 9.6394$
(31)=(25)-(26)	$z - u = m \sin M = -.0702$	(55)-(54)	at Im. $Q_1 = -138^{\circ}$	(58)	$\log \frac{1}{n} \sin \psi = 9.6397$
(32)=(29)-(30)	$y - v = m \cos M = +.1647$	(55)+(54)	at Em. $Q_2 = +100^{\circ}$		

(59) $-\frac{m}{n} \cos (M-N) = +0.219$

(60) $\frac{k}{n} \sin \psi = +0.436$

For Immersion.

For Emersion.

(59) - (60)	$t_1 = -0.217 = -0^h 13.0^m$	(59) + (60)	$t_2 = +0.655 = +0^h 39.3^m$
	$T = \text{Jan. 31, 23 45.0}$		$T = \text{Jan. 31, 23 45.0}$
Washington mean time,	$T_1 = T + t_1 = \text{“ 31, 23 32.0}$		$T_2 = T + t_2 = \text{Feb. 1, 0 24.3}$
	$\lambda = -15 12.3$		$\lambda = -15 12.3$
Local mean time,	$T_1 - \lambda = \text{Feb. 1, 14 14.3}$		$T_2 - \lambda = \text{Feb. 1, 15 36.6}$

3. Assuming these times, for which we have respectively $t + t_1 = -1^h 50.2^m$ and $t + t_2 = -0^h 57.9^m$, and revising the computation, we obtain as a nearer approximation:

	$t'_1 = +0^h 0.1^m$		$t'_2 = -0^h 1.6^m$
Local mean time,	$T_1 - \lambda = \text{Feb. 1, 14 44.1}$		$T_2 - \lambda = \text{Feb. 1, 15 38.2}$
Angle from N. point,	$Q'_1 = -138^\circ.0$		$Q'_2 = +99^\circ.9$
	$c_1 \sin C_1 = u + t'_1 u' = -0.8271$		$c_2 \sin C_2 = u + t'_2 u' = -0.7842$
	$c_1 \cos C_1 = v + t'_1 v' = -0.4548$		$c_2 \cos C_2 = v + t'_2 v' = -0.3687$
	$C_1 = 208^\circ.8$		$C_2 = 205^\circ.1$
Angle from Vertex,	$V_1 = Q'_1 + C_1 = 70^\circ.8$		$V_2 = Q'_2 + C_2 = 305.0$

We also find for $[(x-u) + t'(x'-u')]^2 + [(y-v) + t'(y'-v')]^2$
 At Immersion, 0.07413 ; At Emersion, 0.07413

Instead, however, of an entire recomputation, a partial revision may be made, like the following, for correcting the computed time of emersion:

(9)	$\frac{1}{2} t_2 = +19.6^m$	$\frac{1}{2} \mu_2 = +0^h 19.7^m$	(33)	$x' = +0.5502$
(10)	$k - \lambda = -5 23.2$		(34)	$u' = +0.0533$
(11)=(9)+(10)	$k_2 - \lambda = -5 3.5 = 75 52\frac{1}{2}$		(35)	$y' = -0.0771$
			(36)	$v' = +0.0956$
(12)	$l. \sin (k_2 - \lambda) = 9.9667 \pi$			
(13)=(2)	$\log F \cos \phi = 9.9200$	(37)=(33)-(34)	$x' - u' = \pi \sin N = +0.4969$	
(14)	$l. \cos (k_2 - \lambda) = 9.3875$	(38)=(35)-(36)	$y' - v' = \pi \cos N = -0.1727$	
(15)	$l. \sin \delta' = 9.6546 \pi$	(43)	$\log \pi \sin N = 9.6963$	
(16)=(12)+(13)	$\log u = 9.9067 \pi$	(44)	$\log \pi \cos N = 9.2373 \pi$	$M = -23^s 4^t$
(17)	Constant, $\log \mu' = 9.4192$	(45)	$l. \tan N = 0.4590 \pi$	$N = +109 10$
(18)=(13)+(14)	$\log A \cos B = 9.3075$	(46)	$l. \sin N = 9.9752$	
				$M - N = -132 15$

(47) From 1st Comp.	$\log m = 9.2527$	(47)	$\log m = 9.2527$
(48)	$\log \frac{1}{k} = 0.5650$	(51)	$\log \frac{1}{n} = 0.2789$
(49)	$l. \sin (M-N) = 9.8694 \pi$	(52)	$l. \cos (M-N) = 9.8276 \pi$
(50)=(47)+(48)+(49)	$l. \cos \psi = 9.6871 \pi$	(53)	$\log \frac{m}{n} \cos (M-N) = 9.3592 \pi$

(54)	$\psi = +119^s 4^t$	(56)	$l. \sin \psi = 9.9413$
(55)	$90^\circ - N = -19 10$	(57)=(51)-(48)	$\log \frac{k}{n} = 0.7139$

(55)+(54) Angle from N. point,	$Q_2 = +99 57$	(58)	$\log \frac{k}{n} \sin \psi = 0.6552$
(59)	$-\frac{m}{n} \cos (M-N) = +0.229$		$t'_2 = +0.631 = +0^h 40.9^m$
			$T = \text{Jan. 31, 23 45.0}$

(60)	$\frac{k}{n} \sin \psi = +0.452$		
Washington mean time,		$T_2 = T + t'_2 = \text{Feb. 1, 0 25.9}$	
Local mean time,		$T_2 - \lambda = \text{“ 15 38.2}$	

Jupiter's Satellites, pages 448—479.—These pages contain for the several Satellites—

1. The Washington mean times of the occultations, eclipses, transits and transits of shadows, arranged in the order of time. *W*, after a phase, indicates such as are visible at Washington, or which occur when the sun is more than 8° below and Jupiter more than 8° above the horizon of that place.

2. A diagram for each month constructed for the eclipse which occurs nearest the middle of the month, showing the phases of the eclipse for an inverting telescope. The Stars indicate the points of disappearance and reappearance, distinguished by *d* and *r*. The space between them shows the position of the shadow of the planet.

3. Washington mean time of geocentric superior conjunction, arranged for each planet separately.

4. The rectangular coördinates x' and y' for successive times reckoned from the next preceding superior conjunction, computed for a constant major axis and maximum minor axis of the apparent ellipse described by the satellite as seen from the sun at its mean distance from the planet.

5. The *factors* by which x' and y' are to be multiplied to obtain the actual coördinates x and y for the apparent ellipse, as seen from the earth at any date; the inclination p of the minor axis to the circle of declination, reckoned from the *north*, positive towards the *east*; and the actual coördinates x and y at the times of eclipse of each satellite.

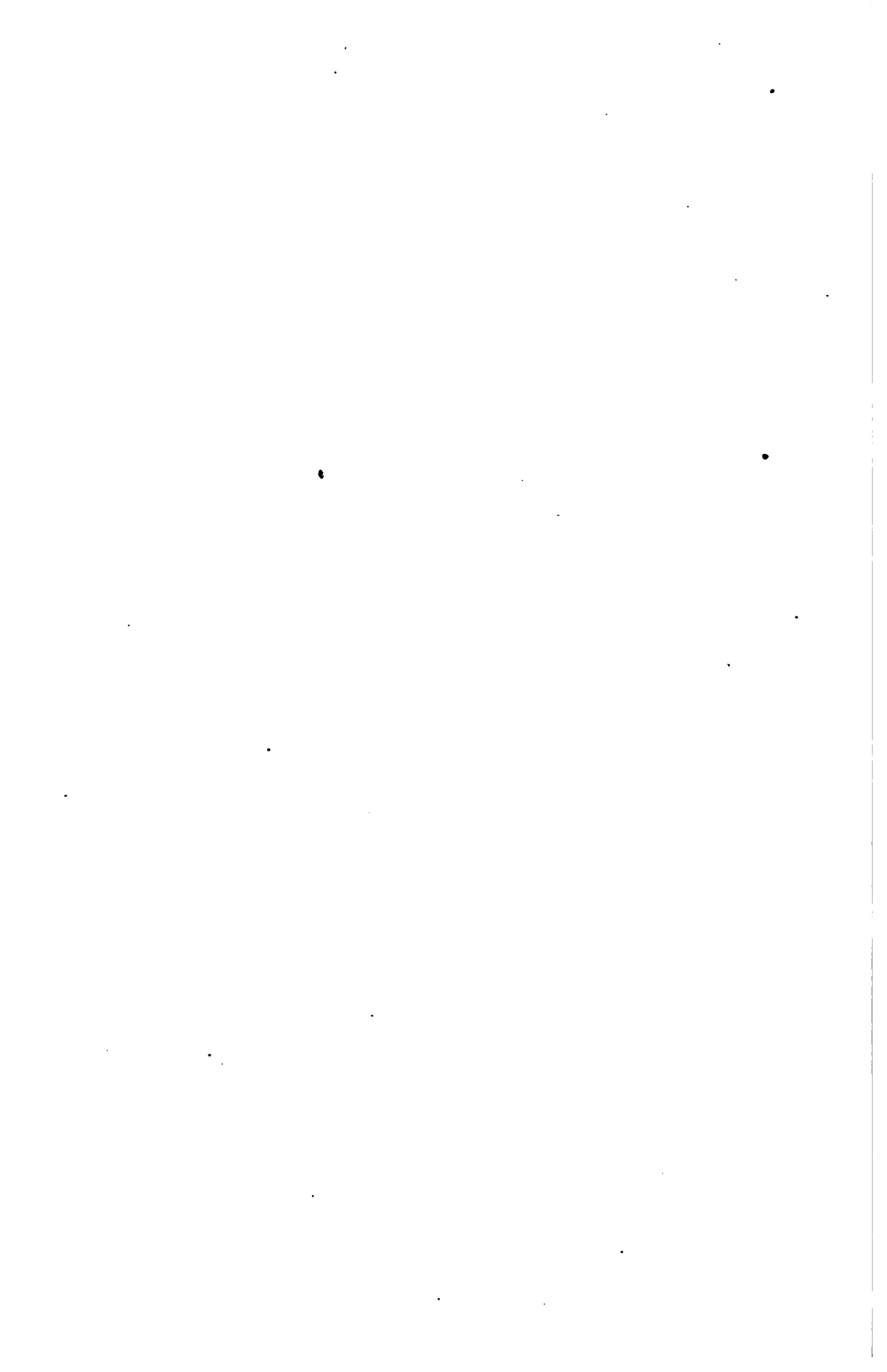
The coördinates are referred to the centre of the primary and to the major and minor axes of the ellipse described by the satellite, and are expressed in seconds of arc. x is positive when on the *east* side of the planet; y is positive when *north*. By means of them the configurations of the satellite can be found at any time.

The *Elements of Saturn's Ring*, page 480, give the *apparent* magnitude and position of its several components for each 20 days. The *apparent Discs of Venus and Mars* are given on the same page for each 30 days.

The *Phenomena*, pages 481 and 482, include the times of conjunction, opposition, and quadrature, perihelion and aphelion, stationary points, and conjunction with the moon in right ascension, of the principal planets.

The *Positions of the Principal Observatories* are given on pages 483 and 484. The authorities for these positions, and the longitudes with reference to the meridians upon which they actually depend, will be found in the *American Ephemeris* for 1870, 1871, and 1872.

APPENDIX.



CONSTRUCTION OF THE ASTRONOMICAL AND NAUTICAL EPHEMERIDES FOR 1875.

THE Precession of the Equinoxes, the Mean Obliquity of the Ecliptic, and the Constant of Aberration (p. 250) are taken from STRUVE and PETERS. They are:

$$\text{Precession}^* = 50''.2411 + 0''.0002268 t,$$

$$\text{Obliquity}^\dagger = 23^\circ 27' 54''.22 - 0''.4645 t - 0''.0000014 t^2,$$

$$\text{Aberration}^\ddagger = 20''.4451 \pm 0''.0111,$$

in which t is the number of tropical years after 1800.

The Nutation of the Apparent Obliquity and the Equation of the Equinoxes are computed from PETERS' formulæ given in his *Numerus Constans Nutationis*, pp. 46-48, and reprinted in the volume of this Ephemeris for 1855. These quantities have been used in all computations relating to the Fixed Stars.

