

ASTRONOMICAL EPHEMERIS
OF
Geocentric Places of Planets
FOR
1962

(Indian Standard Time observed throughout)

Published by

SHREE JIWAJI OBSERVATORY, UJJAIN
With the sanction of the Department of Public
Instruction, Madhya Pradesh

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Mean Places of Principal Stars on 1st January 1962

Names	Stars	Mag	R. A.	Decl.	Long.	Lat.
			H. M.	°	°	°
♈ Andromeda	U. Bhadra.	2.1	0 6 + 28 53	13 47 + 25 41		
♈ Pegasi ..	U. Bhadra.	2.9	0 11 + 14 58	8 38 + 12 36		
♈ Piscium ..	Revati.	5.6	1 12 + 7 22	19 21 - 0 13		
♈ Eridani ..	Achernar	0.6	1 36 - 57 26	344 43 - 59 23		
♈ Polaris ..	Dhruva.	2.1	1 57 - 89 5	88 2 + 66 6		
♈ Arietis ..	Ashvini.	2.7	1 52 + 20 37	33 26 + 8 29		
♈ Arietis ..	Ashvini.	2.2	2 5 + 23 17	37 8 + 9 58		
♈ Arietis ..	Bharani.	3.7	2 48 + 27 6	47 40 + 10 27		
♈ Persei ..	Algol.	Var	3 6 + 40 49	55 38 + 22 25		
♈ Tauri ..	Krittika.	3.0	3 45 + 23 59	59 28 + 4 3		
♈ Tauri ..	Rohini.	1.1	4 34 + 16 26	59 15 - 5 28		
♈ Orionis ..	Rigel.	0.3	5 13 - 8 15	76 13 - 31 8		
♈ Aurigae ..	Capella.	0.2	5 14 + 45 58	81 20 + 22 52		
♈ Orionis ..	Mrigashirsh	3.7	5 33 + 9 55	83 10 - 13 22		
♈ Orionis ..	Ardra.	0.9	5 53 + 7 24	88 13 - 16 2		
♈ Carinae ..	Agastya.	0.9	6 23 - 52 40	104 26 - 75 50		
♈ Canis Majoris	Vyagha.	1.6	6 43 - 16 40	103 33 - 39 36		
♈ Geminorum	Punarvasu	1.6	7 32 + 31 58	109 43 + 10 6		
♈ Canis Minor	Prashva.	0.5	7 37 + 5 20	115 16 - 16 1		
♈ Geminorum	Punarvasu	1.2	7 43 + 28 7	112 41 + 6 41		
♈ Cancrī ..	Pushya.	4.2	8 42 + 18 18	128 11 + 0 5		
♈ Cancrī ..	Aslesha.	4.3	8 56 + 12 0	133 7 - 5 5		
♈ Leonis ..	Magha.	1.3	10 6 + 12 9	149 18 + 0 28		
♈ Leonis ..	Purva.	2.6	11 12 + 20 44	160 47 + 14 20		
♈ Leonis ..	Uttara.	2.2	11 47 + 14 47	171 5 + 12 16		
♈ Corvi ..	Hasta.	3.1	12 28 - 16 18	192 55 - 12 12		
♈ Virginis ..	Chitra.	1.2	13 23 - 10 58	203 19 - 2 3		
♈ Bootes ..	Swati.	0.2	14 14 + 19 23	203 42 + 30 46		
♈ Libra ..	Vishakha.	2.9	14 49 - 15 53	224 33 + 0 20		
♈ Scorpii ..	Anuradha.	2.5	15 58 - 22 31	242 2 - 1 59		
♈ Scorpii ..	Jyeshtha.	1.2	16 27 - 26 21	249 14 - 4 34		
♈ Scorpii ..	Mool.	1.7	17 31 - 37 5	264 3 - 13 47		
♈ Sagittarius..	P. Shadha.	2.8	18 19 - 29 51	274 3 - 6 28		
♈ Sagittarius..	P. Shadha.	1.9	18 22 - 34 24	274 33 - 11 2		
♈ Lyrae ..	Abhijit	0.1	18 36 + 38 45	284 47 + 61 44		
♈ Sagittarius..	U. Shadha	2.1	18 53 - 26 21	281 51 - 3 27		
♈ Aquillae ..	Shravana.	0.9	19 49 + 8 46	301 14 + 29 18		
♈ Delphini ..	Dhanistha.	3.7	20 36 + 14 28	315 49 + 31 55		
♈ Delphini ..	Dhanistha.	3.9	20 38 + 15 47	316 51 + 33 2		
♈ Cygni ..	Deneb.	1.3	20 40 + 45 9	334 48 + 59 54		
♈ Aquarii ..	Shatabhij.	3.8	22 51 - 7 47	341 3 - 0 23		
♈ Pegasi As r.	Fomalhaut.	1.3	22 56 - 29 49	333 19 - 21 9		
♈ Pegasi ..	P. Bhadra.	2.6	23 2 + 27 53	358 51 + 31 8		
♈ Pegasi ..	P. Bhadra.	2.6	23 3 + 15 0	352 57 + 19 24		

PREFACE

The arrangement of the matter in this Ephemeris is similar to the one published in the last year. The computations of the planetary places were undertaken by me before the end of last year but it was later on suspended by the person who held the temporary charge of this institution. On my resumption of the charge by the end of September, it was found that the daily places of Sun, Moon and the planets, as well as the rising times of the Moon, heliacal risings and settings of planets and other important phenomena were extracted from the Nautical Almanac published by the Government of India. Since the press proofs were ready, it was not possible for me to undertake fresh calculations by the methods adopted by this institution for over last fifteen years.

For correct Sun and ending moments of *tithis*, please see pages 33 to 36.

UJJAIN :
The 15th November 1961

PURUSHOTTAM JOSHI,
Superintendent,
S. J. Observatory.

MOON-RISE IN 1962

The timings of moon-rise given on pages 28-30 are the Local Mean Times (L.M.T.) of those places whose latitudes are 10° , 20° or 30° and which are situated on the Central Meridian of India. The L. M. T. and I. S. T. for these places coincide with each other. L. M. T. of other places whose latitude lies between these limits can be found by simple interpolation. In order to find the I. S. T. of moon-rise for other places, proceed as follows:—

- (i) Find L. M. T. for the latitude of the place by interpolation.
- (ii) Convert the longitude of the place (if given in degrees) into hours and its parts by dividing it by 15, and subtract the result from 5 hours 30 minutes.
- (iii) Add the result in (ii) to (i) algebraically.

Example.—To find the time of moonrise in I. S. T. on January 24th 1962, for (i) CALCUTTA, Lat. $22^\circ 35'$ Long. $88^\circ 23' E$, i. e. $5^h 54^m$ and for (ii) BOMBAY, Lat. $18^\circ 58' N$, Long. $72^\circ 50' E$, i. e. $4^h 51^m$.

From page 28, we get for January 24, 1962:—

Lat.	..	10°	20°	30°
L.M.T.	..	$20^h 55^m$	$20^h 49^m$	$20^h 42^m$

By interpolation, L. M. T. for Calcutta is $20^h 46.6^m$ and that for Bombay is $20^h 49.7^m$.

- (i) For Calcutta, the correction for Long. is ($5^h 30^m$)—($5^h 54^m$), i. e.— 24^m . Hence the time of moon-rise is $20^h 47^m + (-24^m) = 20^h 23^m$ I. S. T.
- (ii) For Bombay, the correction for Long. is ($5^h 30^m$)—($4^h 51^m$), i. e. $+39^m$. Hence the required time is $20^h 50^m + 39^m = 21^h 29^m$ I. S. T.

Note.—The correction for longitude is *constant* for a given place and remains the same for all days of any year. The correction for latitude depends on the motion of the Moon and a fresh calculation is necessary for each day.

EPHEMERIS

OF

Planets' Places for 1962

INTRODUCTION

THE places of the Sun, Moon and the Planets given in the following pages are *Sayan* and are true for the true equinox of each day. They are given for 12 o'clock noon Indian Standard Time (I.S.T.) which is $5\frac{1}{2}$ hours in advance of Greenwich Mean Time, but for convenience, the *Sidereal Time* is given for the *Mean Noon, Ujjain Local Time*.

Nirayana places are obtained by subtracting the *Ayanamshas* from the *Sayan* places.

It should be noted that the *Tithis* and *Aspects* are the same both in the *Sayan* and the *Nirayana* systems.

EXPLANATION OF SYMBOLS

Planets	Signs	Aspects	
☉ Sun.	♈ Aries.	♌ Conjunction	= 0°
☾ Moon.	♉ Taurus.	♊ Semi-Sextile	= 30°
♇ Pluto.	♊ Gemini.	♋ Semi-Quintile	= 36°
♆ Neptune.	♋ Cancer.	♌ Semi-Square	= 45°
♅ Herschel (Uranus).	♌ Leo.	♍ Sextile	= 60°
♄ Saturn.	♍ Virgo.	♎ Quintile	= 72°
♃ Jupiter.	♎ Libra.	♏ Square	= 90°
♂ Mars.	♏ Scorpio.	♐ Trine	= 120°
♀ Venus.	♐ Sagittarius.	♑ Sesqui-quadrant	= 135°
☿ Mercury.	♑ Capricornus.	♒ Bi-quintile	= 144°
♁ Earth.	♒ Aquarius.	♓ Quincunx	= 150°
♋ Rahu.	♓ Pisces.	♈ Opposition	= 180°

2		JANUARY 1962										S. J. O. UJJAIN			
Date	Day	Sidereal Time	O		D			Midnight		ψ					
			Long.	Decl.	Long.	Lat.	Decl.	D							
H. M. S.															
1 M.	18	41 49	10 22	45 23 S	3 4 m 6	5 N 1	8 S 7	10 m 28	12 m 56						
2 Tu.		45 45	11 23	52 22	57 16 54		11 11 54	23 27		13 0	58				
3 W.		49 42	12 24	59	51 0 5		4 15 11	6 51							
4 Th.		53 38	13 26	6	45 13 43	4	41 17 46	20 40							
5 F.		57 35	14 27	14	39 27 43		0 19 24	4 51			4				
6 S.	19	1 32	15 28	22	33 12 3	3 4	49 19 29				5				
7 Su.		5 28	16 29	29	26 26 38	1 55	18 56	3 59			6				
8 M.		9 25	17 30	36	18 11 21	0 38	16 46	18 43			7				
9 Tu.		13 21	18 31	43	10 26 5	0 S 43	13 30	3 24			8				
10 W.		17 18	19 32	49	2 10 42	2 0	9 24	17 48			9				
11 Th.		21 14	20 33	55 21	52 25 10	3 7 4	48 2 19				10				
12 F.		25 11	21 35	1	42 9 23	4 3 0	2 16 25				11				
13 S.		29 7	22 36	7	32 23 22		4 4 N 39	0 15			12				
14 Su.		33 4	23 37	12	22 7 4	5 7 9	1 13 49				13				
15 M.	19	37 1	24 38	17	12 20 30		13 12 49	27 7			14				
16 Tu.		40 57	25 39	21	1 3 41		1 15 55	9 43			15				
17 W.		44 54	26 40	25 20	50 16 38	4 34	18 11 23	2			16				
18 Th.		48 50	27 41	29	38 29 22	3 58	19 29 5 39				17				
19 F.		52 47	28 42	32	25 11 53		6 49 18 5				18				
20 S.		56 43	29 43	34	12 24 13	2 7 19	10 0 19				19				
21 Su.	20	0 40	0 44 36	19	59 6 23	1 4 17	39 12 24				20				
22 M.		4 36	1 45 37		46 18 24	0 N 2 15	21 24 21				21				
23 Tu.		8 33	2 46 37		32 0 m 17	1 7 12	25 6 m 13				22				
24 W.		12 30	3 47 37		18 12 7	2 8 9	1 18 1				22				
25 Th.		16 26	4 48 36		4 23 55	3 6 5	16 29 49				23				
26 F.		20 23	5 49 35	18	49 5 45		54 1 19	11 42			24				
27 S.		24 19	6 50 33		33 17 42	4 33	2 S 43	23 44			24				
28 Su.		28 1 7	51 29		19 29 49	5 0 6	41 5 m 58				25				
29 M.		32 12	8 52 25		3 12 m 12		15 10 28	18 30			25				
30 Tu.		36 9	9 53 20	17	46 24 54		13 13 53	1 24			26				
31 W.		40 5	10 54 15		30 8 1	4 58	16 43 14 44				26				
Date	ψ		μ		η		ζ		δ						
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.					
1	1N45	14S 4	0N46	12N 6	0 S 20	20S 32	0 S 40	18 S 14	0 S 45	24 S 5					
3		5		7		29		7	46	1					
5		6		8		26		18	0	47 23					
7				9		24		17	52	48					
9		7	47	11		21		45	49	44					
11				12		18		37	50	37					
13		8		14		15		29	51	28					
15		9		15		12		21	52	18					
17				17		9		13	53	7					
19	46			18		6		5	54 22	55					
21		10		20		3		16	57	54					
23				21		20 0			50	55					
25				23		19 57			40	56					
27		11		24		53			32	57 21					
29				26		50			23	57					
31				30		47			15	58					

EPIHEMERIS Saka Era 1883 JANUARY 1962 Pausha-Magha														3						
Date	Longitudes										Ending Moments of Tithis		Sun rise	Sun set.	B.H.C.					
	μ	η	ζ	δ	ε	φ	ψ	Time	H.M.	H.M.										
1	0	14	29	43	10	31	5	41	4	6	19	39	25	0	0	7	9	5	52	11
2		16		49		45	6	27	5	22	21	17	25	0	54		9		53	12
3	R	12		56		58	7	12	6	38	22	55	26	0	57		9		53	13
4		10	0	3	11	11		57	7	53	24	32	27	0	11	7	10		54	14
5		8		10		25	8	43	9	9	26	10	28	22	42					
6		6		17		39	9	29	10	24	27	48	29	20	37	10		55	15	
7		5		24		52	10	14	11	40	29	25	30	1	85	10		56	16	
8		4		31	12	6	11	0	12	55	1	2		1	15	10		56	17	
9		2		38		19		46	14	11	2	38	2	12	15	10		57	18	
10		0		45		33	12	31	15	26	4	14	3	9	15	10		58	19	
11	29	α	58		52	47	13	17	16	42	5	49	4	6	21	10		59	20	
12		57		59	13	1	14	3	17	57	7	22	5	3	42	7	11	59	21	
13		55	1	7		15		49	19	12	8	54	6	1	20	11	6	0	22	
14		53		14		29	15	35	20	28	10	27	7	23	21					
15		51		21		43	16	21	21	43	11	53	8	21	48	11		1	23	
16		49		28		56	17	7	22	59	13	18	9	20	47	11		1	24	
17		47		35	14	10		53	24	14	14	40	10	20	9	11		2	25	
18		45		42		2	18	39	25	30	15	58	11	19	59	11		3	26	
19		43		49		39	19	25	26	45	17	12	12	20	16	11		3	27	
20		41		56		53	20	11	28	1	18	20	13	21	0	11		4	28	
21		39	2	3	15	7		57	29	16	19	23	14	22	15	11		5	29	
22		37		11		22	21	44	0	31	20	19	15	23	52	11		5	30	
23		35		18		35	22	30	1	46	21	7	16	1	53	11		7	2	
24		32		25		49	23	16	3	2		47	17	4	16	11		8	3	
25		30		32	16	3	24	3	4	18	22	17	18	8	49	10		8	4	
26		28		39		18		49	5	33		39	19	12	27	10		9	5	
27		26		46		32	25	35	6	48		47	20	12	11	7		9	10	6
28		23		53		46	26	22	8	4	R	46	21	14	28	9		11	7	
29		21	3	1	17	0	27	8	9	1		33	22	1	18	9		11	8	
30		19		8		15		56	10	34		9	23	7	29	9		12	0	
31		16		15		29	28	41	11	51	21	34	24	17	55	7		8	12	19
													25	17	31	8		13	11	
Date	ε		φ		Mean		Time		Phenomena											
	Lat.	Decl.	Lat.	Decl.	μ	ψ	H. M.													
1	0 S 14	23 S 37	2 S 9	24 S 8	20	α	1 6 18	25	Earth at Perihelion											
3	19	35	8 23	37 19			54 6		New Moon Decl 19° S43'											
5	23	31	7 23	0			47 8 23	12	Heli. setting of η											
7	28	24	3 22	16			41 10		η at ε											
9	33	14	1 56	21 27			35 12 12	8	Heli. rising of φ in West											
									φ on Equator.											
11	37	1	46 20	33			28 13 10	32	η at First Quarter.											
13	41 22	45	34 19	33			22 20 23	47	Full Moon Decl. 18° N32'											
15	45	26	18 18	29			16 22 11	10	η at α											
17	49	5	0 59	17 23			9 22		Heli. setting of ψ											
19	53 21	42	36 16	16			3 24		ψ at Apogee											
21	57	14	10 15	10 18			57 26 19	52	η on Equator.											
23	1 0 20	45	0 N 20	14 9			50 28		Heli. setting φ in West.											
25	4	13	53 13	15			44 29 5	7	φ at Last Quarter.											
27	7 19	39	1 28	12 32			38													
29	10	3 2	3 12	3			31													
31	12 18	24	36 11	51			25													

Date	Day	Sidereal Time	°		D		Midnight		ψ
			Long.	Decl.	Long.	Lat.	Decl.	D	
1 Th.	20	44 21	54 58	17 S 14	21 33	4 N 24	18 S 45	28 29	13m 27
2 F.		47 59	12 55	5 16	57 5	3 34	19 45	12 41	27
3 S.		51 52	13 56	51	39 19	56	2 30	27 17	27
4 Su.		55 56	14 57	41	21 4	42	1 13	17 54	27
5 M.		59 48	15 58	31	3 19	42	0 S 8	15 8	27
6 Tu.	21	3 45	16 59	19 15	45 4	47	1 31	11 11	28
7 W.		7 41	18 0	5	26 19	49	2 46	6 36	28
8 Th.		11 3	19 0	51	8 4	41	3 50	1 41	28
9 F.		15 34	20 1	35 14	49 19	13	4 37	3 N 14	29
10 S.		19 31	21 2	18	29 3	25	5 6	7 50	29
11 Su.		23 28	22 3	0	10 17	13	17 11	53 23	29
12 M.		27 24	23 3	40 13	50 0	37	9 15	14 6	29
13 Tu.		31 21	24 4	19	30 13	40	4 46	17 42	30
14 W.		35 17	25 4	58	10 26	24	9 19	14 2	30
15 Th.		39 14	26 5	34 12	49 8	52	3 20	48 15	R 29
16 F.		43 10	27 6	9	28 21	7	2 24	24 27	29
17 S.		47 7	28 6	43	7 3	13	1 21	18 7	29
18 Su.		51 3	29 7	15 11	46 15	12	0 16	16 2	29
19 M.		55 0	0 7	46	25 27	3	0 N 49	13 16	29
20 T.		58 57	1 8	16	4 8	53	1 52	10 14	29
21 W.	22	2 53	2 8	43 10	43 29	42	2 51	6 18	28
22 Th.		6 50	3 9	9	21 2	32	3 41	2 23	28
23 F.		10 46	4 9	35 9	59 14	26	4 22	1 S 38	28
24 S.		14 43	5 9	58	43 26	26	4 52	5 37	28
25 Su.		18 39	6 10	19	15 8	35	5 10	9 26	27
26 M.		22 30	7 10	40 8	53 20	58	18 12	55 27	27
27 Tu.		26 32	8 10	58	30 3	35	2 15	53 10	27
28 W.		30 29	9 11	14	8 16	35	4 35	18 10	26

Date	ψ		μ		η		ζ		δ	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
2	1 S 46	14 S 11	0 N 47	12 N 30	0 S 22	19 S 44	0 S 41	16 S 6	0 N 59	21 S 4
4				31		41		15 58	0	20 44
6				33		38		49		23
8				35		34	42	40	1	2
10				37		31		31		19 39
12	47			39	23	28		22	2	17
14				41		25		13	3	18 52
16				42		22		4		27
18				44		19	14	55	4	1
20				46		16	43	46	17	35
22	48	10		48		13		37	5	7
24				49	24	10		28		16 39
26				51		6		18	6	11
28				53		3		9		15 41

Date	Longitudes						Ending Moments of Tithis		Sun-rise		Sun-set
	μ	η	ζ	δ	ψ	ψ	Time	Time	H.M.	H.M.	
1	29 13	3 22	17 43	29 13	28 13	5 20	49	26	16 23	7 8	14 12
2	R 11	29	58 0	14 14	20 19	R 55	27	14 32	7	15 13	
3	9	36 18	12 1	1 15	36 18	54	28	12 2	7	15 14	
4	6	43	26	48 16	51 17	47	29	8 58	6	16 15	
5	3	50	41 2	34 18	6 16	36	30	5 37	6	17 16	
6	0	57	55 3	21 19	22 15	24	1	2 7	5	17 17	
7	28	57 4	4 19	9 4	8 20	37 14	2	22 36			
8	55	11	24	54 21	52 13	3	3	19 16	5	18 18	
9	53	18	38 5	41 23	7 11	57	4	16 9	4	19 19	
10	51	25	52 6	28 24	23 10	56	5	13 29	4	20 20	
11	48	32 20	7 7	14 25	38	2	6	11 18	3	21 21	
12	45	39	21 8	1 26	53 9	15	7	10 6	3	22 22	
13	42	46	36	48 28	8 8	36	8	9 0	2	23 23	
14	39	53	50 9	35 29	24	4	9	8 49	2	24 24	
15	36 5	0 21	4 10	22 0	39 7	40	10	8 18	1	25 25	
16	34	6	19 11	9 1	54	25	11	10 23	0	26 26	
17	32	13	33	56 3	9	17	12	11 58	6	27 27	
18	30	20	47 12	42 4	24	16	13	13 58	59	28 28	
19	27	27 22	2 13	29 5	39	D 22	14	15 55	58	29 29	
20	24	33	16 14	16 6	54	34	15	18 50	57	30 30	
21	21	40	30 15	3 8	9	53	16	21 31	57	25 1	
22	18	47	44	50 9	24 8	16	17	0 5	55	26 2	
23	15	53	59 16	37 10	39	46	18	2 36	54	27 3	
24	13 6	0 23	13 17	24 11	54 9	19	19	4 52	54	28 5	
25	11	6	27 18	11 13	9	58	20	6 54	53	29 6	
26	9	13	41	58 14	24 10	40	21	8 14	52	29 7	
27	6	19	55 19	4 15	39 11	27	22	9 6	51	29 8	
28	3	26 24	10 20	32 16	54 12	17	23	9 12	50	29 9	

Date	♀		♂		Mean		Date	Time H. M.	Phenomena.
	Lat.	Decl.	Lat.	Decl.	♂	♀			
2	1 S 15	17 S 43	3 S 5	11 S 55	18 18	5 5	40		New Moon, Decl. 15° S 55'
4	17	1	26 12	14	12	5	9 22		♂ at ♀
6	19 16	16	38 12	45	6	6	3 30		♂ at Perigee.
8	21 15	30	40 13	23 17	59	8	20 5		♂ on Equator.
10	23 14	42	34 14	4	53	8	..		Heli. rising of ♀
12	24 13	52	19	44	47	10	..		Heli. rising of ♀ in East
14	25	1	0 15	21	40	11	21 13		♂ at First Quarter.
16	26 12	8	2 37	53	34	18	17 51		♂ at ♀
18	27 11	14	13 16	19	28	19	18 48		Full Moon Decl. 12° N 23
20	27 10	19	1 47	39	21	21	2 30		♂ at Apogee
22	27 9	23	22	53	15	23	2 16		♂ on Equator.
24	27 8	26	0 57	17	9	23	..		Heli. rising of ♀
26	26 7	28	33	2	27	21	20		♂ at Last Quarter.
28	26 6	29	11	16	57	16	56		

MARCH 1962												S. J. O. UJJAIN							
Date	Day	Sidereal Time		☉		☽			Midnight		ψ								
				Long.	Decl.	Long.	Lat.	Decl.	D										
		H.	M.	S.															
1	Th.	22	34	26	10	11	30	7 S 45	29	58	3 N 53	19 S 32	6 48	13 m	26				
2	F.		38	22	11	11	43	21	13	46	2	56	47	20	48	R 26			
3	S.		42	19	12	11	53	6	59	28	0	1	47	18	49	5 = 16	25		
4	Su.		46	15	13	12	43	36	12 = 39	0	29	16	33	20	10		24		
5	M.		50	12	14	12	11	12	27	33	0 S 53	13	8	5	13		23		
6	Tu.		54	8	15	12	18	5	50	12	49	2	12	8	48	20	27	23	
7	W.		58	5	16	12	23		27	28	4	3	21	3	52	5	38	22	
8	Th.	23	2	1	17	12	25		4	13	11	4	47	1	N 15	20	36	22	
9	F.		5	58	18	12	26	4	40	28	1		5	6	11	5	14	21	
10	S.		9	55	19	12	24		17	12	29	5	10	10	39	19	30	20	
11	Su.		13	51	20	12	21	3	52	26	29		8	14	22	3	19	19	
12	M.		17	48	21	12	16		30	10	11	0	4	48	17	11	16	37	18
13	Tu.		21	44	22	12	10		6	23	5			14	19	1	29	29	17
14	W.		25	41	23	12	2	2	42	5 = 46	3	28	19	50		12	0		16
15	Th.		29	37	24	11	51		19	18	9	2	34		39	24	15		15
16	F.		33	34	25	11	39	1	56	0	16	1	34	18	34	6	16		15
17	S.		37	30	26	11	24		3	12	12	0	31	16	40	18	9		14
18	Su.		41	27	27	11	8		8	4	3	0 N 31	14	3	29	58			13
19	M.		25	24	28	10	50	0	44	5	53	1	37	10	52	10	57		12
20	Tu.		49	20	29	10	30		20	17	41	2	35	7	16	23	35		11
21	W.		53	17	0	10	7	0 N	4	29	31	3	26	3	22	5	28		10
22	Th.		57	13	1	9	43		27	11	27	4	9	0 S 41		17	26		8
23	F.	0	1	10	2	9	16		51	23	28	4	41	4	44	29	31		7
24	S.		5	6	3	8	49	1	15	5	36	5	0	8	38	11	44		6
25	Su.		8	3	4	8	18		39	17	54	5	9	12	14	24	7		5
26	M.		13	0	5	7	46	2	2	0	23	4	38	15	21	6	41		4
27	Tu.		16	56	6	7	12		25	13	5	4	35	17	48	19	31		2
28	W.		20	52	7	6	36		49	26	3	3	57	19	25	2	38		1
29	Th.		24	49	8	5	58	3	13	9	19		16	20	0	16	4		0
30	F.		28	46	9	5	16		36	22	57	2	3	19	27	29	53	12	59
31	S.		32	42	10	4	34		59	6 = 57	0	52	17	42	14 = 4				57
Date	ψ		♈		♉		♊		♋		♌		♍						
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.			
2	1 N 48	14 S	9	0 N 47	12 N 55	0 S 24	19 S	0	0 S 44	14 S	0	1 S	6	15 S	11				
4					57	18	57			13	51		7	14	41				
6					59	25	54				42				10				
8		8		13	0		52				32		13		38				
10	49	7		2		49		45		23		8			6				
12		6		3		46		14				12		33					
14				5		43		5						0					
16		5		7	26	40		12	56			11		26					
18		4		8		38	46		47			10		52					
20				10		35		37						17					
22		3		11		33		28		9	9	42							
24		2		12	27	30		19						7					
26				14		28	47	11			8	32							
28		1		15		25		2			7	56							
30		0		16		23		11	53			20							

EPHEMERIS Saka Era 1883 MARCH 1962 Phalguna—Chaitra												7
Date	Longitudes						Ending Moments of Tithis		Sun-rise	Sun-set	Day	
	☿	♂	♂	♂	♂	♂						
1	28 0	6 32	24 24	21 19	18 9	13 10	Ti.	Time	H.M.	H.M.		
2	27 R 58	38	38 22	6 19	24 14	6	24	8 35	6 49	6 30	10	
3	55	45	52	53 20	39 15	5	25	7 4	49	30	11	
4	52	51 25	6 23	40 21	54 16	7	26	5 6	48	31	12	
5	50	57	20 24	27 23	9 17	11	27	2 27	47	31	13	
6	48 7	3	34 25	14 24	24 18	17	29	21 30	47	31	14	
7	46	9	48 26	1 25	38 19	26	30	16 1	45	32	15	
8	43	15 26	2	49 26	53 20	37	1	12 14	44	33	16	
9	40	21	16 27	3 28	8 21	49	2	8 38	43	33	17	
10	38	27	29 28	25 29	23 23	4	3	5 23	42	34	18	
11	36	33	43 29	10 0	37 24	20	4	2 35	42	34	19	
12	33	39	57	57 1	52 25	38	5	0 24				
13	31	45 27	11 0	44	7 26	58	6	22 58	41	34	20	
14	29	51	24 1	31 4	21 28	19	7	22 20	40	35	21	
15	27	56	38 2	18 5	36 29	42	8	22 31	39	35	22	
16	24 8	2	52 3	5 6	51 1	6	9	23 27	38	35	23	
17	22	7 28	5	53 8	5 2	32	10	1 3	37	36	24	
18	20	13	19 4	40 9	20 3	59	11	3 12	35	37	25	
19	18	18	32 5	27 10	34 5	28	12	5 43	34	37	26	
20	16	24	45 6	14 11	49 6	58	13	8 33	33	38	27	
21	13	29	58 7	1 13	3 8	29	14	10 53	32	38	28	
22	11	34 29	12 7	48 14	18 10	1	15	13 25	31	38	29	
23	9	40	25 8	35 15	32 11	35	16	15 44	30	39	1	
24	7	45	38 9	22 16	46 13	11	17	17 47	29	39	2	
25	5	50	51 10	9 18	1 14	47	18	19 32	28	39	3	
26	3	55 0	5	56 19	15 16	25	19	20 51	27	40	4	
27	1 9	0	18 11	43 20	29 8	5	20	21 44	26	40	5	
28	59	5	30 12	30 21	44 19	45	21	22 5	25	41	6	
29	57	9	43 13	17 22	58 21	27	22	54	24	41	7	
30	56	14	56 14	4 24	12 23	11	23	21 4	23	41	8	
31	54	19 1	9	51 25	26 24	56	24	19 38	22	42	9	
							25	17 37	21	42	10	
Date	☽		☿		♂		Mean ☽		Date	Time	Phenomena	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	H. M.			
2	1 S 25	5 S 30	0 S 10	16 S 46	16 2	49	1	12 0		☽ at ☽		
4	23 4	30	3	28			43	4 20	29	☽ at ☽		
6	22 3	29	48	7			37	6 16	1	New Moon, Decl. 8° S 0		
8	20 2	28	1 5	15 39			30	6 15	30	☽ at Perigee.		
10	18 1	27	20	5			24	8 6	8	Moon on Equator.		
12	16 0	28	33 14	26			18	10		Heli. rising of ☽ in West		
14	14	N 36	45 13	42			11	13 9	0	☽ on Equator		
16	11 1	38	55 12	52			5	13 10	9	☽ at First Quarter.		
18	8	40	2 3	11 58	15		59	14		Heli. rising of Mars		
20	5 3	40	10 10	58			52	17 22	54	☽ at ☽		
22	2 4	41	15 9	54			46	20 0	51	☽ at Apogee.		
24	0 58	5 42	18 8	45			40	21 13	25	Full Moon Decl. 3° N 7'		
26	54 6	42	20 7	30			33	22 7	57	on Equator.		
28	50 7	41	20 6	12			27	24		Heli. setting of ☽ in East		
30	46 8	40	17 4	48			20	29 9	41	Hat Last Quarter.		

