

ASTRONOMICAL EPHEMERIS
OF
Geocentric Places of Planets
FOR
1959

(Indian Standard Time observed throughout)

Published by

Shree Jiawaji Observatory, Ujjain
with the sanction of the Department of Public
Instruction, Madhya Pradesh

Price Rupee One and Annas Four Only

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PREFACE

The heliocentric places of Jupiter, Saturn, Uranus and Neptune were obtained from Newcomb and Hill's Tables and these were later converted into geocentric longitudes and latitudes. The geocentric places of Mercury, Venus and Mars were computed *directly* from their respective elements and this is why their heliocentric co-ordinates have now been omitted from the following pages.

Owing to the uncertainty in the elements of Pluto, the positions of this planet cannot be taken as strictly correct. It is estimated that the maximum error in its longitude will hardly exceed five minutes of arc.

As a precaution against accidental errors, the final results were differenced and all the doubtful cases were carefully scrutinised.

The Hindi edition of this Ephemeris containing some additional matter will be published from the next year.

The timings of Lunar and Solar eclipses (visible in India) as well as those of Moonrise for each day of the year and for the Latitudes 10° , 20° and 30°N have also been given.

UJJAIN,
1st December, 1958

}

PURUSHOTTAM JOSHI,
Superintendent,
S. J. Observatory.

Mean Places of Principal Stars on 1st January 1959.

Names	Stars	Mag	R. A.	Decl.	Long.	Lat.
			H. M.	°	°	°
α Andromeda	U. Bhadra.	2.1	0 6	+ 28 51	13 41	+ 25 41
γ Pegasi	U. Bhadra.	2.9	0 11	+ 14 57	8 43	+ 12 36
ξ Piscium	Revati.	5.6	1 12	+ 7 21	19 16	- 0 13
α Eridani	Achernar.	0.6	1 36	- 57 27	344 40	- 59 23
β Polaris	Dhruva.	2.1	1 54	+ 89 4	87 58	+ 66 5
β Arietis	Ashvini.	2.7	1 52	+ 20 36	33 22	+ 8 29
α Arietis	Ashvini.	2.2	2 5	+ 23 16	37 3	+ 9 58
41 Arietis	Bharani.	3.7	2 47	+ 27 5	47 36	+ 10 26
β Persei	Algol.	Var	3 5	+ 40 47	45 32	+ 22 25
η Tauri	Krittika.	3.0	3 45	+ 23 58	59 23	+ 4 2
α Tauri	Rohini.	1.1	4 33	+ 16 25	69 11	- 5 28
β Orionis	Rigel.	0.3	5 12	- 8 15	76 12	- 31 8
α Aurigae	Capella.	0.2	5 13	+ 45 57	81 15	+ 22 52
γ Orionis	Mrigashirsh	4.5	5 32	+ 9 28	83 6	- 13 23
α Orionis	Ardra.	0.9	5 53	+ 7 24	88 9	- 16 2
α Carinae	Agastya.	0.9	6 23	- 52 40	104 23	- 75 50
α Canis Majoris	Vyadha.	1.6	6 43	- 16 39	103 30	- 39 35
α Geminorum	Punarvasu	1.6	7 32	+ 31 59	109 36	+ 10 57
α Canis Minor	Prashva.	0.5	7 37	+ 5 20	115 10	- 16 54
β Geminorum	Punarvasu	1.2	7 43	+ 28 8	112 38	+ 6 41
δ Cancri	Pushya.	4.2	8 42	+ 18 19	128 7	+ 0 4
α Cancri	Asnlesha.	4.5	8 56	+ 12 2	133 2	- 5 5
α Leonis	Magha.	1.3	10 6	+ 12 11	149 14	+ 0 28
δ Leonis	Purva.	2.6	11 12	+ 20 46	160 41	+ 14 20
β Leonis	Uttara.	2.2	11 47	+ 14 49	171 2	+ 12 16
δ Corvi	Hasta.	3.1	12 28	- 16 17	192 51	- 12 12
α Virginis	Chitra.	1.2	13 23	- 10 56	203 14	- 2 3
α Bootes	Swati.	0.2	14 14	+ 19 24	203 38	+ 30 50
α Libra	Vishakha.	2.9	14 48	- 15 52	224 27	+ 0 20
δ Scorpii	Anuradha.	2.5	15 58	- 22 30	241 58	- 1 58
α Scorpii	Jyeshtha.	1.2	16 27	- 26 20	249 10	- 4 33
α Scorpii	Mool.	1.7	17 31	- 37 4	263 57	- 13 47
δ Sagittarius	P. Shadha.	2.8	18 18	- 29 51	273 59	- 6 27
δ Sagittarius	P. Shadha.	1.9	18 21	- 34 24	274 27	- 11 2
α Sagittarius	U. Shadha.	2.1	18 53	- 26 21	281 45	- 3 26
α Lyrae	Abhijit.	0.1	18 35	+ 38 45	284 42	+ 61 44
α Aquillae	Shravana.	0.9	19 49	+ 8 45	301 9	+ 29 18
β Delphini	Dhanistha.	3.7	20 36	+ 14 27	315 42	+ 31 55
α Delphini	Dhanistha.	3.9	23 38	+ 15 46	316 47	+ 33 2
α Cygni	Deneb.	1.3	20 40	+ 45 8	334 42	+ 59 55
α Aquarii	Shatabhij.	3.8	22 50	- 7 49	340 58	- 0 23
α Pegasi	Fomalant	1.3	22 55	- 29 51	333 13	- 21 8
β Pegasi	P. Bhadra.	2.6	23 2	+ 27 50	358 44	+ 31 8
α Pegasi	P. Bhadra.	2.6	23 3	+ 14 58	353 56	+ 19 23

EPHEMERIS

OF

Planets' Places for 1959

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 5½ 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 1959										S. J. O. UJJAIN									
Date	Day	Sidereal Time			☉		☽				Midnight		ψ								
		H.	M.	S.	Long.	Decl.	Long.	Lat.	Decl.	D											
1	Th.	18	40	45	10 5	6	2 23 S	4	24 54	2 S	0	0 N 11	1 48	6 m 34							
2	F.		44	41	11	7	11 22	59	8 46	0	48	4 S 15	15 45	35							
3	S.		48	38	12	8	21	53	22 49	0	N 24	8 30	29 52	36							
4	Su.		52	34	13	9	31	48	6 m 59	1	37	12 19	14 m 9	37							
5	M.		56	31	14	10	40	41	21 19	2	38	15 26	28 32	39							
6	Tu.	19	0	27	15	11	49	35	5 45	3	42	17 37	12 59	40							
7	W.		4	24	16	12	58	28	20 12	4	26	18 39	27 24	41							
8	Th.		8	20	17	14	8	20	4 34	5	53	29	11 41	42							
9	F.		12	17	18	15	17	12	18 45	5	0	17 10	25 44	43							
10	S.		16	13	19	16	25	4	2 39	4	50	14 52	9 m 28	44							
11	Su.		20	10	20	17	34	21	55 16	12	23	11 47	22 50	45							
12	M.		24	7	21	18	42	45	29 22	3	43	8 12	5 m 47	46							
13	Tu.		28	3	22	19	50	36	12 8	2	52	4 21	18 24	46							
14	W.		32	0	23	20	57	26	24 34	1	54	0 24	0 m 40	47							
15	Th.		35	56	24	22	4	15	6 m 41	0	53	3 N 29	12 42	48							
16	F.		39	53	25	23	11	18	3 38	0	S 9	7 10	24 33	49							
17	S.		43	49	26	24	17	53	0 8 27	1	12	10 31	6 m 21	50							
18	Su.		47	46	27	25	23	41	12 15	2	10	13 26	18 10	51							
19	M.		51	42	28	26	28	29	2 7	3	4	15 50	0 m 6	51							
20	Tu.		55	39	29	27	32	16	6 m 12		50	17 33	12 15	52							
21	W.		59	32	0	28	36	3	18 23	4	26	18 31	24 36	53							
22	Th.	20	3	22	1	29	39	50	0 54	5	50	36	7 m 15	53							
23	F.		7	29	2	30	42	36	13 42	5	17	44	20 13	54							
24	S.		11	25	3	31	43	22	26 49	4	56	15 57	3 m 24	55							
25	Su.		15	22	4	32	44	8	10 13		34	13 16	17 0	56							
26	M.		19	18	5	33	44	18	53 23	50	3	57	9 50	0 m 43	56						
27	Tu.		23	15	6	34	44	38	7 m 39		5	4 49	14 36	56							
28	W.		27	11	7	35	42	23	21 35	2	2	1 27	28 35	56							
29	Th.		31	8	8	36	40	7	5 36	0	51	3 S 1	12 m 38	56							
30	F.		35	5	9	37	36	17	51 19	40	0	N 23	7 20	26 42	57						
31	S.		39	1	10	38	31	34	3 m 45	1	37	11 15	10 m 45	57							

Date	ψ		♈		♉		♊		♋		♌	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
1	1 N 45	12 S 4	0 N 42	16 N 49	0 N 57	22 S 29	0 N 57	17 S 52	1 N 52	18 N 50		
3		5		50				57	53	57		
5				51		30		18	2	55	19	4
7		6		53				7	56	11		
9		7		54				12	57	19		
11				55				17		28		
13	46	8		57				22	58	37		
15				58				26	59	46		
17			17	0				30		56		
19		9		1		29	58	34		20	6	
21				3				38	2	0	16	
23				4				42		26		
25				6			59	46		37		
27		10		7				49		47		
29				9				53		58		
31				10				56		21	9	