In the Ephemerides of the Sun, Moon, and Planets, the Obliquity of the Ecliptic and the Nutation of HANSEN and OLUFSEN's *Tables du Soleil* have been used; but the same Aberration as for the fixed stars. The Mean Obliquity exceeds that of PETERS by $0''.34$.

The General Constants for Star Reduction are adapted to the formulæ given on page 258. They are computed from the *Tables to facilitate the Reduction of Places of the Fixed Stars, prepared for the use of the American Ephemeris and Nautical Almanac*, Washington, 1869, which have been used in the preparation of previous volumes of this work subsequent to that of 1861.

The Mean Places of the 198 Standard Stars have also been taken from the same tables. Dr. GOULD's *Standard Places of Fundamental Stars, U. S. Coast Survey*, Washington, 1866, is the authority given for 48 Northern Circumpolar Stars and 128 Time Stars; the *British Nautical Almanac* for 1848 for 13 Stars south of -40° declination; and WOLFER's *Tabulæ Reductionum Observationum Astronomicarum*, Berlin, 1858, for Sirius, Castor, (the mean of the components,) Procyon, γ Draconis, and α Cephei. The magnitudes, except of the 13 Southern Stars, are ARGELANDER'S.

The reductions from the mean to the apparent places of the Stars contained in WOLFER'S *Tabulæ Reductionum*, except α and δ Ursæ Minoris, have been derived from that work; the reductions of the rest from the *Tables of the American Ephemeris*. These reductions include the terms of the formulæ on pages 258 and 493, so far as sensible, except those depending on the moon's longitude. These terms and $\epsilon - I'$ have, however, been applied to the four stars whose places are given for every day. Their values for other stars may readily be found by Tables VI. and VII. of this Appendix.

* PETERS' *Numerus Constans Nutationis*, p. 71.

† Ibid., pp. 66 and 71.

‡ STRUVE'S *Constant de l'Aberration*, p. 47.

APPENDIX.

To the position of Sirius, as derived from WOLFERS, (the correction of the "*Tabula Subsidiaria*" being omitted), have been applied the terms given by AUWERS,*

$$q = +0''.0647 - 0''.000718 (t - 1860) + 0''.1510 \cos (u + 1^\circ 6')$$

$$r = -0''.630 - 0''.00044 (t - 1860) + 1''.445 \sin (u + 23^\circ 30')$$

in which u , the eccentric anomaly from the inferior apsis, is found by the formula

$$u - e \sin u = n (t - T),$$

from the elements

$$T = 1793.830, \text{ passage through the inferior apsis,}$$

$$e = 0.6010, \text{ the eccentricity,}$$

$$n = 7^\circ.28475, \text{ mean annual motion in orbit,}$$

$$49^\circ.418, \text{ period of revolution.}$$

The Mean Places of such of the Moon-culminating Stars as are not found in the list of standard stars, have been taken in order of preference from the *Almanac Catalogue of Zodiacal Stars printed for the use of the American Ephemeris and Nautical Almanac, Washington, 1864; the Greenwich Twelve-Year Catalogue; and the Catalogue of the British Association.*

The Ephemeris of the Sun† is constructed from HANSEN and OLUFSEN's *Tables du Soleil*, Copenhagen, 1853, except that Sturve's Aberration has been used. This is equivalent to adding $0''.19$ to the longitudes, but does not affect the right ascensions and declinations. The Sun's rectangular equatorial coördinates have been computed from the longitudes and latitudes by the following formulæ:

$$X = R \cos \lambda$$

$$Y = R \sin \lambda \cos \omega - 19.3 R \beta$$

$$Z = R \sin \lambda \sin \omega + 44.5 R \beta$$

$$X' = X + Y \sec \omega \Delta \lambda$$

$$Y' = Y - X \cos \omega \Delta \lambda + Z \Delta \omega - 9.4 \tau R \sin (\odot + 187^\circ)$$

$$Z' = Z - X \sin \omega \Delta \lambda - Y \Delta \omega + 21.7 \tau R \sin (\odot + 187^\circ)$$

in which λ , β and ω are referred to the equinox and ecliptic of the date; $\Delta \lambda$ is the reduction of longitude for precession and nutation from Jan. 0; $\Delta \omega$ the reduction of the mean to the apparent obliquity; τ the part of the year since Jan. 0; and the numerical coefficients are in units of the 7th place of decimals.

The mean equatorial Horizontal Parallax of the Sun, adopted from Prof. NEWCOMB's *Investigation of the Distance of the Sun and the Elements which depend on it*,‡ is $8''.848$. The adopted Semidiameter of the Sun at the Earth's mean distance is $16' 2''$.

The Ephemeris of the Moon has been constructed from PEIRCE's *Tables of the Moon, 2d edition*, Washington, 1865. They include the *Tables of the Moon's Parallax* constructed from WALKER's and ADAMS's formulæ.

The Semidiameter of the Moon has been computed from the Moon's Horizontal Parallax by the formula,

$$S = .272274 \pi + 2''.5.$$

A semidiameter $2''.5$ less is found to be better adapted for the computation of eclipses and occultations.

The Ephemeris of Mercury has been derived from the Tables of Prof. WINLOCK, which are based on the theory of LE VERRIER, published in the Additions to the *Connaissance des Temps* for 1848.

* *Astronomische Nachrichten*, No. 1506.

† From CARLINI's Tables before 1858.

‡ *Astronomical Observations made at the U. S. Naval Observatory, Washington, 1865, Appendix II.*

CONSTRUCTION OF THE ALMANAC.

The Ephemeris of Venus has been derived from manuscript Tables, constructed from those of LINDENAU, in a form similar to that adopted for the Lunar Tables: applying AIRY'S Long Equation and the corrections proceeding from the discussion, by the method of Least Squares, of Mr. HUGH BREEN'S results contained in his paper on the *Corrections of LINDENAU'S Elements of the Orbit of Venus, &c.*, published in the *Memoirs of the Royal Astronomical Society*, Vol. XVIII.; and adopting the secular variations of the elements from LE VERRIER'S *Memoir on the Determination of the Secular Inequalities of the Planets*, which appeared in the *Connaissance des Temps* for the year 1844. The following are the corresponding corrected elements, and annual variations for Washington, 1855.0:

$$\begin{aligned}
 L &= 289 \text{ }^{\circ} 51' 53.5 + 2106691'' .706 t. \\
 \pi &= 129 \text{ }^{\circ} 32' 59.6 + 49'' .57459 t. \\
 \Omega &= 75 \text{ }^{\circ} 23' 27.3 + 32'' .88424 t. \\
 i &= 3 \text{ }^{\circ} 23' 34.6 + 0'' .04363 t. \\
 e &= 1410'' .6847 - 0'' .11157 t. \\
 n &= 2106641'' .438 \\
 a &= 0.7233323
 \end{aligned}$$

The Ephemeris of Mars is derived from manuscript Tables constructed from LINDENAU'S Tables in the same manner as the Tables of Venus. Mr. HUGH BREEN'S results contained in his paper *On the Corrections of LINDENAU'S Elements of Mars*, published in the *Memoirs of the Royal Astronomical Society*, Vol. XX., have also been discussed and applied; and LE VERRIER'S secular variations of the elements are likewise adopted. The following are the corresponding corrected elements, and annual variations for Washington, 1855.0:

$$\begin{aligned}
 L &= 320 \text{ }^{\circ} 13' 33.87 + 689101'' .1527 t. \\
 \pi &= 333 \text{ }^{\circ} 23' 17.84 + 65'' .9990 t. \\
 \Omega &= 48 \text{ }^{\circ} 25' 55.29 + 27'' .6997 t. \\
 i &= 1 \text{ }^{\circ} 51' 2.20 - 0'' .02141 t. \\
 e &= 19238'' .75 + 0'' .18549 t. \\
 n &= 689050'' .8927 \\
 a &= 1.5236915
 \end{aligned}$$

The Ephemeris of Jupiter is derived from manuscript Tables constructed from BOUVARD'S Tables, with such changes as were required to make them correspond more nearly to the formulæ.

The Ephemeris of Saturn is derived from BOUVARD'S Tables. The perturbations produced by Jupiter, and the change of the Great Inequality since 1840, have been increased by $\frac{1}{10}$ of their value. ADAMS'S Table in the *British Nautical Almanac* for 1851 has been substituted for BOUVARD'S Table XLII. The following corrections of the elements for 1855.0 have also been introduced:

corr. mean long.	= + 4'' .9
corr. long. of node	= - 143'' .0
corr. inclination	= - 5'' .7 + 0'' .0149 t.

The Ephemeris of Uranus is derived from the elliptical portion of BOUVARD'S Tables, with LE VERRIER'S corrections and perturbations caused by Jupiter and Saturn, contained in his *Recherches sur les Mouvements de la Planète Herschel (dite Uranus)*, published in the *Connaissance des Temps* for 1849, and also PEIRCE'S corrections and perturbations arising from the influence of Neptune.

The Ephemeris of Neptune is derived from Prof. NEWCOMB'S *Tables of Neptune*, Washington, 1866.

APPENDIX.

The eclipses and elongations of Jupiter's Satellites are computed from DAMOISEAU'S Tables.

The semidiameters of the Planets are computed from the following values :

	Semidiameter.	Log Dist.	Authority.
Mercury	3.34	0.00	LE VERRIER, <i>Theory of Mercury</i> .
Venus	8.546 ± 0.086	0.00	} PEIRCE, from the Washington Observations of 1845 and 1846, made with the mural circle.
Mars (polar)	2.842 ± 0.057	0.25	
Jupiter (polar)	18.78 ± 0.067	0.70	
Saturn (polar)	8.77 ± 0.039	0.95	
Uranus	1.68 ± 0.3	1.30	
Jupiter (equat.)	20.00	0.70	
Saturn (equat.)	9.38	0.95	

The apparent elements of Saturn's Rings are computed from BESSEL'S data, except those for Bond's dusky ring.

The Tables for the eclipses of the sun are adapted to the modification of BESSEL'S formulæ, suggested by T. HENRY SAFFORD, jr. The formulæ are given in PEIRCE'S *Spherical Astronomy* and CHAUVENET'S *Spherical and Practical Astronomy*, Vol. I.

The elements for occultations of stars by the moon are adapted to BESSEL'S method in the *Astronomische Nachrichten*, Vol. VII., and the *Berliner Astronomisches Jahrbuch* for 1831. The formulæ are also to be found in CHAUVENET'S *Astronomy*.

The intervals of original computation have in all cases been made sufficiently small to authorize the use of the differences as a check of the accuracy of the work. The results have also been tested, in various portions, by means of duplicate computations. The proofs from the stereotype plates have been thoroughly examined by an independent series of differences. And it is believed that, in every respect, that system has been adopted in which accuracy was most likely to be secured.

The principal computations of the Ephemeris have been distributed in the following manner :

The Sun has been computed by Mr. EASTWOOD; the Ephemeris of the Moon and the Lunar Distances by Professor RUNKLE. Mercury and Venus have been prepared by Mr. AUSTIN, Mars by Mr. FERREL, Jupiter by Professor KENDALL, Saturn by Professor VAN VLECK, Uranus by Mr. FERREL, and Neptune by Mr. WIESSNER. The Fixed Stars and the General Constants for Reduction have been computed under the direction of the Superintendent by Mr. LOOMIS and Mr. PACKARD, and the Occultations by Mr. DOWNES assisted by Mr. WIESSNER. The Eclipses have been computed and the Charts projected by Mr. G. W. HILL. The Table of Positions of Observatories, originally compiled by Dr. B. A. GOULD, was revised by him for the volume for 1870. The results of the most recent determinations have been incorporated.

TABLE I.

TABLE SHOWING THE CORRECTION REQUIRED, ON ACCOUNT OF SECOND DIFFERENCES OF THE MOON'S MOTION, IN FINDING THE GREENWICH TIME CORRESPONDING TO A CORRECTED LUNAR DISTANCE.