8		APRIL 1962 S. J. O. UJJAIN									
Date	Day	Sidereal Time	☉		☽			Midnight	ψ		
			Long.	Decl.	Long.	Lat.	Decl.				
1 Su.		H. M. S.									
2 M.		0 36 39	11 3 50	4 N 22	21 21	0 S 25	14 S 47	28 39	12 m 56		
3 Tu.		40 35 12	3 4 46	6 4	1 42	10 53	13 33	13 33	R 55		
4 W.		44 32 13	2 15 5	9 21	4 2	52 6	12 28	37 53			
5 Th.		48 28 14	1 25 32	6 11	3 52	1 7	13 37	45 52			
6 F.		52 25 15	0 32 55	21 18	4 35	4 N 2	28 47	51			
7 S.		56 22 15	59 38 6	17 6 11	4 58	8 52	13 34	49			
8 Su.	1	0 18 16	58 40 40	20 46 5	8 13	4 27	56 48				
9 M.		4 15 17	57 42 7	2 4 15	4 47	16 24	11 50	46			
10 Tu.		8 11 18	56 42 25	18 34 4	15 18	42 25	14 45				
11 W.		12 8 19	55 39 47	1 44 3	31 19	54 8	11 44				
12 Th.		16 4 22	54 33 8	9 14 29	2 38	20 2	20 41	42			
13 F.		19 1 21	53 27 31	26 52 1	38 19	10 2	2 58	41			
14 S.		23 57 22	52 18 53	8 59 6	36 17	26 14	58 39				
15 Su.		27 54 23	51 7 9	16 20 54	0 N 28	14 54	26 49	38			
16 M.		31 50 24	49 54 37	2 43 1	29 11	54 8	37 36				
17 Tu.		35 47 25	48 39 58	14 31 2	27 8	21 20	25 35				
18 W.		39 44 26	47 22 10	19 26 21	3 17	4 19	2 18	33			
19 Th.		43 40 27	46 4 4	8 16 4	0 0	25 14	16 32				
20 F.		47 37 28	44 42 11	1 20 19	4 32	3 S 42	26 23	30			
21 S.		51 33 29	43 19 22	2 30 4	53 7	44 8	39 29				
22 Su.		55 30 0	41 55 43	14 52 5	1 11	30 21	7 28				
23 M.		59 26 1	40 28 12	3 27 24	4 52	14 49	3 44	25			
24 Tu.	2	3 23 2	38 59 23	10 7 4	30 17	29 16	32 24				
25 W.		7 20 3	37 28 43	23 2 3	34 19	20 29	34 22				
26 Th.		11 16 4	35 56 13	3 6 9	3 52	20 12	12 46	20			
27 F.		15 12 5	34 21 22	19 29 2	6 19	56 26	14 19				
28 S.		19 9 6	32 46 42	3 5 0	58 18	32 9	58 17				
29 Su.		23 6 7	31 7 14	1 16 57	0 S 15	16 0	23 59	15			
30 M.		27 2 8	29 27 20	1 6 1	28 12	28 8	17 14				
		30 59 9	27 45 39	15 31 2	37 8	9 22	50 12				

EPHEMERIS										Saka Era 1884										APRIL 1962										Chaitra-Vaisakha										9									
Date	Longitudes										Ending Mame-										Sun-	Sun-	B.D.																										
	♈		♉		♊		♋		♌		♍		♎		♏		nts of tithis		rise					set.																									
1	26	52	9	23	1	22	15	38	26	41	26	15	0	6	20	6	42	11																															
2	R	51		28		34	16	25	27	55	28	29																																					
3		49		32		47	17	12	29	9	0	18																																					
4		47		37		59		59	0	23	2	9																																					
5		46		41	2	12	18	46	1	37	4	0																																					
6		44		45		24	19	32	2	51	5	54																																					
7		43		49		36	20	19	4	5	7	48																																					
8		42		53		48	21	6	5	19	9	44																																					
9		40		57	3	1		53	6	33	11	42																																					
10		39	10	1		13	22	40	7	37	13	40																																					
11		38		5		25	23	26	9	1	15	41																																					
12		37		9		36	24	13	10	14	17	42																																					
13		36		12		48	25	0	11	28	19	45																																					
14		34		16	4	0		47	12	42	21	48																																					
15		33		19		11	26	33	13	56	23	53																																					
16		32		23		23	27	20	15	9	25	59																																					
17		31		26		34	28	7	16	23	28	5																																					
18		30		29		46		53	1	37	0	8	12																																				
19		30		32		57	29	40	8	50	2	20																																					
20		29		35	5	8	0	26	19	44	4	27																																					
21		28		38		19	1	13	21	17	6	37																																					
22		27		41		30		59	22	31	8	41																																					
23		27		44		41	2	46	23	44	10	47																																					
24		26		47		52	3	32	24	58	12	52																																					
25		26		49	6	2	4	18	26	11	14	56																																					
26		25		52		13	5	5	27	25	16	56																																					
27		25		54		23		51	28	38	18	58																																					
28		25		57		34	6	37	29	52	20	56																																					
29		24	11	0		4	7	24	1	4	22	51																																					
30		24		1		54	8	10	2	18	24	48																																					

Date	♈		♉		Mean	Date	Time		Phenomena					
	Lat.	Decl.	Lat.	Decl.			H.	M.						
1	0	S 42	9	N 38	2	S 13	3	S 21	15	14	1	4	18	☽ at ☿
3		38	10	35		7	1	49		8	4	2	30	☽ at Perigee.
5		33	11	31	1	58	0	13		1	4	16	51	☽ on Equator.
7		28	12	26		48	1	N 26	14	55	5	1	15	New Moon, D. 1° N 45'
9		24	13	20		3	3	9		4	5	18	22	☽ on Equator.
11		19	14	12		21	4	55		42	12	1	21	☽ at First Quarter.
13		14	15	4		5	6	44		36	14	1	28	☽ at ☿
15		9		53	0	47	8	32		30	16	12	30	☽ at Apogee
17		3	16	41		29	10	22		23	18	12	0	☽ at ☿
19	0	N 2	17	27		7	2	10		17	18	14	26	☽ on Equator.
21		7	18	12		0	N 14	13	56		11	20	2	☽ at Node
23		12		55		36	15	38		4	20	6	3	Full Moon, Decl. 6° S 44'
25		18	19	55		57	17	14	13		58	23	4	☽ on Equator.
27		23	20	14	1	18	18	42		51	27			Heli. rising on ☽ in West
29		28		50		36	20	2		45	27	18	30	☽ at last Quarter
											28	7	6	☽ at ☿

Date	Day	Mean										Time	Phenomena
		☉	☽	☿	♈	♉	♊	♋	♌	♍	♎		
1	0	S 42	9 N 38	2 S 13	3 S 21	15	14	1	4	18			☽ at ☿
3		38	10 35	7	1 49					30			☽ at Perigee.
5		33	11 31	1	58	0 13				51			☽ on Equator.
7		28	12 26	48	1 N 26	14	55	5	1	15			New Moon, D. 1° N 45'
9		24	13 20	3	3 9		4	5	18	22			☽ on Equator.
11		19	14 12	21	4 55		42	12	1	21			☽ at First Quarter.
13		14	15 4	5	6 44		36	14	1	28			☽ at ☽
15		9	53	0	47	8 32		30	16	12			☽ at Apogee
17		3	16 41	29	10 22		23	18	12	0			☽ at ☽
19	0	N 21	17 27	7	2 10		17	18	14	26			☽ on Equator.
21		7	18 12	0 N 14	13 56		11	20	2	24			☽ at Node
23		12	55	36	15 38		4	20	6	3			Full Moon, Decl. 6° 544'
25		18	19 55	57	17 14	13	58	23	4	25			☽ on Equator.
27		23	20 14	1	18 18	42	51	27					Heli. rising on ☽ in West
29		28	50	36	20 2		45	27	18	30			☽ at last Quarter
							28	7	6				☽ at ☽

MAY 1962										S. J. O. UJJAIN										
Date	Day	Sidereal Time		⊙		♂				Midnight		ψ								
				Long.	Decl.	Long.	Lat.	Decl.	♂											
		H.	M.	S.	°	'	°	'	°	'	°	'	°	'						
1	Tu.	2	34	55	10	26	1	14	N57	0	10	3	S36	3	S16	7	34	12	m11	
2	W.		38	52	11	24	15	15	15	14	59	4	22	1	N51	22	23		R 9	
3	Th.		42	49	12	22	29		33	29	47		51	6	51	7	10		7	
4	F.		46	45	13	20	40		50	14	28		59	11	24	21	45		6	
5	S.		50	41	14	18	48	16	8	28	54		48	15	13	6	1		4	
6	Su.		54	38	15	16	55		25	12	59		20	18	3	19	52		2	
7	M.		58	35	16	15	1		4	26	39	3	37	19	46	3	19		1	
8	Tu.	3	2	31	17	13	4		58	9	50	2	6	20	20	16	18	11	59	
9	W.		6	28	18	11	6	17	14	22	38	1	44	19	49	28	54		58	
10	Th.		10	24	19	9	7		30	5	4	0	41	18	20	11	11		56	
11	F.		14	21	20	7	5		46	17	12	0	N23	16	3	23	12		54	
12	S.		18	18	21	5	3	18	1	29	9	1	25	13	6	5	1		53	
13	Su.		22	14	22	2	59		17	11	m	1	2	24	9	39	16	54		51
14	M.		26	1	23	0	52		31	22	51	3	4	5	50	28	44		49	
15	Tu.		30	7	23	58	45		46	4	42		57	1	47	10	41		48	
16	W.		34	4	24	56	36	19		0	16	42	4	31	2	S23	22	46		46
17	Th.		38	0	25	54	25		14	28	52		52	6	30	5	2		45	
18	F.		41	57	26	52	13		27	11	m	16	5	0	10	26	1	33		43
19	S.		45	53	27	49	59		40	23	53	4	53	13	59	0	16		42	
20	Su.		49	50	28	47	43		53	6	42		32	16	56	13	9		40	
21	M.		53	46	29	45	27	20	6	19	45	3	56	19	6	26	21		38	
22	Tu.		57	43	0	43	9		18	3	0		7	20	16	9	41		37	
23	W.	4	1	40	1	40	50		30	16	25	2	7	20	19	23	11		35	
24	Th.		5	36	2	38	29		41	0	0	0	59	19	11	6	52		34	
25	F.		9	33	3	36	6		52	13	46	0	S13	16	55	20	41		32	
26	S.		13	29	4	33	43	21	3	27	41	1	26	13	38	4	41		31	
27	Su.		17	26	5	31	19		13	11	x	46	2	34	9	33	18	51		30
28	M.		21	22	6	28	53		23	25	59	3	34	4	53	3	9		28	
29	Tu.		25	19	7	26	25		3	10	19	4	20	0	N5	17	31		27	
30	W.		29	16	8	23	57		42	24	43		50	5	3	1	56		25	
31	Th.		33	12	9	21	27		51	9	8	6	5	3	9	44	16	17		24

Date	ψ		♂		♂		♂		♂	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
1	1°N50	13°S45	0°N46	13°N26	0°S31	17°S57	0°S53	9°S44	1°S4	2°N34
3		44				56	54	37	3	3
5		43						31	3	11
7		42	45		32	55		24	2	4
9		41					55	17	1	5
11		40		25		54		11	1	35
13		39			33		56	5	0	6
15		38						0	0	59
17		37		24			57	8	58	7
19		36						49	58	56
21		35		23	34		58	43	57	8
23		34		22				38	56	9
25		33		21		55	59	33	55	36
27		33		20		5		29	54	10
29		32		19	35		1	0	53	43
31		31		18		57		0	52	11

EPHEMERIS

Saka Era 1884

MAY 1962

Vaisakha-Jyestha

11

Date	Longitudes	Ending Mone- nts of Tithis	Sun- rise	Sum- set.	Ehān						
	ॐ	ॐ	ॐ	ॐ	ॐ						
1	26 ॐ 24	11 ॐ 3	7 ॐ 4	8 ॐ 57	3 ॐ 31	26 ॐ 33	Ti.	Time	H.M.	H.M.	11
2	24	5	14 9	42 4	44 28	19	27	19 24	5 54	6 54	12
3	24	7	24 10	28 5	57 ॐ 1	41	28	16 12	54	54	13
4	D 24	9	34 11	15 7	10 1	41	29	13 1	53	55	14
5	24	10	43 12	1 8	23 3	17	30	10 2	52	56	15
6	24	12	53	47 9	36 4	48	1	7 24	51	56	16
7	24	13	8 2 13	33 10	49 6	16	2	5 14	51	57	16
8	24	15	11 14	18 12	2 7	40	3	3 41	50	57	17
9	24	16	20 15	4 13	15 9	0	4	2 56	49	58	18
10	25	17	24	50 14	28 10	15	5	2 58	49	58	19
11	25	18	38 16	36 15	41 11	27	6	3 48	48	59	20
12	25	19	46 17	22 16	54 12	34	7	5 22	48	59	21
13	26	20	55 18	7 18	6 13	38	8	7 20	47	59	22
14	26	21	3	53 19	19 14	37	9	9 52	47	0	23
15	27	22	12 19	39 20	32 15	31	10	12 22	47	0	24
16	27	22	20 20	24 21	44 16	21	11	14 47	46	0	25
17	28	23	28 21	10 22	57 17	6	12	16 49	45	1	26
18	29	23	36	55 24	9	47	13	18 22	45	2	27
19	29	24	44 22	41 25	22 18	23	14	19 25	44	3	28
20	30	24	51 23	26 26	34	55	15	20 0	44	3	29
21	31	24	58 24	12 27	47 19	22	16	20 8	43	3	30
22	32	24 10	6	57 28	59	44	17	19 49	43	4	31
23	33	24	13 25	42 0 11	20 1	20	18	19 7	43	4	1
24	34	24	20 26	27 1	23 13	13	19	18 12	43	5	2
25	35	23	27 27	12 2	36	21	20	16 56	42	5	3
26	36	23	34	58 3	48	23	21	15 28	42	5	4
27	37	23	40 28	43 5	0	R 22	22	13 37	42	5	5
28	38	2	47 29	28 6	12 15	25	23	11 33	42	6	6
29	40	21	53 0 8	13 7	24 5	26	24	9 17	41	7	7
30	41	21	59	57 8	36 19	50	25	6 50	41	7	8
31	42	20 11	5	1 42	9	48	26	4 17	41	7	9
							27	1 43	41	7	10
							28	23 16			

Date	ॐ		ॐ		Mean		Date	Time		Phenomena
	Lat.	Decl.	Lat.	Decl.	ॐ	H.		M.		
1	0 N 34	21 N 25	1 N 53	21 N 13	13 ॐ 39	2 5 21				Moon on Equator
3	39	56	2 6	22 13	32 2 7	30				ॐ at Perigee.
5	44 22	26	18 23	4	26 4 9	55				New Moon, D. 11° N 2
7	49	53	25 45		20 11 3	11				ॐ at ॐ
9	54 23	17	30 24	16	13 11 18	15				ॐ at First Quarter.
11	59	39	31 38		7 14 4	30				ॐ at Apogee.
13	1 4	58	27 52		1 15 22	20				ॐ on Equator.
15	9 24	15	20 58	12	54 19	20				New Moon Decl. 15° S 2
17	13	28	9 57		48 25	7 47				ॐ at ॐ
19	17	39	1 54	49	42 27	0 36				ॐ at Last Quarter.
21	22	47	34 35		35 29	11 36				ॐ on Equator
23	26	52	12 15		29 29	18 30				ॐ at Perigee.
25	29	54	0 45	23 51	23 29					Heli. setting of ॐ in West.
27	33	54	16 21		16					ॐ at Node
29	36	50	OS 17	22 48	10 30	12 0				
31	39	44	51 11		31					

EPHEMERIS

Saka Era 1884

MAY 1962

Vaisakha-Jyestha

11

Date	Longitudes		Ending Mone- nts of Tithis	Sun- rise	Sum- set.	Ehān
	ॐ	ॐ	ॐ	ॐ	ॐ	ॐ
1	26 २ 24	11 ३ 3	7 ४ 4	8 ५ 57	3 ६ 31	26 ७ 33
2	24	5	14 9	42 4	44 28	19
3	24	7	24 10	28 5	57 ८ १	29
4	D 24	9	34 11	15 7	10 41	30
5	24	10	43 12	1 8	23 3	17
6	24	12	53	47 9	36 4	48
7	24	13	8 2 13	33 10	49 6	16
8	24	15	11 14	18 12	2 7	40
9	24	16	20 15	4 13	15 9	0
10	25	17	2 16	50 14	28 10	15
11	25	18	38 16	36 15	41 11	27
12	25	19	46 17	22 16	54 12	34
13	26	20	55 18	7 18	6 13	38
14	2 21	9 3	53 19	19 14	37	10
15	27	22	12 19	39 20	32 15	31
16	27	22	20 20	24 21	44 16	21
17	28	23	28 21	10 22	57 17	6
18	29	23	36	55 24	9	47
19	29	24	44 22	41 25	22 18	23
20	30	24	51 23	26 26	34	55
21	31	24	58 24	12 27	47 19	22
22	32	24 10	6	57 28	59	44
23	33	R 24	13 25	42 0 11	20 1	20
24	34	24	20 26	27 1	23 13	21
25	35	23	27 27	12 2	36	21
26	36	23	34	58 3	48	23
27	37	23	40 28	43 5	0	R 22
28	38	2	47 29	28 6	12 15	25
29	40	21	53 0 ४	13 7	24 5	26
30	41	21	59	57 8	36 19	50
31	42	20 11	5	1 42	9	33

Date	ॐ		ॐ		Mean	Date	Time		Phenomena
	Lat.	Decl.	Lat.	Decl.	ॐ		H.	M.	
1	0 N 34	21 N 25	1 N 53	21 N 13	13 २ 39	2	5	21	Moon on Equator
3	39	56	2 6	22 13	32 2	7	30		ॐ at Perigee.
5	44 22	26	18	23 4	26 4	9	55		New Moon, D. 11° N 2
7	49	53	25	45	20 11	3	11		ॐ at ॐ
9	54 23	17	30 24	16	13 11	18	15		ॐ at First Quarter.
11	59	39	31	38	7 14	4	30		ॐ at Apogee.
13	1 4	58	27	52	1 15	22	20		ॐ on Equator.
15	9 24	15	20	58 12	54 19	20	2		New Moon Decl. 15° S 2
17	13	28	9	57	48 25	7	47		ॐ at ॐ
19	17	39	1 54	49	42 27	0	36		ॐ at Last Quarter.
21	22	47	34	35	35 29	11	36		ॐ on Equator
23	26	52	12	15	29 29	18	30		ॐ at Perigee.
25	29	54	0 45	23 51	23 29				Heli. setting of ॐ in
27	33	54	16	21	16				West.
29	36	50	OS 17	22 48	10 30	12	0		ॐ at Node
31	39	44	51	11	31				

12		JUNE 1962										S. J. O. UJJAIN											
Date	Day	Sidereal Time		⊙		☾						Midnight		ψ									
				Long.	Decl.	Long.	Lat.	Decl.	Long.	Lat.	Decl.												
		H. M.	S.																				
1	F.	4	37	9	10	18	57	22	N	0	23	8	23	4	55	13	N	50	0	28	11	m	22
2	S.		41	5	11	16	26			8	7	28	4	30	17	6	14	24			R		21
3	Su.		44	2	12	13	53			16	21	16	3	50	19	19	28	4					20
4	M.		48	58	13	11	19			23	4	52	2	57	20	23	11	21					18
5	Tu.		52	55	14	8	44			30	17	49	1	57	20	19	24	15					17
6	W.		56	51	15	6	8			36	0	53	0	52	19	11	6	4	9				16
7	Th.	5	0	47	16	3	31			42	12	58	0	N	15	17	9	19	5				14
8	F.		4	45	17	0	54			48	25	8	1	19	14	23	1	5	8				13
9	S.		8	41	17	58	15			54	7	59	6	2	19	11	4	13	3				12
10	Su.		12	38	18	55	36			59	18	58	3	12	7	19	24	54					11
11	M.		16	34	19	52	56	23		3	0	49	3	57	3	19	6	4	46				10
12	Tu.		20	31	20	50	14			7	12	45	4	33	0	S	39	18	44				8
13	W.		24	27	21	47	32			11	24	49	4	56	4	59	0	5	4				7
14	Th.		28	24	22	44	50			14	7	5	5	6	7	1	13	18					6
15	F.		32	20	23	42	7			17	19	36	5	2	12	45	25	58					5
16	S.		36	17	24	39	23			20	2	25	4	43	15	59	8	7	55				4
17	Su.		40	13	25	36	38			22	15	31	4	9	18	30	22	10					3
18	M.		44	10	26	33	52			24	28	54	3	21	20	4	5	5	40				2
19	Tu.		48	7	27	31	6			25	12	51	2	20	20	31	19	24					1
20	W.	5	52	3	28	28	20			26	26	21	1	10	19	44	3	19					0
21	Th.		56	0	29	25	34			26	10	21	0	S	2	17	44	17	19	10			59
22	F.		59	56	0	22	47			26	24	25	1	17	14	39	1	5	29				58
23	S.	6	3	53	1	19	59			26	8	34	2	31	10	42	15	40					57
24	Su.		7	49	2	17	11			25	22	46	3	33	6	9	29	52					56
25	M.		11	46	3	14	22			24	6	58	4	21	1	16	14	7	3				55
26	Tu.		15	42	4	11	33			23	21	7	4	54	3	N	40	28	12				54
27	W.		19	39	5	8	44			21	5	13	5	9	8	24	12	14					54
28	Th.		23	36	6	5	55			18	19	12	5	5	12	36	26	9					53
29	F.		27	32	7	3	5			15	3	2	4	44	16	6	9	5	4				52
30	S.		31	29	8	0	15			12	16	41	4	7	18	49	23	26					51
Date	ψ		⊙		☾		☽		☿		♂		♂										
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.									
2	1	N	50	13	S	30	0	N	44	13	N	17	0										
4																							
6																							
8	49																						
10																							
12																							
14																							
16																							
18																							
20																							
22																							
24																							
26																							
28																							
30	48																						

EPHEMERIS										Saka Era 1884										JUNE 1962										Jyāistha-Ashadha.										13
Date	Longitudes										Ending Moments of Tithis		Sun rise	Sun set	BHD																									
	☿	♈	♉	♊	♋	♌	♍	♎	♏	♐																														
1	26	44	11	19	11	11	28	27	11	19	10	Ti.	Times	H.M.	H.M.																									
2		45		R	18	11	16	3	12	12	12	18	R	44	29	21	1	5	41	7	8	11																		
3		47			17		22		57	13	24			17	30	19	7		41		9	12																		
4		48			15		26	4	41	14	35	17	47		1	17	38		41		10	13																		
5		50			14		32	5	26	15	47		15		2	16	38		41		10	14																		
6		52			13		37	6	10	16	59	16	43		3	16	46		41		11	15																		
7		53			11		42		55	18	10		9		4	17	20		41		12	16																		
8		55			9		46	7	39	19	22	15	36		5	18	38		41		12	17																		
9		57			8		51	8	24	20	33		3		6	20	28		41		12	18																		
10		59			6		55	9	8	21	45	14	31		7	22	43		41		12	19																		
11	27	1			4		59		52	22	56		1		8				41		13	20																		
12		2			2	12	3	10	36	24	7	13	33		9	1	8		41		13	21																		
13		4			0		6	11	20	25	19		8		10	5	29		41		13	22																		
14		6	10		58		10	12	4	26	30	12	45		11	7	3		41		14	23																		
15		9			56		13		48	27	41		27		12	8	3		41		14	24																		
16		11			53		16	13	32	28	52		11		13	8	26		41		14	25																		
17		13			51		19	14	16	0	3	0			14	8	14		41		15	27																		
18		15			49		22	15	0	1	14	11	53		15	7	30		41		15	28																		
19		17			46		25		44	2	25		51		16	6	19		42		15	29																		
20		20			43		27	16	27	3	35	D 53			17	4	46		42		15	30																		
21		22			41		29	17	11	4	46	12	0		18	2	57		42		16	31																		
22		24			38		31		54	5	57		11		19	0	58		42		16	1																		
23		27			35		33	18	38	7	7		27		20	22	51																							
24		29			32		35	19	21	8	18		48		21	20	38		43		16	2																		
25		32			29		36	20	5	9	28	13	13		22	18	22		43		16	3																		
26		34			26		38		48	10	39		43		23	16	7		43		16	4																		
27		37			23		39	21	31	11	49	14	18		24	13	59		43		17	5																		
28		39			20		40	22	14	13	0		57		25	11	52		44		17	6																		
29		42			16		40		58	14	9	15	41		26	9	58		44		17	7																		
30		45			13		41	23	41	15	19	16	29		27	8	18		44		17	8																		
															28	6	56		44		17	9																		

Date	☿		♈		Mean		Date	Time H. M.	Phenomena					
	Lat.	Decl.	Lat.	Decl.	☿									
2	1	N 42	24	N 35	1	S 25	21	N 33	11	57	2	18	57	New Moon, D. 17° N 51'
4		45		23		0	20	54		51	7	6	39	D at ☿
6		47		8	2	33		14		44	10	23	30	D at First Quarter.
8		49	23	51	3	3	19	38		38	11			D at Apogee
10		51		31		29		5		32	12	7	14	D on Equator.
12		52		8		50	18	37		25	18	7	33	Full Moon D. 19° S 52'
14		54	22	43	4	6		15		19	19			Heli. Rising at ☿ in East
16		54		15		17		0		13	21	10	30	D at ☿
18		55	21	45		23	17	52		6	24	1	30	D at Perigee.
20		55		13		23		52	11	0	25	5	13	D at Last Quarter.
22		55	20	38		19		59	10	54	25	18	10	D on Equator.
24		54		2		10	18	12		47				
26		53	19	23	3	58		31		41				
28		52	18	42		42		55		34				
30		50		0		23	19	23		28				

New Moon, D. 17°N 51'
 ☽ at 2
 ☽ at First Quarter.
 ☽ at Apogee
 ☽ on Equator.
 Full Moon D. 19° S 52
 Heli. Rising at 7 m East
 ☽ at ☽
 ☽ at Perigee.
 ☽ at Last Quarter.
 ☽ on Equator.