EPHEMERIS										JANUARY 1959										3
Date	Longitudes										Lunar Aspects									
	♈	♉	♊	♋	♌	♍	♎	♏	♐	☉	☽	♈	♉	♊	♋	♌	♍	♎	♏	
1	15	40	29	30	24	17	28	22	22	17	55									
2	R	38		37		12		37	23	38	19									
3		36		44		23		47	24	53	20									
4		34		51		34		57	26	8	21									
5		31		58		45	18	8	27	23	22									
6		29	0	5		55		20	28	39	24									
7		27		12	25	5		32	19	54	25									
8		25		19		16		45	1 m	9	26									
9		23		26		26		5 m	2	24	28									
10		21		32		37	19	12	3	40	29									
11		18		39		47		26	4	55	0 m									
12		16		46		57		41	6	10	2									
13		14		53	26	7		56	7	25	3									
14		12		59		17	20	12	8	41	5									
15		9	1	6		26		28	9	55	6									
16		7		13		36		45	11	11	7									
17		5		20		46	21	3	12	26	9									
18		2		26		55		20	13	41	10									
19		0		33	27	4		38	14	56	12									
20	14	57		39		13		57	16	12	13									
21		55		46		23	22	16	17	27	15									
22		52		52		31		36	18	42	16									
23		49		59		40		55	19	57	18									
24		47	2	5		49	23	16	21	12	19									
25		44		12		58		36	22	27	2									
26		42		18	28	6		57	23	42	23									
27		39		24		15	24	19	24	57	24									
28		37		30		23		40	26	12	26									
29		34		36		31	25	3	27	27	27									
30		31		43		39		25	28	42	29									
31		39		49		47		48	29	57	0 m									
Date	☉		☽		Mean		Time		Phenomena											
	Lat.	Decl.	Lat.	Decl.	α		H.	M.												
1	13	11	22	S 45	1 N 36	21 S 18	18	2	1	12	58	☉ at α								
3		14		22		18	47	17	56	2	16	☉ on Equator.								
5		17	21	57		1	22	14	50	4		☉ at Last Quarter.								
7		20		28	0	44	38		43	6	1	☉ at Perigee.								
9		22	0	57		27	58		37	9	11	☉ New M on D. 17° S 15'								
11		24		24		11	23	15	31	13	0	☉ at ☽								
13		26	19	48	0 S 4		28		24	14	14	☉ on Equator.								
15		28		10		19	37		18	16	8	☉ at ☽								
17		30	18	30		34	41		12	17	2	☉ at First Quarter.								
19		31	17	48		47	39		5	17	22	☉ at Apogee.								
21		32		4	1	0	33	16	59	20	23	☉ enters ☽								
23			16	17		12	22		52	25		☉ Heli. setting of ☽ in East								
25		33	15	29		23	5		46		1	☉ Full Moon Decl. 14° N 36								
27			14	40		32	22	43	40	28	19	☉ on Equator								
29			13	49		41	15		33	30	4	☉ at α								
31		32	12	56		48	21	42	27	31	12	☉ at Perigee								

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

Date	ψ		μ		ζ		η		δ	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
2	1 N 46	12 S 10	0 N 42	17 N 12	0 N 57	22 S 24	0 N 59	18 S 59	2 N 0	21 N 20
4				13		23	1	0 19		31
6	47			15						42
8				16						53
10				18		22				
12		9		19				10		22
14	47			21						
16				22		21		13		15
18		8		24			1	15	1	59
20				25				17		
22	48			27				19		
24								21	58	
26		7		28		20	2	23		23
28		6		29				24		
				31				26	57	
								27		

Date	Longitudes												Lunar Aspects																																			
	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓															
1	14	26	2	55	28	55	26	11	1	11	2	37	□	□	△	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓
2	R	24	3	1	29	2	34	2	26	4	15	15	□	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
3		21		7		10	58	3	41	5	54	14	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓			
4		18		13		17	27	22	5	0	7	34	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓			
5		16		18		24		46	6	11	9	14	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓			
6				13		24		31	28	11	7	26	10	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
7				11		30		38		36	8	40	12	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
8				8		36		45	29	1	9	55	14	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
9				6		42		51		26	11	10	16	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
10				3		47		58		52	12	24	17	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
11				0		53	0	4	0	18	13	39	19	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
12	13			58		58		10		44	14	5	21	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
13			4	55		3		16	1	10	16	8	23	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
14				52		9		22		37	17	23	24	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
15				50		14		28	2	4	18	37	26	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
16				47		19		34		31	19	52	28	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
17				44		24		39		58	21	6	0	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
18				42		30		45	3	25	22	20	2	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
19				39		35		49		53	23	35	4	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
20				37		39		54	4	21	24	49	5	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
21				35		44		59		49	26	3	7	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
22				32		49	1	3	5	17	27	18	9	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
23				30		54		7		46	28	3	11	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
24				27		58		11	6	14	29	46	13	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
25				25	5	3		15		43	1	0	15	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
26				22		8		20	7	12	2	14	17	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
27				20		12		23		41	3	28	19	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
28				18		16		26	8	11	4	42	20	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♁	♂	♀	♄	♅	♆	♇	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		

Date	☿		♂		Mean Ω	Date	Time H. M.	Phenomena.
	Lat.	Decl.	Lat.	Decl.				
2	1 S 31	12 S 2	1 S 55	21 S 3	16	21	1 0 35	☿ at Last Quarter.
4	30	11 6	59	20 19		14	8 0 53	New Moon Decl. 11° S 19'
6	29	10 10	2	3 19 28		8	11 0 20	☿ on Equator.
8	26	9 12		5 18 32		2	12 11 25	☿ at ☿
10	26	8 14		5 17 19	15	55	14 20 0	☿ at Apogee.
12	24	7 14		4 16 21		49	16 0 50	☿ at First Quarter.
14	22	6 14		1 15 8		43	19 15 9	☿ enters ♋
16	19	5 13	1	55 13 48		36	23 14 23	Full Moon, Decl. 6° N 58'
18	16	4 12		48 12 23		30	25 4 8	☿ on Equator.
20	13	3 10		38 10 53		23	26 8 19	☿ at ♊
22	9	2 8		26 9 17		17	14 19 15	☿ on Equator
24	5	1 6		11 7 38		11	15 45	☿ at Perigee.
26	1	0 3	0	54 5 55		4		
28	0 57	0 N 59		35 4 9	14	58		

		MARCH 1959										S. J. O. UJJAIN	
Date	Day	Sidereal Time		O		D		Midnight					
				Long.	Decl.	Long.	Lat.	Decl.	ψ	ψ	ψ		
1	Su.	22	33	21	9x56	2	7S 51	28m 47	3 N 43	16S 16	5r 51	6m 50	
2	M.		37	18	10 56	14	28	12r 52	4 30	17 53	19 51	R 49	
3	Tu.		41	14	11 56	25	5	26 46	5 0	18 24	3r 39	48	
4	W.		45	11	12 56	34	6	42 10r 29	13	17 50	17 16	47	
5	Th.		49	7	13 56	42	19	24 0	8	16 15	0m 42	47	
6	F.		53	4	14 56	47	5	56 7m 19	4	46 13	50 13	51	46
7	S.		57	0	15 56	51	33	20 22	10	10 44	26 49	45	
8	Su.	23	0	57	16 56	52	9	3x 13	3 32	7 11	9x 34	44	
9	M.		4	53	17 56	52	4	46 15 51	2 24	3 22	22 4	43	
10	Tu.		8	50	18 56	50	22	28 15	1 20	0 N 33	4r 22	42	
11	W.		12	47	19 56	46	3	59 10r 27	0 14	4 22	16 29	41	
12	Th.		16	43	20 56	40	35	22 29	0 S 52	7 57	28 27	40	
13	F.		20	40	21 56	32	1	4x 23	1 55	11 11	10x 18	39	
14	S.		24	36	22 56	22	2	48 16 12	2 53	13 56	22 6	38	
15	Su.		28	33	23 56	11	25	28 1	3 43	16 5	3r 56	37	
16	M.		32	29	24 55	57	1	9r 53	4 24	17 34	15 51	36	
17	Tu.		36	26	25 55	41	1	37 21 53	5 55	18 17	28 0	35	
18	W.		40	23	26 55	24	13	4x 6	5 12	10 10	20 34		
19	Th.		44	19	27 55	4	0	50 16 38	16	17 10	23 1	32	
20	F.		48	16	28 54	42	26	29 34	3 15	18 6	9 31		
21	S.		52	12	29 54	18	0	2 12r 51	4 34	12 34	19 6	30	
22	Su.		56	9	0r 53	52	0 N 21	26 31	3 49	9 4	3m 32	29	
23	M.	0	0	5	1 53	25	45	10r 38	2 49	4 56	18 11	28	
24	Tu.		4	2	2 52	55	1	9 25 7	1 37	0 26	2x 23	26	
25	W.		8	8	3 52	23	32	9x 52	0 17	4 S 11	17 19	25	
26	Th.		12	5	4 51	50	56	24 46	1 N 5	8 26	2m 14	24	
27	F.		16	2	5 51	14	2	20 9m 41	2 23	12 28	17 6	22	
28	S.		19	58	6 50	36	43	24 28	3 31	15 29	1r 45	21	
29	Su.		23	55	7 49	56	3	7 9r 4	4 24	17 28	16 15	20	
30	M.		27	51	8 49	14	30	23 21	5 0	18 18	0r 23	18	
31	Tu.		31	38	9 48	29	53	7r 20	0 17	17 59	14 12	17	

Date	ψ		ψ		ψ		ψ		ψ	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
2	1N 48	12S 6	0 N 42	17 N 32	0 N 57	22 S 24	1 N 2	19 S 28	1 N 56	23 N 44
4		5		33		23	3	24		53
6		4		34				30	55	24
8				35						9
10		3		37		22		31	54	16
12		2		38						24
14				39		21	4		53	30
16		1		40						36
18	49	0							52	42
20		11 59		41						48
22		53		42		20	5		51	52
24		57		43				30	50	57
26		56		44				29		0
28		55						28	49	4
30				45		19	6			6

EPHEMERIS												MARCH 1959												7			
Date	Longitudes												Lunar Aspects														
	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓		
1	13	♏	16	5	21	1	30	8	♐	40	5	♑	56	22	♋	41											
2		R	13		25		33	9		10	7		10	24	29		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
3			11		29		36			40	8		24	26	15			☾	♈	♉	♊	♋	♌	♍	♎	♏	♐
4			9		33		39	10		9	9		38	27	58		*	☾	♈	♉	♊	♋	♌	♍	♎	♏	♐
5			7		37		42			40	10		52	29	38		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
6			4		41		44	11		10	12		6	1	15		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
7			2		45		46			40	13		19	2	48		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
8			0		48		48	12		11	14		33	4	16		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
9	12		59		52		50			41	15		47	5	38		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
10			57		56		52	13		12	17		0	6	58		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
11			55		59		53			41	18		13	8	6		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
12			53	6	3		55	14		14	19		27	9	10		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
13			51		6		56			45	20		40	10	7		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
14			49		10		57	15		16	21		54		57		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
15			47		12		58			47	23		7	11	38		*	☾	♈	♉	♊	♋	♌	♍	♎	♏	♐
16			45		15		58	16		19	24		20	12	11		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
17			44		18		59			51	25		33		36		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
18			42		21		59	17		22	26		46		53		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
19			40		24		59			53	28		0	13	2		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
20			39		27		59	18		23	29		13		2		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
21			37		29		R 58			56	0	8	25	12	R 54		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
22			36		32		58	19		30	1		38		38		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
23			34		34		57	20		2	2		51		16		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
24			33		36		56			34	4		4	11	46		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
25			32		39		55	21		7	5		17		11		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
26			30		41		54			32	6		27	10	31		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
27			29		43		53	22		12	7		42	9	47		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
28			28		45		51			44	8		54	8	59		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
29			27		47		49	23		17	10		7		9		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
30			25		49		47			50	11		19	7	18		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑
31			24		50		45	24		22	12		32	6	28		☾	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑

Date	ψ		ψ		Mean		Date	Time	Phenomena
	Lat.	Decl.	Lat.	Decl.	ψ	ψ			
2	0 S 53	2 N 2	0 S 13	2 S 23	14	5r	2	8 27	ψ at Last Quarter.
4	48 3	5 0 N 1	0 38				3	12 0	ψ at 0
6	44 4	7 37	1 4				4	5 5	Heli. rising of ψ in West.
8	39 5	8 1	4 2	41			5	5 32	ψ on Equator.
10	34 6	10 31	4 9				6	9 16	New Moon, Decl. 2° S 38
12	28 7	11 58	5 27				7	10 8	ψ on Equator
14	23 8	11 2	23 6	36			8	14 14	ψ at 0
16	17 9	10 46	7 22				9	17 20	ψ at Apogee.
18	11 10	9 3	5 56				10	20 38	ψ at First Quarter.
20	5 11	7 3	19 8	12 13			11	19	Heli. setting of ψ in West
22	0 N 0	12 4	27 10				12	24	ψ enters γ
24	7	59	29 7	51			13	12 0	ψ at 0
26	13 13	53 23	17				14	14 15	ψ on Equator.
28	19 14	46 10	6 29				15	17 7	Full Moon Decl. 2° S 11
30	25 15	38 2	51 5	31			16	15 0	ψ at 0
							17	16 34	ψ at Perigee.
							18		ψ at Last Quarter.