Approximate Interval.		Difference of the Proportional Logarithms in the Ephemeris.																									
		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52
h	m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	10	0	0	0	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3
0	20	0	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5	5	6	6	6	6
0	30	0	1	1	2	2	2	2	3	3	3	4	4	5	5	5	6	6	6	7	7	7	8	8	8	9	9
0	40	0	1	1	2	2	3	3	3	4	4	5	5	6	6	6	7	7	8	8	9	9	10	10	10	11	11
0	50	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	12	12	13	13	13
1	0	2	0	1	1	2	2	3	3	4	4	5	6	6	7	7	8	8	9	9	10	10	11	12	12	13	14
1	10	1	50	1	1	2	2	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	12	13	14	15
1	20	1	40	1	1	2	3	3	4	4	5	6	6	7	7	8	9	9	10	10	11	12	13	14	15	16	16
1	30	1	30	1	1	2	3	3	4	4	5	6	6	7	7	8	9	9	10	11	11	12	13	14	15	16	16

Approximate Interval.		Difference of the Proportional Logarithms in the Ephemeris.																								
		54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102
h	m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	10	2	50	4	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	7	7
0	20	2	40	7	7	7	8	8	8	9	9	9	10	10	10	11	11	11	11	11	12	12	12	12	13	13
0	30	2	30	9	10	10	10	11	11	12	12	13	13	14	14	14	15	15	16	16	16	17	17	17	18	18
0	40	2	20	12	12	13	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22
0	50	2	10	14	14	15	15	16	16	16	17	17	18	19	19	20	21	21	22	22	23	23	24	24	25	26
1	0	2	0	15	16	16	17	17	18	18	19	19	20	21	21	22	23	23	24	24	25	25	26	27	27	28
1	10	1	50	16	17	17	18	18	19	19	20	21	21	22	23	24	24	25	26	26	27	28	28	29	30	30
1	20	1	40	17	17	18	19	19	20	20	21	21	22	23	23	24	25	25	26	27	28	28	29	30	31	31
1	30	1	30	17	18	18	19	19	20	21	21	22	23	23	24	25	25	26	27	28	29	29	30	31	31	32

Approximate Interval.		Difference of the Proportional Logarithms in the Ephemeris.																
		104	106	108	110	112	114	116	118	120	122	124	126	128	130	132	134	136	138
h	m	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	10	2	50	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8
0	20	2	40	13	13	13	14	14	14	15	15	15	15	16	16	16	16	17
0	30	2	30	18	16	19	19	19	20	20	21	21	21	22	22	22	23	23
0	40	2	20	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29
0	50	2	10	26	26	27	27	28	29	29	29	30	30	31	31	32	33	34
1	0	2	0	29	29	30	30	31	31	32	33	33	34	34	35	35	36	37
1	10	1	50	31	31	32	32	33	34	34	35	35	36	37	37	38	38	39
1	20	1	40	32	33	33	34	34	35	35	36	37	38	38	39	39	40	41
1	30	1	30	32	33	34	34	35	35	36	37	38	39	39	40	40	41	42

The Correction is to be *added* to the approximate Greenwich Time when the Proportional Logarithms in the Ephemeris are *decreasing*, and *subtracted* when they are *increasing*.

TABLE II.—SIDEREAL INTO MEAN SOLAR TIME.

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL									
Side- real.	0 ^h .	1 ^h .	2 ^h .	3 ^h .	4 ^h .	5 ^h .	6 ^h .	7 ^h .	For Seconds.
m	m s	m s	m s	m s	m s	m s	m s	m s	s s
0	0 0.000	0 9.830	0 19.659	0 29.489	0 39.318	0 49.148	0 58.977	1 8.807	1 0.003
1	0 0.164	0 9.993	0 19.823	0 29.653	0 39.482	0 49.312	0 59.141	1 8.971	2 .005
2	0 0.328	0 10.157	0 19.987	0 29.816	0 39.646	0 49.475	0 59.305	1 9.135	3 .008
3	0 0.491	0 10.321	0 20.151	0 29.980	0 39.810	0 49.639	0 59.469	1 9.298	4 .011
4	0 0.655	0 10.485	0 20.314	0 30.144	0 39.974	0 49.803	0 59.633	1 9.462	5 .014
5	0 0.819	0 10.649	0 20.478	0 30.308	0 40.137	0 49.967	0 59.796	1 9.626	6 .016
6	0 0.983	0 10.813	0 20.642	0 30.472	0 40.301	0 50.131	0 59.960	1 9.790	7 .019
7	0 1.147	0 10.976	0 20.806	0 30.635	0 40.465	0 50.295	1 0.124	1 9.954	8 .022
8	0 1.311	0 11.140	0 20.970	0 30.799	0 40.629	0 50.458	1 0.288	1 10.118	9 .025
9	0 1.474	0 11.304	0 21.134	0 30.963	0 40.793	0 50.622	1 0.452	1 10.281	10 .027
10	0 1.638	0 11.468	0 21.297	0 31.127	0 40.956	0 50.786	1 0.616	1 10.445	11 .030
11	0 1.802	0 11.632	0 21.461	0 31.291	0 41.120	0 50.950	1 0.779	1 10.609	12 .033
12	0 1.966	0 11.795	0 21.625	0 31.455	0 41.284	0 51.114	1 0.943	1 10.773	13 .035
13	0 2.130	0 11.959	0 21.789	0 31.618	0 41.448	0 51.278	1 1.107	1 10.937	14 .038
14	0 2.294	0 12.123	0 21.953	0 31.782	0 41.612	0 51.441	1 1.271	1 11.100	15 .041
15	0 2.457	0 12.287	0 22.117	0 31.946	0 41.776	0 51.605	1 1.435	1 11.264	16 .044
16	0 2.621	0 12.451	0 22.280	0 32.110	0 41.939	0 51.769	1 1.599	1 11.428	17 .046
17	0 2.785	0 12.615	0 22.444	0 32.274	0 42.103	0 51.933	1 1.762	1 11.592	18 .049
18	0 2.949	0 12.778	0 22.608	0 32.438	0 42.267	0 52.097	1 1.926	1 11.756	19 .052
19	0 3.113	0 12.942	0 22.772	0 32.601	0 42.431	0 52.260	1 2.090	1 11.920	20 .055
20	0 3.277	0 13.106	0 22.936	0 32.765	0 42.595	0 52.424	1 2.254	1 12.083	21 .057
21	0 3.440	0 13.270	0 23.099	0 32.929	0 42.759	0 52.588	1 2.418	1 12.247	22 .060
22	0 3.604	0 13.434	0 23.263	0 33.093	0 42.922	0 52.752	1 2.582	1 12.411	23 .063
23	0 3.768	0 13.598	0 23.427	0 33.257	0 43.086	0 52.916	1 2.745	1 12.575	24 .066
24	0 3.932	0 13.761	0 23.591	0 33.420	0 43.250	0 53.080	1 2.909	1 12.739	25 .068
25	0 4.096	0 13.925	0 23.755	0 33.584	0 43.414	0 53.243	1 3.073	1 12.903	26 .071
26	0 4.259	0 14.089	0 23.919	0 33.748	0 43.578	0 53.407	1 3.237	1 13.066	27 .074
27	0 4.423	0 14.253	0 24.082	0 33.912	0 43.742	0 53.571	1 3.401	1 13.230	28 .076
28	0 4.587	0 14.417	0 24.246	0 34.076	0 43.905	0 53.735	1 3.564	1 13.394	29 .079
29	0 4.751	0 14.581	0 24.410	0 34.240	0 44.069	0 53.899	1 3.728	1 13.558	30 .082
30	0 4.915	0 14.744	0 24.574	0 34.403	0 44.233	0 54.063	1 3.892	1 13.722	31 .085
31	0 5.079	0 14.908	0 24.738	0 34.567	0 44.397	0 54.226	1 4.056	1 13.886	32 .087
32	0 5.242	0 15.072	0 24.902	0 34.731	0 44.561	0 54.390	1 4.220	1 14.049	33 .090
33	0 5.406	0 15.236	0 25.065	0 34.895	0 44.724	0 54.554	1 4.384	1 14.213	34 .093
34	0 5.570	0 15.400	0 25.229	0 35.059	0 44.888	0 54.718	1 4.547	1 14.377	35 .096
35	0 5.734	0 15.563	0 25.393	0 35.223	0 45.052	0 54.882	1 4.711	1 14.541	36 .098
36	0 5.898	0 15.727	0 25.557	0 35.386	0 45.216	0 55.046	1 4.875	1 14.705	37 .101
37	0 6.062	0 15.891	0 25.721	0 35.550	0 45.380	0 55.209	1 5.039	1 14.868	38 .104
38	0 6.225	0 16.055	0 25.885	0 35.714	0 45.544	0 55.373	1 5.203	1 15.032	39 .106
39	0 6.389	0 16.219	0 26.048	0 35.878	0 45.707	0 55.537	1 5.367	1 15.196	40 .109
40	0 6.553	0 16.383	0 26.212	0 36.042	0 45.871	0 55.701	1 5.530	1 15.360	41 .112
41	0 6.717	0 16.546	0 26.376	0 36.206	0 46.035	0 55.865	1 5.694	1 15.524	42 .115
42	0 6.881	0 16.710	0 26.540	0 36.369	0 46.199	0 56.028	1 5.858	1 15.688	43 .117
43	0 7.045	0 16.874	0 26.704	0 36.533	0 46.363	0 56.192	1 6.022	1 15.851	44 .120
44	0 7.208	0 17.038	0 26.867	0 36.697	0 46.527	0 56.356	1 6.186	1 16.015	45 .123
45	0 7.372	0 17.202	0 27.031	0 36.861	0 46.690	0 56.520	1 6.350	1 16.179	46 .126
46	0 7.536	0 17.366	0 27.195	0 37.025	0 46.854	0 56.684	1 6.513	1 16.343	47 .128
47	0 7.700	0 17.529	0 27.359	0 37.188	0 47.018	0 56.848	1 6.677	1 16.507	48 .131
48	0 7.864	0 17.693	0 27.523	0 37.352	0 47.182	0 57.011	1 6.841	1 16.671	49 .134
49	0 8.027	0 17.857	0 27.687	0 37.516	0 47.346	0 57.175	1 7.005	1 16.834	50 .137
50	0 8.191	0 18.021	0 27.850	0 37.680	0 47.510	0 57.339	1 7.169	1 16.998	51 .139
51	0 8.355	0 18.185	0 28.014	0 37.844	0 47.673	0 57.503	1 7.332	1 17.162	52 .142
52	0 8.519	0 18.349	0 28.178	0 38.008	0 47.837	0 57.667	1 7.496	1 17.326	53 .145
53	0 8.683	0 18.512	0 28.342	0 38.171	0 48.001	0 57.831	1 7.660	1 17.490	54 .147
54	0 8.847	0 18.676	0 28.506	0 38.335	0 48.165	0 57.994	1 7.824	1 17.654	55 .150
55	0 9.010	0 18.840	0 28.670	0 38.499	0 48.329	0 58.158	1 7.988	1 17.817	56 .153
56	0 9.174	0 19.004	0 28.833	0 38.663	0 48.492	0 58.322	1 8.152	1 17.981	57 .156
57	0 9.338	0 19.168	0 28.997	0 38.827	0 48.656	0 58.486	1 8.315	1 18.145	58 .158
58	0 9.502	0 19.331	0 29.161	0 38.991	0 48.820	0 58.650	1 8.479	1 18.309	59 0.161
59	0 9.666	0 19.495	0 29.325	0 39.154	0 48.984	0 58.814	1 8.643	1 18.473	

TABLE II.—SIDEREAL INTO MEAN SOLAR TIME.

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL.