14		JULY 1962										S. J. O. UJJAIN									
Date	Day	Sidereal Time			°		D			Midnight			Ψ								
		Long.	Decl.	Long.	Lat.	Decl.	D														
		H.	M.	S.	°	'	"	°	'	"	°	'	"	°	'	"					
1	Su.	6	35	25	8	57	25	23N	8	0	5	3	S	16	20	N	9	6	42	10	51
2	M.		39	22	9	54	35		4	13	12	2	16	20	31	19	41				R 50
3	Tu.		43	18	10	51	45		0	26	3	1	10	19	47	2	4	23			49
4	W.		47	15	11	48	55	22	55	8	37	0	2	18	4	14	50				49
5	Th.		51	12	12	46	5		50	20	57	1	N	5	15	32	27	2			48
6	F.		55	8	13	43	15		44	3	4	2	8	12	22	9	4				48
7	S.		59	5	14	40	26		38	15	1	3	4	8	45	20	56				47
8	Su.	7	3	1	15	37	36		32	26	53		53	4	49	2	4	49			47
9	M.		6	58	16	34	46		25	8	45	4	31	0	42	14	42				46
10	Tu.		10	54	17	31	56		18	20	41		58	3	S	27	26	41			46
11	W.		14	51	18	29	6		10	2	45	5	12	7	31	8	51				45
12	Th.		18	47	19	26	16		2	15	4		12	11	21	21	18				45
13	F.		22	44	20	23	27	21	54	27	38	4	58	14	46	4	1				45
14	S.		26	41	21	20	39		45	10	33		28	17	35	17	6				44
15	Su.		30	37	22	17	51		36	23	49	3	43	19	34	0	3	34			44
16	M.		34	34	23	15	3		26	7	26	2	45	20	29	14	22				44
17	Tu.		38	30	24	12	15		17	21	23	1	35	10	28	28					43
18	W.		42	27	25	9	27		6	5	36	0	18	18	35	12	47				43
19	Th.		46	23	26	6	41	20	56	20	1	1	S	1	15	47	27	16			43
20	F.		50	20	27	3	55		45	4	32	2	16	11	50	11	4	43			43
21	S.		54	16	28	1	9		34	19	5	3	23	7	28	26	20				43
22	Su.		58	13	28	58	23		22	3	33	4	17	2	32	10	45				43
23	M.	8	2	10	29	55	37		10	17	55		54	2	N	8	25	1			42
24	Tu.		6	6	0	52	54	19	58	2	3	5	13	7	16	9	3				D 43
25	W.		9	3	1	50	11		45	16	0		13	11	37	22	53				42
26	Th.		13	59	2	47	29		32	29	43	4	55	15	16	6	29				41
27	F.		17	56	3	44	47		19	13	12		21	18	3	19	51				41
28	S.		21	53	4	42	5		5	26	26	3	34	19	49	2	57				41
29	Su.		25	49	5	39	26	18	51	9	25	2	36	20	30	15	50				41
30	M.		29	45	6	36	47		37	22	11	1	31		6	28	29				41
31	Tu.		32	42	7	34	8		23	4	44	0	23	18	42	10	56				41

Date	ψ		μ		η		ζ		δ			
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.		
2	1°N	48°13'S	22°0'N	44°43'	12°N	54°0'S	39°18'S	21°1'S	10°7'S	52°0'S	33°18'N	80°52'
4		21		52		23				53	32	51
6				50	40	25	11			54	31	19
8				48		27				55	29	3
10				46		30	12			57	28	9
12				44		32			58	0	26	20
14				41	41	34	13	8		1	25	1
16				39		37	14			3	23	4
18				36		39				6	22	21
20				34		42	15			9	20	1
22				32		44			12		19	3
24				30	42	47	16		13		17	4
26				27		49			19		15	5
28				25		52	17		23		14	22
30				22		54			28		12	2

EPHEMERIS		Saka Era 1884										JULY 1962										Ashadha-Shravan 15									
Date	Longitudes.										Ending Moments of Tithis		Sun-rise	Sun-set	B.H.D.																
	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	Ti.	Time.	H.M.	H.M.																	
1	27	47	10	10	12	41	24	24	16	29	17	22	29	5	58	5	45	7	17	10											
2		50	R	6		41	25	6	17	39	18	19	30	5	31	45	17	11													
3		53		3	R	41		49	18	49	19	20	1	5	38	46	17	12													
4		56	9	59		41	2	32	19	59	20	5	2	6	13	45	17	13													
5		59		55		41	27	15	21	9	21	35	3	7	24	45	17	14													
6	28		1	52		40		57	22	18	22	48	4	9	20	46	17	15													
7		4		48		39	28	40	23	28	24	6	5	11	14	47	17	16													
8		7		44		38	29	22	24	37	25	27	6	13	39	47	17	17													
9		10		40		37	0	25	47	26	53		7	16	0	47	17	18													
10		13		36		36		47	26	56	28	23	8	18	9	48	17	19													
													9	20	0	48	17	20													
11		16		32		34	1	29	28	5	29	56	10	21	1	48	17	21													
12		19		28		32	2	11	29	14	1	33	11	21	33	49	16	22													
13		23		24		30		54	0	23	3	13	12	21	21	49	16	23													
14		26		20		28	3	36	1	32	4	57	13	20	30	50	16	24													
15		29		16		25	4	17	2	40	6	44	14	19	3	50	15	25													
16		32		12		23		59	3	49	8	35	15	17	6	50	15	26													
17		35		8		20	5	41	4	57	10	28	16	14	46	51	15	27													
18		39		3		17	6	23	6	6	12	24	17	12	11	51	15	28													
19		42	8	59		14	7	5	7	14	14	23	18	9	24	51	15	29													
20		45		55		10		46	8	22	16	23	19	6	35	52	14	30													
													20	3	52	52	14	31													
21		48		50		7	8	28	9	30	18	26	{	21	1	17	{	53	14	1											
22		52		46		3	9	9	10	38	20	30		22	22	57															
23		55		42	11	59		50	11	46	22	35	23	20	55	53	13	2													
24		58		37		55	10	32	12	53	24	41	24	19	12	54	13	3													
25	29		33			51	11	13	14	126	48		25	17	53	55	13	4													
26		5		29		47		54	15	8	28	55	26	16	59	55	12	5													
27		9		24		42	12	35	16	8	1	2	27	16	31	55	11	6													
28		12		20		38	13	16	17	23	3	8	28	16	32	56	11	7													
29		16		15		33		57	18	30	5	15	29	17	2	56	10	8													
30		19		11		38	14	38	19	36	7	20	30	17	58	56	10	9													
31		23		6		22	15	18	20	43	9	25																			

16		AUGUST 1962										S. J. O. UJJAIN	
Date	Day	Sidereal Time		⊙		☽		Midnight		ψ			
				Long.	Decl.	Long.	Lat.	Decl.	ψ				
1 W.	8	H. 37	M. 39	8 31	30	18 N 8	17 17	5	0 N 45	16 N 26	23 11	10 m	44
2 Th.		41	35	9 28	53	17 53	29 15	1	50 13	27 5	16		45
3 F.		45	32	10 26	16	37 11	16	2	50 9	57 17	14		45
4 S.		49	28	11 23	41	22 23	11	3	41 6	6 29	7		45
5 Su.		53	25	12 21	7	6 5	2	4	22 2	3 10	57		46
6 M.		57	21	13 18	35	16 49	16	53	2 S 6	22 50			46
7 Tu.	9	1	18	14 16	5	33 28	48	5	11 6	11 4	48		47
8 W.		5	14	15 13	35	16 10	51	5	16 10	3 16	56		47
9 Th.		9	11	16 11	5	59 23	7	4	42 13	35 29	20		48
10 F.		13	8	17 8	57	42 5	40		4 16	36 12	2		48
11 S.		17	4	18 6	9	24 18	33	3	11 18	53 25	7		49
12 Su.		21	1	19 3	43	6 1	50	2	5 20	13 8	36		49
13 M.		24	57	20 1	19	14 48	15	33	0 51	27 22	31		50
14 Tu.		28	54	20 58	55	30 29	40	0 S 28	19 24	6	50		51
15 W.		32	50	21 56	35	12 14	9	1	47 17	3 21	30		52
16 Th.		36	47	22 54	12	13 53	28	54	3 0	13 33	6	22	52
17 F.		40	43	23 51	53	34 13	50	59	9 9	21 18			53
18 S.		44	40	24 49	34	15 28	47	4	44 4	10 6	15		54
19 Su.		48	37	25 47	18	12 55	13	38	5 8	1 N 0	20	59	55
20 M.		52	33	26 45	4	36 28	15		13 6	2 5	29		56
21 Tu.		56	30	27 42	49	16 12	35	4	59 10	37 19	38		56
22 W.	10	0	26	28 40	37	11 56	26	33	28 14	31 3	25		57
23 Th.		4	23	29 38	27	36 10	19	3	44 17	32 16	51		58
24 F.		8	19	0 36	17	15 23	25	2	49 19	32 29	57		59
25 S.		12	16	1 34	10	10 55	6	23	1 47	20 28	12	46	11 0
26 Su.		16	12	2 32	4	34 19	4	0	40 20	19 25	20		1
27 M.		20	9	3 29	58	13 1	32	0 N 25	19 10	7	41		3
28 Tu.		24	6	4 27	57	9 52	13	48	1 32	17 7	19	53	4
29 W.		28	2	5 25	56	31 25	56	2	32 14	19 1	57		5
30 Th.		31	59	6 23	56	10 7	55		32 10	57 13	54		6
31 F.		35	55	7 21	59	8 49	19	51	3 24	7 10	25	47	7

Date	ψ		♈		♉		♊		♋		♌	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
1	1 N 47	13 S 22	0 N 43	12 N 20	0 S 42	18 S 57	1 S 18	8 S 32	0 S 11	22 N 32		
3	46			17		59		37	9	42		
5				15	43	19	1	19	42	7	50	
7	23			12		4		47	5	59		
9				10		6	20	52	4	23	6	
11		24		7		9		57	2	12		
13				4		11	9	3	0	18		
15		25		2		13	21	9	0 N 2	23		
17			11	59		16		14	3	27		
19	45	26		57	44	18	22	20	5	37		
21				54		20		26	7	34		
23		27		51		22		32	9	36		
25		28		48		24		38	11	37		
27		29		46		26	23	44	13	38		
29				43		28		51	15	37		
31		30		40		30		56	17	36		

17		AUGUST 1962										S. J. O. UJJAIN	
Date	Day	Sidereal Time		⊙		☽		Midnight		ψ			
				Long.	Decl.	Long.	Lat.	Decl.	ψ				
1	29	26	8	2	11	17	16	0	21	50	11	29	
2		30	7	R 57	R 12	40	22	56	13	31			
3		34		53		6	17	20	24	25	32		
4		37		48		0	18	0	25	7	7	32	
5		41		44	10	54		41	26	14	19	3	
6		44		40		48	19	21	27	20	21	28	
7		48		35		43	20	1	28	25	23	23	
8		52		31		36		41	29	31	25	17	
9		56		26		29	21	21	0	35	27	9	
10		59		22		23	22	1	1	41	29	0	
11	0	3		18		16		41	2	46	0	50	
12		6		13		9	23	20	3	50	2	38	
13		10		9		2	24	0	4	55	4	24	
14		14		5	9	55		39	5	59	6	9	
15		17		1		48	25	19	7	3	7	52	
16		21	6	56		41		58	8	6	9	34	
17		25		52		34	26	37	9	10	11	15	
18		28		48		26	27	16	10	13	12	54	
19		32		44		19		55	11	16	14	33	
20		36		40		11	28	34	12	19	16	7	
21		40		36		4	29	13	13	21	17	42	
22		44		32	8	56		52	14	23	19	15	
23		47		28		48	0	30	15	25	0	47	
24		51		24		41	1	9	16	26	22	18	
25		55		20		33		47	17	28	23	47	
26		59		16		25	2	26	18	29	25	18	
27	1	2		13		17	3	4	19	30	26	40	
28				9		9		42	20	30	28	5	
29		10		5		1	4	20	21	33	29	28	
30		14		2	7	53		58	22	30	0	50	
31		17	5	58		45	5	36	23	30	2	9	

Date	♀		♊		Mean		Time	Phenomena.
	Lat.	Decl.	Lat.	Decl.	♈	♉		
1	0 N 30	3 N 42	1 N 45	19 N 2	8	2	46	Don Equator.
3	21	2	42	46	17	52	40	at Apogee.
5	13	1	41	45	16	37	34	at ♈
7	4	0	41	40	15	18	27	on Equator.
9	0 S 5	0 S 19	34	13	56		21	at First Quarter.
11	15	1	20	26	12	31	15	at ♉
13	25	2	20	16	11	5	8	at ♊
15	35	3	20	4	9	37	2	Full Moon Decl. 15° S 11'
17	46	4	20	0	52	8	7	at Perigee.
19	56	5	19	38	6	41	49	on Equator.
21	1	7	6	23	5	13	43	Heli. rising of ♋ in West
23	19	7	17	8	3	46	37	at Last Quarter.
25	30	8	15	0 S 9	2	20	30	at Node.
27	42	9	12	25	0	56	24	at ♋
29	53	10	8	43	0 S 26		18	on Equator
31	2	5	11	4	1	0	11	New Moon D 11° N 27'

Date	Day	Sidereal Time	☉		☽		Midnight		ψ
			Long.	Decl.	Long.	Lat.	Decl.	ψ	
1 Su.	10	39 39	8 20	3 8	N 27 1 43	4 N 9 3 N 8	7 38	11 m 8	
2 Su.		43 48	9 18	7	5 13 33	42 1 S 0	19 29	10	
3 M.		47 45	10 16	15	7 43 25	5 2 5 7	1 m 26	11	
4 Tu.		51 41	11 14	24	21 7 m 20	11 9 2	13 20	12	
5 W.		55 38	12 12	34	6 59 19	5 12 39	25 26	14	
6 Th.		59 35	13 10	47	36 1 36	4 45 15	48 7 47	15	
7 F.	11	3 31	14 9	2	14 14 4	13 18 18	20 24	16	
8 S.		7 28	15 7	18	5 52 26	3 26 19	57 3 v 23	18	
9 Su.		11 24	16 5	36	29 10 3	2 27 20	36 16 50	19	
10 M.		15 21	17 3	56	6 23 41	1 19 4	0 38	21	
11 Tu.		19 17	18 2	18	4 44 7 m 48	0 4 18	17 14 57	22	
12 W.		23 14	19 0	42	21 22 17	1 S 14 15	16 29 41	24	
13 Th.		27 10	19 59	8	3 58 7 m 11	2 29 11	12 14 m 44	25	
14 F.		31 7	20 57	36	35 22 20	3 34 6	20 29 58	27	
15 S.		34 4	21 56	4	12 7 r 36	4 24 1	3 15 r 12	28	
16 Su.		39 0	22 54	35	2 49 22	46 56 4 N 15	0 8 17	30	
17 M.		42 57	23 53	9	26 7 41	5 9 9	13 15 3	31	
18 Tu.		46 53	24 51	45	3 22 15	4 57 13	32 29 24	33	
19 W.		50 50	25 50	22	1 39 6 n 23	30 16 56	13 n 18	35	
20 Th.		54 46	26 49	0	16 20 2	3 47 19	16 26 44	37	
21 F.		58 43	27 47	42	0 52 3 m 16	2 54 20	29 9 m 45	38	
22 S.	12	2 39	28 46	25	29 16 6	1 52 35	22 25	40	
23 Su.		6 36	29 45	10	0 6 28	38 0 49	19 38 4 m 48	42	
24 M.		10 33	0 43	57	0 S 17 10 n 34	0 N 17 17	43 16 58	44	
25 Tu.		14 29	1 42	46	41 22 59	1 20 15	7 29 29	45	
26 W.		18 26	2 41	37	1 4 4 m 57	2 20 11	52 10 m 55	47	
27 Th.		22 22	3 40	31	28 16 51	3 12 8	10 22 46	49	
28 F.		26 19	4 39	26	51 28 42	3 56 4	9 4 m 37	51	
29 S.		30 15	5 38	23	2 14 10 m 33	4 30 0 S	1 16 28	53	
30 Su.		34 12	6 37	23	38 22 25	52 4 10	28 22	55	

Date	ψ		♈		♉		♊		♋	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
2	1 N 45	13 N 31	0 N 43	11 N 38	0 S 44	19 S 31	1 S 23	10 S 3	0 N 19	23 N 33
4		32		35		33		9	21	30
6		33		32		35		15	23	36
8	44	34		30		36		20	25	22
10		35		27	45	38		26	27	2
12		36		25		39		32	29	17
14		37		22		40		37	31	12
16		38		20		41		43	34	6
18		39		17		43		48	36	0
20		40		15		44		53	38	53
22		41		12				58	40	46
24		42		10		45	11	2	42	38
26		44		7		46		7	45	30
28		45		5		47		11	47	21
30		46		2				15	49	12

Date	Longitudes							Ending Moments of Tithis	Sun Rise	Sun Set	BHD
	♈	♉	♊	♋	♌	♍	♎				
1	1 m 21	5 m 55	7 m 37	6 m 14	24 m 29	3 m 28		2 13 22	6 9 6	45 10	
2	25	R 52	R 30	51 25	27 4	45		3 15 51	9	44 11	
3	29	48	22	7 29	26 6	0		4 18 15	9	43 12	
4	32	45	14 8	6 27	24 7	13		5 20 28	10	42 13	
5	36	42	6	43 28	21 8	25		6 22 20	10	41 14	
6	40	39 6	58 9	20 29	18 9	34		7 23 39	10	41 15	
7	43	36	50	57 0 m	15 10	42		8 — —	10	40 16	
8	47	33	42 10	34 1	11 11	47		9 0 19	11	39 17	
9	51	30	35 11	11 2	7 12	50		9 0 18	11	38 18	
10	54	27	27	48 3	2 13	50		10 23 28			
11	58	25	19 12	24	56 14	49		11 21 51	11	36 19	
12	2	2	12 13	1 4	50 15	44		12 19 34	12	35 20	
13	5	20	4	37 5	44 16	36		13 16 42	12	34 21	
14	9	17 5	57 14	15 6	37 17	26		14 13 21	13	33 22	
15	13	15	50	49 7	30 18	11		15 9 41	13	32 23	
16	16	12	42 15	25 8	22	54		16 5 51	13	31 24	
17	20	10	35 16	2 9	12 19	32		17 2 6	13	30 25	
18	23	8	28	37 10	3 20	6		18 22 33	14	29 26	
19	27	6	21 17	12	52	36		19 19 25	14	28 27	
20	30	4	14	48 11	41 21	1		20 16 46	14	27 28	
21	34	2	8 18	23 12	30	21		21 14 45	15	26 29	
22	37	1	1	58 13	16	36		22 13 32	15	25 30	
23	41	4	59 4	54 19	33 14	4		23 13 5	15	25 30	
24	44	57	48 20	8	50	4		24 13 23	16	24 31	
25	48	56	42	43 15	35	R 41		25 14 23	16	23 1	
26	51	55	36 21	17 16	19	29		26 15 58	16	22 2	
27	54	53	30	51 17	2	10		27 17 58	16	21 3	
28	58	52	24 22	26	45 20	44		28 20 15	17	20 4	
29	3	51	18 23	0 18	26	10		29 22 39	17	19 5	
30	4	50	12	34 19	6 19	29		30 1 8	17	17 7	
								1 3 37	17	16 8	

Date	♋		♊		Mean	Date	Time H. M.	Phenomena
	Lat.	Decl.	La	Decl.	♋			
2	2 S 18	11 S 59	1 S 18	3 S 5	7 a 5	2	0 30	♋ at Apogee.
4	30 12	53	36 4	26 6	58	2	6 12	♋ on Equator.
6	42 13	46	53 5	32	52	7	12 15	♋ at First Quarter.
8	55 14	37	11 6	40	46	11	13 5	♋ at ♋
10	3 8 15	28	28 7	44	39	14	9 41	Full Moon Decl. 6° S 50'
12	2 16	17	44 8	43	33	14	21 30	♋ at Perigee.
14	33 17	5	59 9	36	27	15	16 45	♋ on Equator.
16	46 51	3	14 10	23	20	21	1 6	♋ at Last Quarter.
18	58 18	36	26 11	3	14	24	5 52	♋ at ♊
20	4 11 19	19	37 33		8 25		..	Heli. setting of ♋ in West
22	23 20	0	45 53		1 29	1	10	New Moon Decl. 1° S 53'
24	35 41	49	12 1	5	55	29	11 54	♋ on Equator
26	47 21	18	49 11	55	49	29	6 30	♋ at Apogee
28	59 54	43	33		42			
30	5 10 22	28	31 10	54	36			

Day	Day	Sidereal Time	☉		☽		Midnight		ψ
			Long.	Decl.	Long.	Lat.	Decl.	ψ	
1 M.	12	38 8	7 36	24 3 S	4 19	5 N	2 8 S	10 18	11 5
2 Tu.		42 5	8 35	27 24	16 18	4 58	11 56	22 20	5
3 W.		45 2	9 34	33 48	28 24	4 15	13 4	29 12	
4 Th.		49 58	10 33	40 4	11 10	7 40	12 17	54 16	51
5 F.		53 55	11 32	50 34	23 7	3 49	19 47	29 25	
6 S.		57 51	12 32	1 57	5 51	2 34	20 44	12 20	
7 Su.	13	1 48	13 31	15 5	20 18	5 1	31 25	31 2	
8 M.		5 44	14 30	30 43	2 24	0 21	19 17	9 13	1
9 Tu.		9 41	15 29	49 6	16 19	0 52	16 48	23 24	1
10 W.		13 37	16 29	8 29	0 33	2 4	13 12	7 59	1
11 Th.		17 34	17 28	29 51	15 26	3 10	8 42	22 56	1
12 F.		21 31	18 27	54 7	14 0	4 3	33 8	10 1	1
13 S.		25 27	19 27	20 37	15 49	4 1	52 2	26 2	2
14 Su.		29 24	20 26	48 59	1 6	5 7	10 8	41 2	2
15 M.		33 20	21 26	17 8	21 16	12 54	11 58	23 40	25
16 Tu.		37 17	22 25	49 44	0 57	3 15	55 8	12 2	2
17 W.		41 13	23 25	9 6	15 15	3 51	18 48	22 15	2
18 Th.		45 10	24 24	59 28	29 3	2 58	20 28	5 48	31
19 F.		49 6	25 24	33 49	12 22	1 57	55 18	53 34	34
20 S.		52 3	26 24	16 10	11 25	14 0	53 13	33 38	38
21 Su.		56 57	27 23	59 33	7 44	0 N	13 18	33 13	52
22 M.	14	0 56	28 23	42 54	19 57	1 17	16 3	25 59	40
23 Tu.		4 53	29 23	11 15	1 58	2 16	12 54	7 55	42
24 W.		8 49	30 23	15 36	13 52	3 8	9 15	19 47	45
25 Th.		12 46	1 23	5 57	25 42	5 52	5 16	1 57	47
26 F.		16 42	2 22	56 12	18 7	4 26	1 6	13 28	49
27 S.		20 39	3 22	50 38	19 24	48 3	8 25	22 51	51
28 Su.		24 35	4 22	45 58	1 21	58 7	16 7	17 53	53
29 M.		28 32	5 22	41 13	19 13	54 11	9 19	26 56	56
30 Tu.		32 29	6 22	41 38	25 31	37 14	38 1	38 58	58
31 W.		36 25	7 22	42 58	7 47	8 17	31 13	58 13	0

Date	ψ		♈		♉		♊		♋	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
2	1 N 44	13 S 47	0 N 43	11 N 0	0 S 45	19 S 42	1 S 22	11 S 19	0 N 52	22 N 2
4		49		10 58		41		22	54 21	53
6		50		56		40		25	57	43
8		51	44	53		38		28	59	32
10		52		51		37	21	31	1	21
12		54		49		36		33	4	10
14		55		47		34		35	7 20	59
16		56		45		32	20	37	10	48
18		58		43		30		38	13	36
20		59		41		29		40	15	25
22	14	0		39		27	19	18		13
24		2		38		25		41	21 20	1
26		3		36		22			24 19	49
28		4		34		20	18		27	37
30		6		33		18			30	25

Date	Longitudes								Ending Moments of Tithis	Sun-set	Sun-rise	BHD
	♈	♉	♊	♋	♌	♍	♎	♏				
1	3 38	8 4	4 49	4 7	24 28	8 19	25 18	40 2	2 6	2 6	18 15	9
2		11	R 48	R 2	42 20	23 17	R 45	3 8	15 18	14 10	10	
3		14	47	3 57	25 15	21 0	16 45	4 10	14 19	13 11	11	
4		17	47	52	48	35 15	40 5	11 47	19 12	12 12	12	
5		21	47	47	26	22 22	10 14	32 6	12 53	20 11	13	
6		24	46	42	57	42 13	22 7	13 21	20 10	14	14	
7		27	46	38	27	23 14	12 12	8 13	8 20	9 15	15	
8		30	46	34	28	0 44	11 5	9 12	13 20	8 16	16	
9		33	46	30	32	24 12	10 2	10 10	29 20	7 17	17	
10		36	D 46	26	29	5 39	9 5	11 8	7 20	6 18	18	
11		38	46	22	37	25 4	8 15	12 5	6 22	5 19	19	
12		42	46	19	0 9	27 7	34 13	1 40		22	5	20
13		45	46	15	40	50 3	15 18	6 23		4	21	
14		48	47	12	1 12	26 10	6 42	14 18	23 3	32	22	
15		51	47	9	43	28 33	17 10	42 23	2 23	23	23	
16		53	48	7	2 15	44 D 34	18 7	36 24	1 24	24	24	
17		56	49	4	44	58 47	19 5	5 24	1 25	25	25	
18		59	49	2	3 16	27 10	7 9	3 19	25 0	26	26	
19	4	2	50	0	47	20 42	21 2	41 25	5 59	27	27	
20		4	51	2	58	4 17	28 8	23 25	58 28	28	28	
21		7	52	56	47	33 9	13 24	2 57	26 57	29	29	
22		10	53	54	5 17	36 10	10 25	4 24	26 56	30	30	
23		12	55	53	47	37 11	14 26	6 23	27 55	1	1	
24		15	56	52	6 16	R 37	12 24	8 44	28 55	2	2	
25		17	58	51	46	32 13	39 28	11 18	28 54	3	3	
26		20	59	50	7 15	26 14	58 29	16 21	29 53	5	5	
27		22	5	50	43	17 16	21 30	18 36	29 52	6	6	
28		24	3	49	8 12	6 17	47 1	20 37	30 51	7	7	
29		27	5	D 49	40 26	53 19	15 2	22 16	31 50	8	8	
30		29	7	49	9 8	37 20	46 3	23 47	31 50	9	9	
31		31	9	49	36	19 22	19 3					

Date	♀		♋		Mean. ♋	Date	Time. H. M.	Phenomena.
	Lat.	Decl.	Lat.	Decl.				
2	5 S 21	23 S 0	3 S 12	9 S 56	5 30	7 1	25	♈ at First Quarter.
4		32	25	2 45	8 42	23 8	19 2	♈ at ♋
6		42	57	1 7	18 17	13 3	44	♈ on Equator.
8		51	24	22 1	33 5	49 10	13 4 0	♈ at Node.
10	6	0	45	0 52	4 24	4 13	8 30	♈ at Perigee.
12		8 25	4	12 3	12 4	58 13	18 3	Full Moon Decl. 3° N 14'
14		14	21	0 N 25	2 17	51 16	..	Heli. rising of ♈ in East
16		20	35	57 1	44 45	20 14	18	♈ at Last Quarter.
18		24	45	1 22	34 39	21 7	7	♈ at ♈
20		27	52	41	46	32 26	18 14	♈ on Equator.
22		28	55	55 2	16 26	26 9	30	♈ at Apogee.
24		27	54	2 2	3 1	20 27	..	Heli. Setting of ♈ in East.
26		24	49	6	58 13			
28		19	39	5 5	3 7	28 18	36	New Moon Decl 8°-22'
30		11	24	1 6	14 1			

22		NOVEMBER 1962										S. J. O. UJJAIN	
Date	Day	Sidereal Time		☉		☽		Midnight		ψ			
		H. M.	S.	Long.	Decl.	Long.	Lat.	Decl.	D				
1	Th.	14 40	22	8 22	44 14 S	18 20 11	3 N 25	19 S 38	26 26	13 m	2		
2	F.	44 18	9	22 49	37	2 33	20 51	9 7	9 7	11	7		
3	S.	48 15	10	22 55	36 15	34 1	32 21	1	22 3				
4	Su.	52 11	11	23 3	15 14	28 38	0 25	20 2	5 15				
5	M.	59 8	12	23 13	33 12	5 0	S 45	17 56	18 48				
6	Tu.	15 9	4	13 23	24	51 25	46 1	52 14	46 2 43				
7	W.	3 1	14	23 37	16 9	9 51	2 59	10 40	17 2				
8	Th.	7 58	15	23 53	26 24	21 3	54 5	51 1	7 43				
9	F.	11 54	16	24 10	44 9	9 9	4 34	6 36	16 39				
10	S.	15 51	17	24 28	17 124	11 4	56 4	N 42	18 43				
11	Su.	19 47	18	24 48	18 9 16	57 9	51 16	48	25				
12	M.	23 44	19	25 10	36 24	16 38	14 19	1 42	27				
13	Tu.	27 40	20	25 33	51 9	0 0	2 17	49	16 15				
14	W.	31 37	21	25 58	18 7	23 21	3 9	20 7	0 23				
15	Th.	35 33	22	26 24	22 7	14 2	8 21	7 14	2				
16	F.	39 30	23	26 52	38 20	39 1	1 20	51 27	12				
17	S.	43 27	24	27 22	49 3	36 0	N 8	19 28	9 57				
18	Su.	47 23	25	27 53	19 7	16 11	1 14	17 9	22 21				
19	M.	51 20	26	28 25	22 28	26 2	14 14	8 4	22 43				
20	Tu.	55 16	27	28 59	35 10	28 3	8 10	33 16	26				
21	W.	59 13	28	29 34	49 22	22 2	51 6	37 28	21				
22	Th.	16 3	9	29 30	2 4	12 4	28 2	27 10	10				
23	F.	7 6	0	30 48	15 16	4	51 1	S 49	22 1				
24	S.	11 2	1	31 28	28 27	59 5	2 6	2	3 m 59				
25	Su.	14 59	2	32 8	40 10	1 4	59 10	4 16	5				
26	M.	18 56	3	32 51	52 22	12 43	13 44	28 21	58				
27	Tu.	22 52	4	33 35	21 3	4 33	13 16	52 10	47	4			
28	W.	26 49	5	34 20	14 17	4	3 31	19 13	23 23				
29	Th.	30 45	6	35 5	24 29	45 2	38 20	48 6	6				
30	F.	34 42	7	35 51	35 12	34 1	36 21	15 19	6				
Date		ψ		μ		ζ		4		3			
		Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.		
1	1 N 43	14 S	7	0 N 44	10 N 31	0 S 45	19 S 42	1 S 18	11 S 40	1 N 33	19 N 13		
3			8		30		41			36	1		
5			10		28		40			39	18 50		
7			11	45	27		38	16		37	42		
9			12		26		37			35	46		
11			14		25		36			33	49		
13			15		24		34	15		30	53		
15			16		23		32			28	56 17		
17			18		22		30		2	25	0		
19			19		21		29	14		22	3		
21			20		20		27			17	7		
23			22		19		25			15	11		
25			23		19		22	13		10	15		
27			24		18		20			6	19 16		
29			25		18		18	12 19	1	23	52		