8		APRIL 1959										S. J. O. UJJAIN	
Day	Sidereal Time	☉		☿		♈		♉		♊		Midnight	ψ
		Long.	Decl.	Long.	Decl.	Long.	Decl.	Long.	Decl.	Long.	Decl.		
1 W.	0 35 34	10 47 42	4 N 16	20 58 58	5 N 15	16 S 37	27 32	6 m 15					
2 Th.	39 31 11	46 53	40 4 17	4 56 14	23 10 50			R 14					
3 F.	43 27 12	46 4	5 3 17	18 23 11	28 23 48								
4 S.	47 24 13	45 13	26 0 5	3 36 8	2 3 22								
5 Su.	51 21 14	44 18	49 12 34	2 41 4	21 18 45								
6 M.	55 17 15	43 22	8 11 24	53 1 9 0	30 0 59								
7 Tu.	59 14 16	42 23	34 7 2	0 33 3	N 19 13 3								
8 W.	1 3 10	17 41 23	57 19 3	0 S 33 6 57	25 1								
9 Th.	7 7 18	40 21	7 19 0	50 1 38 10	17 6 53								
10 F.	11 3 19	39 17	41 12 48	2 57 13	11 18 43								
11 S.	15 0 20	38 10	8 4 24	37 3 30	15 31 0 32								
12 Su.	18 56 21	37 1	2 6 17	4 14 17	12 12 22			5 59					
13 M.	22 53 22	35 51	48 18 20	4 18 9	24 16								
14 Tu.	26 50 23	34 38	9 9 21	5 9 17	6 25								
15 W.	30 46 24	33 23	31 12 33	16 17 35	18 45								
16 Th.	34 43 25	32 7	53 25 1	9 16 3	1 22								
17 F.	38 39 26	30 48	10 14 7	4 47 13	41 14 21								
18 S.	42 36 27	29 28	35 20 59	10 10 33	27 47								
19 Su.	46 32 28	28 5	56 4 39	3 16 6	45 11 38								
20 M.	50 29 29	26 41	11 17 18	40 2 10 2	27 25 51								
21 Tu.	54 25 0	25 15	37 3 9	0 54 2	S 6 10 32								
22 W.	58 22 1	23 47	58 18 0	0 N 28 6 39	25 32								
23 Th.	2 19 2	22 17	12 18 3	5 1 49	10 51 10 42								
24 F.	6 15 3	20 45	38 18 19	3 3 14	21 25 54								
25 S.	10 12 4	19 11	58 3 27	4 4 16	52 10 57								
26 Su.	14 8 5	17 35	13 17 18	23 47 18	10 25 43								
27 M.	18 5 6	15 58	37 2 58	5 11 14	10 7 35								
28 Tu.	22 1 7	14 19	56 17 9	14 17 9	24 3								
29 W.	25 58 8	12 37	14 15 0	52 5 0 15	5 7 35								
30 Th.	29 54 9	10 54	33 14 11	4 29 12	16 20 41								

Date	☉		☿		♈		♉		♊		♋	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
1	1 N 49	11 S 54	0 N 42	17 N 45	0 N 57	22 S 19	1 N 6	19 S 26	1 N 48	25 N 9		
3	50	52		46				25	47	10		
5		51						24	47	11		
7		50		47				22	46	11		
9		49	41		18			21	45	12		
11		48			58			19	45	11		
13		47						17	44	10		
15		46		48			7	15	43	8		
17		45						13	43	6		
19		44						11	42	3		
21		43						8	41	24	59	
23		42						6	40	55		
25		41		47				3	40	50		
27		40						0	39	45		
29		39					18	58	38	39		

EPHEMERIS												APRIL 1959												9			
Date	Longitudes												Lunar Aspects														
	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☿	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	
1	12	24	6	52	1	42	24	11	55	13	44	5	38														
2		R 23		53		R 40	25		28	14	56	4	R 49														
3		22		54		38	26		1	16			4	*		♈	♉										
4		21		56		35			35	17	20	3	22		☉	♈											
5		20		57		32	27		8	18	33	2	44			♈											
6		19		58		30			11	19	44		11		☉	♈											
7		18	7			27	28		15	20	56	1	43		☉	♈											
8		17				23			46	22	7		20		♈												
9		17		1		18	29		22	23	19		3		♈												
10		16				14			55	24	31	0	49			☉											
11		16		2		9	0	29	25	42		42			♈												
12		15				5	1	3	26	54		40			♈												
13		14		3		0		36	28	5		D 43	*		☉	♈											
14		14		0		56	2	10	29	16		52			☉	♈											
15		13		4		51		44	0	27	1	6			☉	♈											
16		13				40	3	18	1	38		24			☉												
17		13				41		52	2	49		48			☉												
18		13				36	4	26	4	0	2	15			☉												
19		13				31	5	0	5	10		47			☉	♈											
20		D 13		3		25		34	6	22	3	23			☉												
21		13				19	6	8	7	32	4	3			☉												
22		13		2		14		42	8	43		46			☉												
23		14				8	7	17	9	53	5	33			♈												
24		14		1		2		5	11	3	6	24			♈												
25		14		0	29	m 56	8	25	12	14	7	17			☉												
26		15	6	59		49	9	0	13	24	8	14			☉	♈											
27		15		58		43		34	14	34	9	14			☉	♈											
28		16		57		37	10	9	15	44	10	17			☉												
29		16		56		30		44	16	53	11	22			☉												
30		16		55		23	11	18	18	3	12	29			☉												

Date	☉		☿		Mean		Date	Time H. M.	Phenomena
	Lat.	Decl.	Lat.	Decl.	☉	☿			
1	0 N 32	16 N 28	2 N 26	4 N 28	13 16	6 15	8		☉ on Equator.
3	38 17	17	1 57	3 25	10 8	0	4		☉ at ☿
5	44 18	3	26 2	24	4 9	9	0		New Moon, D. 6° N 31'
7	51 48	0	54 1	30 12	57 9				Heli. rising of ☿ in East
9	57 19	32	22 0	45	51 10	22	30		☿ at ☿
11	1 3	20	13 0	S 9	45 11	4	0		☉ at Apogee
13	9 52	38	0 S 18		38 12	2	46		☉ on Equator.
15	16 21	29	1 4	33	32 16	13	4		☉ at First Quarter
17	21 22	4	28	38	26 21	1	5		☉ on Equator.
19	27 36	49	33		19 1	39			☉ enters ☿
21	33 23	6	2 7	20	13 22	4	2		☉ at ☿
23	39 34	22	0 N 2		6 23	6	40		☉ on Equator
25	44 59	34	32		0 10	41			Full Moon, Decl. 10° 37'
27	49 24	21	44 1	9 11	54 24	0	0		☉ at Perigee.
29	54 41	51	53		47 30	2	8		☉ at Last Quarter.

10		MAY 1959										S. J. O. UJJAIN	
Date	Day	Sidereal Time		⊙		♂		Midnight		ψ			
		H.	M.	S.	Long.	Decl.	Long.	Lat.	Decl.				
1	F.	33	51	10	8 9	10 14	N52	27 57	3 N45	8 S56	3 x25	5m	28
2	S.	37	47	11	7 24	15 10	9 x41	2 52	5 16	15 52			27
3	Su.	41	44	12	5 36	28 21	5 5	1 52	1 27	28 6			25
4	M.	45	41	13	3 45	46 4	7 8	0 47	2 N52	10 7 6			23
5	Tu.	49	37	14	1 53	16 3	16 4	0 S18	6 4	22 1			22
6	W.	53	34	15	0 9	20 27	5 1	21 9	29 3 x52				20
7	Th.	57	30	15	58 5	37 9 x46	2 2	12 30	15 40				19
8	F.	1	27	16	56 8	54 21	35 3	15 15	1 27	29 17			17
9	S.	5	23	17	54 10	17 10	3 25	4 0	16 54	9 21			15
10	Su.	9	20	18	52 10	26 15	13 3	5 18	3 21	16 14			14
11	M.	13	16	19	50 8	42 27	16 5	59 25	3 17				12
12	Tu.	17	13	20	48 5	58 9 21	5 9	17 57	15 27				11
13	W.	21	10	21	46 1 18	13 21	37 5	16 40	27 49				9
14	Th.	25	6	22	43 55	8 4 2	5 4	46 14	34 10 x25				8
15	F.	29	3	23	41 45	42 16	50 15	11 34	23 30				6
16	S.	32	59	24	39 38	56 29	55 3	18 8	14 6 x36				4
17	Su.	36	56	25	37 27	19 10	13 23	2 29	4 13	20 16			3
18	M.	40	52	26	35 15	24 27	16 1	20 0 S	9 4 x23				1
19	Tu.	44	49	27	33 1	37 11 x35	0 3	4 39	18 54				0
20	W.	48	45	28	30 47	50 26	19 1	N12	8 59	3 m47	4	58	
21	Th.	52	42	29	28 31	20 3 11	21 2	3 12	21 18	57			57
22	F.	56	39	0	26 14	15 26	35 3	36 15	53 4 x13				56
23	S.	0	35	1	23 55	27 11 x50	4 2	17 49	19 25	54			
24	Su.	4	32	2	21 34	3 x26	56 57	18 2	4 x23	53			
25	M.	8	28	3	19 13	50 11 x44	5 7	17 49	18 18	51			
26	Tu.	12	25	4	16 51	21 0 26	5 4	58 16	4 3 = 5	50			
27	W.	16	21	5	14 26	11 9 = 58		30 13	24 16	43			
28	Th.	20	18	6	12 1	21 23	21 3	49 10	7 29	53			
29	F.	24	14	7	9 35	31 6 x18	2 57	6 27	12 x37	46			
30	S.	28	11	8	7 7	40 18	51 1	58 2	35 25	0			
31	Su.	32	8	9	4 39	49 1 x6	0 55	1 N18	7 7 8	43			