Side- real.	8 ^h .	9 ^h .	10 ^h .	11 ^h .	12 ^h .	13 ^h .	14 ^h .	15 ^h .	For Seconds.
0	1 18.636	1 28.466	1 38.296	1 48.125	1 57.955	2 7.784	2 17.614	2 27.443	
1	1 18.800	1 28.630	1 38.459	1 48.289	1 58.119	2 7.948	2 17.778	2 27.607	1 0.003
2	1 18.964	1 28.794	1 38.623	1 48.453	1 58.282	2 8.112	2 17.941	2 27.771	2 .005
3	1 19.128	1 28.958	1 38.787	1 48.617	1 58.446	2 8.276	2 18.105	2 27.935	3 .008
4	1 19.292	1 29.121	1 38.951	1 48.780	1 58.610	2 8.440	2 18.269	2 28.099	4 .011
5	1 19.456	1 29.285	1 39.115	1 48.944	1 58.774	2 8.603	2 18.433	2 28.263	5 .014
6	1 19.619	1 29.449	1 39.279	1 49.108	1 58.938	2 8.767	2 18.597	2 28.426	6 .016
7	1 19.783	1 29.613	1 39.442	1 49.272	1 59.101	2 8.931	2 18.761	2 28.590	7 .019
8	1 19.947	1 29.777	1 39.606	1 49.436	1 59.265	2 9.095	2 18.924	2 28.754	8 .022
9	1 20.111	1 29.940	1 39.770	1 49.600	1 59.429	2 9.259	2 19.088	2 28.918	9 .025
10	1 20.275	1 30.104	1 39.934	1 49.763	1 59.593	2 9.423	2 19.252	2 29.082	10 .027
11	1 20.439	1 30.268	1 40.098	1 49.927	1 59.757	2 9.586	2 19.416	2 29.245	11 .030
12	1 20.602	1 30.432	1 40.261	1 50.091	1 59.921	2 9.750	2 19.580	2 29.409	12 .033
13	1 20.766	1 30.596	1 40.425	1 50.255	2 0.084	2 9.914	2 19.744	2 29.573	13 .035
14	1 20.930	1 30.760	1 40.589	1 50.419	2 0.248	2 10.078	2 19.907	2 29.737	14 .038
15	1 21.094	1 30.923	1 40.753	1 50.583	2 0.412	2 10.242	2 20.071	2 29.901	15 .041
16	1 21.258	1 31.087	1 40.917	1 50.746	2 0.576	2 10.405	2 20.235	2 30.065	16 .044
17	1 21.422	1 31.251	1 41.081	1 50.910	2 0.740	2 10.569	2 20.399	2 30.228	17 .046
18	1 21.585	1 31.415	1 41.244	1 51.074	2 0.904	2 10.733	2 20.563	2 30.392	18 .049
19	1 21.749	1 31.579	1 41.408	1 51.238	2 1.067	2 10.897	2 20.727	2 30.556	19 .052
20	1 21.913	1 31.743	1 41.572	1 51.402	2 1.231	2 11.061	2 20.890	2 30.720	20 .055
21	1 22.077	1 31.906	1 41.736	1 51.565	2 1.395	2 11.225	2 21.054	2 30.884	21 .057
22	1 22.241	1 32.070	1 41.900	1 51.729	2 1.559	2 11.388	2 21.218	2 31.048	22 .060
23	1 22.404	1 32.234	1 42.064	1 51.893	2 1.723	2 11.552	2 21.382	2 31.211	23 .063
24	1 22.568	1 32.398	1 42.227	1 52.057	2 1.887	2 11.716	2 21.546	2 31.375	24 .066
25	1 22.732	1 32.562	1 42.391	1 52.221	2 2.050	2 11.880	2 21.709	2 31.539	25 .068
26	1 22.896	1 32.726	1 42.555	1 52.385	2 2.214	2 12.044	2 21.873	2 31.703	26 .071
27	1 23.060	1 32.889	1 42.719	1 52.548	2 2.378	2 12.208	2 22.037	2 31.867	27 .074
28	1 23.224	1 33.053	1 42.883	1 52.712	2 2.542	2 12.371	2 22.201	2 32.031	28 .076
29	1 23.387	1 33.217	1 43.047	1 52.876	2 2.706	2 12.535	2 22.365	2 32.194	29 .079
30	1 23.551	1 33.381	1 43.210	1 53.040	2 2.869	2 12.699	2 22.529	2 32.358	30 .082
31	1 23.715	1 33.545	1 43.374	1 53.204	2 3.033	2 12.863	2 22.692	2 32.522	31 .085
32	1 23.879	1 33.708	1 43.538	1 53.368	2 3.197	2 13.027	2 22.856	2 32.686	32 .087
33	1 24.043	1 33.872	1 43.702	1 53.531	2 3.361	2 13.191	2 23.020	2 32.850	33 .090
34	1 24.207	1 34.036	1 43.866	1 53.695	2 3.525	2 13.354	2 23.184	2 33.013	34 .093
35	1 24.370	1 34.200	1 44.029	1 53.859	2 3.689	2 13.518	2 23.348	2 33.177	35 .096
36	1 24.534	1 34.364	1 44.193	1 54.023	2 3.852	2 13.682	2 23.512	2 33.341	36 .098
37	1 24.698	1 34.528	1 44.357	1 54.187	2 4.016	2 13.846	2 23.675	2 33.505	37 .101
38	1 24.862	1 34.691	1 44.521	1 54.351	2 4.180	2 14.010	2 23.839	2 33.669	38 .104
39	1 25.026	1 34.855	1 44.685	1 54.514	2 4.344	2 14.173	2 24.003	2 33.833	39 .106
40	1 25.190	1 35.019	1 44.849	1 54.678	2 4.508	2 14.337	2 24.167	2 33.996	40 .109
41	1 25.353	1 35.183	1 45.012	1 54.842	2 4.672	2 14.501	2 24.331	2 34.160	41 .112
42	1 25.517	1 35.347	1 45.176	1 55.006	2 4.835	2 14.665	2 24.495	2 34.324	42 .115
43	1 25.681	1 35.511	1 45.340	1 55.170	2 4.999	2 14.829	2 24.658	2 34.488	43 .117
44	1 25.845	1 35.674	1 45.504	1 55.333	2 5.163	2 14.993	2 24.822	2 34.652	44 .120
45	1 26.009	1 35.838	1 45.668	1 55.497	2 5.327	2 15.156	2 24.986	2 34.816	45 .123
46	1 26.172	1 36.002	1 45.832	1 55.661	2 5.491	2 15.320	2 25.150	2 34.979	46 .126
47	1 26.336	1 36.166	1 45.995	1 55.825	2 5.655	2 15.484	2 25.314	2 35.143	47 .128
48	1 26.500	1 36.330	1 46.159	1 55.989	2 5.818	2 15.648	2 25.477	2 35.307	48 .131
49	1 26.664	1 36.493	1 46.323	1 56.153	2 5.982	2 15.812	2 25.641	2 35.471	49 .134
50	1 26.828	1 36.657	1 46.487	1 56.316	2 6.146	2 15.976	2 25.805	2 35.635	50 .137
51	1 26.992	1 36.821	1 46.651	1 56.480	2 6.310	2 16.139	2 25.969	2 35.798	51 .139
52	1 27.155	1 36.985	1 46.815	1 56.644	2 6.474	2 16.303	2 26.133	2 35.962	52 .142
53	1 27.319	1 37.149	1 46.978	1 56.808	2 6.637	2 16.467	2 26.297	2 36.126	53 .145
54	1 27.483	1 37.313	1 47.142	1 56.972	2 6.801	2 16.631	2 26.460	2 36.290	54 .147
55	1 27.647	1 37.476	1 47.306	1 57.136	2 6.965	2 16.795	2 26.624	2 36.454	55 .150
56	1 27.811	1 37.640	1 47.470	1 57.300	2 7.129	2 16.959	2 26.788	2 36.618	56 .153
57	1 27.975	1 37.804	1 47.634	1 57.463	2 7.293	2 17.122	2 26.952	2 36.781	57 .156
58	1 28.138	1 37.968	1 47.797	1 57.627	2 7.457	2 17.286	2 27.116	2 36.945	58 .158
59	1 28.302	1 38.132	1 47.961	1 57.791	2 7.620	2 17.450	2 27.280	2 37.109	59 .161

TABLE II.—SIDEREAL INTO MEAN SOLAR TIME.

TO BE SUBTRACTED FROM A SIDEREAL TIME INTERVAL.										
Side- real.	16 ^h .	17 ^h .	18 ^h .	19 ^h .	20 ^h .	21 ^h .	22 ^h .	23 ^h .	For Seconds.	
m	m	m	m	m	m	m	m	m	a	a
0	2 37.273	2 47.102	2 56.932	3 6.762	3 16.591	3 26.421	3 36.250	3 46.080		
1	2 37.437	2 47.266	2 57.096	3 6.925	3 16.755	3 26.585	3 36.414	3 46.244	1	0.003
2	2 37.601	2 47.430	2 57.260	3 7.089	3 16.919	3 26.748	3 36.578	3 46.407	2	.005
3	2 37.764	2 47.594	2 57.424	3 7.253	3 17.083	3 26.912	3 36.742	3 46.571	3	.008
4	2 37.928	2 47.758	2 57.587	3 7.417	3 17.246	3 27.076	3 36.906	3 46.735	4	.011
5	2 38.092	2 47.922	2 57.751	3 7.581	3 17.410	3 27.240	3 37.069	3 46.899	5	.014
6	2 38.256	2 48.085	2 57.915	3 7.745	3 17.574	3 27.404	3 37.233	3 47.063	6	.016
7	2 38.420	2 48.249	2 58.079	3 7.908	3 17.738	3 27.568	3 37.397	3 47.227	7	.019
8	2 38.584	2 48.413	2 58.243	3 8.072	3 17.902	3 27.731	3 37.561	3 47.390	8	.022
9	2 38.747	2 48.577	2 58.406	3 8.236	3 18.066	3 27.895	3 37.725	3 47.554	9	.025
10	2 38.911	2 48.741	2 58.570	3 8.400	3 18.229	3 28.059	3 37.889	3 47.718	10	.027
11	2 39.075	2 48.905	2 58.734	3 8.564	3 18.393	3 28.223	3 38.052	3 47.882	11	.030
12	2 39.239	2 49.068	2 58.898	3 8.728	3 18.557	3 28.387	3 38.216	3 48.046	12	.033
13	2 39.403	2 49.232	2 59.062	3 8.891	3 18.721	3 28.550	3 38.380	3 48.210	13	.035
14	2 39.566	2 49.396	2 59.226	3 9.055	3 18.885	3 28.714	3 38.544	3 48.373	14	.038
15	2 39.730	2 49.560	2 59.389	3 9.219	3 19.049	3 28.878	3 38.708	3 48.537	15	.041
16	2 39.894	2 49.724	2 59.553	3 9.383	3 19.212	3 29.042	3 38.871	3 48.701	16	.044
17	2 40.058	2 49.888	2 59.717	3 9.547	3 19.376	3 29.206	3 39.035	3 48.865	17	.046
18	2 40.222	2 50.051	2 59.881	3 9.710	3 19.540	3 29.370	3 39.199	3 49.029	18	.049
19	2 40.386	2 50.215	3 0.045	3 9.874	3 19.704	3 29.533	3 39.363	3 49.193	19	.052
20	2 40.549	2 50.379	3 0.209	3 10.038	3 19.868	3 29.697	3 39.527	3 49.356	20	.055
21	2 40.713	2 50.543	3 0.372	3 10.202	3 20.032	3 29.861	3 39.691	3 49.520	21	.057
22	2 40.877	2 50.707	3 0.536	3 10.366	3 20.195	3 30.025	3 39.854	3 49.684	22	.060
23	2 41.041	2 50.870	3 0.700	3 10.530	3 20.359	3 30.189	3 40.018	3 49.848	23	.063
24	2 41.205	2 51.034	3 0.864	3 10.693	3 20.523	3 30.353	3 40.182	3 50.012	24	.066
25	2 41.369	2 51.198	3 1.028	3 10.857	3 20.687	3 30.516	3 40.346	3 50.175	25	.068
26	2 41.532	2 51.362	3 1.192	3 11.021	3 20.851	3 30.680	3 40.510	3 50.339	26	.071
27	2 41.696	2 51.526	3 1.355	3 11.185	3 21.014	3 30.844	3 40.674	3 50.503	27	.074
28	2 41.860	2 51.690	3 1.519	3 11.349	3 21.178	3 31.008	3 40.837	3 50.667	28	.076
29	2 42.024	2 51.853	3 1.683	3 11.513	3 21.342	3 31.172	3 41.001	3 50.831	29	.079
30	2 42.188	2 52.017	3 1.847	3 11.676	3 21.506	3 31.336	3 41.165	3 50.995	30	.082
31	2 42.352	2 52.181	3 2.011	3 11.840	3 21.670	3 31.499	3 41.329	3 51.159	31	.085
32	2 42.515	2 52.345	3 2.174	3 12.004	3 21.834	3 31.663	3 41.493	3 51.322	32	.087
33	2 42.679	2 52.509	3 2.338	3 12.168	3 21.997	3 31.827	3 41.657	3 51.486	33	.090
34	2 42.843	2 52.673	3 2.502	3 12.332	3 22.161	3 31.991	3 41.820	3 51.650	34	.093
35	2 43.007	2 52.836	3 2.666	3 12.496	3 22.325	3 32.155	3 41.984	3 51.814	35	.096
36	2 43.171	2 53.000	3 2.830	3 12.659	3 22.489	3 32.318	3 42.148	3 51.978	36	.098
37	2 43.334	2 53.164	3 2.994	3 12.823	3 22.653	3 32.482	3 42.312	3 52.141	37	.101
38	2 43.498	2 53.328	3 3.157	3 12.987	3 22.817	3 32.646	3 42.476	3 52.305	38	.104
39	2 43.662	2 53.492	3 3.321	3 13.151	3 22.980	3 32.810	3 42.639	3 52.469	39	.106
40	2 43.826	2 53.656	3 3.485	3 13.315	3 23.144	3 32.974	3 42.803	3 52.633	40	.109
41	2 43.990	2 53.819	3 3.649	3 13.478	3 23.308	3 33.138	3 42.967	3 52.797	41	.112
42	2 44.154	2 53.983	3 3.813	3 13.642	3 23.472	3 33.301	3 43.131	3 52.961	42	.115
43	2 44.317	2 54.147	3 3.977	3 13.806	3 23.636	3 33.465	3 43.295	3 53.124	43	.117
44	2 44.481	2 54.311	3 4.140	3 13.970	3 23.800	3 33.629	3 43.459	3 53.288	44	.120
45	2 44.645	2 54.475	3 4.304	3 14.134	3 23.963	3 33.793	3 43.622	3 53.452	45	.123
46	2 44.809	2 54.638	3 4.468	3 14.298	3 24.127	3 33.957	3 43.786	3 53.616	46	.126
47	2 44.973	2 54.802	3 4.632	3 14.461	3 24.291	3 34.121	3 43.950	3 53.780	47	.128
48	2 45.137	2 54.966	3 4.796	3 14.625	3 24.455	3 34.284	3 44.114	3 53.943	48	.131
49	2 45.300	2 55.130	3 4.960	3 14.789	3 24.619	3 34.448	3 44.278	3 54.107	49	.134
50	2 45.464	2 55.294	3 5.123	3 14.953	3 24.782	3 34.612	3 44.442	3 54.271	50	.137
51	2 45.628	2 55.458	3 5.287	3 15.117	3 24.946	3 34.776	3 44.605	3 54.435	51	.139
52	2 45.792	2 55.621	3 5.451	3 15.281	3 25.110	3 34.940	3 44.769	3 54.599	52	.142
53	2 45.956	2 55.785	3 5.615	3 15.444	3 25.274	3 35.104	3 44.933	3 54.763	53	.145
54	2 46.120	2 55.949	3 5.779	3 15.608	3 25.438	3 35.267	3 45.097	3 54.926	54	.147
55	2 46.283	2 56.113	3 5.942	3 15.772	3 25.602	3 35.431	3 45.261	3 55.090	55	.150
56	2 46.447	2 56.277	3 6.106	3 15.936	3 25.765	3 35.595	3 45.425	3 55.254	56	.153
57	2 46.611	2 56.441	3 6.270	3 16.100	3 25.929	3 35.759	3 45.589	3 55.418	57	.156
58	2 46.775	2 56.604	3 6.434	3 16.264	3 26.093	3 35.923	3 45.752	3 55.582	58	.158
59	2 46.939	2 56.768	3 6.598	3 16.427	3 26.257	3 36.086	3 45.916	3 55.746	59	0.161