EPHEMERIS Saka Era 1884 NOVEMBER 1962 Kartika-Agrahayan. 23															
Date	Longitudes										Ending Moments of Tithis.		Sun Rise	Sun Set	B.H.D
	甲	乙	丙	丁	戊	己	庚	辛	壬	癸	Ti.	Time.	H.M.	H.M.	
1	4 33	5 11	2 50	10 50	3 25	59	23 52	4	—	—	6 32	5 49	10		
2	35	14	51	30	36	25	27	4	0	51	33	49	11		
3	37	16	51	57	11	27	3	5	1	27	33	48	12		
4	40	18	52	11	24	24	45	28	40	6	1	33	34	48	13
5	41	21	54	50	16	10	17	7	1	6	34	47	14		
6	43	24	55	12	16	23	46	1	54	8	0	0			
7	45	26	57	42	14	3	32	9	22	19	35	47	15		
8	47	29	59	13	7	22	40	5	9	10	20	5	35	46	16
9	49	32	3	1	32	6	6	47	11	17	30	36	45	17	
10	51	36	3	57	21	31	8	25	12	14	8	37	44	18	
11	52	38	6	14	22	20	55	10	2	14	7	8	38	43	20
12	54	42	8	46	18	11	39	17	15	3	41	39	42	21	
13	56	45	11	15	10	19	42	13	17	16	0	30	39	42	22
14	57	48	14	33	5	14	54	5	17	21	46	40	42	23	
15	59	52	18	56	18	29	16	30	18	19	36	40	42	24	
16	5	55	21	16	19	17	54	18	7	19	18	12	41	42	25
17	1	59	25	42	19	19	43	4	20	17	37	41	42	26	
18	3	6	29	17	4	16	45	21	19	21	17	55	42	42	27
19	4	7	32	24	13	22	55	22	19	0	42	42	28		
20	5	11	37	47	15	42	24	31	23	20	47	43	42	29	
21	6	15	42	18	7	13	26	6	24	23	4	44	41	30	
22	8	19	46	28	14	46	27	41	25	1	35	46	41	1	
23	9	23	51	48	20	29	16	26	26	4	9	46	40	2	
24	10	27	56	19	8	13	57	0	27	6	35	47	40	3	
25	11	31	1	27	35	2	26	28	8	46	48	40	4		
26	11	36	6	45	17	4	0	29	10	36	48	40	5		
27	12	40	12	20	4	0	5	30	12	1	49	40	6		
28	13	45	18	2	12	46	7	9	1	13	2	49	40	7	
29	14	49	23	39	35	8	43	2	13	42	50	40	8		
30	14	54	29	56	R 26	10	17	3	14	3	51	40	9		

Date	♂		♀		Mean. α	Date	Time. H. M.	Phenomena.				
	Lat.	Decl.	Lat.	Decl.								
1	6 S 30	25 S	5	1 N 55	7 S	29	3 45	5	..	Heli. setting of ♀ in Wes		
3	5 47	24	40	46	8	46	48	4	20	34	D at α	
5	30	11	36	10	4	41	5	12	45		D at First Quarter.	
7	12	23	36	25	11	21	35	9	14	45	D on Equator.	
9	4 50	22	58	13	12	38	29	10	19	30	D at Perigee	
11	25	15	1	1	13	52	22	12	3	34	Full Moon Decl 12°N50'	
13	3 58	21	29	47	15	5	16	17	8	34	D at ♄	
15	30	20	41	34	16	14	10	19	7	40	D at Last Quarter.	
17	0	19	53	20	17	21	3	20	12	0	♀ at Node	
19	2 29	4	6	18	24	2	57	21	..		Holi. Rising of ♀ in East	
21	1 58	18	17	0 S	6	19	24	51	22	21	30	D at Apogee.
23	27	17	32	20	20	20	44	23	1	47	D on Equator.	
25	0 59	16	50	33	21	12	38	27	12	0		New Moon Decl. 16°S53'
27	28	11	46	22	0	32	29	12	0			♀ at α
29	0 N 0	15	37	58	22	43	25					

DECEMBER 1962												S. J. O. UJJAIN	
Date	Day	Sidereal Time			☉		☽			Midnight	Ψ		
		Long.	Decl.		Long.	Lat.	Decl.		D				
1 S.		H. M. S.											
2 Su.	16	38 38	8 36	38	21 S 44	25 40	0 N 27	20 S 34	2 = 15	14 m 8			
3 M.		42 35	9 37	28	54 8 = 55	0 S 43	18 44	15 37		11			
4 Tu.		46 31	10 38	18	22 24	1 53	15 51	29 12		13			
5 W.		50 28	11 39	9	11 0 7	2 58	12 3	13 3		15			
6 Th.		54 25	12 40	1	19 20	6 3	53 7	31 27		9			
7 F.	17	58 21	13 40	54	26 4 19	4 34	2 31	11 30		19			
8 S.		2 18	14 41	48	34 18 46	5 0	2 N 42	26 3		21			
9 Su.		6 14	15 42	43	40 3 22	5 6	7 49	10 42		23			
10 M.		10 11	16 43	39	47 18 2	4 52	12 30	25 21		25			
11 Tu.		14 7	17 44	36	52 2 38	20 16	25 9	54		27			
12 W.		18 4	18 45	34	58 17 4	3 31	19 17	24 12		29			
13 Th.		22 0	19 46	32	3 1 13	2 30	20 56	8 11		31			
14 F.		25 57	20 47	31	7 15 0	1 21	21 15	21 47		32			
15 S.		29 54	21 48	31	11 28 24	0 9	20 20	4 58		34			
16 Su.		33 50	22 49	32	15 11 24	1 N 11	18 20	17 47		36			
17 M.		37 47	23 50	33	18 24 2	2 6	15 30	0 15		38			
18 Tu.		41 43	24 51	35	20 6 22	2 46	12 2	12 27		40			
19 W.		45 40	25 52	37	23 18 27	3 52	8 8	24 27		42			
20 Th.		49 36	26 53	40	24 0 24	4 30	3 59	6 20		44			
21 F.		53 33	27 54	44	25 12 16	56 0	S 17	18 12		45			
22 S.	18	57 29	28 55	48	26 24 9	5 9	4 33	0 m 7		47			
23 Su.		1 26	29 56	53	26 6 m 6	9 8	40 12	7		49			
24 M.		5 23	0 57	58	26 18 13	4 56	12 29	24 19		50			
25 Tu.		9 19	1 59	3	26 0 31	28 15	52 6	44		52			
26 W.		13 16	3 0	9	25 13 2	3 47	18 35	19 23		54			
27 Th.		17 12	4 1	15	23 25 49	2 55	20 27	2 16		56			
28 F.		21 9	5 2	21	21 8 49	1 52	21 17	15 24		57			
29 S.		25 5	6 3	27	18 22 4	0 42	20 57	28 46		59			
30 Su.		29 2	7 4	34	15 5 = 32	0 S 32	19 25	12 = 19		15			
31 M.		32 58	8 5	41	12 19 11	1 45	16 45	26 3		2			
		36 55	9 6	48	8 3 0	2 52	13 6	9 57		3			

Date	Ψ		ϕ		λ		μ		δ	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
1	1 N 43	14 S 26	0 N 46	10 N 17	0 S 45	19 S 16	1 S 12	11 S 0	2 N 27	16 N 45
3		28				13		10 57	31	39
5		29				11		46	35	33
7		30				8		41	40	29
9		31				5		35	44	25
11	44	32				2		29	49	22
13		33				19 0		23	53	20
15		34				18 57		16	58	18
17		35				54	9	10 3	2	18
19		36				51		3	7	18
21		37				48	9	55	12	20
23		38		19	46	44		48	17	22
25		39	47			41	8	41	22	26
27		40		20		38		33	27	80
29		41		21		35		25	32	36
31		41		22		31	7	17	37	43

EPHEMERIS Saka Era 1884 DECEMBER 1962 Agrahayan-Pausa.													25
Date	Longitudes								Ending Moments of Tithis		Sun Rise	Sun Set	BHD
	♈	♉	♊	♋	♌	♍	♎	♏					
1	5 15	6 59	4 36	21 12	12 19	11 57	Ti. Time		4 13	52	6 51	5 40	10
2	16	7 4	42	28	R 15	13 25			5 13	21	52	41	11
3	16	9	49	43	D 13	14 59			6 12	27	53	41	12
4	17	14	45	58	D 14	16 33			7 11	7	53	41	13
5	17	19	5 22	11	17	18 7			8 9	21	54	41	14
6	17	24	9	26	22	19 41			9 7	13	55	41	15
7	18	29	16	39	30	21 15			10 4	44	55	41	16
8	18	34	24	51	40	22 48			11 2	0	56	41	17
9	18	40	31 23	3	52	24 22			12 23	10			
10	18	45	39	15 13	7	25 56			13 20	18	57	41	18
11	R 18	51	47	26	24	27 30			14 17	35	58	41	19
12	18	56	55	36	42	29 4			15 15	6	58	42	20
13	18	8 2 6	3	45 14	3 0 38			16 13	4	59	42	21	
14	18	7	11	54	25 2	12			17 11	37	7 0	42	22
15	18	13	20 24	3	49 3	45			18 10	52	0	43	23
16	17	19	28	10 15	16 5	19			19 10	52	1	43	24
17	17	25	37	17	43 6	53			20 11	37	2	43	25
18	17	30	45	24 16	13 8	27			21 13	5	2	44	26
19	16	36	55	29	44 10	0			22 15	9	3	44	27
20	16	42 7	4	34 17	17 11	35			23 17	32	3	45	28
21	15	48	13	38	51 13	6			24 20	4	4	45	29
22	15	54	22	42 18	26 14	38			25 22	30	4	46	30
23	14 9	1	32	44 19	3 16	10			26 0	39	5	47	2
24	13	7	42	46	41 17	42			27 2	21	6	47	3
25	13	13	51	47 20	21 19	12			28 3	31	6	48	4
26	12	19 9	1	48 21	2 20	41			29 4	15	7	48	5
27	10	26	11	47	43 22	10			30 4	25	7	49	6
28	10	32	22	R 46 22	26 23	26			1 4	7	7	49	7
29	9	38	32	44 23	10 25	1			2 3	25	8	49	8
30	8	45	42	41	55 26	24			3 2	21	8	50	9
31	7	51	53	33 24	41 27	45			4 0	58	9	51	10
									5 23	20			

Date	☿		♂		Mean	Date	Time	Phenomena
	Lat.	Decl.	Lat.	Decl.	α		H. M.	
1	0 N 27	15 N 7	1 S 10	23 S 22	2 19	1	21 19	Dat α
3	52 14	41	21	56	13	4	22 18	Dat First Quarter.
5	1 16	20	31 24	15	6	6	23 37	D on Equator.
7	36	4	40	49	2 0	8	22 50	D at Perigee.
9	56 13	51	49 25	8	1 53	11	14 58	Full Moon. Decl. 19°N 34'
11	2 14	44	56	21	47	14	15 3	Dat ♂
13	30	40	2 2	29	41	19	4 13	D at Last Quarter.
15	44	40	8	31	34	19	..	Heli. Rising of ☿ in West
17	57	43	11	27	28	20	10 25	D on Equator.
19	3 9	49	14	17	22	20	16 50	D at Apogee.
21	19	58	14	1	16	27	4 29	New Moon. Decl 21°S 9'
23	28 14	9	12 24	39	10	29	1 37	D at α
25	35	23	8	11	4			
27	41	38	2 1	23 37	0 57			
29	46	55	1 52	22 58	51			
31	50 15	13	1 39	14	44			

-6		SUNRISE IN 1962																					
Months and Dates.		Latitudes																					
		+5°	+8°	+11°	+14°	+17°	+20°	+23°	+26°	+29°	+32°	+35°											
Jan.	1	6	8	6	13	6	19	6	24	6	30	6	35	6	41	6	47	6	54	7	1	7	8
	8		11		16		22		27		32		37		43		49		55		2		9
	15		13		18		23		28		33		38		44		50		56		2		8
	22		15		19		24		28		33		38		44		50		55		1		6
Feb.	29		16		20		24		28		32		36		41		46		51	6	56		
	5		16		20		23		27		31		35		39		43		48		52	6	57
	12		16		19		22		25		28		32		35		38		42		46		50
	19		15		17		19		22		25		28		31		34		37		40		43
Mar.	26		13		15		17		19		21		23		25		28		30		33		35
	5		11		12		13		15		17		18		20		21		23		24		26
	12		8		9		9		10		11		12		13		14		15		15		16
	19		5		5		5		5		6		6		6		7		7		7		7
Apr.	26		2		1		1		1		0		0		5		5		5		5		5
	2	5	59	5	58	5	57	5	56	5	55	5	54	53	52	50	49	47	45	43	41	39	37
	9		56		54		53		51		50		48		46		44		42		40		38
	16		54		51		50		47		45		42		39		37		34		30		28
May	23		51		48		45		43		40		37		34		30		27		24		20
	30		49		45		42		39		35		32		29		23		20		16		11
	7		47		43		40		36		31		28		24		19		14		9		4
	14		46		42		38		33		29		25		20		15		10		4	4	58
June	21		45		41		37		32		27		22		17		12		6		0		53
	28		45		41		37		31		26		20		14		9		3	4	56		49
	4		46		41		37		31		25		20		14		8		1		54		46
	11		47		42		37		31		25		20		14		7		0		53		45
July	18		48		43		38		32		26		20		14		8		1		53		45
	25		49		44		39		33		27		22		14		8		2		55		47
	2		51		46		41		36		30		24		17		10		4		57		49
	9		52		47		42		36		31		26		19		13		7	5	0		53
Aug.	16		54		49		44		39		34		29		23		17		11		4		57
	23		55		51		46		42		37		32		27		21		15		9	5	2
	30		56		52		48		43		39		34		29		24		19		13		7
	6		56		53		49		44		40		36		31		27		22		17		12
Sep.	13		56		53		50		46		43		39		35		31		26		22		17
	20		56		53		50		47		44		41		38		34		30		26		23
	27		54		52		50		48		46		43		40		37		34		31		28
	3		53		52		50		48		46		44		42		40		38		36		33
Oct.	10		52		51		50		49		47		46		45		43		42		40		38
	17		51		50		50		49		49		48		47		46		45		44		43
	24		49		49		49		49		49		49		49		49		49		48		48
	1		48		49		49		50		50		51		51		52		53		53		54
Nov.	8		47		48		49		50		51		52		54		56		57		58		59
	15		45		47		48		50		52		54		56		58	6	1	6	3	6	5
	22		45		47		50		52		54		57	6	0	6	3	6	9	13	17		
	29		45		48		51		54		57	6	0	3	7	11	15	19	24				
Dec.	5		45		48		52		56	6	0	3	7	11	15	21	26	31	37				
	12		47		51		54		58		2	6	10	15	21	26	31	37					
	19		49		53		57	6	1	6	11	16	21	26	31	37							
	26		51		56	6	1	5	10	15	20	26	32	38	44	51	58	6					
1 ec.	3		54		59		4		9		14		20		26		32		38		44		51
	10		57	6	2		7		12		18		24		30		36		42		49		56
	17	6	1		6		12		17		22		28		34		40		47		54	7	1
	24		4		9		15		20		26		32		38		44		51		58		5
	31		7		12		18		23		29		35		41		47		54	7	1		8

		SUNSET IN 1962													27
Months and Dates		Latitudes													
		+5°	+8°	+11°	+14°	+17°	+20°	+23°	+26°	+29°	+32°	+35°			
Jan.	1	17 59	17 54	17 48	17 43	17 38	17 32	17 26	17 20	17 13	17 6	16 59			
	8	18 2	58	53	48	42	36	30	24	18	11	17 4			
	15	5	18 1	56	51	46	41	36	30	24	18	11			
	22	8	4	18 0	55	50	45	40	35	30	24	18			
Feb.	29	11	7	3	59	55	50	46	41	36	31	25			
	5	12	8	5	18 1	57	54	50	46	42	37	32			
	12	13	10	7	4	18 1	58	55	52	48	44	39			
	19	14	11	9	6	4	18 1	59	56	53	50	46			
Mar.	26	14	12	10	8	6	4	18 2	18 0	57	55	52			
	5	13	12	10	9	8	6	5	3	18 2	18 0	58			
	12	12	11	11	10	9	8	8	7	6	5	18 4			
	19	11	11	11	11	11	11	11	11	10	10	10			
Apr.	26	10	10	11	11	12	12	12	13	14	15	16			
	3	9	10	11	12	13	14	16	18	19	20	21			
	9	8	9	10	12	14	16	18	20	23	25	27			
	16	6	8	11	13	15	18	20	23	26	29	32			
May	23	7	9	12	14	17	20	23	26	30	34	38			
	30	6	9	13	16	19	23	27	31	35	40	44			
	7	6	9	13	17	21	25	29	34	39	44	49			
	14	6	10	14	18	23	28	33	38	43	49	55			
June	21	7	11	15	20	25	31	36	42	48	54	19 0			
	28	9	13	18	23	28	34	40	46	52	58	5			
	5	10	14	19	24	30	36	42	49	56	19 3	10			
	11	11	16	22	27	33	39	45	52	59	6	13			
July	18	13	18	24	29	35	41	47	54	19 1	8	16			
	25	15	20	26	31	36	42	48	55	2	10	18			
	2	16	21	27	32	37	43	49	56	3	10	18			
	9	16	21	27	32	37	43	49	55	2	9	17			
Aug.	16	17	22	27	32	37	42	48	54	0	7	14			
	23	17	22	27	32	37	41	46	52	18 57	3	10			
	30	16	20	24	28	33	38	43	48	54	18 59	5			
	6	15	19	23	27	31	35	39	44	49	54	18 59			
Sep.	13	13	16	20	23	26	30	34	38	43	47	52			
	20	11	14	17	20	23	26	29	32	36	40	44			
	27	8	10	13	15	17	20	22	25	28	31	3			
	3	6	7	8	10	12	14	16	18	20	23	26			
Oct.	10	2	3	4	5	6	8	9	10	12	14	16			
	17	17 59	0	0	1	1	2	2	3	4	5	6			
	24	55	17 55	17 55	17 55	17 55	17 55	17 55	17 55	17 56	17 56	17 56			
	1	52	51	51	50	50	49	48	48	47	47	46			
Nov.	8	49	48	47	46	44	43	42	40	38	37	36			
	15	46	44	42	41	39	37	35	33	31	29	27			
	22	44	42	39	37	35	32	30	27	24	21	18			
	29	43	40	37	34	31	28	25	21	17	14	10			
Dec.	5	42	39	35	32	28	24	20	16	12	8	3			
	12	42	38	34	30	26	21	17	12	7	2	16 57			
	19	42	38	33	29	24	20	15	10	5	16 59	53			
	26	43	39	34	29	24	19	14	9	3	57	50			
Jan.	3	45	40	35	30	25	20	14	8	2	55	48			
	10	48	43	38	33	27	21	15	9	2	55	48			
	17	51	46	40	35	30	24	18	11	4	57	50			
	24	55	49	44	39	33	27	21	15	8	17 1	53			
	31	58	53	47	42	36	31	25	19	12	5	58			

Lat. Date.	January			February			March			April		
	+10°	+20°	+30°	+10°	+20°	+30°	+10°	+20°	+30°	+10°	+20°	+30°
1	H. 1	H. 1	H. 1	H. 1	H. 1	H. 1	H. 1	H. 1	H. 1	H. 1	H. 1	H. 1
2	1 18	1 23	1 28	2 33	2 48	3 5	1 16	1 32	1 50	2 50	3 3	3 18
3	2 7	2 15	2 25	3 31	3 46	4 5	2 13	2 29	2 48	3 44	3 54	4 5
4	2 59	3 10	3 23	4 30	4 46	5 5	3 11	3 26	3 44	4 37	4 43	5 33
5	3 53	4 8	4 23	5 30	5 45	6 2	4 9	4 22	4 39	5 28	5 30	6 15
6	4 51	5 7	5 25	6 28	6 40	6 55	5 5	5 17	5 30	6 19	6 17	6 57
7	5 50	6 6	6 25	7 23	7 36	7 44	6 6	6 8	6 16	7 10	7 4	7 57
8	6 50	7 6	7 24	8 17	8 23	8 29	6 53	6 57	7 1	7 8	7 52	8 27
9	7 49	8 2	8 19	9 8	9 10	9 11	7 44	7 44	7 44	8 54	8 41	9 14
10	8 44	8 55	9 8	9 57	9 55	9 53	8 35	8 31	8 26	9 46	9 31	10 4
11	9 37	9 45	9 54	10 45	10 39	10 33	9 25	9 17	9 9	10 38	10 22	11 4
12	10 27	10 32	10 36	11 33	11 24	11 14	10 15	10 3	9 51	11 30	11 14	12 55
13	11 15	11 15	11 15	12 21	12 10	11 55	11 5	10 51	10 36	12 12	12 6	13 48
14	12 2	11 58	11 54	13 1	12 56	12 40	11 56	11 41	11 22	13 11	12 57	14 34
15	12 48	12 41	12 33	14 0	13 45	13 26	12 46	12 31	12 11	13 59	13 48	15 27
16	13 35	13 25	13 14	14 50	14 34	14 15	13 37	13 21	13 2	14 46	14 37	16 19
17	14 24	14 10	13 56	15 41	15 24	15 6	14 27	14 11	13 55	15 32	15 26	17 11
18	15 13	14 58	14 42	16 30	16 15	15 59	15 15	15 2	14 47	16 17	16 14	18 11
19	16 3	15 48	15 29	17 18	17 6	16 52	16 3	15 52	15 40	17 2	17 3	19 3
20	16 54	16 38	16 19	18 5	17 56	17 45	16 50	16 41	16 32	17 49	17 52	20 56
21	17 44	17 29	17 11	18 52	18 45	18 37	17 35	17 30	17 24	18 35	18 42	21 50
22	18 34	18 20	18 4	19 38	19 33	19 39	18 20	18 18	18 16	19 24	19 34	22 45
23	19 22	19 11	18 58	20 23	20 22	20 21	19 6	19 7	19 9	20 14	20 27	23 30
24	20 9	20 1	19 50	21 8	21 10	21 13	19 52	19 56	20 1	21 6	21 21	24 38
25	20 56	20 49	20 42	21 54	21 59	22 6	20 38	20 46	20 55	22 0	22 16	25 35
26	21 41	21 38	21 34	22 41	22 49	23 0	21 27	21 37	21 49	22 54	23 11	26 30
27	22 26	22 26	22 26	23 31	23 42	23 55	22 17	22 31	22 45	23 49	24 5	27 23
28	23 12	23 15	23 19	24 18	24 29	24 42	23 10	23 25	23 42	24 5	25 5	28 13
29	23 58	24 11	24 24	25 19	25 30	25 42	24 18	24 33	24 50	25 16	25 31	29 13
30	0 47	0 57	1 8	1 3	1 14	1 26	0 4	0 20	0 39	1 36	1 47	30 0
31	1 39	1 51	2 6	2 18	2 29	2 41	0 59	1 15	1 35	2 2	2 35	31 2

[illegible]

Lat. Date.	September			October			November			December		
	+10°	+20°	+30°	+10°	+20°	+30°	+10°	+20°	+30°	+10°	+20°	+30°
1	H. 7 23	M. 7 20	H. 7 16	H. 7 36	M. 7 41	H. 7 48	H. 8 46	M. 9 2	H. 9 20	H. 9 22	M. 9 39	H. 9 58
2	8 8	8 8	8 8	8 22	8 30	8 41	8 39	9 56	10 15	10 14	10 30	10 47
3	8 53	8 56	8 59	9 9	9 21	9 35	10 32	10 49	11 9	11 5	11 18	11 33
4	9 38	9 45	9 52	9 59	10 13	10 29	11 25	11 41	12 0	11 55	12 5	12 15
5	10 24	10 35	10 46	10 49	11 6	11 24	12 17	12 32	12 47	12 43	13 48	13 55
6	11 11	11 25	11 40	12 37	12 53	13 13	13 8	13 20	13 33	13 30	14 15	14 34
7	12 3	12 19	12 35	13 31	13 46	14 4	14 48	15 38	15 51	15 48	16 15	16 34
8	12 56	13 13	13 32	14 25	14 38	15 39	16 24	16 24	16 18	16 52	17 31	17 42
9	13 51	14 8	14 28	15 17	15 28	16 15	16 22	17 19	17 11	17 47	18 44	18 6
10	14 48	15 58	16 15	16 9	16 15	17 2	17 4	18 13	18 18	18 44	19 24	19 4
11	15 38	16 50	17 4	17 51	17 49	18 37	18 29	19 4	19 8	19 37	20 20	20 2
12	16 33	17 50	17 4	18 43	18 37	19 26	19 14	20 4	20 23	20 30	21 15	21 0
13	17 33	18 50	18 33	19 36	19 26	20 16	20 0	21 56	21 39	21 30	22 9	21 56
14	18 25	19 42	19 15	20 30	20 16	21 9	20 50	22 50	22 34	22 21	23 8	22 51
15	19 16	20 33	19 57	21 24	21 9	22 3	21 43	23 40	23 28	23 13	24 5	23 45
16	20 7	21 24	20 39	22 10	22 3	23 51	23 32	0 28	0 20	0 40	1 26	1 29
17	20 58	21 37	21 24	23 14	22 57	23 51	23 32	0 28	0 20	0 40	1 26	1 29
18	21 49	22 27	22 10	23 14	22 57	23 51	23 32	0 28	0 20	0 40	1 26	1 29
19	22 42	23 18	23 0	23 51	23 32	0 28	0 20	0 40	0 38	0 38	1 26	1 29
20	23 34	23 18	23 0	23 51	23 32	0 28	0 20	0 40	0 38	0 38	1 26	1 29
21	24 27	23 18	23 0	23 51	23 32	0 28	0 20	0 40	0 38	0 38	1 26	1 29
22	25 20	24 10	24 3	24 44	24 25	25 1	24 0	1 14	1 9	1 24	2 15	2 29
23	26 13	25 2	25 10	25 33	25 13	26 0	2 45	2 45	2 45	2 56	3 5	3 15
24	27 6	26 13	26 27	26 26	26 4	27 7	3 30	3 33	3 37	3 44	4 49	4 9
25	28 0	27 6	27 19	27 19	27 19	28 1	4 16	4 22	4 30	4 34	5 43	5 2
26	29 5	28 13	28 28	28 28	28 5	29 4	5 51	5 51	5 51	6 21	6 38	6 58
27	30 10	29 18	29 33	29 33	29 18	30 6	6 42	6 42	6 42	7 15	7 33	7 53
28	31 5	30 6	30 21	30 21	30 6	31 11	7 35	7 35	7 35	8 10	8 26	8 44
29	32 10	31 11	31 26	31 26	31 11	32 16	8 26	8 26	8 26	9 2	9 16	9 32
30	33 5	32 16	32 31	32 31	32 16	33 21	9 16	9 16	9 16	10 3	10 10	10 16
31	34 10	33 21	33 36	33 36	33 21	34 26	10 10	10 10	10 10	11 3	11 10	11 16