Date	ψ	♂		♀		♂		♀		♂	
		Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
1	1 N50	11 S38	0 N41	17 N46	0 N58	22 S18	1 N7	18 S55	1 N38	24 N	32
3		36				19		52	37	25	
5		35		45				49	36	17	
7		34	40					46	35	8	
9		33		44				43	35 23	59	
11		32						39	34	50	
13		31		43		20	6	36	33	39	
15		30		42				33	32	28	
17		29		41				30	32	17	
19		28		40				26	31	5	
21		28		39		21		23	30 22	52	
23		27		38				20	29	39	
25		26		37				17	29	25	
27		25		36		22	5	13	28	10	
29	49	24		35				10	27 21	56	
31		23		34		23		7	16	40	

EPHEMERIS										MAY 1959										11																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Date	Longitudes										Lunar Aspects																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	☉	☽	♈	♉	♊	♋	♌	♍	♎	♏	♐																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
1	12	♏	17	6	♊	54	29	♈	17	11	53	19	♈	13	13	♏	40																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

Date	♀		♂		Mean	Date	Time H. M.	Phenomena
	Lat.	Decl.	Lat.	Decl.	♂			
1	1 N59	24 N59	2 S 55	2 N 42	11 41	3 21	4	D on Equator.
3	2 3	25 13	57 3	38	35 5	5 5	30	D at ♄
5	8	25	56 4	38	28 8	1 42		New Moon, D. 13° N59'
7	11	35	53 5	43	22 8	9 0		D at Apogee.
9	15	41	48 6	53	16 15	..		Heli. setting of ♄ in East
11	19	45	40 8	6	9 16	1 40		D at First Quarter.
13	22	45	30 9	23	3 18	11 10		D on Equator.
15	24	44	19 10	42	57 19	13 2		D at ♄
17	26	40	5 12	3	50 22	1 15		♄ enters ♏
19	28	33	1 4	13	44 22	10 40		D at Perigee.
21	30	23	32 14	50	37 22	18 25		Full Moon, D. 16° S 31'
23	31	11	13 16	14	31 29	13 44		D at Last Quarter.
25	31 24	57 0	53 17	37	25 30	12 0		♀ at ♄
27	32	40	32 18	57	18 31	3 57		D on Equator.
29	31	20	11 20	13	12			
31	31 23	59 0	N10	21 23	6			

12		JUNE 1959										S. J. O. UJJAIN	
Date	Day	Sidereal Time		☉		☽				Midnight	ψ		
		H. M. S.		Long.	Decl.	Long.	Lat.	Decl.					
1 M.	4	36	4	10 11 2	10 21 N 58	13 7 8	0 S 9	5 N 3	19 7 5	4 m 42			
2 Tu.		40	1	10 59 40	22 6 25	2 1	12 8 34	0 8 57	R 40				
3 W.		43	57	11 57 8	14 6 49	2	11 11 44	12 43	39				
4 Th.		47	54	12 54 36	21 18 37	3	4 14 24	24 31	38				
5 F.		51	50	13 52 2	28 0 26	3	50 16 30	6 23	37				
6 S.		55	47	14 49 28	35 12 20	4	25 17 53	18 20	36				
7 Su.		59	43	15 46 52	41 24 20	5	50 18 29	0 23	35				
8 M.	5	3	39	16 44 16	47 6 27	5	1	16	34				
9 Tu.		7	35	17 41 39	53 18 42	4	59 17 11	24 54	33				
10 W.		11	32	18 39 2	58 1 8	4	42 15 18	7 24	32				
11 Th.		15	29	19 36 23	23 2 13	44	12 12 40	20 7	31				
12 F.		19	26	20 33 44	7 26 34	3	28 9 22	3 m 4	30				
13 S.		23	23	21 31 4	10 9 m 39	2	33 5 34	16 39	29				
14 Su.		27	19	22 23 23	14 23 3	1	28 1 23	29 52	28				
15 M.		31	16	23 25 41	17 6 47	0	17 2 S 58	13 48	27				
16 Tu.		35	12	24 23 0	20 20 54	0 N 57	7 17	28 6	26				
17 W.		39	9	25 20 17	22 5 m 22	2	10 11 17	12 m 44	25				
18 Th.		43	5	26 17 34	24 20 10	3	15 14 39	27 39	24				
19 F.		47	2	27 14 50	25 5 7	4	8 17 6	12 43	23				
20 S.		50	59	28 12 6	26 20 16	4	45 18 22	27 47	22				
21 Su.		54	55	29 9 22	27 5 16	5	1	20 12 42	22				
22 M.	5	58	52	0 6 37	27 20 2	4	54 17 4	27 17	21				
23 Tu.	6	2	48	1 3 51	26 4 26	3	33 14 44	11 28	20				
24 W.		6	45	2 1 5	26 18 22	3	53 11 37	25 10	19				
25 Th.		10	41	2 58 19	25 2 4	2	7 58	8 23	19				
26 F.		14	38	3 55 32	23 14 50	2	3 4 4	21 11	18				
27 S.		18	35	4 52 45	21 27 26	1	0 0 5	3 36	17				
28 Su.		22	31	5 49 58	19 9 42	0 S 4	3 N 47	15 44	17				
29 M.		26	28	6 47 11	16 21 43	1	8 7 26	27 41	16				
30 Tu.		30	24	7 44 24	13 3 22	2	7 10 44	9 31	16				

Date	ψ		♈		♉		♊		♋	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
2	1 N 49	11 S 22	0 N 40	17 N 33	0 N 58	22 S 23	1 N 4	18 S 4	1 N 26	21 N 24
4				31				1	25	7
6		21		3	57	24		17	58	24 20
8		20		29			3	55	23	23
10				27				52	22	14
12		19		26		2		49	22 19	55
14		18		24		2		47	21	36
16	48			23		26		44	20	16
18		17		21	56		1	42	19 18	56
20				19		27		40	18	35
22				18				38	18	14
24		16	39	16		0		36	1 17	52
26				14		2	0 59	34	16	30
28		15		12				32	15	8
30				10		29	58	31	14 16	45

EPHEMERIS										JUNE 1959										13						
Date	Longitudes.										Lunar Aspects.															
	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	☉	☽	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓
1	13	0	5	30	25	27	0	6	23	58	7	39	*	Δ	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
2	2	2	R	27	R	20	0	42	25	3	9	51	Δ	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
3	4	4		23		13	1	17	26	7	12	3	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
4	6	6		19		6		53	27	11	14	15	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
5	9	9		15	24	59	2	29	28	14	16	27	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
6	11	11				52	3	5	29	17	18	39	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
7	13	7				45		41	0	20	20	49	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
8	16	3				38	4	17	1	23	22	59	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
9	18	4	59			32	4	53	2	26	25	8	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
10	20		55			25	5	29	3	28	27	15	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
11	23	50				19	6	5	4	30	29	20	*	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
12	26	46				13		41	5	31	1	24		☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
13	28	42				7	7	17	6	33	3	26		☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
14	31	38				1		53	7	34	5	25	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
15	34	34	23			55	8	29	8	34	7	23		☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
16	36	29				49	9	6	9	35	8	19	Δ	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
17	39	25				43		42	10	35	11	12	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
18	42	21				38	10	18	11	34	13	3	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
19	44	16				33		54	12	34	14	52	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
20	47	12				28	11	31	13	32	16	38		☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
21	50	8				22	12	7	14	31	18	22	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
22	53	3				17		43	15	29	20	4		☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
23	56	3	59			13	13	20	16	27	21	43	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
24	D 59	54				8		56	17	24	23	20	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
25	14	2	50			4	14	32	18	21	24	55	Δ	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
26	5	46	22			59	15	9	19	17	26	27	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
27	8	41				56		45	20	13	27	57	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
28	11	37				52	16	22	21	8	29	24	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
29	14	32				48		58	22	3	0	49	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽
30	17	28				44	17	35		57	2	12	*	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽	☽

Date	☽		☽		Mean	Date	Time	Phenomena
	Lat.	Decl.	Lat.	Decl.	☽		H. M.	
2	2 N 29	23 N 36	0 N 31	22 N 27	9 59	1	8 48	☽ at ☽
4	28	8	50	23 31	53	4	13 0	☽ at Apogee.
6	25 22	40	1	8 24	47	6	17 25	New Moon, D. 18° N 5'
8	22	10	24	39	40	14	10 50	☽ at First Quarter.
10	19 21	38	37	25 2	34	14	19 40	☽ on Equator.
2	15	4	47	13	28	14		Heli. rising of ☽ in West
14	10 20	29	54	14	2	15	17 31	☽ at ☽
16	5 19	52	59	10	1	19	19 0	☽ at Perigee
18	1 59	14	2	0 24	48	21	1 31	Full Moon D. 18° S 30
20	5 18	34	1	59	22	22	9 6	☽ enters ☽
22	46 17	53	54	23 49	8	56	27 12 34	☽ on Equator.
24	38	11	47	11	50	28	3 43	☽ at Last Quarter.
26	29 16	28	37	22 28	43	28	10 26	☽ at ☽
28	20 15	44	25	21 40	37			
30	10 14	59	11	20 4	30			