TABLE III.—MEAN SOLAR INTO SIDEREAL TIME.

TO BE ADDED TO A MEAN TIME INTERVAL.

Mean Solar.	0 ^h .		1 ^h .		2 ^h .		3 ^h .		4 ^h .		5 ^h .		6 ^h .		7 ^h .		For Seconds.	
	m	s	m	s	m	s	m	s	m	s	m	s	m	s	m	s	m	s
0	0	0.000	0	9.856	0	19.713	0	29.569	0	39.426	0	49.282	0	59.139	1	8.995		
1	0	0.164	0	10.021	0	19.877	0	29.734	0	39.590	0	49.447	0	59.303	1	9.160	1	0.003
2	0	0.329	0	10.185	0	20.041	0	29.898	0	39.754	0	49.611	0	59.467	1	9.324	2	.005
3	0	0.493	0	10.349	0	20.206	0	30.062	0	39.919	0	49.775	0	59.632	1	9.488	3	.008
4	0	0.657	0	10.514	0	20.370	0	30.227	0	40.083	0	49.939	0	59.796	1	9.652	4	.011
5	0	0.821	0	10.678	0	20.534	0	30.391	0	40.247	0	50.104	0	59.960	1	9.817	5	.014
6	0	0.986	0	10.842	0	20.699	0	30.555	0	40.412	0	50.268	1	0.124	1	9.981	6	.016
7	0	1.150	0	11.006	0	20.863	0	30.719	0	40.576	0	50.432	1	0.289	1	10.145	7	.019
8	0	1.314	0	11.171	0	21.027	0	30.884	0	40.740	0	50.597	1	0.453	1	10.310	8	.022
9	0	1.478	0	11.335	0	21.191	0	31.048	0	40.904	0	50.761	1	0.617	1	10.474	9	.025
10	0	1.643	0	11.499	0	21.356	0	31.212	0	41.069	0	50.925	1	0.782	1	10.638	10	.027
11	0	1.807	0	11.663	0	21.520	0	31.376	0	41.233	0	51.089	1	0.946	1	10.802	11	.030
12	0	1.971	0	11.828	0	21.684	0	31.541	0	41.397	0	51.254	1	1.110	1	10.967	12	.033
13	0	2.136	0	11.992	0	21.849	0	31.705	0	41.561	0	51.418	1	1.274	1	11.131	13	.036
14	0	2.300	0	12.156	0	22.013	0	31.869	0	41.726	0	51.582	1	1.439	1	11.295	14	.038
15	0	2.464	0	12.321	0	22.177	0	32.034	0	41.890	0	51.746	1	1.603	1	11.459	15	.041
16	0	2.628	0	12.485	0	22.341	0	32.198	0	42.054	0	51.911	1	1.767	1	11.624	16	.044
17	0	2.793	0	12.649	0	22.506	0	32.362	0	42.219	0	52.075	1	1.932	1	11.788	17	.047
18	0	2.957	0	12.813	0	22.670	0	32.526	0	42.383	0	52.239	1	2.096	1	11.952	18	.049
19	0	3.121	0	12.978	0	22.834	0	32.691	0	42.547	0	52.404	1	2.260	1	12.117	19	.052
20	0	3.285	0	13.142	0	22.998	0	32.855	0	42.711	0	52.568	1	2.424	1	12.281	20	.055
21	0	3.450	0	13.306	0	23.163	0	33.019	0	42.876	0	52.732	1	2.589	1	12.445	21	.057
22	0	3.614	0	13.471	0	23.327	0	33.183	0	43.040	0	52.896	1	2.753	1	12.609	22	.060
23	0	3.778	0	13.635	0	23.491	0	33.348	0	43.204	0	53.061	1	2.917	1	12.774	23	.063
24	0	3.943	0	13.799	0	23.656	0	33.512	0	43.368	0	53.225	1	3.081	1	12.938	24	.066
25	0	4.107	0	13.963	0	23.820	0	33.676	0	43.533	0	53.389	1	3.246	1	13.102	25	.068
26	0	4.271	0	14.128	0	23.984	0	33.841	0	43.697	0	53.554	1	3.410	1	13.266	26	.071
27	0	4.435	0	14.292	0	24.148	0	34.005	0	43.861	0	53.718	1	3.574	1	13.431	27	.074
28	0	4.600	0	14.456	0	24.313	0	34.169	0	44.026	0	53.882	1	3.739	1	13.595	28	.077
29	0	4.764	0	14.620	0	24.477	0	34.333	0	44.190	0	54.046	1	3.903	1	13.759	29	.079
30	0	4.928	0	14.785	0	24.641	0	34.498	0	44.354	0	54.211	1	4.067	1	13.924	30	.082
31	0	5.093	0	14.949	0	24.805	0	34.662	0	44.518	0	54.375	1	4.231	1	14.088	31	.085
32	0	5.257	0	15.113	0	24.970	0	34.826	0	44.683	0	54.539	1	4.396	1	14.252	32	.088
33	0	5.421	0	15.278	0	25.134	0	34.990	0	44.847	0	54.703	1	4.560	1	14.416	33	.090
34	0	5.585	0	15.442	0	25.298	0	35.155	0	45.011	0	54.868	1	4.724	1	14.581	34	.093
35	0	5.750	0	15.606	0	25.463	0	35.319	0	45.176	0	55.032	1	4.888	1	14.745	35	.096
36	0	5.914	0	15.770	0	25.627	0	35.483	0	45.340	0	55.196	1	5.053	1	14.909	36	.099
37	0	6.078	0	15.935	0	25.791	0	35.648	0	45.504	0	55.361	1	5.217	1	15.073	37	.101
38	0	6.242	0	16.099	0	25.955	0	35.812	0	45.668	0	55.525	1	5.381	1	15.238	38	.104
39	0	6.407	0	16.263	0	26.120	0	35.976	0	45.833	0	55.689	1	5.546	1	15.402	39	.107
40	0	6.571	0	16.427	0	26.284	0	36.140	0	45.997	0	55.853	1	5.710	1	15.566	40	.110
41	0	6.735	0	16.592	0	26.448	0	36.305	0	46.161	0	56.018	1	5.874	1	15.731	41	.112
42	0	6.900	0	16.756	0	26.612	0	36.469	0	46.325	0	56.182	1	6.039	1	15.895	42	.115
43	0	7.064	0	16.920	0	26.777	0	36.633	0	46.490	0	56.346	1	6.203	1	16.059	43	.118
44	0	7.228	0	17.085	0	26.941	0	36.798	0	46.654	0	56.510	1	6.367	1	16.223	44	.120
45	0	7.392	0	17.249	0	27.105	0	36.962	0	46.818	0	56.673	1	6.531	1	16.388	45	.123
46	0	7.557	0	17.413	0	27.270	0	37.126	0	46.983	0	56.839	1	6.695	1	16.552	46	.126
47	0	7.721	0	17.577	0	27.434	0	37.290	0	47.147	0	57.003	1	6.860	1	16.716	47	.129
48	0	7.885	0	17.742	0	27.598	0	37.455	0	47.311	0	57.168	1	7.024	1	16.881	48	.131
49	0	8.049	0	17.906	0	27.762	0	37.619	0	47.475	0	57.332	1	7.188	1	17.045	49	.134
50	0	8.214	0	18.070	0	27.927	0	37.783	0	47.640	0	57.496	1	7.353	1	17.209	50	.137
51	0	8.378	0	18.234	0	28.091	0	37.947	0	47.804	0	57.660	1	7.517	1	17.373	51	.140
52	0	8.542	0	18.399	0	28.255	0	38.112	0	47.968	0	57.825	1	7.681	1	17.538	52	.142
53	0	8.707	0	18.563	0	28.420	0	38.276	0	48.132	0	57.989	1	7.845	1	17.702	53	.145
54	0	8.871	0	18.727	0	28.584	0	38.440	0	48.297	0	58.153	1	8.010	1	17.866	54	.148
55	0	9.035	0	18.892	0	28.748	0	38.605	0	48.461	0	58.317	1	8.174	1	18.030	55	.151
56	0	9.199	0	19.056	0	28.912	0	38.769	0	48.625	0	58.482	1	8.338	1	18.195	56	.153
57	0	9.364	0	19.220	0	29.077	0	38.933	0	48.790	0	58.646	1	8.502	1	18.359	57	.156
58	0	9.528	0	19.384	0	29.241	0	39.097	0	48.954	0	58.810	1	8.667	1	18.523	58	.159
59	0	9.692	0	19.549	0	29.405	0	39.262	0	49.118	0	58.975	1	8.831	1	18.688	59	.162

TABLE III.—MEAN SOLAR INTO SIDEREAL TIME.