 Geocentric position of Pluto and Mean Longitudes
of the Sun and the Moon in 1962

Month and Date.	Pluto			Sun		Moon		
	Long.	Lat.	Decl.	Mean Long.		Mean Long.	Hor. Par.	Semi Dia.
Jan.	1 160 1R29	13 15 9	20 2 8	280 26 26	220 5 24	55 50	15 12	
11	159 53 54	19 13	8 45	290 17 48	351 51 14	59 42	16 15	
21	43 57	22 49	15 57	300 9 12	123 37 4	54 36	14 53	
31	31 43	25 53	23 30	310 0 35	255 22 55	57 24	15 38	
Feb.	10	17 46	28 16	319 51 58	22 8 45	58 50	16 1	
20	2 44	29 54	38 26	329 43 21	158 54 35	54 14	14 42	
Mar.	2 153 47 14	30 51	45 17	339 34 45	290 40 25	58 32	16 5	
12	31 49	31 1	51 23	349 26 8	62 26 16	57 24	12 38	
22	17 11	30 28	56 30	359 17 31	194 12 6	54 12	14 46	
Apr.	1	3 52	29 11	21 0 29	9 8 55	325 57 56	60 11	16 24
11	157 52 18	27 19	3 12	19 0 18	97 43 46	56 18	15 14	
21	42 53	24 51	4 36	28 51 41	229 29 37	55 14	15 3	
May	1	36 10	22 8	4 36	38 43 5	1 15 27	60 21	16 27
11	D 32 20	19 0	3 15	48 34 28	133 1 17	54 47	14 55	
21	31 23	15 44	0 34	58 25 56	264 47 8	56 52	15 29	
31	33 19	12 33	20 56	40 68 17	14 36 32	58 59 24	16 11	
June	10	38 28	9 3	51 40	78 8 38	168 18 48	54 17	14 47
20	46 34	5 54	45 44	83 0 1	300 4 38	58 40	15 59	
30	57 15	3 1	39 0	97 51 24	71 50 29	57 42	15 43	
July	10	153 10 23	0 25	31 29	107 42 4	203 36 19	54 29	14 50
20	25 49	12 58	17 23	35 117 34	11 335 22 9	59 45	16 16	
31	43 9	56 37	15 24	127 25 34	107 7 59	56 9	15 14	
August	9 159 1 54	55 32	7 7	137 16 58	238 53 50	55 22	15 5	
19	21 43	54 55	19 58	57 147 8 21	10 39 40	60 22	16 26	
29	42 15	54 56	51 3	156 59 44	142 25 30	54 33	14 52	
Sep.	8 160 3 1	55 38	43 37	166 51 7	274 11 21	56 48	15 28	
18	23 32	56 55	36 51	176 42 31	45 57 11	59 33	16 13	
28	43 24	58 45	31 3	186 33 54	177 43 1	53 57	14 42	
Oct.	8 161 2 6	13 1 19	25 55	196 25 17	309 28 51	58 24	15 54	
18	19 11	4 24	22 3	206 16 41	81 14 42	58 2	15 48	
28	34 20	13 7 58	19 19	26 216 8 4	213 0 32	54 10	14 45	
Nov.	7	46 55	8 58	18 7 225	59 27 344	46 22	59 36	16 14
17	57 19	16 19	13 9	235 50 51	116 32 12	56 24	15 21	
27	162 4 23	20 58	19 35	245 42 14	248 18 27	55 14	15 3	
Dec.	7	8 7	25 42	22 22 255	33 37 20	3 53	59 23	16 19
17	R 9 27	30 40	26 24	265 25 0	151 49 43	55 1	15 0	
27	7 2	35 10	31 30	275 16 24	283 35 34	56 55	15 30	
31	5 6	36 54	34 0	279 12 58	336 17 54	58 39	15 59	

32 Time when the Moon enters the Zodiacal Signs in 1962

January			February			March			April			May			June		
Sign.	Date.	Time.	Sign.	Date.	Time.	Sign.	Date.	Time.	Sign.	Date.	Time.	Sign.	Date.	Time.	Sign.	Date.	Time.
		H. M.			H. M.			H. M.			H. M.			H. M.			H. M.
♈	1	4 6	♈	2	2 36	♈	1	12 4	♈	2	2 6	♈	1	11 44	♈	1	23 17
♈	3	11 51	♈	4	4 22	♈	3	15 17	♈	4	2 11	♈	3	12 21	♈	4	3 25
♈	5	15 49	♈	6	4 24	♈	5	15 51	♈	6	2 2	♈	5	13 52	♈	6	10 58
♈	7	17 29	♈	8	4 26	♈	7	15 4	♈	8	3 41	♈	7	18 6	♈	8	16 54
♈	9	18 26	♈	10	6 14	♈	9	15 17	♈	10	8 50	♈	10	2 13	♈	11	10 21
♈	11	20 10	♈	12	0 58	♈	11	18 15	♈	12	18 12	♈	12	13 43	♈	13	22 9
♈	13	23 37	♈	14	18 56	♈	14	1 5	♈	15	6 29	♈	15	2 29	♈	16	7 29
♈	16	5 18	♈	17	5 37	♈	16	11 28	♈	17	19 21	♈	17	14 12	♈	18	13 56
♈	18	12 37	♈	19	17 59	♈	19	0 3	♈	20	7 5	♈	19	23 27	♈	20	18 15
♈	20	23 25	♈	22	6 52	♈	21	12 58	♈	22	16 54	♈	22	6 34	♈	22	21 28
♈	23	11 26	♈	24	19 3	♈	24	0 55	♈	25	0 45	♈	24	12 0	♈	25	0 14
♈	26	0 30	♈	27	5 11	♈	26	11 18	♈	27	6 34	♈	26	15 57	♈	27	3 7
♈	28	12 22	♈	29	19 9	♈	28	19 9	♈	29	10 8	♈	28	18 44	♈	29	6 44
♈	30	21 20	♈	31	0 5	♈	31	0 5	♈	30	20 49	♈	30	20 49	♈	30	20 49
July			August			September			October			November			December		
♈	1	11 51	♈	2	13 30	♈	1	8 32	♈	1	3 18	♈	2	6 43	♈	1	19 51
♈	3	19 13	♈	5	1 48	♈	3	21 14	♈	3	15 8	♈	4	14 27	♈	4	1 18
♈	6	5 55	♈	7	14 23	♈	6	8 52	♈	6	0 58	♈	6	19 13	♈	6	4 43
♈	8	18 18	♈	10	1 10	♈	8	17 41	♈	8	7 43	♈	8	21 10	♈	8	6 28
♈	11	6 32	♈	12	6 41	♈	10	22 46	♈	10	10 55	♈	10	21 15	♈	10	7 40
♈	13	16 24	♈	14	12 33	♈	13	0 26	♈	12	1 9	♈	12	21 20	♈	12	9 56
♈	15	22 54	♈	16	13 46	♈	15	0 3	♈	14	10 1	♈	14	23 30	♈	14	14 57
♈	18	2 33	♈	18	13 58	♈	16	23 38	♈	16	10 27	♈	17	5 29	♈	16	23 38
♈	20	4 30	♈	20	14 56	♈	19	1 10	♈	18	13 43	♈	19	15 8	♈	19	3 56
♈	22	6 7	♈	22	18 5	♈	21	6 5	♈	20	2 51	♈	22	3 29	♈	21	23 45
♈	24	8 30	♈	25	0 11	♈	23	14 40	♈	23	8 4	♈	24	16 1	♈	22	10 59
♈	26	12 30	♈	27	9 3	♈	26	2 4	♈	25	20 43	♈	27	3 10	♈	24	19 43
♈	28	18 36	♈	29	20 9	♈	28	14 38	♈	28	9 17	♈	29	12 29	♈	25	2 8
♈	31	2 57	♈			♈			♈	30	20 46	♈			♈	31	6 49

Ending Moments of Tithis for each date in 1962 (Calculated in I. S. T.)

33

Date.	January.		February.		March.		April.		May.		June.	
	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.
1	25	H. M. ..	26	16 31	24	8 41	26	15 4	27	19 21	29	20 52
2	25	0 55	27	14 37	25	7 19	27	11 58	28	16 8	30	18 57
3	26	0 57	28	12 4	26	5 15	28	8 31	29	12 57	1	17 31
4	{ 27 0 11 } { 28 22 42 }		29	9 2	{ 27 2 33 } { 28 23 21 }		29	4 54	30	9 55	2	16 42
5	29 20 37		30	5 40	29	19 47	{ 30 1 15 } { 1 21 44 }		1	7 13	3	16 34
6	30 18 5		{ 1 2 7 } { 2 22 34 }		30	16 1	2 18 33		2	5 1	4	17 10
7	1 15 15		3 19 9		1 12 13		3 15 52		3	3 28	5	18 28
8	2 12 15		4 16 3		2 8 35		4 13 51		4	2 42	6	20 21
9	3 9 15		5 13 22		3 5 15		5 12 37		5	2 45	7	22 38
10	4 6 21		6 11 14		4 2 25		6 12 16		6	3 37	8	..
11	5 3 41		7 9 43		{ 5 0 14 } { 6 22 47 }		7 12 46		7	5 13	8	1 5
12	{ 6 1 20 } { 7 23 21 }		8 8 53		7 22 9		8 14 5		8	7 22	9	3 27
13	8 21 48		9 8 43		8 22 21		9 16 3		9	9 50	10	5 31
14	9 20 41		10 9 14		9 23 19		10 18 27		10	12 23	11	7 6
15	10 20 3		11 10 19		10 ..		11 21 4		11	14 45	12	8 6
16	11 19 53		12 11 56		10 0 57		12 23 42		12	16 48	13	8 29
17	12 20 10		13 13 56		11 3 6		13 ..		13	18 22	14	8 16
18	13 20 55		14 16 16		12 5 35		13 2 8		14	19 27	15	7 32
19	14 22 8		15 18 48		13 8 14		14 4 16		15	20 2	16	6 21
20	15 23 46		16 21 26		14 10 53		15 6 3		16	20 9	17	4 48
21	16 ..		17 ..		15 13 25		16 7 26		17	19 51	18	2 59
22	16 1 49		17 0 5		16 15 46		17 8 24		18	19 11	{ 19 0 58 } { 20 22 49 }	
23	17 4 12		18 2 37		17 17 50		18 8 59		19	18 12	21	20 35
24	18 6 49		19 4 56		18 19 34		19 9 10		20	16 56	22	18 20
25	19 9 33		20 6 52		19 20 55		20 8 57		21	15 23	23	16 5
26	20 12 11		21 8 20		20 21 49		21 8 18		22	13 35	24	13 54
27	21 14 32		22 9 10		21 22 12		22 7 12		23	11 32	25	11 48
28	22 16 24		23 9 18		22 22 0		23 5 39		24	9 15	26	9 53
29	23 17 37		..		23 21 12		24 3 38		25	6 48	27	8 12
30	24 18 4		..		24 19 45		25 1 12		26	4 13	28	6 50
31	25 17 42		..		25 17 41		26 22 24		{ 27 1 38 } { 28 23 8 }		..	..

34 Ending Moments of *Tithis* for each date in 1962
(Calculated in I. S. T.)—(concl'd.)

Date.	July.		August.		September.		October.		November.		December.	
	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.
1	29	5 51	1	19 18	2	13 23	2	6 3	4	..	4	13 51
2	30	5 22	2	21 8	3	15 53	3	8 16	4	0 52	5	13 21
3	1	5 26	3	23 18	4	18 19	4	10 14	5	1 30	6	12 27
4	2	6 4	4	..	5	20 33	5	11 49	6	1 38	7	11 7
5	3	7 18	4	1 41	6	22 26	6	12 55	7	1 12	8	9 22
6	4	9 3	5	4 10	7	23 48	7	13 24	8	0 6	9	7 13
7	5	11 12	6	6 31	8	..	8	13 13	9	22 26	10	4 41
8	6	13 36	7	8 34	8	3 31	9	12 16	10	20 10	11	2 0
9	7	16 1	8	10 7	9	0 29	10	10 35	11	17 21	12	23 6
10	8	18 13	9	11 2	10	23 39	11	8 12	12	14 8	13	20 12
11	9	19 59	10	11 12	11	22 3	12	5 13	13	10 39	14	17 26
12	10	21 10	11	10 36	12	19 44	13	1 45	14	7 4	15	14 57
13	11	21 41	12	9 16	13	16 48	14	21 58	15	3 33	16	12 55
14	12	21 30	13	7 15	14	13 24	15	18 3	16	0 19	17	11 28
15	13	20 38	14	4 40	15	9 41	16	14 12	17	21 32	18	10 42
16	14	19 9	15	1 39	16	5 50	17	10 35	18	19 23	19	10 42
17	15	17 10	16	22 21	17	2 2	18	7 25	19	17 58	20	11 28
18	16	14 48	17	18 54	18	22 27	19	4 52	20	17 42	21	2 57
19	17	12 10	18	15 29	19	19 15	20	3 3	21	17 42	22	15 1
20	18	9 23	19	12 14	20	16 36	21	2 6	22	18 49	23	17 27
21	19	6 34	20	9 17	21	14 38	22	2 1	23	26 38	24	20 1
22	20	3 49	21	6 45	22	13 25	23	2 46	24	22 56	25	22 30
23	21	1 13	22	4 44	23	12 58	24	4 14	25	..	26	..
24	22	22 52	23	3 18	24	13 18	25	6 17	26	1 30	27	..
25	23	20 49	24	2 28	25	14 19	26	4 4	27	6 34	28	2 25
26	24	19 7	25	2 18	26	15 53	27	8 41	28	8 44	29	3 38
27	25	17 48	26	2 38	27	17 54	28	11 15	29	10 33	30	4 29
28	26	16 54	27	3 31	28	20 11	29	13 50	30	11 59	31	1 4 10
29	27	16 27	28	4 52	29	22 33	30	16 18	31	13 2	..	2 3 27
30	28	16 28	29	6 36	30	..	..	18 35	..	..	..	..
31	29	16 56	30	8 39	31	1 9	1	20 37	2	13 41	3	2 22
	30	17 54	1	10 56	..	..	2	22 22	3	13 57	4	1 0
	31	..	..	..	3	23 48	..	..	..	..	5	23 23

The Sun 1962

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	January				February				March				April				May				June			
	o	i	u		o	i	u		o	i	u		o	i	u		o	i	u		o	i	u	
1	10	22	26		11	55	42		10	12	18		11	7	3	45	10	8	24	56	10	17	39	
2	11	23	36		12	6	37		11	12	31		12	2	59		11	23	10		11	15	10	
3	12	24	46		13	57	31		12	12	43		13	2	10		12	21	22		12	12	40	
4	13	25	56		14	56	37		13	12	53		14	1	19		13	19	33		13	10	9	
5	14	27	7	15	59	16		14	13	2	15	0	26	14	17	43	14	7	37		14	7	37	
6	15	28	17	17	0	7	15	13	9	15	59	35	15	15	51		15	5	4		15	5	4	
7	16	29	27	18	0	57	16	13	14	16	58	38	16	13	57	16	2	30		16	2	30		
8	17	30	37	19	1	46	17	13	17	17	57	39	17	12	2	16	59	54		16	59	54		
9	18	31	47	20	2	34	18	13	18	18	56	38	18	10	5	17	57	19		17	57	19		
10	19	32	56	21	3	20	19	13	17	19	55	34	19	8	6	18	54	41		18	54	41		
11	20	34	4	22	4	4	20	13	14	20	54	28	20	6	5	19	52	2		19	52	2		
12	21	35	11	23	4	47	21	13	9	21	53	20	21	4	2	20	49	22		20	49	22		
13	22	36	18	24	5	28	22	13	1	22	52	9	22	1	57	21	46	14		21	46	14		
14	23	37	26	25	6	7	23	12	51	23	50	56	22	59	50	22	43	59		22	43	59		
15	24	38	31	26	6	43	24	12	39	24	49	41	23	57	42	23	41	16		23	41	16		
16	25	39	36	27	7	18	25	12	25	25	48	24	24	55	31	24	38	33		24	38	33		
17	26	40	41	28	7	51	26	12	8	26	47	4	25	53	18	25	35	49		25	35	49		
18	27	41	45	29	8	22	27	11	49	27	45	42	26	51	3	26	33	4		26	33	4		
19	28	42	48	0	8	52	28	11	28	28	44	18	27	48	46	27	30	19		27	30	19		
20	29	43	51	1	9	20	29	11	5	29	42	50	28	46	28	28	27	34		28	27	34		
21	0	44	53	2	9	46	0	10	40	0	41	20	29	44	9	29	24	48		29	24	48		
22	1	45	55	3	10	11	1	10	13	1	39	49	0	41	49	0	22	2		0	22	2		
23	2	46	56	4	10	34	2	9	43	2	38	16	1	39	28	1	19	16		1	19	16		
24	3	47	57	5	10	56	3	9	12	3	36	41	2	37	6	2	16	30		2	16	30		
25	4	48	57	6	11	16	4	8	37	4	35	5	3	34	43	3	13	44		3	13	44		
26	5	49	57	7	11	34	5	8	1	5	33	27	4	32	19	4	10	58		4	10	58		
27	6	50	56	8	11	50	6	7	23	6	31	48	5	29	54	5	8	11		5	8	11		
28	7	51	55	9	12	4	7	6	43	7	30	7	6	27	28	6	5	24		6	5	24		
29	8	52	53	..	..	..	8	6	1	8	28	25	7	25	2	7	2	37		7	2	37		
30	9	53	50	..	..	..	9	5	17	9	26	41	8	22	35	7	59	50		7	59	50		
31	10	54	46	..	..	..	10	4	32	..	..	..	9	20	7	..	..	..		..	..	..		

	July	August	September	October	November	December
1	8 57	3 8 32	13 8 20	40 7 36	4 8 21	18 8 34
2	9 54	16 9 29	39 9 18	45 8 35	5 9 21	21 9 35
3	10 51	29 10 27	6 10 16	52 9 34	8 10 21	26 10 36
4	11 48	42 11 24	33 11 15	0 10 33	13 11 21	32 11 37
5	12 45	55 12 22	1 12 13	10 11 32	20 12 21	40 12 38
6	13 43	8 13 19	29 13 11	21 12 31	29 13 21	50 13 38
7	14 40	21 14 16	58 14 9	34 13 30	39 14 22	1 14 39
8	15 37	33 15 14	28 15 7	58 14 29	51 15 22	13 15 40
9	16 34	46 16 11	59 16 6	14 15 29	5 16 22	27 16 41
10	17 31	58 17 9	31 17 4	31 16 28	21 17 22	42 17 42
11	18 29	10 18 7	3 18 2	50 17 27	39 18 22	59 18 43
12	19 26	22 19 4	36 19 1	10 18 26	58 19 23	18 19 44
13	20 23	34 20 2	10 19 59	32 19 26	19 20 23	38 20 45
14	21 20	47 20 59	45 20 57	56 20 25	43 21 24	0 21 46
15	22 18	0 21 57	22 21 56	22 21 25	7 22 24	24 22 47
16	23 15	13 22 55	0 22 54	50 22 24	35 23 24	50 23 48
17	24 12	26 23 52	39 23 53	20 23 24	5 24 25	17 24 49
18	25 9	39 24 50	19 24 51	52 24 23	37 25 25	46 25 50
19	26 6	53 25 48	1 25 50	26 25 23	21 26 26	17 26 51
20	27 4	8 26 45	44 26 49	2 26 22	58 27 26	50 27 53
21	28 1	23 27 43	29 27 47	40 27 22	37 28 27	25 28 54
22	28 58	39 28 41	16 28 46	21 28 22	18 29 28	1 29 55
23	29 55	56 29 39	4 29 45	4 29 22	12 0 28	39 0 56
24	0 53	14 0 36	54 0 43	49 0 21	57 1 29	19 1 57
25	1 50	33 1 34	46 1 42	36 1 21	45 2 30	0 2 58
26	2 47	53 2 32	40 2 41	25 2 21	35 3 30	43 3 59
27	3 45	14 3 30	36 3 40	16 3 21	27 4 31	27 5 1
28	4 42	36 4 28	33 4 39	10 4 21	21 5 32	12 6 2
29	5 39	59 5 26	32 5 38	6 5 21	17 6 32	59 7 3
30	6 37	23 6 24	32 6 37	4 6 21	15 7 33	47 8 4
31	7 34	48 7 22	34 ..	7 21	16 ..	9 5 42

Date	Aspect	Time.	Dis- tance.	Date	Aspect	Time.	Dis- tance.	Date	Aspect	Time.	Dis- tan- ce.
January											
2	J	Ψ	H. M. °	17	Δ	δ	H. M. °	2	J	δ	H. M. °
4	Δ	δ	4 36 3	17	Δ	δ	16 3 1	3	Δ	δ	15 10 10
6	Δ	δ	15 24 0	17	Δ	δ	20 8 1	3	Δ	δ	5 28 1
6	Δ	δ	7 31 4	17	Δ	δ	21 41 0	4	Δ	δ	4 42 1
6	Δ	δ	8 58 3	18	Δ	δ	6 39 1	5	Δ	δ	1 19 3
6	Δ	δ	18 3 2	19	Δ	δ	1 39 0	6	Δ	δ	6 1 4
7	Δ	δ	17 6 3	19	Δ	δ	14 50 0	6	Δ	δ	22 54 3
7	Δ	δ	18 12 2	20	Δ	δ	18 50 1	13	Δ	δ	14 28 0
8	Δ	δ	13 14 1	20	Δ	δ	7 30 0	14	Δ	δ	23 30 0
8	Δ	δ	18 31 3	22	Δ	δ	12 20 10	15	Δ	δ	15 2 0
9	Δ	δ	13 31 3	22	Δ	δ	4 25 11	16	Δ	δ	22 19 10
10	Δ	δ	10 41 10	25	Δ	δ	21 26 3	17	Δ	δ	8 28 0
14	Δ	δ	23 0 4	28	Δ	δ	4 12 12	17	Δ	δ	15 48 2
17	Δ	δ	1 25 0	March				20	Δ	δ	6 3 4
20	Δ	δ	3 38 3	4	Δ	δ	2 33 3	20	Δ	δ	16 34 4
20	Δ	δ	20 21 2	4	Δ	δ	18 1 0	21	Δ	δ	7 21 3
20	Δ	δ	23 52 1	5	Δ	δ	6 44 0	22	Δ	δ	1 38 4
21	Δ	δ	3 22 2	5	Δ	δ	22 0 10	28	Δ	δ	1 41 1
22	Δ	δ	5 47 0	5	Δ	δ	12 26 0	29	Δ	δ	4 2 0
22	Δ	δ	16 9 0	6	Δ	δ	5 31 1	29	Δ	δ	21 33 0
22	Δ	δ	23 7 0	6	Δ	δ	16 1 2	30	Δ	δ	22 52 10
23	Δ	δ	10 36 0	7	Δ	δ	1 56 0	May			
23	Δ	δ	22 55 2	7	Δ	δ	7 49 2	2	Δ	δ	2 59 2
24	Δ	δ	7 4 10	9	Δ	δ	13 58 0	3	Δ	δ	6 0 1
27	Δ	δ	6 41 1	10	Δ	δ	13 27 3	4	Δ	δ	8 8 3
29	Δ	δ	14 18 3	13	Δ	δ	16 35 0	4	Δ	δ	10 2 4
February				13	Δ	δ	21 33 0	4	Δ	δ	14 40 11
4	Δ	δ	0 44 3	14	Δ	δ	19 30 0	5	Δ	δ	20 22 6
4	Δ	δ	7 2 2	17	Δ	δ	3 45 1	6	Δ	δ	5 33 5
4	Δ	δ	10 26 1	18	Δ	δ	18 39 0	12	Δ	δ	0 19 0
4	Δ	δ	21 20 4	18	Δ	δ	20 49 0	13	Δ	δ	6 31 0
5	Δ	δ	5 37 0	19	Δ	δ	11 2 0	13	Δ	δ	19 47 3
5	Δ	δ	7 24 3	19	Δ	δ	11 26 0	18	Δ	δ	12 51 3
5	Δ	δ	9 12 1	19	Δ	δ	17 2 10	19	Δ	δ	20 0 4
5	Δ	δ	10 21 0	22	Δ	δ	18 21 3	21	Δ	δ	11 16 5
5	Δ	δ	18 44 3	23	Δ	δ	3 0 11	22	Δ	δ	4 0 4
6	Δ	δ	1 33 0	25	Δ	δ	2 37 3	25	Δ	δ	7 51 0
6	Δ	δ	2 50 0	31	Δ	δ	16 3 1	26	Δ	δ	10 8 0
6	Δ	δ	19 19 10	April				27	Δ	δ	10 7 1
7	Δ	δ	10 0 0	1	Δ	δ	20 59 0	30	Δ	δ	22 53 3
8	Δ	δ	23 45 0	2	Δ	δ	4 39 0	31	Δ	δ	15 52 3
11	Δ	δ	5 30 3								
13	Δ	δ	8 13 4								
13	Δ	δ	22 20 0								

Date.	Aspect	Time.	Dis- tance.	Date.	Aspect	Time.	Dis- tance.	Date.	Aspect	Time.	Dis- tance.
June				August				October			
2	D σ ψ	19 7 4	30	25	D σ ψ	2 55 3	23	11	D σ ψ	8 8 8	4
3	D σ ψ	6 58 2	24	27	D σ ψ	10 51 4	8	13	D σ ψ	3 45 1	8
5	D σ ψ	7 51 3	55	29	D σ ψ	20 36 1	41	13	D σ ψ	10 13 0	58
7	D σ ψ	8 34 0	30	30	D σ ψ	21 25 1	0	13	D σ ψ	16 47 9	25
8	D σ ψ	13 20 2	46	31	D σ ψ	17 58 0	13	14	D σ ψ	9 41 3	11
9	D σ ψ	15 35 0	41	31	D σ ψ	18 31 0	52	16	D σ ψ	5 35 6	20
10	D σ ψ	13 5 15	59	31	D σ ψ	2 50 1	7	17	D σ ψ	14 39 8	37
11	D σ ψ	21 40 1	37	September				20	D σ ψ	9 58 2	8
12	D σ ψ	1 45 20	30	1	D σ ψ	0 23 0	42	22	D σ ψ	17 37 2	22
13	D σ ψ	5 4 1	5	2	D σ ψ	12 30 1	5	26	D σ ψ	7 46 1	17
14	D σ ψ	19 41 4	3	3	D σ ψ	7 8 9	29	27	D σ ψ	11 18 0	45
15	D σ ψ	22 9 5	29	4	D σ ψ	11 41 1	20	28	D σ ψ	1 13 11	19
16	D σ ψ	5 39 0	3	5	D σ ψ	16 22 4	29	30	D σ ψ	6 27 7	52
17	D σ ψ	7 30 3	38	6	D σ ψ	11 52 3	20	November			
18	D σ ψ	1 33 2	28	7	D σ ψ	4 9 5	5	5	D σ ψ	0 10 0	41
19	D σ ψ	12 34 0	30	8	D σ ψ	0 21 4	48	5	D σ ψ	11 42 0	54
20	D σ ψ	17 5 0	46	9	D σ ψ	1 34 1	4				
21	D σ ψ	10 44 9	42	10	D σ ψ	8 7 11	5				
22	D σ ψ	18 45 7	18	11	D σ ψ	13 34 0	25				
23	D σ ψ	21 45 3	20	12	D σ ψ	14 20 1	6				
27	D σ ψ	17 29 4	22	13	D σ ψ	4 45 13	18				
28	D σ ψ	11 37 0	46	14	D σ ψ	5 12 1	29				
30	D σ ψ			15	D σ ψ	7 19 1	58				
July				16	D σ ψ	7 53 5	5				
2	D σ ψ	5 31 2	39	17	D σ ψ	9 16 3	23				
4	D σ ψ	12 39 0	0	18	D σ ψ	18 40 0	41				
5	D σ ψ	12 26 0	0	19	D σ ψ	3 2 3	19				
6	D σ ψ	1 58 0	0	20	D σ ψ	21 7 0	2				
7	D σ ψ	7 15 1	35	21	D σ ψ	22 32 1	24				
8	D σ ψ	3 35 7	15	22	D σ ψ	8 42 2	11				
9	D σ ψ	16 0 0	0	23	D σ ψ	1 21 1	4				
10	D σ ψ	22 21 4	23	24	D σ ψ	15 40 9	26				
11	D σ ψ	14 17 2	34	25	D σ ψ	20 22 2	59				
12	D σ ψ	17 6 1	25	26	D σ ψ	15 59 0	7				
13	D σ ψ	17 43 0	42	27	D σ ψ	1 43 11	55				
14	D σ ψ	2 24 0	45	28	D σ ψ	14 12 7	8				
15	D σ ψ	13 5 10	53	29	D σ ψ	19 44 3	20				
16	D σ ψ	18 25 9	36	30	D σ ψ	14 5 2	51				
17	D σ ψ	18 51 1	14								
18	D σ ψ	0 33 1	30								
19	D σ ψ	16 24 5	5								

Date.	Aspect	Time.	Dis- tance.	Date.	Aspect	Time.	Dis- tance.	Date.	Aspect	Time.	Dis- tance.
June				August				October			
6	D σ ψ	8 13 1	37	25	D σ ψ	15 4 9	15	20	D σ ψ	8 38 0	7
7	D σ ψ	0 23 1	6	27	D σ ψ	15 8 8	15	22	D σ ψ	10 46 0	38
7	D σ ψ	3 17 1	43	29	D σ ψ	18 55 5	37	23	D σ ψ	9 57 1	33
7	D σ ψ	15 11 9	15	30	D σ ψ	19 44 3	10	24	D σ ψ	10 33 2	0
11	D σ ψ	13 22 3	52	31	D σ ψ	12 1 4	21	25	D σ ψ	22 20 9	10
11	D σ ψ	18 39 2	59	31	D σ ψ	14 20 4	56	26	D σ ψ	18 0 0	24
12	D σ ψ	3 41 4	37	September				27	D σ ψ	3 26 3	5
12	D σ ψ	5 53 8	45	1	D σ ψ	0 23 0	42	28	D σ ψ	11 6 3	5
13	D σ ψ	1 15 3	55	2	D σ ψ	12 30 1	5	29	D σ ψ	14 6 10	32
13	D σ ψ	15 0 0	54	3	D σ ψ	7 8 9	29	30	D σ ψ		
16	D σ ψ	9 38 3	33	4	D σ ψ	11 41 1	20				
17	D σ ψ	16 34 0	29	5	D σ ψ	16 22 4	29				
18	D σ ψ	13 47 0	45	6	D σ ψ	11 52 3	20				
19	D σ ψ	22 15 1	16	7	D σ ψ	4 9 5	5				
20	D σ ψ	1 13 1	50	8	D σ ψ	0 21 4	48				