SEPTEMBER 1959														S. J. O. UJJAIN			
Date	Day	Sidereal Time			O		D			Midnight		ψ					
					Long.	Decl.	Long.	Lat.	Decl.	D	D						
1	Tu.	10	38	47	8 ^m 5	9	8 N32	15 ^h 35	3 S 54	12 N25	22 ^h 11	4 ^m 45					
2	W.		42	44	9	3	13	11 28	52	0 9	2	5 ^m 36	47				
3	Th.		43	40	10	1	19	7 49	12 ^m 26	1 55	5	6	19	18			
4	F.		50	37	10	59	27	27 26	15	0 42	0 50	3 ^h 14	48	49			
5	S.		54	33	11	57	36	5 10	16	0 N35	3 S33	17	20	51			
6	Su.		58	30	12	55	47	6 42	24	26	1 50	7 46	1 ^m 33	52			
7	M.	11	2	27	13	54	0	20 8	40	3	0 11	34	15	49	54		
8	Tu.		6	23	14	52	14	5 58	22	57	58	14	40	0 ^h 5	56		
9	W.		10	20	15	50	31	35 7	13	4	42	16	53	14	57		
10	Th.		14	16	16	48	49	12 21	25	5	0 18	2	28	29	59		
11	F.		18	13	17	47	8	4 50	5 ^m 31	5 16	4	12 31	5	1			
12	S.		22	9	18	45	30	27 19	29	5	17	0	26	25	2		
13	Su.		26	6	19	43	54	4 3	18	4	36	14	57	10	10	4	
14	M.		30	2	20	42	19	3 41	16	57	3 51	12	5	23	39	6	
15	Tu.		33	59	21	40	47	18 0	19	2	55	8	37	6 ^h 56	7		
16	W.		37	56	22	39	16	2 55	13	29	1 49	4	47	19	58	9	
17	Th.		41	52	23	37	46	32 26	24	0	41	0	49	2 ^h 45	11		
18	F.		45	49	24	36	19	9 9	3	0 S29	3 N10	15	18	13			
19	S.		49	45	25	34	54	1 45	21	28	1 36	6	54	27	36	14	
20	Su.		53	42	26	33	31	22 3	41	2	37	10	17	9 ^h 43	16		
21	M.		57	38	27	32	10	0 59	15	43	3 31	13	10	21	41	18	
22	Tu.	12	1	35	28	30	50	35 27	38	4	15	15	28	3 ^h 34	20		
23	W.		5	31	29	29	33	0 12	9	30	48	17	7	15	25	22	
24	Th.		9	28	0	28	17	0 S11	21	22	5	9	18	1	27	20	24
25	F.		13	24	1	27	4	35 3	20	17	7	9	22	26			
26	S.		17	21	2	25	42	58 15	32	10	17	24	21	37	28		
27	Su.		21	18	3	24	42	1 21	27	51	4	50	15	51	29		
28	M.		25	14	4	23	35	45 10	33	14	13	30	17	1	31		
29	Tu.		29	11	5	22	30	2 8	23	34	3	25	10	25	0 ^h 14	33	
30	W.		33	7	6	21	27	32 6	59	2	23	6	42	13	51	35	

Date	ψ		μ		ι		$\mathcal{U}$		δ	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
2	1 S 45	11 N29	0 N39	16 N 2	0 N47	22 S 40	0 N44	18 S 18	0 N45	1 N39
4	44	30		0			43	22	44	7
6		31		15	58	46		26		0 35
8		32			55		41	42		4
10		33			53			34	43	0 28
12		34			51			38	41	1 0
14		36			49			43	40	32
16		37			47		41	47	39	2 4
18		38			45	45		51	38	35
20		39	40	43	44			56	37	3 7
22		41			42	43	40 19	1	36	39
24		42			40			5	35	4 11
26	43	43			38	43	39	10	34	42
28		45			36			15	33	5 14
30		46			34	44	20	32	32	46

EPHEMERIS														SEPTEMBER 1959														19
Date	Longitudes														Lunar Aspects													
	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓				
1	18	4	0	28	24	47	26	59	8	6	23	8																
2		6		28		54	27	37	7	R 27	24	52	*															
3		10		28	25	1	28	16	6	51	26	39	♈															
4		13		28		9		54		15	28	27	♈															
5		17	D	28		16	29	33	5	40	0	19	♈															
6		20		28		24	0	12		6	2	11	♈	*	*	*	*	*	*	*	*	*	*	*				
7		24		28		32		51	4	33	4	5	*	♈														
8		27		28		40	1	29		1	5	59		♈														
9		31		29		48	2	8	3	31	7	50		♈														
10		34		29		56		47		2	9	50	♈															
11		37		30	26	4	3	26	2	35	11	45	*	♈														
12		41		30		12	4	5		10	13	39	♈															
13		44		31		21		41	1	46	15	34	♈															
14		48		32		29	5	23		25	17	28	♈															
15		51		33		38	6	2		6	19	21	♈															
16		54		34		47		41	0	49	21	14		♈														
17		57		36		56	7	20		16	23	5	♈															
18	19	0		37	27	5		59		22	24	56		♈														
19		4		38		15	8	38		12	26	46	♈															
20		7		39		24	9	18		5	28	35	♈															
21		10		41		33		57		0	0	23	♈															
22		13		42		43	10	36	29	16	2	9	♈															
23		16		44		52	11	16		D58	3	55	♈															
24		19		46	28	2		55	0	0	5	41	♈	*	*	*	*	*	*	*	*	*	*	*				
25		22		48		12	12	34		4	7	25	♈															
26		25		50		22	13	14		10	9	8		♈														
27		28		52		32		53		20	10	51	*															
28		31		54		43	14	33		31	12	32		♈														
29		34		56		53	15	13		44	14	12	♈															
30		37		58	29	3		52	1	0	15	52	♈	*														

Date	☽		☾		Mean	☽	Date	Time H. M.	Phenomena
	Lat.	Decl.	Lat.	Decl.					
2	8 S 39	0 N 47	1 N 17	14 N 27	5	7	3	..	Heli. setting of ☽ in E.
4	39	1 12	31	13 26		1	3	7 26	New Moon, Decl. 5° N 53
6	36	40	40	12 15	4	54	4	16 34	☽ on Equator.
8	29	2 10	45	10 57		48	5	1 20	☽ at ☉
10	19	40	48	9 33		42	7	22 40	☽ at Perigee.
12	6	3 10	47	8 4		35	8	..	Heli. rising of ☽ in East
14	7	51	44	6 33		29	10	3 36	☽ at First Quarter.
16	34	4 9	39	4 49		23	17	6 23	Full Moon Decl. 1° N 44
18	15	36	31	3 25		16	17	16 46	☽ on Equator.
20	6	55	23	1 50		10	19	2 18	☽ at ☉
22	33	23	13	0 16		4	22	20 0	☽ on Equator.
24	11	43	1	1 S 19	3	57	23	6 0	☽ at Apogee.
26	5	49	59	0 49	2	52	51	24 9	☉ enters ☽
28	26	6 14	36	4 24		44	25	7 50	☽ at Last Quarter.
30	4	25	23	5 53		38			

20		OCTOBER 1959										S. J. O. UJJAIN									
Date	Day	Sidereal Time			☉		☽			Midnight		ψ									
					Long.	Decl.	Long.	Lat.	Decl.	ψ											
1	Th.	12	37	4	7	20	25	2	S 55	20	47	1	S 12	2	N 31	27	50	5	m 37		
2	F.		41	0	8	19	26	3	18	4	57	0	N 6	1	S 54	12	8		39		
3	S.		44	57	9	18	23		41	19	24	1	25	6	18	26	42		41		
4	Su.		48	54	10	17	33	4	5	4	m 2	2	39	10	22	11	m 22		44		
5	M.		52	50	11	16	40		28	18	44	3	43	13	49	26	5		46		
6	Tu.		56	47	12	15	49		51	3	24	4	33	16	22	10	42		48		
7	W.	13	0	43	13	15	0	5	14	17	57	5	5	17	50	25	3		50		
8	Th.		4	40	14	14	13		37	2	57	17	18	9	9	21	52		52		
9	F.		8	36	15	13	28	6	0	16	21	10	17	20	23	18	54		54		
10	S.		12	33	16	12	45		23	0	10	4	44	15	29	6	57		56		
11	Su.		16	29	17	12	4		45	13	41	3	12	49	20	20		58			
12	M.		20	26	18	11	25	7	8	26	56	3	10	9	32	3	28	6	1		
13	Tu.		24	23	19	10	48		31	9	58	2	8	5	50	16	23		3		
14	W.		28	19	20	10	13		53	22	43	1	1	1	56	29	2		5		
15	Th.		32	16	21	9	41	8	15	5	18	0	S 8	2	N 0	11	31		7		
16	F.		36	12	22	9	10		38	17	41	1	15	5	48	23	49		9		
17	S.		40	9	23	8	41	9	0	29	54	2	18	9	21	5	58		11		
18	Su.		44	5	24	8	15		22	11	59	3	14	12	21	17	59		14		
19	M.		48	2	25	7	50		44	23	57	4	1	14	52	29	55		16		
20	Tu.		51	58	26	7	28	10	5	5	51		37	16	44	11	4		18		
21	W.		55	55	27	7	7		27	17	33	5	1	17	52	23	27		21		
22	Th.		59	51	28	6	48		48	29	34		12	18	13	5	51		23		
23	F.	14	3	48	29	6	31	11	10	11	30		10	17	47	17	21		25		
24	S.		7	45	0	m 6	17		31	23	35	4	54	16	32	29	42		27		
25	Su.		11	41	1	6	5		52	5	53		25	14	30	12	9		30		
26	M.		15	38	2	5	54	12	12	18	30	3	42	11	45	24	56		32		
27	Tu.		19	34	3	5	45		33	1	m 28	2	46	8	20	8	m 6		34		
28	W.		23	31	4	5	38		53	14	53	1	36	4	24	21	45		36		
29	Th.		27	27	5	5	33	13	13	28	42	0	27	0	5	5	48		39		
30	F.		31	24	6	5	3		33	12	59	0	N 50	4	S 22	20	17		41		
31	S.		35	21	7	5	29		53	27	40	2	7	8	40	5	m 8		43		
Date	ψ		♈		♉		♊		♋		♌		♍								
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.							
2	1	S 43	11	N 47	0	N 40	15	N 35	0	43	22	S 44	0	N 39	19	S 25	0	N 31	6	S 17	
4			49				31			42				38		29		30		48	
6			50				29							34		29		7		19	
8			52				28					45		37		39		28		50	
10			53				26							44		27		8		21	
12			55				25			41				49		26				52	
14			56				24						36		54		25	9		22	
16			57				22						35		59		23			53	
18			59				21					46		20		4		22	10	23	
20		12	0				20			40			34		9		21			52	
22			2				18							14		28		11		22	
24			3				17							19		19				51	
26			5				16							23		18		12		20	
28			6				15			39				34		28		17		49	
30			8				14							33		16		13		17	