TO BE ADDED TO A MEAN TIME INTERVAL.										
Mean Solar.	8 ^h .	9 ^h .	10 ^h .	11 ^h .	12 ^h .	13 ^h .	14 ^h .	15 ^h .	For Seconds.	
m	m ^s	m ^s	m ^s	m ^s	m ^s	m ^s	m ^s	m ^s	s	s
0	1 18.852	1 28.708	1 38.565	1 48.421	1 58.278	2 8.134	2 17.991	2 27.847		
1	1 19.016	1 28.873	1 38.729	1 48.585	1 58.442	2 8.298	2 18.155	2 28.011	1	0.003
2	1 19.180	1 29.037	1 38.893	1 48.750	1 58.606	2 8.463	2 18.319	2 28.176	2	.005
3	1 19.345	1 29.201	1 39.058	1 48.914	1 58.771	2 8.627	2 18.483	2 28.340	3	.008
4	1 19.509	1 29.365	1 39.222	1 49.078	1 58.935	2 8.791	2 18.648	2 28.504	4	.011
5	1 19.673	1 29.530	1 39.386	1 49.243	1 59.099	2 8.956	2 18.812	2 28.668	5	.014
6	1 19.837	1 29.694	1 39.550	1 49.407	1 59.263	2 9.120	2 18.976	2 28.833	6	.016
7	1 20.002	1 29.858	1 39.715	1 49.571	1 59.428	2 9.284	2 19.141	2 28.997	7	.019
8	1 20.166	1 30.022	1 39.879	1 49.735	1 59.592	2 9.448	2 19.305	2 29.161	8	.022
9	1 20.330	1 30.187	1 40.043	1 49.900	1 59.756	2 9.613	2 19.469	2 29.326	9	.025
10	1 20.495	1 30.351	1 40.207	1 50.064	1 59.920	2 9.777	2 19.633	2 29.490	10	.027
11	1 20.659	1 30.515	1 40.372	1 50.228	2 0.085	2 9.941	2 19.798	2 29.654	11	.030
12	1 20.823	1 30.680	1 40.536	1 50.393	2 0.249	2 10.105	2 19.962	2 29.818	12	.033
13	1 20.987	1 30.844	1 40.700	1 50.557	2 0.413	2 10.270	2 20.126	2 29.983	13	.036
14	1 21.152	1 31.008	1 40.865	1 50.721	2 0.578	2 10.434	2 20.290	2 30.147	14	.038
15	1 21.316	1 31.172	1 41.029	1 50.885	2 0.742	2 10.598	2 20.455	2 30.311	15	.041
16	1 21.480	1 31.337	1 41.193	1 51.050	2 0.906	2 10.763	2 20.619	2 30.476	16	.044
17	1 21.644	1 31.501	1 41.357	1 51.214	2 1.070	2 10.927	2 20.783	2 30.640	17	.047
18	1 21.809	1 31.665	1 41.522	1 51.378	2 1.235	2 11.091	2 20.948	2 30.804	18	.049
19	1 21.973	1 31.829	1 41.686	1 51.542	2 1.399	2 11.255	2 21.112	2 30.968	19	.052
20	1 22.137	1 31.994	1 41.850	1 51.707	2 1.563	2 11.420	2 21.276	2 31.133	20	.055
21	1 22.302	1 32.158	1 42.015	1 51.871	2 1.727	2 11.584	2 21.440	2 31.297	21	.057
22	1 22.466	1 32.322	1 42.179	1 52.035	2 1.892	2 11.748	2 21.605	2 31.461	22	.060
23	1 22.630	1 32.487	1 42.343	1 52.200	2 2.056	2 11.912	2 21.769	2 31.625	23	.063
24	1 22.794	1 32.651	1 42.507	1 52.364	2 2.220	2 12.077	2 21.933	2 31.790	24	.066
25	1 22.959	1 32.815	1 42.672	1 52.528	2 2.385	2 12.241	2 22.098	2 31.954	25	.068
26	1 23.123	1 32.979	1 42.836	1 52.692	2 2.549	2 12.405	2 22.262	2 32.118	26	.071
27	1 23.287	1 33.144	1 43.000	1 52.857	2 2.713	2 12.570	2 22.426	2 32.283	27	.074
28	1 23.451	1 33.308	1 43.164	1 53.021	2 2.877	2 12.734	2 22.590	2 32.447	28	.077
29	1 23.616	1 33.472	1 43.329	1 53.185	2 3.042	2 12.898	2 22.755	2 32.611	29	.079
30	1 23.780	1 33.637	1 43.493	1 53.349	2 3.206	2 13.062	2 22.919	2 32.775	30	.082
31	1 23.944	1 33.801	1 43.657	1 53.514	2 3.370	2 13.227	2 23.083	2 32.940	31	.085
32	1 24.109	1 33.965	1 43.822	1 53.678	2 3.534	2 13.391	2 23.247	2 33.104	32	.088
33	1 24.273	1 34.129	1 43.986	1 53.842	2 3.699	2 13.555	2 23.412	2 33.268	33	.090
34	1 24.437	1 34.294	1 44.150	1 54.007	2 3.863	2 13.720	2 23.576	2 33.432	34	.093
35	1 24.601	1 34.458	1 44.314	1 54.171	2 4.027	2 13.884	2 23.740	2 33.597	35	.096
36	1 24.766	1 34.622	1 44.479	1 54.335	2 4.192	2 14.048	2 23.905	2 33.761	36	.099
37	1 24.930	1 34.786	1 44.643	1 54.499	2 4.356	2 14.212	2 24.069	2 33.925	37	.101
38	1 25.094	1 34.951	1 44.807	1 54.664	2 4.520	2 14.377	2 24.233	2 34.090	38	.104
39	1 25.259	1 35.115	1 44.971	1 54.828	2 4.684	2 14.541	2 24.397	2 34.254	39	.107
40	1 25.423	1 35.279	1 45.136	1 54.992	2 4.849	2 14.705	2 24.562	2 34.418	40	.110
41	1 25.587	1 35.444	1 45.300	1 55.156	2 5.013	2 14.869	2 24.726	2 34.582	41	.112
42	1 25.751	1 35.608	1 45.464	1 55.321	2 5.177	2 15.034	2 24.890	2 34.747	42	.115
43	1 25.916	1 35.772	1 45.629	1 55.485	2 5.342	2 15.198	2 25.054	2 34.911	43	.118
44	1 26.080	1 35.936	1 45.793	1 55.649	2 5.506	2 15.362	2 25.219	2 35.075	44	.120
45	1 26.244	1 36.101	1 45.957	1 55.814	2 5.670	2 15.527	2 25.383	2 35.239	45	.123
46	1 26.408	1 36.265	1 46.121	1 55.978	2 5.834	2 15.691	2 25.547	2 35.404	46	.126
47	1 26.573	1 36.429	1 46.286	1 56.142	2 5.999	2 15.855	2 25.712	2 35.568	47	.129
48	1 26.737	1 36.593	1 46.450	1 56.306	2 6.163	2 16.019	2 25.876	2 35.732	48	.131
49	1 26.901	1 36.758	1 46.614	1 56.471	2 6.327	2 16.184	2 26.040	2 35.897	49	.134
50	1 27.066	1 36.922	1 46.778	1 56.635	2 6.491	2 16.348	2 26.204	2 36.061	50	.137
51	1 27.230	1 37.086	1 46.943	1 56.799	2 6.656	2 16.512	2 26.369	2 36.225	51	.140
52	1 27.394	1 37.251	1 47.107	1 56.964	2 6.820	2 16.676	2 26.533	2 36.389	52	.142
53	1 27.558	1 37.415	1 47.271	1 57.128	2 6.984	2 16.841	2 26.697	2 36.554	53	.145
54	1 27.723	1 37.579	1 47.436	1 57.292	2 7.149	2 17.005	2 26.861	2 36.718	54	.148
55	1 27.887	1 37.743	1 47.600	1 57.456	2 7.313	2 17.169	2 27.026	2 36.882	55	.151
56	1 28.051	1 37.908	1 47.764	1 57.621	2 7.477	2 17.334	2 27.190	2 37.047	56	.153
57	1 28.215	1 38.072	1 47.928	1 57.785	2 7.641	2 17.498	2 27.354	2 37.211	57	.156
58	1 28.380	1 38.236	1 48.093	1 57.949	2 7.806	2 17.662	2 27.519	2 37.375	58	.159
59	1 28.544	1 38.400	1 48.257	1 58.113	2 7.970	2 17.826	2 27.683	2 37.539	59	.162

TABLE III.—MEAN SOLAR INTO SIDEREAL TIME.