Date	Aspect	Time	Date	Aspect	Time	Date	Aspect	Time	Date	Aspect	Time
January			March								
1	☉ Δ Pl	3 52	4	☉ Δ Ψ	16 24	20	♂ ♀ ♀	H. M. 12 36	14	♂ ♀ ♀	H. M. 15 31
	☉ Δ ♀	16 5	7	♂ Δ Ψ	2 33	22	♂ Δ Pl	1 2	15	♂ ♀ ♀	0 42
4	☉ Δ ♀	2 14	8	♂ Δ ♀	15 56	24	♂ Δ ♀	2 0	16	♂ Δ ♀	2 7
	☉ Δ ♀	15 12	9	♂ Δ ♀	8 27	25	♂ Δ ♀	16 48	17	♂ Δ ♀	3 52
5	♂ Δ Pl	18 47	10	♂ Δ ♀	3 23	27	♂ Δ ♀	9 54	18	♂ Δ ♀	5 41
	♂ Δ Pl	6 40	11	♂ Δ ♀	13 58	28	♂ Δ Pl	14 51	19	♂ Δ ♀	17 41
6	♂ Δ Pl	3 37	12	♂ Δ ♀	16 35	29	♂ Δ ♀	2 28	20	♂ Δ ♀	22 45
	♂ Δ Pl	3 47	13	♂ Δ ♀	21 33		♂ Δ ♀	18 38	21	♂ Δ ♀	5 53
7	♂ Δ Pl	3 8	14	♂ Δ ♀	2 40	May			22	♂ Δ ♀	19 35
	♂ Δ Pl	16 43	15	♂ Δ ♀	19 30				23	♂ Δ Pl	2 24
8	♂ Δ Pl	21 48	16	♂ Δ ♀	18 14				24	♂ Δ ♀	5 9
	♂ Δ Pl	3 54	17	♂ Δ ♀	15 29				25	♂ Δ ♀	2 29
9	♂ Δ Pl	13 30	18	♂ Δ ♀	11 26				26	♂ Δ ♀	10 41
10	♂ Δ Pl	8 16	19	♂ Δ ♀	22 43				July		
11	♂ Δ Pl	6 28	20	♂ Δ ♀	0 0	1	♂ Δ ♀	10 3	2	♂ Δ ♀	16 24
12	♂ Δ Pl	15 0	21	♂ Δ ♀	20 25	2	♂ Δ ♀	3 51	3	♂ Δ ♀	6 51
13	♂ Δ Pl	2 49	22	♂ Δ ♀	9 38	3	♂ Δ ♀	6 0	4	♂ Δ ♀	9 54
14	♂ Δ Pl	22 36	23	♂ Δ ♀	3 0	4	♂ Δ ♀	8 48	5	♂ Δ ♀	17 40
15	♂ Δ Pl	10 52	24	♂ Δ ♀	12 54	5	♂ Δ ♀	14 40	6	♂ Δ ♀	23 51
16	♂ Δ Pl	23 7	25	♂ Δ ♀	15 56	6	♂ Δ ♀	21 0	7	♂ Δ ♀	3 22
17	♂ Δ Pl	6 41	26	♂ Δ ♀	3 30	7	♂ Δ ♀	10 1	8	♂ Δ ♀	5 5
18	♂ Δ Pl	23 7	27	♂ Δ ♀	12 24	8	♂ Δ ♀	22 29	9	♂ Δ ♀	10 35
19	♂ Δ Pl	6 41	28	♂ Δ ♀	14 53	9	♂ Δ ♀	12 53	10	♂ Δ ♀	3 31
20	♂ Δ Pl	16 44	29	♂ Δ ♀	15 56	10	♂ Δ ♀	2 29	11	♂ Δ ♀	5 15
21	♂ Δ Pl	4 15	30	♂ Δ ♀	15 56	11	♂ Δ ♀	6 47	12	♂ Δ ♀	16 0
February			April								
1	♂ Δ ♀	4 48	1	♂ Δ ♀	11 14	12	♂ Δ ♀	10 39	13	♂ Δ ♀	17 40
2	♂ Δ ♀	0 12	2	♂ Δ ♀	14 13	13	♂ Δ ♀	2 29	14	♂ Δ ♀	3 22
3	♂ Δ ♀	0 27	3	♂ Δ ♀	15 31	14	♂ Δ ♀	6 47	15	♂ Δ ♀	5 5
4	♂ Δ ♀	21 12	4	♂ Δ ♀	7 12	15	♂ Δ ♀	10 39	16	♂ Δ ♀	10 35
5	♂ Δ ♀	18 44	5	♂ Δ ♀	8 27	16	♂ Δ ♀	17 41	17	♂ Δ ♀	3 31
6	♂ Δ ♀	1 33	6	♂ Δ ♀	9 31	17	♂ Δ ♀	15 49	18	♂ Δ ♀	5 5
7	♂ Δ ♀	9 36	7	♂ Δ ♀	1 33	18	♂ Δ ♀	8 48	19	♂ Δ ♀	10 35
8	♂ Δ ♀	23 45	8	♂ Δ ♀	6 54	19	♂ Δ ♀	14 54	20	♂ Δ ♀	3 31
9	♂ Δ ♀	12 0	9	♂ Δ ♀	11 36	20	♂ Δ ♀	15 0	21	♂ Δ ♀	5 5
10	♂ Δ ♀	8 39	10	♂ Δ ♀	5 47	21	♂ Δ ♀	17 41	22	♂ Δ ♀	10 50
11	♂ Δ ♀	22 20	11	♂ Δ ♀	14 14	22	♂ Δ ♀	15 49	23	♂ Δ ♀	23 46
12	♂ Δ ♀	0 30	12	♂ Δ ♀	23 40	23	♂ Δ ♀	8 48	24	♂ Δ ♀	13 46
13	♂ Δ ♀	8 39	13	♂ Δ ♀	11 36	24	♂ Δ ♀	15 49	25	♂ Δ ♀	14 37
14	♂ Δ ♀	21 41	14	♂ Δ ♀	18 42	25	♂ Δ ♀	8 48	26	♂ Δ ♀	16 24
15	♂ Δ ♀	12 0	15	♂ Δ ♀	23 48	26	♂ Δ ♀	15 49	27	♂ Δ ♀	22 27
16	♂ Δ ♀	5 9	16	♂ Δ ♀	12 0	27	♂ Δ ♀	17 41	28	♂ Δ ♀	18 26
17	♂ Δ ♀	4 25	17	♂ Δ ♀	8 28	28	♂ Δ ♀	10 53	29	♂ Δ ♀	2 14
18	♂ Δ ♀	20 28	18	♂ Δ ♀	18 14	29	♂ Δ ♀	5 55	30	♂ Δ ♀	12 38
19	♂ Δ ♀	10 13	19	♂ Δ ♀	19 21	30	♂ Δ ♀	1 34	31	♂ Δ ♀	13 57
20	♂ Δ ♀	4 8	20	♂ Δ ♀	5 30	June					
21	♂ Δ ♀	0 12	21	♂ Δ ♀	11 14	1	♂ Δ ♀	15 38			
22	♂ Δ ♀	0 27	22	♂ Δ ♀	7 12	2	♂ Δ ♀	2 45			
23	♂ Δ ♀	21 12	23	♂ Δ ♀	8 27	3	♂ Δ ♀	12 0			
24	♂ Δ ♀	18 44	24	♂ Δ ♀	9 31	4	♂ Δ ♀	12 49			
25	♂ Δ ♀	1 33	25	♂ Δ ♀	1 33	5	♂ Δ ♀	14 2			
26	♂ Δ ♀	9 36	26	♂ Δ ♀	6 54	6	♂ Δ ♀	18 51			
27	♂ Δ ♀	23 45	27	♂ Δ ♀	11 36	7	♂ Δ ♀	5 9			
28	♂ Δ ♀	12 0	28	♂ Δ ♀	5 47	8	♂ Δ ♀	8 18			
29	♂ Δ ♀	8 39	29	♂ Δ ♀	14 14	9	♂ Δ ♀	13 26			
30	♂ Δ ♀	0 30	30	♂ Δ ♀	23 40	10	♂ Δ ♀	10 55			
31	♂ Δ ♀	21 41	31	♂ Δ ♀	18 42	11	♂ Δ ♀	5 53			
July			August			September			October		
1	♂ Δ ♀	4 48	1	♂ Δ ♀	11 14	1	♂ Δ ♀	15 38	1	♂ Δ ♀	15 31
2	♂ Δ ♀	0 12	2	♂ Δ ♀	14 13	2	♂ Δ ♀	2 45	2	♂ Δ ♀	0 42
3	♂ Δ ♀	0 27	3	♂ Δ ♀	15 31	3	♂ Δ ♀	12 0	3	♂ Δ ♀	2 7
4	♂ Δ ♀	21 12	4	♂ Δ ♀	7 12	4	♂ Δ ♀	12 49	4	♂ Δ ♀	3 52
5	♂ Δ ♀	18 44	5	♂ Δ ♀	8 27	5	♂ Δ ♀	14 2	5	♂ Δ ♀	5 41
6	♂ Δ ♀	1 33	6	♂ Δ ♀	9 31	6	♂ Δ ♀	18 51	6	♂ Δ ♀	17 41
7	♂ Δ ♀	9 36	7	♂ Δ ♀	1 33	7	♂ Δ ♀	5 9	7	♂ Δ ♀	22 45
8	♂ Δ ♀	23 45	8	♂ Δ ♀	6 54	8	♂ Δ ♀	8 18	8	♂ Δ ♀	5 53
9	♂ Δ ♀	12 0	9	♂ Δ ♀	11 36	9	♂ Δ ♀	13 26	9	♂ Δ ♀	19 35
10	♂ Δ ♀	8 39	10	♂ Δ ♀	5 47	10	♂ Δ ♀	10 55	10	♂ Δ ♀	2 24
11	♂ Δ ♀	22 20	11	♂ Δ ♀	14 14	11	♂ Δ ♀	5 53	11	♂ Δ ♀	5 9
12	♂ Δ ♀	0 30	12	♂ Δ ♀	23 40	12	♂ Δ ♀	1 34	12	♂ Δ ♀	2 29
13	♂ Δ ♀	8 39	13	♂ Δ ♀	18 42	13	♂ Δ ♀	5 55	13	♂ Δ ♀	10 41
14	♂ Δ ♀	21 41	14	♂ Δ ♀	23 48	14	♂ Δ ♀	1 34	14	♂ Δ ♀	16 24
15	♂ Δ ♀	12 0	15	♂ Δ ♀	12 0	15	♂ Δ ♀	5 56	15	♂ Δ ♀	22 27
16	♂ Δ ♀	5 9	16	♂ Δ ♀	8 28	16	♂ Δ ♀	10 57	16	♂ Δ ♀	18 26
17	♂ Δ ♀	4 25	17	♂ Δ ♀	18 14	17	♂ Δ ♀	5 58	17	♂ Δ ♀	2 14
18	♂ Δ ♀	20 28	18	♂ Δ ♀	19 21	18	♂ Δ ♀	1 35	18	♂ Δ ♀	12 38
19	♂ Δ ♀	10 13	19	♂ Δ ♀	5 30	19	♂ Δ ♀	5 59	19	♂ Δ ♀	13 57
20	♂ Δ ♀	4 8	20	♂ Δ ♀	11 14	20	♂ Δ ♀	1 35	20	♂ Δ ♀	0 53
21	♂ Δ ♀	0 12	21	♂ Δ ♀	7 12	21	♂ Δ ♀	5 60	21	♂ Δ ♀	19 51
22	♂ Δ ♀	0 27	22	♂ Δ ♀	8 27	22	♂ Δ ♀	1 36	22	♂ Δ ♀	2 46
23	♂ Δ ♀	21 12	23	♂ Δ ♀	9 31	23	♂ Δ ♀	5 61	23	♂ Δ ♀	7 47
24	♂ Δ ♀	18 44	24	♂ Δ ♀	1 33	24	♂ Δ ♀	1 36	24	♂ Δ ♀	12 50
25	♂ Δ ♀	1 33	25	♂ Δ ♀	6 54	25	♂ Δ ♀	5 62	25	♂ Δ ♀	3 33
26	♂ Δ ♀	9 36	26	♂ Δ ♀	11 36	26	♂ Δ ♀	1 37	26	♂ Δ ♀	20 42
27	♂ Δ ♀	23 45	27	♂ Δ ♀	5 47	27	♂ Δ ♀	5 63	27	♂ Δ ♀	8 45
28	♂ Δ ♀	12 0	28	♂ Δ ♀	14 14	28	♂ Δ ♀	1 38	28	♂ Δ ♀	14 54
29	♂ Δ ♀	8 39	29	♂ Δ ♀	23 40	29	♂ Δ ♀	5 64	29	♂ Δ ♀	2 50
30	♂ Δ ♀	0 30	30	♂ Δ ♀	18 42	30	♂ Δ ♀	1 39	30	♂ Δ ♀	18 0
31	♂ Δ ♀	21 41	31	♂ Δ ♀	23 48	31	♂ Δ ♀	5 65	31	♂ Δ ♀	22 30

(For the latitude $23^{\circ} 11' N$)*Rises.**Sets*

Mercury

10th January, in West.
10th February, in East.
27th April, in West.
19th June, in East.
20th August, in West.
16th October, in East.
19th December, in West.

28th January, in West.
24th March, in East.
29th May, in West.
19th July, in East.
25th September, in West.
27th October, in East.

Venus

10th March, in West.
21st November, in East.

5th November, in West.

Mars

14th March

Jupiter

23rd February

22nd January

Saturn

8th February

6th January

In the year 1962, there will be two eclipses, both of the Sun:—

(1) February 4-5, total eclipse of the Sun.

(2) July 31, annular eclipse of the Sun.

Both of them are invisible in India.

In addition, there will be three penumbral eclipses of Moon, occurring on February 19, July 17 and August 15.

Elements of the Planetary Orbits for 12 o'clock Noon (I. S. T.) on 1st January 1962

43

Planet.	Mean. Long.	Mean. Daily Motion.	Per. of Revolution (Sid.)	Long. of Asc. Node.	Long. of Perihelion or Perigee.	Eccentricity.	Mean Distance from the Sun.	Inclination of the Orbit.
Mercury	333 12 41	4 5 32	87.9693	47 52 51	76 50 51	0.205626	0.3870984	7 00 14.3
Venus	265 6 45	1 36 8	224.7008	76 20 16	131 2 11	0.0067922	0.7233302	3 23 39.2
Earth	100 26 26	0 59 8	365.2563	..	102 17 13	0.0167258	1.0000000	..
Mars	281 44 36	0 31 26	686.9796	49 15 52	335 21 34	0.0933681	1.523691	1 50 59.8
Jupiter	320 34 45	0 4 59	4332.5848	100 4 12	13 43 10	0.0484333	5.202803	1 18 19.3
Saturn	305 8 59	0 2 0	10759.2198	113 19 54	92 18 46	0.0556817	9.538443	2 29 23.8
Uranus	150 42 58	0 0 42	30685.45	73 47 12	172 18 9	0.0472094	19.181945	0 46 23.0
Neptune	220 47 21	0 0 21.5	60189.48	131 31 46	47 36 39	0.0085748	30.057767	1 46 25.5
Pluto	183 24 0	0 0 14.3	90794.45	109 53 46	224 33 22	0.2514688	39.53315	17 10 03.7
Moon	220 5 23	13 10 35	27.32168	140 0 10	337 9 25	0.05490	..	5 8 43.4

Daily Motion of Moon's Node $-0^{\circ} 3' 10.6''$
Perigee $+0^{\circ} 6' 41.0''$

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
January											
		H. M.			H. M.			H. M.			H. M.
1	☿	4 32	10	♂	19 32	20	♂	14 12	31	♂	17 5
	♂	0 0		♂	0 4		♂	17 23		♂	19 31
	♂	15 9		♂	15 7		♂	17 30		♂	0 3
	♂	23 6		♂	15 11		♂	23 38		♂	3 12
2	♂	0 15		♂	16 4		♂	20 21		♂	14 41
	♂	0 48		♂	20 27		♂	22 45		♂	17 32
	♂	4 36		♂	20 26		♂	23 52		♂	21 36
	♂	18 59		♂	3 8		♂	3 22		♂	22 46
	♂	20 47		♂	3 54		♂	18 41			
	♂	21 7		♂	16 29		♂	1 4			
3	♂	6 44		♂	17 4		♂	5 47			
	♂	11 43		♂	21 42		♂	16 9			
	♂	12 12		♂	12 53		♂	19 12			
	♂	0 42		♂	18 20		♂	10 36			
	♂	1 15		♂	18 32		♂	15 22			
	♂	3 35		♂	20 28		♂	16 8			
	♂	5 24		♂	21 32		♂	17 33			
	♂	7 28		♂	4 9		♂	3 39			
	♂	10 47		♂	10 35		♂	7 4			
	♂	11 27		♂	14 38		♂	14 33			
	♂	14 27		♂	23 27		♂	19 41			
5	♂	9 0		♂	1 42		♂	22 53			
	♂	9 44		♂	16 58		♂	1 29			
	♂	12 35		♂	18 46		♂	3 39			
	♂	16 3		♂	23 0		♂	8 32			
	♂	16 8		♂	23 40		♂	12 17			
	♂	15 42		♂	4 8		♂	21 4			
	♂	8 29		♂	14 27		♂	23 18			
	♂	8 58		♂	19 32		♂	2 47			
	♂	11 19		♂	4 59		♂	5 39			
	♂	13 42		♂	8 13		♂	11 33			
	♂	15 59		♂	8 58		♂	12 11			
	♂	18 3		♂	20 49		♂	15 51			
	♂	9 12		♂	3 58		♂	19 22			
	♂	17 6		♂	5 45		♂	5 27			
	♂	17 37		♂	7 21		♂	9 37			
	♂	18 12		♂	7 56		♂	22 5			
	♂	11 24		♂	11 54		♂	22 5			
	♂	13 14		♂	14 30		♂	1 38			
	♂	14 47		♂	23 20		♂	4 42			
	♂	14 53		♂	3 54		♂	5 59			
	♂	22 47		♂	8 33		♂	11 9			
	♂	1 9		♂	9 57		♂	2 45			
	♂	13 11		♂	12 4		♂	4 58			
	♂	17 26		♂	12 44		♂	6 54			
	♂	18 31		♂	15 24		♂	14 18			
	♂			♂	16 31		♂	6 54			
	♂			♂	17 57		♂	14 38			
	♂			♂			♂	6 38			

February

1	♂	5 5	23	♂	15 22	29	♂	2 45	30	♂	6 38
	♂	6 18		♂	16 8		♂	2 45		♂	6 38
	♂	10 46		♂	19 12		♂	2 45		♂	6 38
	♂	21 57		♂	10 36		♂	2 45		♂	6 38
	♂	23 51		♂	15 22		♂	2 45		♂	6 38
	♂	0 20		♂	16 8		♂	2 45		♂	6 38
	♂	2 24		♂	19 12		♂	2 45		♂	6 38
	♂	5 9		♂	10 36		♂	2 45		♂	6 38
	♂	7 32		♂	15 22		♂	2 45		♂	6 38
	♂	8 28		♂	16 8		♂	2 45		♂	6 38
	♂	11 2		♂	19 12		♂	2 45		♂	6 38
	♂	17 38		♂	10 36		♂	2 45		♂	6 38
	♂	1 13		♂	15 22		♂	2 45		♂	6 38
	♂	1 17		♂	16 8		♂	2 45		♂	6 38
	♂	2 24		♂	19 12		♂	2 45		♂	6 38
	♂	4 5		♂	10 36		♂	2 45		♂	6 38
	♂	9 4		♂	15 22		♂	2 45		♂	6 38
	♂	10 24		♂	16 8		♂	2 45		♂	6 38
	♂	19 15		♂	19 12		♂	2 45		♂	6 38
	♂	2 56		♂	10 36		♂	2 45		♂	6 38
	♂	7 2		♂	15 22		♂	2 45		♂	6 38
	♂	10 23		♂	16 8		♂	2 45		♂	6 38
	♂	19 33		♂	19 12		♂	2 45		♂	6 38
	♂	2 2		♂	10 36		♂	2 45		♂	6 38
	♂	5 37		♂	15 22		♂	2 45		♂	6 38
	♂	7 24		♂	16 8		♂	2 45		♂	6 38
	♂	8 24		♂	19 12		♂	2 45		♂	6 38
	♂	9 12		♂	10 36		♂	2 45		♂	6 38
	♂	10 21		♂	15 22		♂	2 45		♂	6 38
	♂	2 50		♂	16 8		♂	2 45		♂	6 38
	♂	9 36		♂	19 12		♂	2 45		♂	6 38
	♂	10 40		♂	10 36		♂	2 45		♂	6 38
	♂	19 19		♂	15 22		♂	2 45		♂	6 38
	♂	1 52		♂	16 8		♂	2 45		♂	6 38

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
		H. M.			H. M.			H. M.			H. M.
8	♂	3 42	16	♂	21 5	24	♂	17 16	31	♂	11 31
	♂	8 53		♂	21 15		♂	17 37		♂	12 29
	♂	10 48		♂	22 48		♂	17 5		♂	22 59
	♂	10 51		♂	12 24		♂	21 12		♂	2 31
	♂	3 24		♂	18 1		♂	21 42		♂	4 48
	♂	1 59		♂	1 0		♂	3 31		♂	8 32
	♂	2 4		♂	2 44		♂	6 11		♂	8 43
	♂	2 43		♂	11 51		♂	12 34		♂	11 16
	♂	10 51		♂	16 3		♂	19 31		♂	12 16
	♂	11 11		♂	20 8		♂	20 46		♂	18 58
	♂	11 12		♂	23 51					♂	1 5
	♂	15 57		♂	6 39					♂	4 52
	♂	18 2		♂	8 34					♂	9 7
	♂	0 51		♂	1 39					♂	11 17
	♂	2 32		♂	14 50					♂	11 26
	♂	4 52		♂	18 50					♂	12 12
	♂	12 43		♂	5 11					♂	21 14
	♂	13 29		♂	7 30					♂	3 36
	♂	19 14		♂	9 17					♂	5 33
	♂	20 37		♂	12 10					♂	13 27
	♂	4 18		♂	21 19					♂	13 41
	♂	13 45		♂	23 42					♂	0 24
	♂	17 37		♂	11 56					♂	7 57
	♂	22 14		♂	15 43					♂	12 25
	♂	0 16		♂	16 35					♂	13 58
	♂	5 30		♂	2 27					♂	17 4
	♂	17 17		♂	3 45					♂	22 11
	♂	21 22		♂	8 18					♂	7 48
	♂	4 38		♂	13 22					♂	9 6
	♂	4 4		♂	18 49					♂	17 44
	♂	8 40		♂	22 43					♂	10 23
	♂	2 29		♂	0 4					♂	11 23
	♂	3 8		♂	1 2					♂	19 54
	♂	4 14		♂	3 29					♂	20 13
	♂	11 42		♂	9 37					♂	20 22
	♂	23 26		♂	10 3					♂	21 50
	♂	1 19		♂	22 26					♂	3 26
	♂	5 58		♂	5 26					♂	9 2
	♂	8 21		♂	7 2					♂	16 4
	♂	9 18		♂	1 2					♂	16 36
	♂	16 2		♂	15 31					♂	0 51
	♂	16 19		♂	16 40					♂	1 6
	♂	18 25		♂	5 3					♂	2 31
	♂	4 29		♂	6 48					♂	4 28
	♂	6 30		♂	12 39					♂	10 15
	♂	9 46		♂	14 50					♂	22 26
	♂	12 35		♂	21 26					♂	1 4
	♂	15 1		♂	21 51					♂	6 21
	♂	16 46		♂	7 52					♂	7 9

March

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	☽ ☽			☽ ☽			☽ ☽	22 19		☽ ☽	21 59

April

May

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
26	☽ ☽	23 7	15	☽ ☽	6 27	25	☽ ☽	12 22	30	☽ ☽	16 56
	☽ ☽	6 39		☽ ☽	6 34		☽ ☽	19 6		☽ ☽	21 11
	☽ ☽	15 6		☽ ☽	8 8		☽ ☽	19 17		☽ ☽	1 8
	☽ ☽	17 34		☽ ☽	10 2		☽ ☽	20 40		☽ ☽	6 10
	☽ ☽	0 14		☽ ☽	7 51		☽ ☽	20 35		☽ ☽	7 51
	☽ ☽	3 22		☽ ☽	8 42		☽ ☽	21 6		☽ ☽	8 7
	☽ ☽	17 4		☽ ☽	20 22		☽ ☽	1 30		☽ ☽	19 14
	☽ ☽	17 47		☽ ☽	2 46		☽ ☽	2 51		☽ ☽	23 23
	☽ ☽	18 27		☽ ☽	3 11		☽ ☽	11 15		☽ ☽	10 6
	☽ ☽	19 54		☽ ☽	5 42		☽ ☽	19 47		☽ ☽	12 31
	☽ ☽	1 35		☽ ☽	8 57		☽ ☽	23 2		☽ ☽	23 24
	☽ ☽	3 53		☽ ☽	19 23		☽ ☽	23 30		☽ ☽	0 35
	☽ ☽	19 29		☽ ☽	11 38		☽ ☽	3 14		☽ ☽	4 47
	☽ ☽	19 48		☽ ☽	16 21		☽ ☽	5 39		☽ ☽	10 7
	☽ ☽	4 2		☽ ☽	11 14		☽ ☽	7 16		☽ ☽	11 21
	☽ ☽	11 56		☽ ☽	11 34		☽ ☽	18 37		☽ ☽	11 33
	☽ ☽	21 29		☽ ☽	12 39		☽ ☽	4 45		☽ ☽	15 29
	☽ ☽	22 52		☽ ☽	21 2		☽ ☽	7 28		☽ ☽	2 24
	☽ ☽	23 5		☽ ☽	7 35		☽ ☽	8 45		☽ ☽	12 38
	☽ ☽	4 12		☽ ☽	7 49		☽ ☽	12 14		☽ ☽	12 45
	☽ ☽	6 30		☽ ☽	8 58		☽ ☽	12 51		☽ ☽	13 5
	☽ ☽			☽ ☽	14 40		☽ ☽	1 1		☽ ☽	18 9
	☽ ☽			☽ ☽	14 56		☽ ☽	9 34		☽ ☽	6 40
	☽ ☽			☽ ☽	16 2		☽ ☽	15 4		☽ ☽	6 50
	☽ ☽			☽ ☽	16 34		☽ ☽	16 53		☽ ☽	7 22
	☽ ☽			☽ ☽	20 55		☽ ☽	20 0		☽ ☽	12 57
	☽ ☽			☽ ☽	2 58		☽ ☽	13 30		☽ ☽	13 43
	☽ ☽			☽ ☽	11 49		☽ ☽	15 23		☽ ☽	13 53
	☽ ☽			☽ ☽	13 22		☽ ☽	16 0		☽ ☽	14 15
	☽ ☽			☽ ☽	14 56		☽ ☽	20 39		☽ ☽	4 0
	☽ ☽			☽ ☽	19 17		☽ ☽	21 7		☽ ☽	8 22
	☽ ☽			☽ ☽	0 1		☽ ☽	11 16		☽ ☽	9 39
	☽ ☽			☽ ☽	16 53		☽ ☽	20 33		☽ ☽	14 8
	☽ ☽			☽ ☽	18 51		☽ ☽	23 35		☽ ☽	15 17
	☽ ☽			☽ ☽	23 23		☽ ☽	0 3		☽ ☽	22 58
	☽ ☽			☽ ☽	0 19		☽ ☽	0 16		☽ ☽	4 33
	☽ ☽			☽ ☽	1 33		☽ ☽	4 0		☽ ☽	12 27
	☽ ☽			☽ ☽	8 40		☽ ☽	7 32		☽ ☽	13 17
	☽ ☽			☽ ☽	10 44		☽ ☽	20 5		☽ ☽	15 21
	☽ ☽			☽ ☽	18 22		☽ ☽	0 49		☽ ☽	15 45
	☽ ☽			☽ ☽	6 31		☽ ☽	3 1		☽ ☽	15 52
	☽ ☽			☽ ☽	20 1		☽ ☽	3 17			
	☽ ☽			☽ ☽	4 57		☽ ☽	3 23			
	☽ ☽			☽ ☽	7 42		☽ ☽	12 30			
	☽ ☽			☽ ☽	12 39		☽ ☽	18 27			
	☽ ☽			☽ ☽	13 41		☽ ☽	22 50			
	☽ ☽			☽ ☽	17 47		☽ ☽	3 41			
	☽ ☽			☽ ☽	3 24		☽ ☽	5 22			
	☽ ☽			☽ ☽	4 2		☽ ☽	5 56			
	☽ ☽			☽ ☽			☽ ☽	14 39			