EPHEMERIS.														OCTOBER 1959														21	
Date	Longitudes.														Lunar Aspects.														
	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓					
1	19	40	1	1	29	14	16	32	1	16	17	30	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓					
2	42	4	1	4	24	17	12	34	19	8	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈						
3	45	7	35	51	56	20	45	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊	♋						
4	48	10	45	18	31	2	21	22	21	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
5	50	12	56	19	11	46	23	56	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊						
6	53	15	0	7	51	3	12	25	30	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
7	56	18	18	20	31	40	27	4	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊						
8	58	21	29	21	11	4	10	28	37	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
9	20	1	24	41	51	41	0	9	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊						
10	3	28	52	22	31	5	14	1	40	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
11	5	31	1	3	23	11	48	3	11	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
12	6	35	14	51	6	24	4	41	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊						
13	10	38	26	24	31	7	1	6	10	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
14	12	42	38	25	11	39	7	38	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊						
15	15	45	49	52	8	18	9	6	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊						
16	17	49	2	1	26	32	58	10	32	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
17	19	53	13	27	12	9	40	11	59	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
18	21	57	24	53	10	23	13	24	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊						
19	23	2	36	28	33	11	6	14	48	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
20	25	5	48	29	14	51	16	12	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊						
21	27	9	3	0	54	12	37	17	34	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
22	29	13	12	0	35	13	24	18	56	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
23	31	18	24	1	15	14	11	20	17	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
24	33	22	36	56	15	0	21	36	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊						
25	35	26	49	2	37	49	22	55	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊						
26	36	31	4	1	3	17	16	39	24	12	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈						
27	38	36	14	58	17	30	25	28	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉	♊						
28	40	41	26	4	39	18	22	26	42	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
29	41	45	39	5	20	19	14	27	55	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
30	43	50	51	6	1	20	7	29	6	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
31	44	55	5	4	42	21	1	0	15	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♈	♉						
Date	♈		♉		Mean.		Date	Time.		Phenomena.																			
	Lat.	Decl.	Lat.	Decl.	♈	H.		M.																					
2	4 S	41	6 N	33	0 N	9	7 S	21	3	32	2	1	45	♈ on Equator.															
4	4	19	38	0	S	5	8	46	25	2	10	23	♈ at ♈																
6	3	57	40	19	10	9	19	2	18	2	18	2	New Moon D. 3° S 1'																
8	3	55	49	33	11	30	13	3	18	3	18	3	♈ at ♈																
10	1	14	36	47	12	48	6	5	2	0	1	2	♈ at Perigee.																
12	2	5	3	1	1	14	3	0	9	9	50	1	♈ at First Quarter.																
14	3	34	15	15	14	2	54	10	...	...	...	...	Heli. rising of ♈ in West																
16	1	1	9	28	16	23	47	14	23	44	1	23	♈ on Equator.																
18	1	5	5	55	41	17	28	41	16	9	34	1	♈ at ♈																
20	3	38	53	18	30	35	16	21	30	35	16	21	30	Full Moon Decl. 7° N 14'															
22	2	20	18	2	5	19	27	28	21	0	0	1	0	♈ at Apogee.															
24	3	4	59	15	20	21	22	23	1	54	22	23	1	♈ at Last Quarter.															
26	0	47	33	25	21	10	16	24	9	33	0	24	9	33	♈ enters ♈														
28	3	32	7	33	55	9	22	12	29	9	22	12	29	9	♈ on Equator.														
30	17	3	39	40	22	34	3	29	20	30	3	29	20	30	♈ at ♈														

22		NOVEMBER 1959										S. J. O. UJJAIN	
Date	Day	Sidereal Time	☉		☽			Midnight		ψ			
			Long.	Decl.	Long.	Lat.	Decl.	D					
		H. M. S.											
1	Su.	14 39 17	8m 5 30	14 S 13	12m 39	3N 16	12 S 31	20m 10	6m 46				
2	M.	43 13 9	5 33		32 27 46	4 14 15	34	5 19	48				
3	Tu.	47 10 10	5 38		51 12 52	50 17 32	20 21	50					
4	W.	51 6 11	5 44	15	10 27 46	5 8 18	16	5 8	52				
5	Th.	55 3 12	5 53		28 12 24	6 17 46	19 35	55					
6	F.	58 59 13	6 3		47 26 39	4 45 16	9 3 37	57					
7	S.	15 2 56	14 6 15	16	5 10 29	7 13 38	17 15	59					
8	Su.	6 53 15	6 28		22 23 54	3 17 10	26 0 29	7	1				
9	M.	10 49 18	6 44		40 6 59	2 17 6	49 13 23	3					
10	Tu.	14 46 17	7 1		57 19 44	1 12 2	57 26 2	6					
11	W.	18 42 18	7 20	17	14 2 14	0 5 0 N 59	8 26		8				
12	Th.	22 39 19	7 41		31 14 34	1 S 1 4 48	20 38		10				
13	F.	26 36 20	8 3		47 26 41	2 3 8 23	2 43		12				
14	S.	30 32 21	8 27	18	3 8 43	59 11 35	14 43		14				
15	Su.	34 29 22	8 53		19 20 41	3 47 14 17	26 38		16				
16	M.	38 25 23	9 20		34 2 35	4 24 16	21 8 31		18				
17	Tu.	42 22 24	9 49		49 14 27	50 17 44	20 23		20				
18	W.	46 18 25	10 20	19	4 26 19	5 3 18	20 25		22				
19	Th.	50 15 26	10 52		18 8 12	3 8 14	10 24		24				
20	F.	54 11 27	11 25		32 20 9	4 50 17	8 26 10		26				
21	S.	58 8 28	12 0		46 2 14	24 15 22	8 20		29				
22	Su.	16 2 5 29	12 36		59 14 30	3 45 12 52	20 43		31				
23	M.	6 1 0 13	14 20		12 27 1	2 55 9 45	3 43		33				
24	Tu.	10 7 1 13	53		25 9 51	1 55 6 5	16 25		35				
25	W.	14 3 2 14	34		37 23 5	0 47 2 0	0 53		37				
26	Th.	18 0 3 15	17		49 6 50	0 N 26 2 S 19	13 51		39				
27	F.	21 56 4 16	0 21		0 21 3	1 39 6 40	28 14		41				
28	S.	25 53 5 16	45		11 5 37	2 49 10 45	13 5		43				
29	Su.	29 49 6 17	31		22 20 39	3 49 14 15	28 16		45				
30	M.	33 46 7 18	18		32 5 56	4 33 16 49	13 37		47				

Date	ψ		ϑ		ζ		η		θ		ι	
	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.	Lat.	Decl.
1	1 N 43	12 N 9	0 N 41	15 N 13	0 N 39	22 S 46	0 S 34	20 S 38	0 N 15	13 S 45		
3		11						42	13 14	13		
5		12		12				47	12	40		
7		13			38		33	52	11 15	6		
9		15		11				56	10	33		
11		16		10				2	1	9		
13		18						5	8 16	24		
15		19	42	9	37		32	10	7	49		
17		21						14	5 17	14		
19		22				45		18	4	38		
21		23			36			23	3 18	1		
23		25						27	2	24		
25		26					31	31	1	46		
27		27			44			35	0 S 1	18	8	
28		28			35			39	2	29		

EPHEMERIS										NOVEMBER 1959										23
Date	Longitudes										Lunar Aspects									
	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	☾	☽	☾	☽	☾	☽	☾	☽	☾	☽
1	20	46	23	59	57	16	7	23	21	55	1	22	♈	♈			♈	♈	♈	♈
2		47	3	5		29	8	4	22	50	2	26	♈	♈	☐	♈	♈	♈	♈	♈
3		48		10		42		45	23	46	3	28	♈	♈			♈	♈	♈	♈
4		50		15		55	9	26	24	42	4	27	♈	♈	☐	♈	♈	♈	♈	☐
5		51		21	5	9	10	7	25	39	5	23	♈	♈	☐	♈	♈	♈	♈	☐
6		52		26		21		49	26	36	6	15	♈	♈	☐	♈	♈	♈	♈	☐
7		53		31		33	11	30	27	34	7	3	♈	♈			♈	♈	♈	☐
8		54		36		46	12	11	28	33	8	46	♈	♈	☐	♈	♈	♈	♈	☐
9		56		42		59		53	29	32	8	24	♈	♈	☐	♈	♈	♈	♈	☐
10		56		47	7	12	13	34	0	31		56	♈	♈	☐	♈	♈	♈	♈	☐
11		57		53		25	14	15	1	31	9	22	♈	♈	☐	♈	♈	♈	♈	☐
12		58		59		38		57	2	31		41	♈	♈	☐	♈	♈	♈	♈	☐
13		59	4	4		51	15	39	3	32		51	♈	♈	☐	♈	♈	♈	♈	☐
14	21	0		10	8	4	16	20	4	33		54	♈	♈	☐	♈	♈	♈	♈	☐
15		0		16		18	17	2	5	35	R 47	♈	♈	☐	♈	♈	♈	♈	♈	☐
16		1		22		31		44	6	37		30	♈	♈	☐	♈	♈	♈	♈	☐
17		2		27		44	18	25	7	39		4	♈	♈	☐	♈	♈	♈	♈	☐
18		2		33		57	19	7	8	42	8	26	♈	♈	☐	♈	♈	♈	♈	☐
19		3		40	9	11		49	9	45	7	39	♈	♈	☐	♈	♈	♈	♈	☐
20		3		46		24	20	31	10	48	6	41	♈	♈	☐	♈	♈	♈	♈	☐
21		3		52		37	21	13	11	52	5	35	♈	♈	☐	♈	♈	♈	♈	☐
22		4		58		51		55	12	56	4	22	♈	♈	☐	♈	♈	♈	♈	☐
23		4	5	4	10	4	22	37	14	1	3	3	♈	♈	☐	♈	♈	♈	♈	☐
24		4		10		18	23	19	15	5	1	41	♈	♈	☐	♈	♈	♈	♈	☐
25		5		16		31	24	1	16	10	0	20	♈	♈	☐	♈	♈	♈	♈	☐
26		5		23		44		43	17	15	29	0	♈	♈	☐	♈	♈	♈	♈	☐
27	R	5		29		58	25	25	18	21	27	46	♈	♈	☐	♈	♈	♈	♈	☐
28		5		36	11	1	26	7	19	27	26	40	♈	♈	☐	♈	♈	♈	♈	☐
29		5		42		25		50	20	33	25	43	♈	♈	☐	♈	♈	♈	♈	☐
30		4		49		38	27	32	21	39	24	56	♈	♈	☐	♈	♈	♈	♈	☐
Date	♀		♂		Mean.		Date	Time.		Phenomena.										
	Lat.	Decl.	Lat.	Decl.	♀	♂		H.	M.											
1	0 S 3	3 N 10	2 S 46	23 S 9	1 4	10	1	4	10	New Moon Decl. 11° S 20'										
3	0 N 10	2 38	49	37	50	7 18	21	6	21	☽ at Perigee.										
5	23	5	50	49	44	11 6	0	0	0	☽ at First Quarter.										
7	35 1	30	48 24	15	37	11 14	6	6	6	☽ on Equator.										
9	46 0	54	42	23	31	12 8	13	13	13	☽ at ☿										
11	57	16	32	22	25	15 15	13	13	13	☽ on Equator.										
13	1 7	0 S 23	18	12	18	17 12	9	9	9	Full Moon D. 14° N 36'										
15	17 1	3 1	57 23	51	12 18	12 18	9	9	9	☽ at Apogee.										
17	25	44	31	18	6	22 12	0	0	0	Heli. setting of ♄ in West.										
19	24 2	26 0	58 22	32 0	59	23 6	48	48	48	☽ at ♄										
21	41 3	8	20 21	34	53	23 18	32	32	32	☽ at Last Quarter.										
23	48	52	0 N 21	20	47	25 23	14	14	14	☽ on Equator.										
25	55 4	36 1	1 19	14	40	25	14	14	14	Heli. setting of ♃										
27	0 5	20	37 18	6	34	26 3	52	52	52	☽ at ♄										
29	6 6	5 2	5 17	10	28	30 7	0	0	0	☽ at Perigee.										
30	14	17			30	14	17	17	17	New Moon D. 17° S 1'										