TO BE ADDED TO A MEAN TIME INTERVAL.									
Mean Solar.	16 ^h .	17 ^h .	18 ^h .	19 ^h .	20 ^h .	21 ^h .	22 ^h .	23 ^h .	For Seconds.
m	m s	m s	m s	m s	m s	m s	m s	m s	s s
0	2 37.704	2 47.560	2 57.417	3 7.273	3 17.129	3 26.986	3 36.842	3 46.699	
1	2 37.868	2 47.724	2 57.581	3 7.437	3 17.294	3 27.150	3 37.007	3 46.863	1 0.003
2	2 38.032	2 47.889	2 57.745	3 7.602	3 17.458	3 27.315	3 37.171	3 47.027	2 .005
3	2 38.196	2 48.053	2 57.909	3 7.766	3 17.622	3 27.479	3 37.335	3 47.192	3 .008
4	2 38.361	2 48.217	2 58.074	3 7.930	3 17.787	3 27.643	3 37.500	3 47.356	4 .011
5	2 38.525	2 48.381	2 58.238	3 8.094	3 17.951	3 27.807	3 37.664	3 47.520	5 .014
6	2 38.689	2 48.546	2 58.402	3 8.259	3 18.115	3 27.972	3 37.828	3 47.685	6 .016
7	2 38.854	2 48.710	2 58.566	3 8.423	3 18.279	3 28.136	3 37.992	3 47.849	7 .019
8	2 39.018	2 48.874	2 58.731	3 8.587	3 18.444	3 28.300	3 38.157	3 48.013	8 .022
9	2 39.182	2 49.039	2 58.895	3 8.751	3 18.608	3 28.464	3 38.321	3 48.177	9 .025
10	2 39.346	2 49.203	2 59.059	3 8.916	3 18.772	3 28.629	3 38.485	3 48.342	10 .027
11	2 39.511	2 49.367	2 59.224	3 9.080	3 18.937	3 28.793	3 38.649	3 48.506	11 .030
12	2 39.675	2 49.531	2 59.388	3 9.244	3 19.101	3 28.957	3 38.814	3 48.670	12 .033
13	2 39.839	2 49.696	2 59.552	3 9.409	3 19.265	3 29.122	3 38.978	3 48.834	13 .036
14	2 40.003	2 49.860	2 59.716	3 9.573	3 19.429	3 29.286	3 39.142	3 48.999	14 .038
15	2 40.168	2 50.024	2 59.881	3 9.737	3 19.594	3 29.450	3 39.307	3 49.163	15 .041
16	2 40.332	2 50.188	3 0.045	3 9.901	3 19.758	3 29.614	3 39.471	3 49.327	16 .044
17	2 40.496	2 50.353	3 0.209	3 10.066	3 19.922	3 29.779	3 39.635	3 49.492	17 .047
18	2 40.661	2 50.517	3 0.373	3 10.230	3 20.086	3 29.943	3 39.799	3 49.656	18 .049
19	2 40.825	2 50.681	3 0.538	3 10.394	3 20.251	3 30.107	3 39.964	3 49.820	19 .052
20	2 40.989	2 50.846	3 0.702	3 10.559	3 20.415	3 30.271	3 40.128	3 49.984	20 .055
21	2 41.153	2 51.010	3 0.866	3 10.723	3 20.579	3 30.436	3 40.292	3 50.149	21 .057
22	2 41.318	2 51.174	3 1.031	3 10.887	3 20.744	3 30.600	3 40.456	3 50.313	22 .060
23	2 41.482	2 51.338	3 1.195	3 11.051	3 20.908	3 30.764	3 40.621	3 50.477	23 .063
24	2 41.646	2 51.503	3 1.359	3 11.216	3 21.072	3 30.929	3 40.785	3 50.642	24 .066
25	2 41.810	2 51.667	3 1.523	3 11.380	3 21.236	3 31.093	3 40.949	3 50.806	25 .068
26	2 41.975	2 51.831	3 1.688	3 11.544	3 21.401	3 31.257	3 41.114	3 50.970	26 .071
27	2 42.139	2 51.995	3 1.852	3 11.708	3 21.565	3 31.421	3 41.278	3 51.134	27 .074
28	2 42.303	2 52.160	3 2.016	3 11.873	3 21.729	3 31.586	3 41.442	3 51.299	28 .077
29	2 42.468	2 52.324	3 2.181	3 12.037	3 21.893	3 31.750	3 41.606	3 51.463	29 .079
30	2 42.632	2 52.488	3 2.345	3 12.201	3 22.058	3 31.914	3 41.771	3 51.627	30 .082
31	2 42.796	2 52.653	3 2.509	3 12.366	3 22.222	3 32.078	3 41.935	3 51.791	31 .085
32	2 42.960	2 52.817	3 2.673	3 12.530	3 22.386	3 32.243	3 42.099	3 51.956	32 .088
33	2 43.125	2 52.981	3 2.838	3 12.694	3 22.551	3 32.407	3 42.264	3 52.120	33 .090
34	2 43.289	2 53.145	3 3.002	3 12.858	3 22.715	3 32.571	3 42.428	3 52.284	34 .093
35	2 43.453	2 53.310	3 3.166	3 13.023	3 22.879	3 32.736	3 42.592	3 52.449	35 .096
36	2 43.617	2 53.474	3 3.330	3 13.187	3 23.043	3 32.900	3 42.756	3 52.613	36 .099
37	2 43.782	2 53.638	3 3.495	3 13.351	3 23.208	3 33.064	3 42.921	3 52.777	37 .101
38	2 43.946	2 53.803	3 3.659	3 13.515	3 23.372	3 33.228	3 43.085	3 52.941	38 .104
39	2 44.110	2 53.967	3 3.823	3 13.680	3 23.536	3 33.393	3 43.249	3 53.106	39 .107
40	2 44.275	2 54.131	3 3.988	3 13.844	3 23.700	3 33.557	3 43.413	3 53.270	40 .110
41	2 44.439	2 54.295	3 4.152	3 14.008	3 23.865	3 33.721	3 43.578	3 53.434	41 .112
42	2 44.603	2 54.460	3 4.316	3 14.173	3 24.029	3 33.886	3 43.742	3 53.598	42 .115
43	2 44.767	2 54.624	3 4.480	3 14.337	3 24.193	3 34.050	3 43.906	3 53.763	43 .118
44	2 44.932	2 54.788	3 4.645	3 14.501	3 24.358	3 34.214	3 44.071	3 53.927	44 .120
45	2 45.096	2 54.952	3 4.809	3 14.665	3 24.522	3 34.378	3 44.235	3 54.091	45 .123
46	2 45.260	2 55.117	3 4.973	3 14.830	3 24.686	3 34.543	3 44.399	3 54.256	46 .126
47	2 45.425	2 55.281	3 5.137	3 14.994	3 24.850	3 34.707	3 44.563	3 54.420	47 .129
48	2 45.589	2 55.445	3 5.302	3 15.158	3 25.015	3 34.871	3 44.728	3 54.584	48 .131
49	2 45.753	2 55.610	3 5.466	3 15.322	3 25.179	3 35.035	3 44.892	3 54.748	49 .134
50	2 45.917	2 55.774	3 5.630	3 15.487	3 25.343	3 35.200	3 45.056	3 54.913	50 .137
51	2 46.082	2 55.938	3 5.795	3 15.651	3 25.508	3 35.364	3 45.220	3 55.077	51 .140
52	2 46.246	2 56.102	3 5.959	3 15.815	3 25.672	3 35.528	3 45.385	3 55.241	52 .142
53	2 46.410	2 56.267	3 6.123	3 15.980	3 25.836	3 35.693	3 45.549	3 55.405	53 .145
54	2 46.574	2 56.431	3 6.287	3 16.144	3 26.000	3 35.857	3 45.713	3 55.570	54 .148
55	2 46.739	2 56.595	3 6.452	3 16.308	3 26.165	3 36.021	3 45.878	3 55.734	55 .151
56	2 46.903	2 56.759	3 6.616	3 16.472	3 26.329	3 36.185	3 46.042	3 55.898	56 .153
57	2 47.067	2 56.924	3 6.780	3 16.637	3 26.493	3 36.350	3 46.206	3 56.063	57 .156
58	2 47.232	2 57.088	3 6.944	3 16.801	3 26.657	3 36.514	3 46.370	3 56.227	58 .159
59	2 47.396	2 57.252	3 7.109	3 16.965	3 26.822	3 36.678	3 46.535	3 56.391	59 .0.162

TABLE IV.

TABLE GIVING THE CORRECTIONS OF A AND B WHICH DEPEND ON THE ARGUMENTS 2ϵ , AND $\epsilon - \Gamma'$.

In units of the *fifth* decimal for A , and of the *fourth* for B .

Arg. (2 ϵ)	$A \epsilon$	$B \epsilon$	Arg. (2 ϵ)	$A \epsilon$	$B \epsilon$	Arg. (2 ϵ)	$A \epsilon$	$B \epsilon$	Arg. ($\epsilon - \Gamma'$)	$A' \epsilon$
0.0	— 0	—886	4.6	—347	+459	9.2	+359	+410	0	+ 0
0.1	19	885	4.7	337	493	9.3	367	374	1	30
0.2	37	882	4.8	326	526	9.4	374	335	2	59
0.3	55	877	4.9	314	558	9.5	381	298	3	85
0.4	74	870	5.0	302	589	9.6	387	259	4	106
0.5	92	862	5.1	289	619	9.7	392	221	5	122
0.6	111	852	5.2	277	648	9.8	396	180	6	132
0.7	128	841	5.3	263	675	9.9	400	140	7	135
0.8	145	827	5.4	248	701	10.0	403	101	8	130
0.9	163	811	5.5	232	725	10.1	404	59	9	119
1.0	180	793	5.6	217	748	10.2	405	+ 19	10	102
1.1	196	775	5.7	201	769	10.3	405	— 22	11	80
1.2	212	754	5.8	185	788	10.4	404	62	12	53
1.3	228	732	5.9	168	806	10.5	402	103	13	+ 23
1.4	243	707	6.0	151	822	10.6	400	143	14	— 7
1.5	258	682	6.1	133	837	10.7	396	183	15	37
1.6	272	657	6.2	116	849	10.8	392	224	16	66
1.7	285	629	6.3	98	859	10.9	387	263	17	90
1.8	298	598	6.4	79	868	11.0	380	301	18	110
1.9	310	569	6.5	61	875	11.1	374	338	19	125
2.0	322	537	6.6	42	881	11.2	367	376	20	134
2.1	333	503	6.7	24	884	11.3	359	412	21	134
2.2	344	470	6.8	— 6	886	11.4	350	449	22	129
2.3	353	435	6.9	+ 13	885	11.5	340	483	23	116
2.4	362	399	7.0	32	883	11.6	329	516	24	97
2.5	370	362	7.1	49	879	11.7	317	549	25	74
2.6	376	324	7.2	68	873	11.8	306	581	26	47
2.7	383	285	7.3	86	865	11.9	293	610	27	— 17
2.8	389	247	7.4	105	855	12.0	281	640	28	+ 13
2.9	394	209	7.5	123	844	12.1	267	667	29	+ 43
3.0	398	169	7.6	140	831	12.2	252	693	Multiples of the Period of (2 ϵ)	
3.1	401	129	7.7	158	815	12.3	237	717		
3.2	403	88	7.8	175	799	12.4	221	741		
3.3	404	46	7.9	191	781	12.5	206	762	Multiples of the Period of ($\epsilon - \Gamma'$)	
3.4	405	— 6	8.0	207	761	12.6	190	782		
3.5	405	+ 35	8.1	223	738	12.7	174	800		
3.6	404	76	8.2	239	715	12.8	156	817	1	13.661
3.7	402	116	8.3	254	691	12.9	138	833	2	27.322
3.8	399	155	8.4	268	665	13.0	121	845	3	40.982
3.9	395	196	8.5	282	637	13.1	104	856	Multiples of the Period of ($\epsilon - \Gamma'$)	
4.0	390	235	8.6	294	607	13.2	85	866		
4.1	385	274	8.7	306	578	13.3	67	873		
4.2	378	312	8.8	319	546	13.4	48	879		
4.3	372	350	8.9	330	514	13.5	30	883		
4.4	364	388	9.0	341	480	13.6	+ 11	885		
4.5	—356	+424	9.1	+350	+446	13.7	— 7	—885		

ARGUMENTS. *Washington Mean Noon.*

1875.	Arg. (2 ϵ)	Arg. ($\epsilon - \Gamma'$)	1875.	Arg. (2 ϵ)	Arg. ($\epsilon - \Gamma'$)	REMARKS.
Jan. 0	^d 1.486	^d 12.43	Aug. 0	^d 8.574	^d 3.99	Add to the argument for the beginning of any month, the day of the month and Washington mean time, and subtract the largest contained multiple of the period.
Feb. 0	5.164	15.88	Sept. 0	12.253	7.44	
March 0	5.843	16.32	Oct. 0	1.270	9.88	
April 0	5.521	19.77	Nov. 0	4.949	13.33	
May 0	12.200	22.21	Dec. 0	7.627	15.78	
June 0	2.217	25.66	1876.			
July 0	4.896	0.55	Jan. 0	11.305	19.22	

TABLE V.

TABLE GIVING THE CORRECTIONS OF *A* AND *B* DEPENDING ON THE SMALL TERMS OF THE NUTATION.

In units of the *fifth* decimal for *A*, and of the *fourth* for *B*.

WASHINGTON MEAN NOON.

1875.			1875.			1875.		
	$\Delta A.$	$\Delta B.$		$\Delta A.$	$\Delta B.$		$\Delta A.$	$\Delta B.$
Jan. 0	+24	-38	May 5	+40	+ 21	Sept. 2	+ 1	+31
5	22	42	10	44	+ 03	7	4	35
10	20	45	15	47	- 14	12	7	36
15	18	47	20	48	32	17	10	35
20	15	47	25	48	51	22	13	31
25	10	47	30	47	69	27	16	25
30	6	45	June 4	45	84	Oct. 2	18	17
Feb. 4	+ 2	40	9	43	99	7	18	+07
9	- 1	35	14	38	110	12	19	-05
14	5	27	19	33	118	17	20	18
19	8	17	24	27	121	22	19	30
24	10	-07	29	22	121	27	18	40
March 1	11	+05	July 4	15	117	Nov. 1	18	51
6	12	17	9	8	111	6	17	61
11	13	29	14	+ 3	101	11	16	68
16	13	41	19	- 2	89	16	14	74
21	10	51	24	5	75	21	13	79
26	6	59	29	8	59	26	12	84
31	- 1	65	Aug. 3	8	42	Dec. 1	11	86
April 5	+ 5	68	8	9	25	6	10	89
10	11	69	13	8	-10	11	10	90
15	17	66	18	7	+02	16	10	90
20	23	58	23	5	14	21	10	90
25	29	50	28	- 2	+24	26	11	90
30	+35	+37				31	+11	-90

$$\begin{aligned}
 \Delta A = & +.00025 \sin (2 \odot - \Omega) +.00009 \sin (2 \Gamma' - \Omega) \\
 & +.00010 \sin 2 (\odot - \Gamma') +.00005 \cos \Gamma' \\
 & -.00005 \sin 2 (\odot - \Omega) +.00004 \sin 2 \Gamma' \\
 & -.00011 \sin (3 \odot - \Gamma) \\
 \Delta B = & +.00067 \cos (2 \odot - \Omega) \\
 & -.00027 \cos (3 \odot - \Gamma) \\
 & +.00024 \cos (2 \Gamma' - \Omega) \\
 & -.00023 \sin \Gamma' \\
 & +.00008 \cos 2 \Gamma'
 \end{aligned}$$

These terms are included in Log. A and Log. B, *f*, G, and Log. *g*, pages 249-257.