June

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
		H. M.			H. M.			H. M.			H. M.
1	2	18 39	13	3	13 32	23	4	22 51	3	4	7 52
	3	18 39		4	15 29		5	19 19		5	14 48
	4	18 45		5	7 41		6	10 44		6	2 30
	5	19 7		6	13 5		7	15 24		7	5 31
2	6	6 58	14	7	16 25	24	8	16 1	4	8	6 21
	7	7 44		8	16 30		9	18 44		9	7 40
	8	20 50		9	18 18		10	18 45		10	3 3
	9	20 55		10	13 7		11	5 55		11	7 3
	10	21 45		11	13 23		12	12 59		12	11 20
	11	11 39		12	19 26		13	16 40		13	21 7
	12	17 2		13	19 41		14	17 21		14	22 23
	13	23 29		14	21 46		15	20 0		15	6 20
	14	23 54		15	22 9		16	3 42		16	11 32
	15	0 16		16	22 37		17	8 39		17	15 7
	16	0 53		17	20 18		18	13 28		18	15 31
	17	4 7		18	2 10		19	16 38		19	5 19
	18	4 31		19	4 41		20	17 57		20	10 53
	19	10 59		20	21 44		21	18 41		21	12 39
	20	20 59		21	3 28		22	21 28		22	16 16
	21	4 32		22	3 49		23	21 35		23	18 45
	22	5 2		23	5 39		24	22 59		24	19 55
	23	9 5		24	6 6		25	11 26		25	12 26
	24	9 9		25	6 34		26	14 59		26	13 24
	25	23 33		26	11 3		27	23 1		27	1 15
	26	1 40		27	6 52		28	23 6		28	1 58
	27	8 34		28	7 30		29	11 30		29	2 39
	28	8 37		29	7 2		30	11 52		30	7 7
	29	9 32		30	14 3			16 37			1 35
	30	18 0			16 30			20 50			3 31
		18 38			16 30			21 45			7 15
		23 23			16 30			23 23			11 14
		15 35			16 30			0 47			6 55
		8 33			16 30			4 21			7 41
		14 48			16 30			15 33			8 44
		20 8			16 30			17 33			9 49
		20 17			16 30			2 43			14 30
		21 40			16 30			19 35			17 21
		23 23			16 30			20 34			10 47
		11 56			16 30			0 40			13 50
		18 16			16 30			1 45			16 3
		23 9			16 30			4 57			16 32
		2 24			16 30			9 22			19 46
		2 36			16 30			11 37			20 55
		4 17			16 30						1 30
		1 45			16 30						5 7
		7 24			16 30						16 57
		8 34			16 30						1 43
		9 5			16 30						1 44</

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
12	H. 5 34 M. 19 37 P. 22 9 A. 15 16 S. 21 1 O. 13 24 C. 17 37 F. 22 21 J. 23 59 D. 3 34 N. 7 45 E. 9 45 R. 12 20 I. 15 27 U. 19 3 L. 12 47 T. 15 23 O. 20 15 A. 25 2 S. 7 27 P. 13 31 M. 14 17 J. 15 2 U. 17 32 L. 20 29 I. 22 32 O. 9 19 A. 10 44 S. 15 18 P. 17 6 M. 22 1 J. 0 13 U. 12 56 L. 13 22 T. 16 36 O. 17 43 A. 20 31 S. 23 5 P. 1 1 M. 22 47 J. 2 24 U. 5 57 L. 17 39 T. 18 25 O. 18 51 A. 19 11 S. 22 12 P. 0 33	22	23	24	25	26	27	28	29	30	
13	H. 10 45 M. 19 51 P. 23 0 A. 3 52 S. 4 12 O. 20 14 C. 20 40 F. 21 49 J. 23 58 D. 0 51 N. 2 8 E. 5 18 R. 21 18 I. 21 30 U. 0 21 L. 3 19 T. 4 19 O. 6 44 A. 9 53 S. 23 11 P. 23 15 M. 2 55 J. 3 21 U. 4 54 L. 8 17 T. 10 10 O. 10 53 A. 17 53 S. 22 31 P. 3 31 M. 3 45 J. 7 35 U. 9 21 L. 10 51 T. 18 7 O. 18 7 A. 22 51 S. 6 24 P. 10 42 M. 17 8 J. 2 48 U. 4 29 L. 9 51 T. 10 37 O. 14 28 A. 15 59 S. 21 0 P. 21 9 M. 6 41 J. 14 57	22	23	24	25	26	27	28	29	30	
14	H. 20 7 M. 0 48 P. 1 43 A. 3 3 S. 6 6 O. 14 58 C. 17 31 F. 19 48 J. 22 56 D. 23 39	9	10	11	12	13	14	15	16	17	
15	H. 20 7 M. 0 48 P. 1 43 A. 3 3 S. 6 6 O. 14 58 C. 17 31 F. 19 48 J. 22 56 D. 23 39	9	10	11	12	13	14	15	16	17	
16	H. 20 7 M. 0 48 P. 1 43 A. 3 3 S. 6 6 O. 14 58 C. 17 31 F. 19 48 J. 22 56 D. 23 39	9	10	11	12	13	14	15	16	17	
17	H. 20 7 M. 0 48 P. 1 43 A. 3 3 S. 6 6 O. 14 58 C. 17 31 F. 19 48 J. 22 56 D. 23 39	9	10	11	12	13	14	15	16	17	
18	H. 20 7 M. 0 48 P. 1 43 A. 3 3 S. 6 6 O. 14 58 C. 17 31 F. 19 48 J. 22 56 D. 23 39	9	10	11	12	13	14	15	16	17	
19	H. 20 7 M. 0 48 P. 1 43 A. 3 3 S. 6 6 O. 14 58 C. 17 31 F. 19 48 J. 22 56 D. 23 39	9	10	11	12	13	14	15	16	17	
20	H. 20 7 M. 0 48 P. 1 43 A. 3 3 S. 6 6 O. 14 58 C. 17 31 F. 19 48 J. 22 56 D. 23 39	9	10	11	12	13	14	15	16	17	
21	H. 20 7 M. 0 48 P. 1 43 A. 3 3 S. 6 6 O. 14 58 C. 17 31 F. 19 48 J. 22 56 D. 23 39	9	10	11	12	13	14	15	16	17	

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
18	☾	0 50	27	☽	11 25	5	☽	20 46	15	☽	18 29
19	☾	5 13		☽	11 2		☽	20 59		☽	18 30
	☾	7 24		☽	15 10		☽	7 4		☽	8 19
	☾	9 27		☽	16 10		☽	12 8		☽	9 15
	☾	14 44		☽	21 7		☽	19 46		☽	10 20
	☾	5 5		☽	22 43		☽	22 13		☽	16 14
	☾	5 10		☽	1 4		☽	4 9		☽	23 52
	☾	7 38		☽	3 53		☽	6 36		☽	3 16
	☾	7 53		☽	6 31		☽	12 10		☽	5 35
	☾	13 41		☽	10 25		☽	14 23		☽	8 45
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	☾	2 27		☽	5 46		☽	23 33		☽	16 5
	☾	5 23		☽	8 15		☽	10 55		☽	3 21
	☾	9 22		☽	8 42		☽	20 26		☽	7 58
	☾	12 33		☽	11 6		☽	20 59		☽	8 39
	☾	15 57		☽	15 21		☽	3 44		☽	14 39
	☾	17 24		☽	18 40		☽	5 2		☽	16 22
	☾	2 2		☽	20 15		☽	14 2		☽	18 20
	☾	6 46		☽	20 3		☽	14 14		☽	2 19
	☾	6 16		☽			☽	17 17		☽	8 19
	☾	13 25		☽			☽	23 28		☽	16 46
	☾	14 57		☽			☽	0 1		☽	4 35
	☾	21 23		☽			☽	8 6		☽	5 17
	☾	17 25		☽			☽	14 25		☽	9 49
	☾	18 18		☽			☽	2 4		☽	10 15
	☾	19 25		☽			☽	3 20		☽	10 38
	☾	5 31		☽			☽	5 5		☽	19 5
	☾	9 38		☽			☽	8 0		☽	20 25
	☾	10 53		☽			☽	9 33		☽	7 54
	☾	13 30		☽			☽	15 59		☽	12 4
	☾	22 19		☽			☽	17 53		☽	13 50
	☾	8 22		☽			☽	20 0		☽	23 57
	☾	9 43		☽			☽	0 6		☽	0 51
	☾	16 47		☽			☽	12 12		☽	1 17
	☾	50		☽			☽	21 27		☽	10 43
	☾	3		☽			☽	2 2		☽	15 18
	☾	11 55		☽			☽	3 45		☽	15 28
	☾	16 3		☽			☽	5 10		☽	1 30
	☾	18 2		☽			☽	9 9		☽	3 41
	☾	20 47		☽			☽	10 13		☽	6 21
	☾	4 14		☽			☽	16 47		☽	14 55
	☾	8 52		☽			☽	22 37		☽	17 45
	☾	10 48		☽			☽	3 47		☽	19 26
	☾	17		☽			☽	8 46		☽	22 39
	☾			☽			☽	9 41		☽	5 59
	☾			☽			☽	10 48		☽	14 23
	☾			☽			☽			☽	19 58

September

October

November

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
24	☾	0 10	14	☽	16 37	23	☽	17 58		☽	17 58
	☾	0 24		☽	18 6		☽	20 59		☽	20 59
	☾	11 21		☽	4 5		☽	5 8		☽	5 8
	☾	13 39		☽	4 22		☽	9 44		☽	9 44
	☾	20 20		☽	12 10		☽	15 22		☽	15 22
	☾	22 27		☽	15 20		☽	3 40		☽	3 40
	☾	7 16		☽	16 19		☽	15 41		☽	15 41
	☾	9 26		☽	17 51		☽	16 14		☽	16 14
	☾	7 5		☽	20 4		☽	0 36		☽	0 36
	☾	7 46		☽	20 43		☽	2 28		☽	2 28
	☾	11 18		☽	21 8		☽	5 29		☽	5 29
	☾	11 56		☽	14 1		☽	6 49		☽	6 49
	☾	14 49		☽	15 17		☽	11 24		☽	11 24
	☾	1 13		☽	16 56		☽	22 43		☽	22 43
	☾	1 49		☽	18 28		☽	5 1		☽	5 1
	☾	12 24		☽	21 34		☽	11 56		☽	11 56
	☾	1 49		☽	23 23		☽	2 36		☽	2 36
	☾	20 25		☽	16 29		☽	14 55		☽	14 55
	☾	22 39		☽	19 56		☽	18 36		☽	18 36
	☾	0 28		☽	3 19		☽	19 24		☽	19 24
	☾	1 8		☽	8 54		☽	2 13		☽	2 13
	☾	14 42		☽	9 20		☽	6 27		☽	6 27
	☾	12 23		☽	19 54		☽	10 58		☽	10 58
	☾	3 10		☽	20 55		☽	11 9		☽	11 9
	☾	4 54		☽	22 24		☽	14 6		☽	14 6
	☾	3 17		☽	3 14		☽	2 17		☽	2 17
	☾	5 5		☽	10 10		☽	5 50		☽	5 50
	☾	5 33		☽	19 54		☽	6 27		☽	6 27
	☾	6 23		☽	20 55		☽	10 58		☽	10 58
	☾	14 27		☽	22 24		☽	11 9		☽	11 9
	☾			☽	3 14		☽	14 6		☽	14 6
	☾			☽	10 10		☽	2 17		☽	2 17
	☾			☽	19 54		☽	5 50		☽	5 50
	☾			☽	20 55		☽	6 27		☽	6 27
	☾			☽	22 24		☽	10 58		☽	10 58
	☾			☽	3 14		☽	11 9		☽	11 9
	☾			☽	10 10		☽	14 6		☽	14 6
	☾			☽	19 54		☽	2 17		☽	2 17
	☾			☽	20 55		☽	5 50		☽	5 50
	☾			☽	22 24		☽	6 27		☽	6 27
	☾			☽	3 14		☽	10 58		☽	10 58
	☾			☽	10 10		☽	11 9		☽	11 9
	☾			☽	19 54		☽	14 6		☽	14 6
	☾			☽	20 55		☽	2 17		☽	2 17
	☾			☽	22 24		☽	5 50		☽	5 50
	☾			☽	3 14		☽	6 27		☽	6 27
	☾			☽	10 10		☽	10 58		☽	10 58
	☾			☽	19 54		☽	11 9		☽	11 9
	☾			☽	20 55		☽	14 6		☽	14 6
	☾			☽	22 24		☽	2 17		☽	2 17
	☾			☽	3 14		☽	5 50		☽	5 50
	☾			☽	10 10		☽	6 27		☽	6 27
	☾			☽	19 54		☽	10 58		☽	10 58
	☾			☽	20 55		☽	11 9		☽	11 9
	☾			☽	22 24		☽	14 6		☽	14 6
	☾			☽	3 14		☽	2 17		☽	2 17
	☾			☽	10 10		☽	5 50		☽	5 50
	☾			☽	19 54		☽	6 27		☽	6 27
	☾			☽	20 55		☽	10 58		☽	10 58
	☾			☽	22 24		☽	11 9		☽	11 9
	☾			☽	3 14		☽	14 6		☽	14 6
	☾			☽	10 10		☽	2 17		☽	2 17
	☾			☽	19 54		☽	5 50		☽	5 50
	☾			☽	20 55		☽	6 27		☽	6 27
	☾			☽	22 24		☽	10 58		☽	10 58
	☾			☽	3 14		☽	11 9		☽	11 9
	☾			☽	10 10		☽	14 6		☽	14 6
	☾			☽	19 54		☽	2 17		☽	2 17
	☾			☽	20 55		☽	5 50		☽	5 50
	☾			☽	22 24		☽	6 27		☽	6 27
	☾			☽	3 14		☽	10 58		☽	10 58
	☾			☽	10 10		☽	11 9		☽	11 9
	☾			☽	19 54		☽	14 6		☽	14 6
	☾			☽	20 55		☽	2 17		☽	2 17
	☾			☽	22 24		☽	5 50		☽	5 50
	☾			☽	3 14		☽	6 27		☽	6 27
	☾			☽	10 10		☽	10 58		☽	10 58
	☾			☽	19 54		☽	11 9		☽	11 9
	☾			☽	20 55		☽	14 6		☽	14 6
	☾			☽	22 24		☽	2 17		☽	2 17
	☾			☽	3 14		☽	5 50		☽	5 50
	☾			☽	10 10		☽	6 27		☽	6 27
	☾			☽	19 54		☽	10 58		☽	10 58
	☾			☽	20 55		☽	11 9		☽	11 9
	☾			☽	22 24		☽	14 6		☽	14 6
	☾			☽	3 14		☽	2 17		☽	2 17
	☾			☽	10 10		☽	5 50		☽	5 50
	☾			☽	19 54		☽	6 27		☽	6 27
	☾			☽	20 55		☽	10 58		☽	10 58
	☾			☽	22 24		☽	11 9		☽	11 9
	☾			☽	3 14		☽	14 6		☽	14 6
	☾			☽	10 10		☽	2 17		☽	2 17
	☾			☽	19 54		☽	5 50		☽	5 50
	☾			☽	20 55		☽	6 27		☽	6 27
	☾			☽	22 24		☽	10 58		☽	10 58

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
		H. M.			H. M.			H. M.	December		
2	☾☽	4 1	11	☽☾	4 59	21	☽☾	3 11			
	☽☾	15 25		☽☾	6 12		☽☾	9 44			
3	☽☾	16 38		☽☾	13 22	22	☽☾	20 44			
	☽☾	1 27		☽☾	15 54		☽☾	1 3			
	☽☾	2 14		☽☾	18 39		☽☾	1 35			
	☽☾	3 2		☽☾	20 23		☽☾	3 20			
	☽☾	4 40		☽☾	3 41		☽☾	10 28			
	☽☾	7 24		☽☾	5 53		☽☾	11 7			
	☽☾	16 12		☽☾	2 30		☽☾	13 49			
	☽☾	19 10		☽☾	5 22		☽☾	16 18			
4	☽☾	5 6		☽☾	6 41	23	☽☾	3 47			
	☽☾	8 28		☽☾	16 48		☽☾	7 30			
	☽☾	12 4		☽☾	19 31		☽☾	7 48			
	☽☾	18 47		☽☾	20 4		☽☾	8 37			
	☽☾	22 51		☽☾	22 36		☽☾	10 47			
5	☽☾	0 1		☽☾	6 7		☽☾	16 59			
	☽☾	10 36		☽☾	6 2		☽☾	17 40			
	☽☾	11 42		☽☾	8 33		☽☾	20 12			
	☽☾	12 43		☽☾	20 57		☽☾	10 3			
	☽☾	14 4		☽☾	0 48		☽☾	18 35			
6	☽☾	8 38		☽☾	0 48		☽☾	19 41			
	☽☾	23 49		☽☾	5 10		☽☾	23 57			
7	☽☾	0 29		☽☾	8 5		☽☾	2 19			
	☽☾	3 17		☽☾	9 38		☽☾	4 59			
	☽☾	4 27		☽☾	12 23		☽☾	14 0			
	☽☾	15 11		☽☾	18 13		☽☾	18 51			
	☽☾	16 51		☽☾	20 23		☽☾	19 44			
	☽☾	17 40		☽☾	23 21		☽☾	5 5			
8	☽☾	20 5		☽☾	4 1		☽☾	11 19			
	☽☾	4 10		☽☾	6 51		☽☾	12 1			
	☽☾	5 35		☽☾	7 17		☽☾	13 13			
	☽☾	9 20		☽☾	7 52		☽☾	14 20			
	☽☾	18 17		☽☾	10 48		☽☾	16 5			
	☽☾	18 25		☽☾	17 37		☽☾	2 27			
	☽☾	22 31		☽☾	23 40		☽☾	3 54			
9	☽☾	2 2		☽☾	11 39		☽☾	6 10			
	☽☾	6 6		☽☾	14 40		☽☾	18 22			
	☽☾	7 41		☽☾	16 34		☽☾	20 54			
	☽☾	8 48		☽☾	3 56		☽☾	7 52			
	☽☾	16 14		☽☾	7 11		☽☾	10 43			
	☽☾	18 42		☽☾	13 4		☽☾	20 45			
	☽☾	19 2		☽☾	13 47		☽☾	22 15			
10	☽☾	24 2		☽☾	7 46		☽☾	23 18			
	☽☾	2 11		☽☾	22 15		☽☾	1 19			
	☽☾	5 54		☽☾	1 13		☽☾	1 54			
	☽☾	7 2		☽☾	3 25		☽☾	7 8			
	☽☾	16 2		☽☾	15 4		☽☾	11 4			
11	☽☾	2 9		☽☾	18 39		☽☾	11 45			
	☽☾			☽☾	22 9		☽☾	15 20			

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
		H. M.			H. M.			H. M.			H. M.
9	☽☾	2 21		☽☾	5 54		☽☾	17 36		☽☾	14 57
	☽☾	3 26		☽☾	6 5		☽☾	23 57		☽☾	19 7
	☽☾	6 4		☽☾	13 25		☽☾	5 17		☽☾	19 16
	☽☾	9 43		☽☾	18 44		☽☾	7 8		☽☾	19 41
	☽☾	20 21		☽☾	3 56		☽☾	7 21		☽☾	21 21
	☽☾	23 40		☽☾	11 37		☽☾	13 43		☽☾	20 42
10	☽☾	16 26		☽☾	12 16		☽☾	0 45		☽☾	21 31
	☽☾	17 41		☽☾	9 53		☽☾	2 59		☽☾	23 26
	☽☾	20 34		☽☾	12 3		☽☾	15 4		☽☾	1 53
	☽☾	3 38		☽☾	13 11		☽☾	16 45		☽☾	16 35
	☽☾	5 47		☽☾	16 6		☽☾	1 56		☽☾	23 20
	☽☾	7 42		☽☾	23 29		☽☾	4 37		☽☾	23 52
	☽☾	15 6		☽☾	4 32		☽☾	10 14		☽☾	32 59
	☽☾	21 52		☽☾	7 22		☽☾	15 31			
	☽☾	22 56		☽☾	22 14		☽☾	1 6			
12	☽☾	7 38		☽☾	0 2		☽☾	2 31			
	☽☾	7 54		☽☾	4 19		☽☾	9 10			
	☽☾	9 7		☽☾	10 39		☽☾	10 5			
	☽☾	19 7		☽☾	14 50		☽☾	19 36			
	☽☾	20 16		☽☾	16 56		☽☾	4 25			
	☽☾	23 47		☽☾	1 29		☽☾	5 18			
13	☽☾	1 0		☽☾	6 43		☽☾	7 54			
	☽☾	7 2		☽☾	10 20		☽☾	12 40			
	☽☾	10 18		☽☾	11 44		☽☾	13 8			
	☽☾	11 11		☽☾	17 12		☽☾	13 45			
	☽☾	21 30		☽☾	22 38		☽☾	17 59			
	☽☾	22 56		☽☾	2 6		☽☾	23 8			
	☽☾	23 15		☽☾	6 0		☽☾	8 34			
14	☽☾	3 51		☽☾	12 58		☽☾	12 41			
	☽☾	9 46		☽☾	8 3		☽☾	15 13			
	☽☾	19 58		☽☾	12 58		☽☾	16 12			
	☽☾	0 44		☽☾	22 30		☽☾	16 48			
	☽☾	2 12		☽☾	10 18		☽☾	21 0			
15	☽☾	4 51		☽☾	14 33		☽☾	11 19			

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
January			12	L	H. 2	13	L	H. 10	13	L	H. 1
1	☉	20	13	☉	3	14	☉	14	14	☉	7
2	☉	23	14	☉	4	15	☉	15	15	☉	20
3	☉	58	15	☉	13	16	☉	12	16	☉	0
4	☉	54	16	☉	20	17	☉	22	17	☉	19
5	☉	14	17	☉	3	18	☉	9	18	☉	2
6	☉	0	18	☉	6	19	☉	12	19	☉	6
7	☉	11	19	☉	15	20	☉	12	20	☉	9
8	☉	28	20	☉	19	21	☉	18	21	☉	15
9	☉	41	21	☉	20	22	☉	21	22	☉	5
10	☉	38	22	☉	12	23	☉	14	23	☉	22
11	☉	25	23	☉	9	24	☉	10	24	☉	1
12	☉	20	24	☉	21	25	☉	7	25	☉	14
13	☉	3	25	☉	15	26	☉	6	26	☉	4
14	☉	8	26	☉	3	27	☉	1	27	☉	16
15	☉	16	27	☉	9	28	☉	21	28	☉	10
16	☉	28	28	☉	7	29	☉	19	29	☉	17
17	☉	41		☉	13	30	☉	35	30	☉	24
18	☉	5		☉	23	31	☉	2		☉	1
19	☉	11		☉	32						
20	☉	28		☉	4						
21	☉	57		☉	22						
22	☉	3		☉	57						
23	☉	3		☉	29						
24	☉	13		☉	23						
25	☉	23		☉	9						
26	☉	13		☉	13						
27	☉	4		☉	5						
28	☉	5		☉	11						
29	☉	32		☉	32						
30	☉	4		☉	22						
31	☉	29		☉	12						
		6		☉	23						
		38		☉	9						
		2		☉	2						
		3		☉	3						
		47		☉	47						
		26		☉	26						
		55		☉	55						
		39		☉	39						
		46		☉	46						
		1		☉	1						
		15		☉	15						
		29		☉	29						
		1		☉	1						
		15		☉	15						
		29		☉	29						
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		29		☉	29						
		1		☉	1						
		15		☉	15						
		29		☉	29						
		1		☉	1						
		15		☉	15						
		29		☉	29						
		1		☉	1						
		15		☉	15						
		29		☉	29						
		1		☉	1						
		15		☉	15						
		29		☉	29						
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		15		☉	15						
		29		☉	29						
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		15		☉	15						
		29		☉	29						
		1		☉	1						
		15		☉	15						
		29		☉	29						
		1		☉	1						
		15		☉	15						
		29		☉	29						
		1		☉	1						
		15		☉	15						
		29		☉	29						
		1		☉	1						

[illegible]

[illegible]

Table of Ascendants for Latitudes 7° to 20°.

Sid. Time.	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	20°	
H. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	
0	0 92 48 93 12 93 34 94 0 94 25 94 50 95 15 95 40 96 5 96 30 96 56 97 22 97 47 98 1°														
15	96 13 96 37 97 1 97 25 97 50 98 14 98 39 99 2 99 28 99 53 100 18 100 44 101 10 101 36														
30	99 39 100 3 100 27 100 50 101 14 101 38 102 3 102 27 102 51 103 15 103 40 104 5 104 31 104 59														
45	102 3 103 28 103 52 104 15 104 39 105 3 105 27 105 50 106 15 106 38 107 3 107 27 107 52 108 17														
1	0 106 31 106 54 107 16 107 40 108 3 108 26 108 49 109 13 109 36 110 0 110 23 110 47 111 11 111 36														
15	109 58 110 20 110 42 111 5 111 28 111 51 112 13 112 36 112 59 113 21 113 45 114 8 114 31 114 54														
30	113 24 113 47 114 9 114 31 114 53 115 15 115 37 115 59 116 21 116 43 117 6 117 28 117 51 118 14														
45	116 54 117 14 117 36 117 58 118 40 119 2 119 23 119 45 120 6 120 27 120 49 121 11 121 32 121 53														
2	0 120 32 120 44 121 4 121 25 121 45 122 7 122 27 122 47 123 9 123 29 123 50 124 11 124 32 124 53														
15	123 53 124 14 124 34 124 55 125 14 125 34 125 53 126 13 126 33 126 53 127 13 127 33 127 53 128 13														
30	127 26 127 45 128 4 128 24 128 42 129 1 129 21 129 39 129 58 130 17 130 37 130 56 131 15 131 34 131 56														
45	131 1 131 18 131 37 131 56 132 13 132 31 132 49 133 7 133 25 133 43 134 1 134 20 134 38 134 56														
3	0 134 37 134 54 135 12 135 29 135 45 136 2 136 19 136 36 136 53 137 10 137 26 137 43 138 0 138 17														
15	138 14 138 31 138 47 139 4 139 19 139 35 139 51 140 6 140 31 140 46 141 10 141 25 141 41 141 56														
30	141 53 142 10 142 25 142 40 142 55 143 10 143 25 143 39 143 54 144 8 144 23 144 37 144 52 145 6														
45	145 36 145 50 146 4 146 19 146 33 146 48 147 12 147 27 147 42 148 5 148 20 148 35 148 50 149 5 149 20														
4	0 149 20 149 33 149 45 149 59 150 10 150 22 150 35 150 47 151 11 151 23 151 35 151 46 151 58 152 0														
15	153 6 153 17 153 29 153 40 153 50 154 0 154 11 154 22 154 33 154 43 154 55 155 5 155 15 155 28														
30	156 54 157 3 157 12 157 22 157 32 157 41 157 51 158 0 158 11 158 21 158 31 158 41 158 51 159 0														
45	160 41 160 51 161 2 161 12 161 21 161 31 161 41 161 51 162 0 162 10 162 20 162 30 162 40 162 50														
5	0 164 33 164 39 164 45 164 51 164 58 165 4 165 11 165 17 165 23 165 29 165 35 165 41 165 47 165 53														
15	168 22 168 28 168 33 168 38 168 43 168 48 168 53 169 0 169 5 169 10 169 15 169 20 169 25 169 30														
30	172 16 172 19 172 21 172 24 172 28 172 31 172 35 172 37 172 40 172 44 172 47 172 51 172 54 172 57														
45	176 6 176 9 176 11 176 14 176 17 176 18 176 19 176 20 176 21 176 22 176 23 176 24 176 25 176 26														
5	0 180 0 180 0 180 0 180 0 180 0 180 0 180 0 180 0 180 0 180 0 180 0 180 0 180 0 180 0 180 0														

Table of Ascendants for Latitudes 7° to 20°—(contd.)

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Sid. Time.	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	20°
H. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
0	180	0180	0180	0180	0180	0180	0180	0180	0180	0180	0180	0180	0180	0180
15	183	53183	51183	49183	48183	46183	45183	42183	41183	40183	38183	37183	36183	33183
30	187	45187	41187	39187	36187	32187	29187	25187	23187	20187	16187	13187	9187	6187
45	191	36191	32191	27191	22191	17191	13191	8191	3190	58190	53190	49190	44190	40190
7	0	195	27195	22195	15195	9195	2194	56194	49194	43194	37194	30194	24194	18194
15	199	19199	10199	2198	52198	46198	37198	25198	18198	14198	6198	0197	51197	44197
30	203	7202	57202	48202	38202	28202	19202	9202	0201	51201	41201	32201	23201	14201
45	206	55206	43206	31206	20206	10205	59205	49205	38205	27205	17205	5204	55204	45204
8	0	210	40210	27210	15210	1209	50209	38209	25209	13209	49208	37208	25208	14208
15	214	24214	10213	56213	41213	29213	15213	1212	48212	33212	21212	8211	55211	41211
30	218	4217	50217	35217	20217	5216	50216	35216	21216	6215	52215	37215	23215	8214
45	221	46221	30221	13220	56220	41220	25220	9219	54219	38219	22219	6218	50218	35218
9	0	225	6224	49224	31224	15223	58223	41223	24223	7222	50222	34222	17222	0221
15	229	0228	42228	23228	4227	47227	29227	11226	53226	35226	17225	59225	40225	22225
30	232	15231	56231	36231	18230	59230	26230	56230	21230	22229	43229	27229	42228	25228
45	236	6235	46235	26235	5234	46234	26234	7233	47233	27233	7232	47232	27232	7231
10	0	239	17238	56238	35238	15237	53237	33237	13236	51236	31236	10235	49235	29235
15	243	7242	46242	24242	2241	41241	20240	58240	37240	15239	54239	33239	11238	4238
30	246	36246	13245	51245	29245	7244	45244	23244	1243	39243	17242	5242	32242	9241
45	250	2249	18248	55248	32248	32248	9247	47247	25247	1246	39246	15245	52245	29245
11	0	253	29253	7252	44252	20251	57251	34251	47250	24250	0249	37249	13248	49248
15	256	56256	32256	8255	45255	21254	57254	33254	10253	45253	22252	57252	33252	8251
30	260	21259	57259	34259	10258	24258	52257	58257	35257	9256	45256	20255	55255	29255
45	263	47263	23262	59262	35262	10261	46261	21260	57260	32260	7259	42259	16258	50258
12	0	267	13266	48266	23266	0265	35265	10264	45264	20263	55263	30263	4262	38262

Table of Ascendants for Latitudes 7° to 20°—(contd.)