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

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

[illegible]

Lat. Date.	May			June			July			August		
	+10°	+20°	+30°	+10°	+20°	+30°	+10°	+20°	+30°	+10°	+20°	+30°
1	16	24	33	2	2	1	2	1	1	2	2	1
2	1	0	1	2	3	0	2	5	4	3	4	2
3	2	4	2	3	4	3	3	3	2	3	3	3
4	2	4	2	3	5	3	3	3	3	4	4	4
5	3	3	3	4	5	3	4	4	6	5	5	5
6	4	3	3	5	6	4	5	5	4	6	6	6
7	5	5	4	6	7	5	6	6	5	7	7	7
8	6	5	5	7	8	6	7	7	6	8	8	8
9	6	5	5	8	9	7	8	8	7	9	9	9
10	7	7	7	9	10	8	9	9	8	10	10	10
11	8	8	7	10	11	9	10	10	9	11	11	11
12	9	9	8	11	12	10	11	11	10	12	12	12
13	10	9	9	12	13	11	12	12	11	13	13	13
14	10	10	10	12	13	12	13	13	12	14	14	14
15	11	11	10	13	14	13	14	14	13	15	15	15
16	12	12	11	14	15	14	15	15	14	16	16	16
17	13	13	12	15	16	15	16	16	15	17	17	17
18	14	14	13	16	17	16	17	17	16	18	18	18
19	15	15	14	17	18	17	18	18	17	19	19	19
20	16	16	15	18	19	18	19	19	18	20	20	20
21	17	17	16	19	20	19	20	20	19	21	21	21
22	18	18	17	20	21	20	21	21	20	22	22	22
23	19	19	18	21	22	21	22	22	21	23	23	23
24	20	20	19	22	23	22	23	23	22	24	24	24
25	21	21	20	23	24	23	24	24	23	25	25	25
26	22	22	21	24	25	24	25	25	24	26	26	26
27	23	23	22	25	26	25	26	26	25	27	27	27
28	23	23	23	25	26	25	26	26	25	28	28	28
29	0	4	0	0	36	0	0	1	0	0	0	0
30	0	4	0	1	15	1	1	0	30	1	1	1
31	1	21	1	2	..	6	2	15	2	3	3	3

Timings of Moonrise in 1959

30

Lat.	Date.	September			October			November			December		
		+10°	+20°	+30°	+10°	+20°	+30°	+10°	+20°	+30°	+10°	+20°	+30°
1	4	15	4	5	4	4	4	4	4	4	4	4	4
2	5	5	5	5	5	5	5	5	5	5	5	5	5
3	6	6	6	6	6	6	6	6	6	6	6	6	6
4	7	7	7	7	7	7	7	7	7	7	7	7	7
5	8	8	8	8	8	8	8	8	8	8	8	8	8
6	9	9	9	9	9	9	9	9	9	9	9	9	9
7	10	10	10	10	10	10	10	10	10	10	10	10	10
8	11	11	11	11	11	11	11	11	11	11	11	11	11
9	12	12	12	12	12	12	12	12	12	12	12	12	12
10	13	13	13	13	13	13	13	13	13	13	13	13	13
11	14	14	14	14	14	14	14	14	14	14	14	14	14
12	15	15	15	15	15	15	15	15	15	15	15	15	15
13	16	16	16	16	16	16	16	16	16	16	16	16	16
14	17	17	17	17	17	17	17	17	17	17	17	17	17
15	18	18	18	18	18	18	18	18	18	18	18	18	18
16	19	19	19	19	19	19	19	19	19	19	19	19	19
17	20	20	20	20	20	20	20	20	20	20	20	20	20
18	21	21	21	21	21	21	21	21	21	21	21	21	21
19	22	22	22	22	22	22	22	22	22	22	22	22	22
20	23	23	23	23	23	23	23	23	23	23	23	23	23
21	24	24	24	24	24	24	24	24	24	24	24	24	24
22	25	25	25	25	25	25	25	25	25	25	25	25	25
23	26	26	26	26	26	26	26	26	26	26	26	26	26
24	27	27	27	27	27	27	27	27	27	27	27	27	27
25	28	28	28	28	28	28	28	28	28	28	28	28	28
26	29	29	29	29	29	29	29	29	29	29	29	29	29
27	30	30	30	30	30	30	30	30	30	30	30	30	30
28	31	31	31	31	31	31	31	31	31	31	31	31	31

Geocentric position of Pluto and Mean Longitudes													31
of the Sun and the Moon in 1959													
Month and Date.		Pluto			Sun			Moon					
		Long.	Lat.	Decl.	Mean Long.			Mean Long.		Hor. Par.	Semi-Dia.		
Jan.	1	3 ^h 56	12°N	4°21'N	16	280	10	15	178	46	2	58.6	15.9
	11	R 47	7	23	290	1	39	310	31	52	57.5	15.6	
	21	36	11	30	299	53	21	82	17	42	55.1	15.0	
	31	22	13	37	309	44	25	214	3	33	59.2	16.1	
Feb.	10	9	15	44	319	35	48	345	49	23	55.7	15.1	
	20	2	54	51	329	27	12	117	35	13	56.7	15.5	
Mar.	2	38	17	57	339	18	35	249	21	4	59.0	16.1	
	12	24	17 ²²	3	349	9	56	21	6	54	54.5	14.8	
	22	10	16	7	359	1	22	152	52	45	58.6	16.0	
Apr.	1	1	58	15	10	8	52	45	284	38	35	57.8	15.8
	11	48	13	12	18	44	7	56	24	25	54.0	14.7	
	21	40	11	13	28	35	30	188	10	16	60.3	16.4	
May	1	35	8	13	38	26	53	319	56	6	56.4	15.3	
	11	33	5	11	48	18	17	91	41	57	54.4	14.8	
	21	33	2	8	58	9	40	223	27	47	61.2	16.7	
	31	D 37	11	59	4	68	1	3	355	13	38	55.1	15.0
June	10	44	57 ²¹	59	77	52	27	126	59	27	55.5	15.1	
	20	53	54	53	87	43	50	258	45	17	60.9	16.6	
	30	2	5	52	46	97	35	15	30	31	7	54.3	14.8
July	10	19	49	39	107	26	38	162	16	58	57.00	15.5	
	20	35	48	32	117	18	2	294	2	48	59.5	16.2	
	30	52	47	24	127	9	25	65	48	37	54.2	14.8	
August	9	3	11	46	17	137	0	48	197	34	28	58.6	16.00
	19	31	47	9	146	52	11	329	20	18	57.6	15.7	
	29	51	47	2	156	43	35	101	6	9	55.0	15.0	
Sep.	8	4	11	48 ²⁰	56	166	34	58	232	51	59	59.5	16.2
	18	31	49	50	176	26	21	4	37	49	55.7	15.1	
	28	49	52	45	186	17	45	136	23	40	56.3	15.3	
Oct.	8	5	7	54	41	196	9	8	268	9	30	59.3	16.2
	18	22	57	38	206	0	31	39	55	21	54.5	14.8	
	28	38 ¹²	1	36	215	51	56	171	41	11	58.1	15.8	
Nov.	7	5 ^h 46 ^m	12°N	5°20'N	35	225	43	41	302	27	1	58.3	15.9
	17	54	8	36	235	35	42	75	12	51	54.0	14.7	
	27	6	14	38	245	26	52	206	51	41	59.7	16.2	
Dec.	7	2	18	42	255	17	28	338	44	32	56.8	15.5	
	17	R 0	22	46	265	8	51	110	30	22	54.3	14.8	
	27	5	26	51	275	0	15	142	16	12	60.7	16.6	
	31	54	23	54	278	56	48	294	58	38	60.6	16.6	

Timings of Moonrise in 1959

30

Lat.	Date.	September			October			November			December		
		+10°	+20°	+30°	+10°	+20°	+30°	+10°	+20°	+30°	+10°	+20°	+30°
1	1	H. 4	M. 5	M. 55	H. 4	M. 4	M. 38	H. 6	M. 15	M. 25	H. 7	M. 16	M. 33
2	2	H. 5	M. 6	M. 54	H. 5	M. 5	M. 37	H. 7	M. 16	M. 26	H. 8	M. 17	M. 34
3	3	H. 6	M. 7	M. 53	H. 6	M. 6	M. 36	H. 8	M. 17	M. 27	H. 9	M. 18	M. 35
4	4	H. 7	M. 8	M. 52	H. 7	M. 7	M. 35	H. 9	M. 18	M. 28	H. 10	M. 19	M. 36
5	5	H. 8	M. 9	M. 51	H. 8	M. 8	M. 34	H. 10	M. 19	M. 29	H. 11	M. 20	M. 37
6	6	H. 9	M. 10	M. 50	H. 9	M. 9	M. 33	H. 11	M. 20	M. 30	H. 12	M. 21	M. 38
7	7	H. 10	M. 11	M. 49	H. 10	M. 10	M. 32	H. 12	M. 21	M. 31	H. 13	M. 22	M. 39
8	8	H. 11	M. 12	M. 48	H. 11	M. 11	M. 31	H. 13	M. 22	M. 32	H. 14	M. 23	M. 40
9	9	H. 12	M. 13	M. 47	H. 12	M. 12	M. 30	H. 14	M. 23	M. 33	H. 15	M. 24	M. 41
10	10	H. 13	M. 14	M. 46	H. 13	M. 13	M. 29	H. 15	M. 24	M. 34	H. 16	M. 25	M. 42
11	11	H. 14	M. 15	M. 45	H. 14	M. 14	M. 28	H. 16	M. 25	M. 35	H. 17	M. 26	M. 43
12	12	H. 15	M. 16	M. 44	H. 15	M. 15	M. 27	H. 17	M. 26	M. 36	H. 18	M. 27	M. 44
13	13	H. 16	M. 17	M. 43	H. 16	M. 16	M. 26	H. 18	M. 27	M. 37	H. 19	M. 28	M. 45
14	14	H. 17	M. 18	M. 42	H. 17	M. 17	M. 25	H. 19	M. 28	M. 38	H. 20	M. 29	M. 46
15	15	H. 18	M. 19	M. 41	H. 18	M. 18	M. 24	H. 20	M. 29	M. 39	H. 21	M. 30	M. 47
16	16	H. 19	M. 20	M. 40	H. 19	M. 19	M. 23	H. 21	M. 30	M. 40	H. 22	M. 31	M. 48
17	17	H. 20	M. 21	M. 39	H. 20	M. 20	M. 22	H. 22	M. 31	M. 41	H. 23	M. 32	M. 49
18	18	H. 21	M. 22	M. 38	H. 21	M. 21	M. 21	H. 23	M. 32	M. 42	H. 24	M. 33	M. 50
19	19	H. 22	M. 23	M. 37	H. 22	M. 22	M. 20	H. 24	M. 33	M. 43	H. 25	M. 34	M. 51
20	20	H. 23	M. 24	M. 36	H. 23	M. 23	M. 19	H. 25	M. 34	M. 44	H. 26	M. 35	M. 52
21	21	H. 24	M. 25	M. 35	H. 24	M. 24	M. 18	H. 26	M. 35	M. 45	H. 27	M. 36	M. 53
22	22	H. 25	M. 26	M. 34	H. 25	M. 25	M. 17	H. 27	M. 36	M. 46	H. 28	M. 37	M. 54
23	23	H. 26	M. 27	M. 33	H. 26	M. 26	M. 16	H. 28	M. 37	M. 47	H. 29	M. 38	M. 55
24	24	H. 27	M. 28	M. 32	H. 27	M. 27	M. 15	H. 29	M. 38	M. 48	H. 30	M. 39	M. 56
25	25	H. 28	M. 29	M. 31	H. 28	M. 28	M. 14	H. 30	M. 39	M. 49	H. 31	M. 40	M. 57
26	26	H. 29	M. 30	M. 30	H. 29	M. 29	M. 13	H. 31	M. 40	M. 50			M. 58
27	27	H. 30	M. 31	M. 29	H. 30	M. 30	M. 12		M. 41	M. 51			M. 59
28	28			M. 28			M. 11		M. 42	M. 52			M. 60
29	29			M. 27			M. 10		M. 43	M. 53			M. 61
30	30			M. 26			M. 9		M. 44	M. 54			M. 62
31	31			M. 25			M. 8		M. 45	M. 55			M. 63