TABLE VI.

**TABLES FOR FINDING THE REDUCTIONS OF MEAN TO APPARENT
RIGHT ASCENSIONS WHICH DEPEND ON 2ζ AND $\zeta - \Gamma'$.**

Hor. Arg. = Star's Right Ascension.

Arg. (2ζ)	Δa	$\Delta'' a$												Arg. (2ζ)	
		0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h		12h
0.0	-.000	-.0059	-57	-51	-42	-29	-15	-00	+15	+29	+42	+51	+57	+59	0.0
0.5	03	57	59	56	50	39	26	12	+03	18	32	44	52	57	0.5
1.0	05	53	58	58	54	47	37	24	-10	+05	20	34	45	53	1.0
1.5	08	45	53	57	57	53	45	35	22	-07	+07	22	35	45	1.5
2.0	10	36	46	52	55	55	51	43	32	19	-06	+09	23	36	2.0
2.5	11	24	36	45	52	54	54	49	42	31	18	-04	+11	24	2.5
3.0	12	11	25	36	45	51	54	53	49	40	30	17	-03	+11	3.0
3.5	12	02	-12	25	37	46	51	54	52	48	39	29	16	-02	3.5
4.0	12	15	+02	-13	26	37	46	52	54	53	48	39	29	15	4.0
4.5	11	28	15	00	14	27	39	48	53	55	53	48	40	28	4.5
5.0	09	39	27	+14	-01	15	29	40	49	55	56	54	48	39	5.0
5.5	07	48	39	26	+12	-02	18	31	42	51	56	57	55	48	5.5
6.0	05	54	48	37	24	+10	-05	21	33	45	53	57	59	54	6.0
6.5	-.002	58	54	47	36	22	+07	-08	23	36	47	55	59	58	6.5
7.0	+001	59	58	53	45	33	19	+04	-11	25	39	49	56	59	7.0
7.5	04	56	59	57	52	42	30	16	+01	14	28	41	50	56	7.5
8.0	06	51	58	58	55	49	39	28	14	-01	16	30	42	51	8.0
8.5	09	42	51	55	57	54	47	37	25	+11	-03	18	31	42	8.5
9.0	10	32	43	50	55	55	52	45	36	23	+09	-05	20	32	9.0
9.5	12	20	33	43	50	54	54	51	44	34	22	+08	-07	20	9.5
10.0	12	07	21	32	43	50	53	50	43	33	21	+07	-07	10.0	
10.5	12	07	+07	21	33	43	50	53	53	50	43	32	21	+07	10.5
11.0	12	20	-07	+08	22	34	44	51	54	54	50	43	33	20	11.0
11.5	10	32	20	-05	+09	23	36	45	52	55	55	50	43	32	11.5
12.0	09	42	31	18	-03	+11	25	37	47	54	57	55	51	42	12.0
12.5	06	51	43	30	16	-01	14	27	39	49	55	58	58	51	12.5
13.0	04	56	50	41	28	14	+01	16	31	42	52	57	59	56	13.0
13.5	+001	59	56	49	39	26	-11	+04	19	32	45	53	58	59	13.5
14.0	-.002	-.0058	-59	-55	-47	-36	-23	-08	+07	+22	+36	+46	+54	+58	14.0

Arg. ($\zeta - \Gamma'$)	$\Delta' a$	$\Delta''' a$							Arg. ($\zeta - \Gamma'$)	$\Delta' a$	$\Delta''' a$						
		0h 12h	1h 11h	2h 10h	3h 9h	4h 8h	5h 7h	6h 6h			0h 12h	1h 11h	2h 10h	3h 9h	4h 8h	5h 7h	6h 6h
0	+.000	.0000	+0	+0	+0	+0	+0	14	-.000	.0000	-0	-0	-1	-1	-1	-1	
1	1	0	1	2	3	4	4	4	15	0	1	2	3	3	4	4	
2	2	0	2	4	6	7	8	8	16	0	2	4	6	8	9	9	
3	3	0	3	6	8	10	11	11	17	0	3	6	9	10	12	12	
4	3	0	4	7	10	12	14	14	18	0	4	7	10	13	14	15	
5	4	0	4	8	11	14	16	16	19	0	4	8	12	14	16	17	
6	4	0	5	9	13	15	17	18	20	0	5	9	13	15	17	18	
7	4	0	5	9	13	16	18	18	21	0	5	9	13	15	17	18	
8	4	0	4	9	12	15	17	17	22	0	4	9	12	15	17	17	
9	4	0	4	8	11	14	15	16	23	0	4	8	11	13	15	15	
10	3	0	3	7	10	12	13	14	24	0	3	7	9	11	13	13	
11	2	0	3	5	8	9	10	11	25	0	3	5	7	9	10	11	
12	2	0	2	4	5	6	7	7	26	0	2	3	4	5	6	6	
13	1	0	+1	+2	+2	+3	+3	+3	27	0	-1	-1	-2	-2	-2	-2	
14	+.000	.0000	0	0	-1	-1	-1	-1	28	-.000	0	+1	+1	+2	+2	+2	

$\Delta'' a$ and $\Delta''' a$ are to be multiplied by $\tan \delta$ and their signs changed when $\alpha > 12^h$.
The Arguments, (2ζ) and ($\zeta - \Gamma'$), are given in Table IV. for the beginning of each month.

TABLE VII.

TABLES FOR FINDING THE REDUCTIONS OF MEAN TO APPARENT DECLINATIONS WHICH DEPEND ON 2ζ AND $\zeta - \Gamma'$.

Hor. Arg. = Star's Right Ascension.

Arg. (2ζ)	$\Delta \delta$												Arg. (2ζ)	
	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h		12h
0.0	-.00	+.02	+.04	+.06	+.08	+.08	+.09	+.08	+.08	+.06	+.04	+.02	+.00	0.0
0.5	.02	.00	.02	.05	.07	.08	.09	.09	.08	.07	.06	.04	.02	0.5
1.0	.04	-.01	+.01	.03	.05	.07	.08	.09	.09	.08	.07	.06	.04	1.0
1.5	.05	.03	-.01	+.01	.03	.05	.07	.08	.09	.08	.08	.07	.05	1.5
2.0	.06	.05	.03	-.01	+.01	.03	.05	.07	.08	.08	.08	.08	.06	2.0
2.5	.07	.06	.05	.03	-.01	+.02	.04	.05	.07	.08	.08	.08	.07	2.5
3.0	.08	.07	.06	.04	.03	.00	+.02	.04	.05	.07	.08	.08	.08	3.0
3.5	.08	.08	.07	.05	.04	-.02	-.01	+.02	.04	.05	.07	.08	.08	3.5
4.0	.08	.08	.08	.07	.06	.04	.02	.00	+.02	.04	.06	.07	.08	4.0
4.5	.07	.08	.08	.08	.08	.06	.05	-.02	.00	+.02	.04	.06	.07	4.5
5.0	.06	.07	.08	.08	.08	.07	.06	.04	-.02	.00	+.02	.04	.06	5.0
5.5	.05	.06	.08	.08	.09	.08	.07	.06	.04	-.02	.00	.03	.05	5.5
6.0	.03	.05	.07	.08	.09	.09	.08	.07	.06	.04	-.02	+.01	.03	6.0
6.5	-.01	.03	.05	.07	.08	.09	.09	.08	.07	.05	.03	-.01	+.01	6.5
7.0	+.01	-.02	.04	.06	.07	.08	.09	.09	.08	.07	.05	.03	-.01	7.0
7.5	.02	.00	-.02	.04	.06	.07	.08	.09	.08	.08	.06	.04	.02	7.5
8.0	.04	+.02	.00	-.02	.04	.06	.08	.08	.09	.08	.07	.06	.04	8.0
8.5	.06	.04	+.01	.00	-.03	.05	.06	.08	.08	.08	.08	.07	.06	8.5
9.0	.07	.05	.03	+.01	.01	.03	.05	.06	.08	.08	.08	.08	.07	9.0
9.5	.08	.07	.05	.03	+.01	-.01	.03	.05	.06	.07	.08	.08	.08	9.5
10.0	.08	.08	.06	.05	.03	+.01	-.01	.03	.05	.06	.07	.08	.08	10.0
10.5	.08	.08	.07	.06	.05	.03	+.01	-.01	.03	.05	.06	.07	.08	10.5
11.0	.08	.08	.08	.07	.06	.05	.03	+.01	-.01	.03	.05	.07	.08	11.0
11.5	.07	.08	.08	.08	.07	.06	.05	.03	+.01	-.01	.04	.05	.07	11.5
12.0	.06	.07	.08	.08	.08	.08	.06	.05	.03	+.01	-.02	.04	.06	12.0
12.5	.04	.06	.07	.08	.09	.08	.08	.06	.05	.02	.00	-.02	.04	12.5
13.0	+.02	.05	.06	.08	.09	.09	.08	.08	.06	.04	+.02	.00	-.02	13.0
13.5	.00	.03	.05	.07	.08	.09	.09	.08	.07	.06	.04	+.02	.00	13.5
14.0	-.01	+.01	+.03	+.05	+.07	+.08	+.09	+.09	+.08	+.07	+.05	+.03	+.01	14.0

Arg. ($\zeta - \Gamma'$)	$\Delta' \delta$								Arg. ($\zeta - \Gamma'$)	$\Delta' \delta$							
	0h 24h	1h 23h	2h 22h	3h 21h	4h 20h	5h 19h	6h 18h	6h		0h 24h	1h 23h	2h 22h	3h 21h	4h 20h	5h 19h	6h 18h	
0	+.00	+.00	+.00	+.00	+.00	+.00	0.00	14	-.00	-.00	-.00	-.00	-.00	-.00	0.00		
1	.01	.01	.01	.00	.00	.00	.00	15	.01	.01	.01	.00	.00	.00	.00		
2	.01	.01	.01	.01	.01	.00	.00	16	.01	.01	.01	.01	.01	.00	.00		
3	.02	.02	.01	.01	.01	.00	.00	17	.02	.02	.02	.01	.01	.00	.00		
4	.02	.02	.02	.01	.01	.00	.00	18	.02	.02	.02	.02	.01	.01	.00		
5	.02	.02	.02	.02	.01	.01	.00	19	.02	.02	.02	.02	.01	.01	.00		
6	.03	.03	.02	.02	.01	.01	.00	20	.03	.03	.02	.02	.01	.01	.00		
7	.03	.03	.02	.02	.01	.01	.00	21	.03	.03	.02	.02	.01	.01	.00		
8	.03	.02	.02	.02	.01	.01	.00	22	.03	.02	.02	.02	.01	.01	.00		
9	.02	.02	.02	.02	.01	.01	.00	23	.02	.02	.02	.02	.01	.01	.00		
10	.02	.02	.02	.01	.01	.00	.00	24	.02	.02	.02	.01	.01	.00	.00		
11	.02	.02	.01	.01	.01	.00	.00	25	.01	.01	.01	.01	.01	.00	.00		
12	.01	.01	.01	.01	.01	.00	.00	26	.01	.01	.01	.01	.00	.00	.00		
13	.01	.00	.00	.00	.00	.00	.00	27	.00	.00	.00	.00	.00	.00	.00		
14	+0.00	+0.00	+0.00	+0.00	+0.00	0.00	0.00	28	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00		

Change the signs of $\Delta \delta$ and $\Delta' \delta$ when α is found at the bottom of the Table.
The Arguments, (2ζ) and ($\zeta - \Gamma'$), are given in Table IV. for the beginning of each month.