59

Sid. Time.	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	20°
H. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
12	0	267	13266	48266	23266	0265	35265	10264	45264	20263	55263	30263	4262	38262
15	270	38270	14269	49269	25269	0268	35268	10267	44267	19266	53266	27266	1265	34265
30	274	4273	41273	17272	51272	27272	2271	36271	11270	47270	21269	55269	27269	0268
45	277	34277	9276	44276	20275	55275	30275	4274	39274	13273	47273	21272	54272	27271
13	0	281	3280	38280	14279	50279	0278	35278	9277	43277	17276	51276	24275	57275
15	284	34284	10283	45283	21282	56282	31282	6281	41281	15280	48280	22279	55279	28278
30	288	8287	44287	19286	55286	30286	6285	41285	15284	50284	24283	58283	30283	3282
45	291	41291	19290	55290	32290	7289	43289	18288	53288	27288	0287	35287	8286	41286
14	0	295	19294	56294	33294	11293	46293	22292	58292	34292	8291	42291	17290	50290
15	299	0298	38298	15297	52297	28297	52296	41296	16295	52295	27295	2294	35294	9293
30	302	43302	21301	59301	37301	14300	51300	28300	4299	40299	15298	50298	25297	59297
45	306	29306	8305	46305	27305	3304	41304	18303	55303	32303	5306	41306	17305	52305
15	310	17309	59309	38309	17308	56308	35308	13307	51307	28307	5306	41306	17305	52305
30	314	11313	52313	32313	12312	52312	32312	12311	51311	30311	6310	45310	31314	9313
45	318	7317	50317	32321	12316	55316	34316	15315	55315	35315	14314	53314	31314	9313
16	0	322	6321	50321	32321	18320	58320	41320	34324	0323	42323	23223	5322	45322
15	326	11325	55325	39325	24325	7324	5324	34324	17324	0323	42323	23223	5322	45322
30	330	14330	23329	48329	33329	20329	53229	34328	34328	18328	23227	46327	29327	10326
45	334	25334	11334	0333	47333	35333	22333	9332	56332	41332	28332	13331	58331	42331
17	0	338	37338	25338	15338	5337	42337	31337	19337	8336	56336	43336	30336	17336
15	342	37342	41342	33342	25342	15342	6341	58341	48341	38341	28341	17341	7340	56340
30	346	53346	58346	52346	47346	39346	33346	25346	18346	11346	3345	55345	47345	39345
45	351	22351	18351	15351	11351	6351	1350	56350	51350	46350	41350	36350	30350	25350
18	0	355	42355	40355	38355	34355	31355	29355	26355	23355	20355	17355	15355	13355

Table of Ascendants for Latitudes 7° to 20°.—(contd.)

Sid. Time.	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	20°
H. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
18 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 4	19	4	23	4	27	4	31	4	34	4	37	4	40	4
30 8	37	8	46	8	54	8	59	9	9	9	14	9	19	9
45 12	56	13	2	13	13	21	13	27	13	35	13	42	13	49
19 0	17	14	17	19	17	27	18	22	18	22	18	22	18	22
15 21	27	21	35	21	45	21	35	22	22	22	22	22	22	22
30 25	35	25	48	30	26	25	38	26	26	26	26	26	26	26
45 29	46	29	58	30	12	30	40	30	55	31	11	31	26	31
20 0	33	51	34	5	34	5	34	5	34	5	34	5	34	5
15 37	54	38	10	38	27	38	52	39	2	39	19	39	37	57
30 41	53	42	10	42	28	42	48	43	5	43	26	43	45	4
45 47	48	46	9	46	28	46	48	47	8	47	28	47	48	9
21 0	49	42	50	2	50	22	50	43	51	4	51	25	51	47
15 53	30	53	52	54	14	54	33	54	57	55	19	55	42	56
30 57	17	57	39	58	1	58	23	58	46	59	9	59	32	59
45 61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
22 0	64	41	65	4	65	27	65	49	66	14	66	38	67	2
15 68	19	68	41	69	5	69	23	69	53	70	17	70	42	71
30 71	53	72	17	72	41	73	5	73	30	73	54	74	19	74
45 75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
23 0	78	58	79	21	83	16	83	16	83	40	84	5	84	30
15 82	28	82	51	83	16	83	16	83	16	83	40	84	5	84
30 85	45	86	19	86	43	87	9	87	33	87	58	88	24	88
45 89	21	89	46	90	11	90	35	91	0	91	25	91	50	92
24 0	92	48	93	12	93	12	93	12	93	12	93	12	93	12

Table of Ascendants for Latitudes 21° to 34°.—(contd.)

Sid. Time.	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°	32°	33°	34°
H. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
0 0	98	41	99	35	100	31	100	59	101	27	101	56	102	34
15 102	2	102	28	102	55	103	22	103	49	104	17	104	45	105
30 105	22	105	48	106	4	107	7	107	33	108	2	108	29	109
45 108	42	109	7	109	32	110	49	111	16	111	43	112	26	113
1 0	112	0	112	49	113	14	113	39	114	5	114	31	114	56
15 115	18	115	42	116	16	116	30	116	54	117	19	117	44	118
30 118	39	119	0	119	23	119	33	120	33	120	57	121	46	122
45 121	54	122	17	122	38	123	2	123	47	124	9	124	32	125
2 0	125	14	125	57	126	18	126	39	127	1	127	23	127	45
15 128	31	128	53	129	14	129	34	129	54	130	15	130	36	131
30 131	54	132	13	132	35	132	51	133	10	133	30	133	50	134
45 135	15	135	32	135	50	136	7	136	26	136	44	137	31	137
3 0	138	34	138	52	139	9	139	26	139	43	140	0	140	17
15 141	57	142	13	142	29	142	45	143	1	143	17	143	33	144
30 145	20	145	35	145	50	146	5	146	19	146	33	146	48	147
45 148	45	148	59	149	12	149	26	149	38	149	51	150	5	150
4 0	152	0	152	22	152	32	152	46	152	58	153	10	153	22
15 155	36	155	47	155	58	156	8	156	19	156	30	156	40	157
30 159	4	159	13	159	22	159	31	159	40	159	50	159	59	160
45 162	35	162	44	162	50	162	56	162	61	162	66	162	71	163
5 0	166	2	166	8	166	14	166	20	166	26	166	31	166	36
15 169	30	169	35	169	40	169	45	169	50	169	55	169	60	170
30 173	0	173	3	173	6	173	9	173	12	173	15	173	18	173
45 176	29	176	32	176	33	176	34	176	35	176	36	176	37	176
6 0	180	0	180	0	180	0	180	0	180	0	180	0	180	0

Table of Ascendants for Latitudes 21° to 34°.—(contd.)

Sid.	Time.	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°	32°	33°	34°
M.		°	°	°	°	°	°	°	°	°	°	°	°	°	°
6	0	180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	6 180	0 180	0 180	0 180	0 180	0
	15	183	31 183	28 183	27 183	26 183	24 183	22 183	20 183	19 183	17 183	16 183	15 183	13 183	10 183
	30	187	0 186	57 186	54 186	46 186	45 186	41 186	39 186	36 186	36 186	32 186	29 186	26 186	23 186
	45	190	30 190	25 190	20 190	16 189	12 190	7 190	2 189	58 189	53 189	47 189	43 189	38 189	34 189
7	0	193	58 193	52 193	46 193	40 193	34 193	28 193	22 193	16 193	10 193	3 192	57 192	51 192	44 192
	15	197	29 197	20 197	14 197	1 196	57 196	50 196	42 196	35 196	27 196	19 196	11 196	3 195	54 195
	30	200	56 200	47 200	38 200	29 200	20 200	10 200	1 199	52 199	42 199	33 199	24 199	14 199	5 198
	45	204	24 204	13 204	2 203	52 203	41 203	30 203	20 203	9 202	58 202	47 202	37 202	26 202	15 202
8	0	207	50 207	38 207	27 207	14 207	2 206	50 206	38 2 2	25 206	13 206	1 205	49 205	36 205	24 205
	15	211	15 211	1 210	48 210	34 210	22 210	9 209	55 209	41 209	27 209	14 209	1 208	47 208	32 208
	30	214	40 214	25 214	10 213	55 213	42 213	27 213	12 212	57 212	42 212	27 212	11 211	56 211	41 211
	45	218	3 217	47 217	31 217	15 216	59 216	43 216	27 216	11 215	55 215	37 215	21 215	5 214	48 214
9	0	221	26 221	8 220	51 220	34 220	17 220	0 219	43 219	26 219	9 218	49 218	32 218	15 217	57 217
	15	224	46 224	28 224	10 223	53 223	34 223	16 222	57 222	38 222	19 221	59 221	42 221	23 221	3 220
	30	228	4 227	47 227	28 227	9 226	50 226	30 226	10 225	51 225	31 225	10 224	50 224	30 224	9 223
	45	231	29 231	7 230	46 230	26 230	6 229	45 229	24 229	3 228	41 228	20 227	58 227	37 227	15 226
10	0	234	46 234	25 234	3 233	42 233	21 232	59 232	37 232	15 231	52 231	29 231	16 230	45 230	23 229
	15	238	6 237	43 237	21 236	58 236	36 236	13 235	51 235	28 235	4 234	39 234	16 233	53 233	28 233
	30	241	22 241	0 240	37 240	14 239	50 239	27 239	3 238	39 238	14 237	49 237	25 237	0 236	35 236
	45	244	42 244	18 243	54 243	30 243	6 242	41 242	16 241	5 241	26 241	0 240	35 240	9 239	42 239
11	0	248	0 247	36 247	11 246	46 246	21 245	55 245	29 245	4 244	38 244	11 243	44 243	17 242	50 242
	15	251	18 250	53 250	28 250	3 249	37 249	11 248	44 248	17 247	49 247	22 246	54 246	26 245	58 245
	30	254	38 254	12 253	46 253	20 252	53 252	26 251	58 251	31 251	2 250	34 250	4 249	36 249	7 248
	45	257	58 257	32 257	5 256	38 256	11 255	43 255	15 254	46 254	17 253	48 253	19 252	49 252	18 251
12	0	261	19 260	52 260	25 259	57 259	29 259	1 258	31 258	4 257	34 257	3 256	34 256	3 255	31 254

[illegible]

Table of Ascendants for Latitudes 21° to 34°.—(concl'd.)

Sid. Time.	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°	32°	33°	34°
H. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
18 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	0 0
15 15	4 53	4 56	5 5	5 10	5 13	5 17	5 14	5 18	5 22	5 27	5 31	5 36	5 41	5 46
30 0	9 46	9 53	10 1	10 5	10 13	10 17	10 19	10 35	10 43	10 52	11 1	11 11	11 16	11 21
45 0	14 36	14 47	15 15	15 20	15 25	15 30	15 33	15 49	16 1	16 16	16 21	16 22	16 25	16 30
19 0	19 26	19 38	19 51	20 4	20 17	20 30	20 44	21 0	21 16	21 31	21 48	22 6	22 25	22 44
15 15	24 11	24 25	24 41	24 57	25 12	25 29	25 46	26 5	26 24	26 43	27 3	27 24	27 47	28 8
30 0	28 51	29 7	29 25	29 44	30 3	30 22	30 42	31 3	31 25	31 48	32 7	32 35	33 1	33 28
45 0	33 27	33 45	34 4	34 25	34 46	35 8	35 30	35 54	36 18	36 44	37 7	37 36	38 5	38 35
20 0	37 55	38 17	38 39	39 1	39 24	39 48	40 12	40 37	41 5	41 33	42 1	42 30	43 1	43 31
15 15	42 19	42 42	43 4	43 29	43 54	44 20	44 46	45 13	45 42	46 12	46 41	47 12	47 45	48 18
30 0	46 38	47 1	47 26	47 52	48 18	48 45	49 13	49 42	50 12	50 43	51 15	51 47	52 22	52 55
45 0	50 51	51 16	51 42	52 9	52 36	53 5	53 34	54 4	54 36	55 8	55 40	56 14	56 50	57 26
21 0	54 58	55 24	55 52	56 19	56 47	57 17	57 50	58 18	58 50	59 24	59 57	60 32	61 8	61 45
15 15	58 58	59 26	59 53	60 22	60 51	61 21	61 50	62 22	62 55	63 29	64 3	64 38	65 15	65 53
30 0	62 55	63 22	63 51	64 20	64 48	65 19	65 49	66 22	66 55	67 30	68 3	68 40	69 17	69 54
45 0	66 46	67 14	67 43	68 12	68 42	69 14	69 44	70 17	70 50	71 25	71 59	72 35	73 11	73 47
22 0	70 32	71 1	71 30	72 0	72 29	73 1	73 31	74 5	74 38	75 12	75 46	76 24	76 59	77 35
15 15	74 14	74 43	75 12	75 42	76 11	76 43	77 13	77 47	78 20	78 55	79 28	80 3	80 40	81 16
30 0	77 57	78 27	78 51	79 21	79 50	80 23	80 56	81 25	81 54	82 32	83 6	83 41	84 17	84 52
45 0	81 28	81 57	82 25	82 55	83 24	83 56	84 26	84 58	85 31	86 5	86 38	87 12	87 48	88 24
23 0	84 59	85 27	85 56	86 26	86 54	87 26	87 56	88 27	88 59	89 33	90 6	90 39	91 14	91 49
15 15	88 28	88 56	89 25	89 54	90 22	90 53	91 23	91 54	92 26	92 59	93 31	94 4	94 38	95 11
30 0	91 54	92 22	92 52	93 19	93 48	94 18	94 48	95 18	95 49	96 4	96 52	97 24	97 58	98 31
45 0	95 19	95 46	96 15	96 42	97 11	97 40	98 8	98 38	99 9	99 41	100 11	100 42	101 15	101 48
24 0	98 41	99 8	99 35	100 3	100 31	100 59	101 27	101 56	102 26	102 57	103 26	103 57	104 29	105 8

LOGARITHMIC TABLE

Hours or Degrees

Min.	0	1	2	3	4	5	6	7	8	9	10	11	12
0	3.1584	1.3802	1.0792	.9031	.7781	.6812	.6021	.5351	.4771	.4260	.3802	.3388	0
1	3.1584	1.3730	1.0756	.9007	.7763	.6798	.6009	.5341	.4762	.4252	.3797	.3382	1
2	2.8573	1.3660	1.0720	.8983	.7745	.6784	.5997	.5330	.4753	.4244	.3788	.3375	2
3	2.6812	1.3590	1.0685	.8959	.7728	.6769	.5985	.5320	.4744	.4236	.3780	.3368	3
4	2.5563	1.3522	1.0649	.8935	.7710	.6755	.5973	.5310	.4735	.4228	.3773	.3362	4
5	2.4594	1.3454	1.0614	.8912	.7692	.6741	.5961	.5300	.4726	.4220	.3766	.3355	5
6	.3802	1.3388	1.0580	.8888	.7674	.6726	.5949	.5289	.4707	.4212	.3759	.3349	6
7	2.3133	1.3323	1.0546	.8865	.7657	.6712	.5937	.5279	.4708	.4204	.3752	.3342	7
8	2.2553	1.3258	1.0511	.8842	.7639	.6698	.5925	.5269	.4699	.4196	.3745	.3336	8
9	2.2041	1.3195	1.0478	.8819	.7622	.6684	.5913	.5259	.4690	.4188	.3737	.3329	9
10	2.1584	1.3133	1.0444	.8796	.7604	.6670	.5902	.5249	.4682	.4180	.3730	.3323	10
11	2.1170	1.3071	1.0411	.8773	.7587	.6656	.5890	.5239	.4673	.4172	.3723	.3316	11
12	2.0792	1.3010	1.0378	.8751	.7570	.6642	.5878	.5229	.4664	.4164	.3716	.3310	12
13	2.0444	1.2950	1.0345	.8728	.7552	.6628	.5866	.5219	.4655	.4156	.3709	.3303	13
14	2.0122	1.2891	1.0313	.8706	.7535	.6614	.5855	.5209	.4646	.4148	.3702	.3297	14
15	1.9823	1.2833	1.0280	.8683	.7518	.6600	.5843	.5199	.4638	.4141	.3695	.3291	15
16	1.9542	1.2775	1.0248	.8661	.7501	.6587	.5832	.5189	.4629	.4133	.3688	.3284	16
17	1.9279	1.2719	1.0216	.8639	.7484	.6573	.5820	.5179	.4620	.4125	.3681	.3278	17
18	1.9031	1.2663	1.0185	.8617	.7467	.6559	.5809	.5169	.4611	.4117	.3674	.3271	18
19	1.8796	1.2607	1.0153	.8595	.7451	.6546	.5797	.5159	.4603	.4109	.3667	.3265	19
20	1.8573	1.2553	1.0122	.8573	.7434	.6532	.5786	.5149	.4594	.4102	.3660	.3258	20
21	1.8361	1.2499	1.0091	.8552	.7417	.6519	.5774	.5139	.4585	.4094	.3653	.3252	21
22	1.8159	1.2445	1.0061	.8530	.7401	.6505	.5761	.5129	.4577	.4086	.3646	.3246	22
23	1.7966	1.2393	1.0030	.8509	.7384	.6492	.5752	.5120	.4568	.4079	.3639	.3239	23
24	1.7781	1.2341	1.0000	.8487	.7368	.6478	.5740	.5110	.4559	.4071	.3632	.3233	24
25	1.7604	1.2289	.9970	.8466	.7351	.6465	.5729	.5100	.4551	.4063	.3625	.3227	25
26	1.7434	1.2239	.9940	.8445	.7335	.6451	.5718	.5090	.4542	.4055	.3618	.3220	26
27	1.7270	1.2188	.9910	.8424	.7318	.6438	.5706	.5081	.4534	.4048	.3611	.3214	27
28	1.7112	1.2139	.9881	.8403	.7302	.6425	.5695	.5071	.4525	.4040	.3604	.3208	28
29	1.6960	1.2090	.9852	.8382	.7286	.6412	.5684	.5061	.4516	.4032	.3597	.3201	29

LOGARITHMIC TABLE—(contd.)

Hours or Degrees

Min.	0	1	2	3	4	5	6	7	8	9	10	11	Min.
30	1.6812	1.2041	.9823	.8361	.7270	.6398	.5673	.5051	.4508	.4025	.3590	.3195	30
31	1.6670	1.1993	.9794	.8341	.7254	.6385	.5662	.5042	.4499	.4017	.3583	.3189	31
32	1.6532	1.1946	.9765	.8327	.7238	.6372	.5651	.5032	.4491	.4010	.3576	.3183	32
33	1.6398	1.1899	.9737	.8300	.7222	.6359	.5640	.5023	.4482	.4002	.3570	.3176	33
34	1.6269	1.1852	.9708	.8279	.7206	.6346	.5629	.5013	.4474	.3994	.3563	.3170	34
35	1.6143	1.1806	.9680	.8259	.7190	.6333	.5618	.5003	.4466	.3987	.3556	.3164	35
36	1.6021	1.1761	.9652	.8239	.7174	.6320	.5607	.4994	.4457	.3979	.3549	.3157	36
37	1.5902	1.1716	.9625	.8219	.7159	.6307	.5596	.4984	.4449	.3972	.3542	.3151	37
38	1.5786	1.1671	.9597	.8199	.7143	.6294	.5585	.4975	.4440	.3964	.3535	.3145	38
39	1.5673	1.1627	.9570	.8179	.7128	.6282	.5573	.4965	.4432	.3957	.3529	.3139	39
40	1.5563	1.1584	.9542	.8159	.7112	.6269	.5563	.4956	.4424	.3949	.3522	.3133	40
41	1.5456	1.1540	.9515	.8140	.7097	.6256	.5552	.4947	.4415	.3942	.3515	.3126	41
42	1.5351	1.1498	.9488	.8120	.7081	.6243	.5541	.4937	.4407	.3934	.3508	.3120	42
43	1.5249	1.1455	.9462	.8101	.7066	.6231	.5531	.4928	.4399	.3927	.3501	.3114	43
44	1.5149	1.1413	.9435	.8081	.7035	.6218	.5520	.4918	.4390	.3919	.3495	.3108	44
45	1.5051	1.1372	.9409	.8062	.7035	.6205	.5509	.4909	.4382	.3912	.3488	.3102	45
46	1.4956	1.1331	.9383	.8042	.7020	.6193	.5498	.4900	.4374	.3905	.3481	.3096	46
47	1.4863	1.1290	.9356	.8023	.7005	.6180	.5488	.4890	.4365	.3897	.3475	.3089	47
48	1.4771	1.1249	.9330	.8004	.6990	.6168	.5477	.4881	.4357	.3890	.3468	.3083	48
49	1.4682	1.1209	.9305	.7985	.6975	.6155	.5466	.4872	.4349	.3882	.3461	.3077	49
50	1.4594	1.1170	.9279	.7966	.6960	.6143	.5456	.4863	.4341	.3875	.3454	.3071	50
51	1.4508	1.1130	.9254	.7947	.6945	.6131	.5445	.4853	.4333	.3868	.3448	.3065	51
52	1.4424	1.1091	.9228	.7929	.6930	.6118	.5435	.4844	.4324	.3860	.3441	.3059	52
53	1.4341	1.1053	.9203	.7910	.6915	.6101	.5424	.4835	.4316	.3853	.3434	.3053	53
54	1.4260	1.1015	.9178	.7891	.6895	.6094	.5414	.4826	.4308	.3846	.3428	.3047	54
55	1.4180	1.0977	.9153	.7873	.6881	.6081	.5403	.4817	.4300	.3838	.3421	.3041	55
56	1.4102	1.0939	.9128	.7854	.6871	.6069	.5393	.4808	.4292	.3834	.3415	.3034	56
57	1.4025	1.0902	.9104	.7836	.6856	.6057	.5382	.4798	.4284	.3824	.3408	.3028	57
58	1.3949	1.0865	.9079	.7818	.6841	.6045	.5372	.4789	.4276	.3817	.3401	.3022	58
59	1.3875	1.0828	.9055	.7800	.6827	.6033	.5361	.4780	.4268	.3809	.3395	.3016	59

LOGARITHMIC TABLE—(contd.)

Hours or Degrees

Min.	12	13	14	15	16	17	18	19	20	21	22	23	Min.
0	.3010	.2663	.2341	.2041	.1761	.1498	.1249	.1015	.0792	.0580	.0378	.0185	0
1	.3004	.2657	.2336	.2036	.1756	.1493	.1241	.1011	.0788	.0576	.0375	.0182	1
2	.2998	.2652	.2330	.2032	.1752	.1489	.1241	.1007	.0785	.0573	.0371	.0179	2
3	.2992	.2646	.2325	.2027	.1747	.1485	.1237	.1003	.0781	.0570	.0368	.0175	3
4	.2986	.2640	.2320	.2022	.1743	.1481	.1233	.0999	.0778	.0566	.0363	.0172	4
5	.2980	.2635	.2315	.2017	.1738	.1476	.1229	.0996	.0774	.0563	.0361	.0169	5
6	.2974	.2629	.2310	.2012	.1734	.1472	.1225	.0992	.0770	.0559	.0358	.0166	6
7	.2968	.2624	.2305	.2008	.1729	.1468	.1221	.0988	.0766	.0556	.0355	.0163	7
8	.2962	.2618	.2300	.2003	.1725	.1464	.1217	.0984	.0763	.0552	.0352	.0160	8
9	.2956	.2613	.2295	.1998	.1720	.1459	.1213	.0980	.0759	.0549	.0348	.0157	9
10	.2950	.2607	.2289	.1993	.1716	.1455	.1209	.0977	.0756	.0546	.0345	.0154	10
11	.2944	.2602	.2284	.1988	.1711	.1451	.1205	.0973	.0752	.0542	.0342	.0150	11
12	.2938	.2596	.2279	.1984	.1707	.1447	.1201	.0969	.0749	.0539	.0339	.0147	12
13	.2933	.2591	.2274	.1979	.1702	.1443	.1197	.0965	.0745	.0535	.0335	.0144	13
14	.2927	.2585	.2269	.1974	.1698	.1438	.1193	.0962	.0741	.0531	.0332	.0141	14
15	.2921	.2580	.2264	.1969	.1694	.1434	.1190	.0958	.0738	.0529	.0329	.0138	15
16	.2915	.2574	.2259	.1965	.1689	.1430	.1186	.0954	.0734	.0525	.0326	.0135	16
17	.2909	.2569	.2253	.1960	.1685	.1426	.1182	.0950	.0731	.0522	.0322	.0132	17
18	.2903	.2564	.2249	.1955	.1680	.1422	.1178	.0947	.0727	.0518	.0319	.0129	18
19	.2897	.2558	.2244	.1950	.1676	.1417	.1174	.0943	.0724	.0515	.0316	.0125	19
20	.2891	.2553	.2239	.1946	.1671	.1413	.1170	.0939	.0720	.0512	.0313	.0122	20
21	.2885	.2547	.2234	.1941	.1667	.1409	.1166	.0935	.0716	.0508	.0309	.0119	21
22	.2880	.2542	.2229	.1936	.1662	.1405	.1162	.0932	.0713	.0505	.0306	.0116	22
23	.2874	.2536	.2223	.1932	.1658	.1401	.1158	.0928	.0709	.0501	.0303	.0113	23
24	.2868	.2531	.2218	.1927	.1654	.1397	.1154	.0924	.0706	.0498	.0300	.0110	24
25	.2862	.2526	.2213	.1922	.1649	.1392	.1150	.0920	.0702	.0495	.0296	.0107	25
26	.2856	.2520	.2208	.1917	.1645	.1388	.1146	.0917	.0699	.0491	.0293	.0104	26
27	.2850	.2515	.2203	.1913	.1640	.1384	.1142	.0913	.0695	.0488	.0290	.0101	27
28	.2845	.2509	.2198	.1908	.1636	.1380	.1138	.0909	.0692	.0484	.0287	.0098	28
29	.2839	.2504	.2193	.1903	.1632	.1376	.1134	.0906	.0698	.0481	.0284	.0095	29

Hours or Degrees

Min.	12	13	14	15	16	17	18	19	20	21	22	23	Min.
30	.2833	.2499	.2188	.1899	.1627	.1372	.1130	.0902	.0685	.0478	.0280	.0091	30
31	.2827	.2493	.2183	.1894	.1623	.1368	.1127	.0898	.0681	.0474	.0277	.0088	31
32	.2821	.2488	.2178	.1889	.1618	.1363	.1123	.0894	.0678	.0471	.0274	.0085	32
33	.2816	.2483	.2173	.1885	.1614	.1359	.1119	.0891	.0674	.0468	.0271	.0082	33
34	.2810	.2477	.2168	.1880	.1610	.1355	.1115	.0887	.0670	.0464	.0267	.0079	34
35	.2804	.2472	.2164	.1875	.1605	.1351	.1111	.0883	.0667	.0461	.0264	.0076	35
36	.2798	.2467	.2159	.1871	.1601	.1357	.1107	.0880	.0663	.0458	.0261	.0073	36
37	.2793	.2461	.2154	.1866	.1597	.1343	.1103	.0876	.0660	.0454	.0258	.0070	37
38	.2787	.2456	.2149	.1862	.1592	.1339	.1099	.0872	.0656	.0451	.0255	.0067	38
39	.2781	.2451	.2144	.1857	.1588	.1335	.1095	.0869	.0652	.0448	.0251	.0064	39
40	.2775	.2445	.2139	.1852	.1584	.1331	.1091	.0865	.0649	.0444	.0248	.0061	40
41	.2770	.2440	.2134	.1848	.1579	.1326	.1088	.0861	.0646	.0441	.0245	.0058	41
42	.2764	.2435	.2129	.1843	.1575	.1322	.1084	.0857	.0642	.0438	.0242	.0055	42
43	.2758	.2430	.2124	.1838	.1571	.1318	.1080	.0854	.0639	.0434	.0239	.0052	43
44	.2753	.2424	.2119	.1834	.1566	.1314	.1076	.0850	.0635	.0431	.0236	.0049	44
45	.2747	.2419	.2114	.1829	.1561	.1310	.1072	.0846	.0632	.0428	.0232	.0046	45
46	.2741	.2414	.2109	.1825	.1558	.1306	.1068	.0843	.0628	.0424	.0229	.0042	46
47	.2736	.2409	.2104	.1820	.1553	.1302	.1064	.0839	.0625	.0421	.0226	.0039	47
48	.2730	.2403	.2099	.1816	.1549	.1298	.1061	.0835	.0622	.0418	.0223	.0036	48
49	.2724	.2398	.2095	.1811	.1545	.1294	.1057	.0832	.0618	.0414	.0220	.0033	49
50	.2719	.2393	.2090	.1806	.1541	.1290	.1053	.0828	.0615	.0411	.0216	.0030	50
51	.2713	.2388	.2085	.1802	.1536	.1286	.1049	.0825	.0611	.0408	.0213	.0027	51
52	.2707	.2382	.2080	.1797	.1532	.1282	.1045	.0821	.0608	.0404	.0210	.0024	52
53	.2702	.2377	.2075	.1793	.1528	.1278	.1041	.0817	.0604	.0401	.0207	.0021	53
54	.2696	.2372	.2070	.1788	.1523	.1274	.1038	.0814	.0601	.0398	.0204	.0018	54
55	.2691	.2367	.2065	.1784	.1519	.1270	.1034	.0810	.0597	.0394	.0201	.0015	55
56	.2685	.2362	.2061	.1779	.1515	.1266	.1030	.0806	.0594	.0391	.0197	.0012	56
57	.2679	.2356	.2056	.1774	.1510	.1261	.1026	.0803	.0590	.0388	.0194	.0009	57
58	.2674	.2351	.2051	.1770	.1506	.1257	.1022	.0799	.0587	.0384	.0191	.0006	58
59	.2668	.2346	.2046	.1765	.1502	.1253	.1018	.0795	.0583	.0381	.0188	.0003	59