Geocentric position of Pluto and Mean Longitudes of the Sun and the Moon in 1959

31

Month and Date.	Pluto			Sun			Moon		
	Long.	Lat.	Decl.	Mean Long.	Mean Long.	Hor. Par.	Semi-Dia.		
Jan. 1	3 ^h 56 ^m	12°N	4°21'N	280 10 15	178 46 2	58.6	15.9		
11	R 47	7	23	290 1 39	310 31 52	57.5	15.6		
21	36	11	30	299 53 21	82 17 42	55.1	15.0		
31	22	13	37	309 44 25	214 3 33	59.2	16.1		
Feb. 10	9	15	44	319 35 48	345 49 23	55.7	15.1		
20	2 54	16	51	329 27 12	117 35 13	56.7	15.5		
Mar. 2	38	17	57	339 18 35	249 21 4	59.0	16.1		
12	24	17 22	3	349 9 55	21 6 54	54.5	14.8		
22	10	16	7	359 1 22	152 52 45	58.6	16.0		
Apr. 1	1 58	15	10	8 52 45	284 38 35	57.8	15.8		
11	48	13	12	18 44 7	56 24 25	54.0	14.7		
21	40	11	13	28 35 30	188 10 16	60.3	16.4		
May 1	35	8	13	38 26 54	319 56 6	56.4	15.3		
11	33	5	11	48 18 17	91 41 57	54.4	14.8		
21	33	2	8	58 9 40	223 27 47	61.2	16.7		
31	D 37 11	59	4	68 1 3	355 13 38	55.1	15.0		
June 10	44	57 21	59	77 52 27	126 59 27	55.5	15.1		
20	53	54	53	87 43 50	258 45 17	60.9	16.6		
30	2 5	52	46	97 35 15	30 31 7	54.3	14.8		
July 10	19	49	39	107 26 38	162 16 58	57.00	15.5		
20	35	48	32	117 18 2	294 2 48	59.5	16.2		
30	52	47	24	127 9 25	65 43 37	54.2	14.8		
August 9	3 11	46	17	137 0 48	197 34 28	58.6	16.00		
19	31	47	9	146 52 11	329 20 1	57.6	15.7		
29	51	47	2	156 43 35	101 6 9	55.0	15.0		
Sep. 8	4 11	48 20	56	166 34 58	232 51 59	59.5	16.2		
18	31	49	50	176 26 21	4 37 49	55.7	15.1		
28	49	52	45	186 17 45	136 23 40	56.3	15.3		
Oct. 8	5 7	54	41	196 9 8	268 9 30	59.3	16.2		
18	22	57	38	206 0 31	39 55 21	54.5	14.8		
28	36 12	1	36	215 51 56	171 41 11	58.1	15.8		
Nov. 7	5 ^h 46 ^m	12°N	5°20'N	225 43 41	302 27 1	58.3	15.9		
17	54	8	36	235 35 42	75 12 51	54.0	14.7		
27	6 0	14	38	245 26 52	206 51 41	59.7	16.2		
Dec. 7	2	18	42	255 17 28	338 44 32	56.8	15.5		
17	R 0	22	46	265 8 51	110 30 22	54.3	14.8		
27	5 56	26	51	275 0 15	142 16 12	60.7	16.6		
31	54	28	54	278 56 48	294 58 38	60.6	16.6		

Ending Moments of *Tithis* for each date in 1959
(Calculated in I. S. T.)

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

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

34 Time when the Moon enters the Zodiacal Signs in 1959

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	20 49	♈	2	7 51	♈	1	14 41	♈	2	4 17	♈	1	15 58	♈	2	22 7
♈	4	0 10	♈	4	11 57	♈	3	17 40	♈	4	2 3	♈	4	3 52	♈	5	11 7
♈	6	2 26	♈	6	16 14	♈	5	22 49	♈	6	22 6	♈	6	16 10	♈	7	23 13
♈	8	5 22	♈	8	22 26	♈	8	6 0	♈	9	10 12	♈	9	5 4	♈	10	9 49
♈	10	7 25	♈	11	7 28	♈	10	15 27	♈	11	22 55	♈	11	17 26	♈	12	18 18
♈	12	13 11	♈	13	19 20	♈	13	3 9	♈	14	11 18	♈	14	2 13	♈	15	0 9
♈	14	22 46	♈	16	8 3	♈	15	22 5	♈	16	21 21	♈	16	12 9	♈	17	3 6
♈	17	11 55	♈	18	19 16	♈	18	3 57	♈	19	3 50	♈	18	16 35	♈	19	3 44
♈	19	23 42	♈	21	3 5	♈	20	12 47	♈	21	6 47	♈	20	14 18	♈	21	3 34
♈	22	10 16	♈	23	7 35	♈	22	18 4	♈	23	7 5	♈	22	17 23	♈	23	4 37
♈	24	17 42	♈	25	10 0	♈	24	19 56	♈	25	6 32	♈	24	16 58	♈	25	8 23
♈	26	22 43	♈	27	11 47	♈	26	20 26	♈	27	7 7	♈	26	20 31	♈	27	17 1
♈	29	2 25	♈			♈	28	21 6	♈	29	10 29	♈	28	23 29	♈	30	5 4
♈	31	5 36	♈			♈	30	23 25	♈	31	9 51	♈			♈		

July August September October November December

♈	2	17 35	♈	1	12 54	♈	2	14 0	♈	2	3 37	♈	2	15 33	♈	2	1 45
♈	5	5 33	♈	3	22 41	♈	4	18 25	♈	4	8 37	♈	4	15 47	♈	4	2 12
♈	7	15 29	♈	6	5 59	♈	6	21 23	♈	6	6 26	♈	6	17 49	♈	6	5 53
♈	9	23 44	♈	8	11 31	♈	8	23 45	♈	8	9 51	♈	8	23 11	♈	8	13 31
♈	12	5 54	♈	10	15 59	♈	11	2 36	♈	10	11 43	♈	11	7 43	♈	11	0 28
♈	14	10 3	♈	12	18 29	♈	13	6 16	♈	12	17 39	♈	13	18 35	♈	13	12 54
♈	16	12 13	♈	14	20 23	♈	15	6 19	♈	15	1 53	♈	16	6 45	♈	16	1 31
♈	18	13 13	♈	16	23 27	♈	17	18 50	♈	17	12 12	♈	18	19 26	♈	18	13 28
♈	20	14 39	♈	19	3 35	♈	20	4 46	♈	20	0 12	♈	21	7 34	♈	20	23 56
♈	22	18 16	♈	21	10 23	♈	22	16 47	♈	22	12 52	♈	23	17 35	♈	23	7 57
♈	25	1 27	♈	23	20 31	♈	25	5 19	♈	25	0 30	♈	26	0 4	♈	25	17 10
♈	27	12 13	♈	26	21 43	♈	27	16 4	♈	27	9 21	♈	28	2 47	♈	27	13 46
♈	30	0 54	♈	31	7 2	♈	30	23 30	♈	31	15 44	♈			♈	31	13 0

Distances apart of all ♄s and ♀s in 1959

35

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

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

Date.	Aspect	Time.	Distance.	Date.	Aspect	Time.	Distance.	Date.	Aspect	Time.	Distance.
		H. M. °				H. M. °				H. M. °	
16	$\delta \sigma$	11 47	4 51	December				15	$\delta \sigma$	10 21	4 58
17	$\delta \sigma$	1 30	6 13			H. M. °		20	$\delta \sigma$	16 52	4 27
17	$\delta \sigma$	21 25	1 49					20	$\delta \sigma$	6 17	3 41
19	$\delta \sigma$	4 48	4 34	2	$\delta \sigma$	11 16	4 27	21	$\delta \sigma$	11 22	13 21
23	$\delta \sigma$	0 36	3 56	5	$\delta \sigma$	13 59	3 47	25	$\delta \sigma$	22 36	0 54
24	$\delta \sigma$	4 46	14 26	5	$\delta \sigma$	23 45	...	26	$\delta \sigma$	2 44	1 23
24	$\delta \sigma$	16 34	...	6	$\delta \sigma$	16 45	13 22	27	$\delta \sigma$	1 10	1 41
27	$\delta \sigma$	7 8	0 30	11	$\delta \sigma$	8 15	0 20	27	$\delta \sigma$	6 29	0 1
28	$\delta \sigma$	15 22	1 23	11	$\delta \sigma$	16 45	1 17	28	$\delta \sigma$	17 16	0 46
29	$\delta \sigma$	19 34	1 59	13	$\delta \sigma$	12 4	1 58	28	$\delta \sigma$	17 55	5 19
29	$\delta \sigma$	22 11	3 36	14	$\delta \sigma$	3 34	4 48	28	$\delta \sigma$	18 15	4 30
30	$\delta \sigma$	14 17	4 36	14	$\delta \sigma$	19 0	4 23	28	$\delta \sigma$	21 27	4 44
		20 55	4 24	15	$\delta \sigma$	3 3	5 36	30	$\delta \sigma$	3 40	4 30
								30	$\delta \sigma$	11 53	5 11

JULY 7:—There will be a conjunction of Venus with Regulus (Magha) on this date. This occultation will be visible just after the sunset.

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

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

Heliacal Risings and Settings of the Planets in 1959

(For the latitude 23° 11' N)

*Rises.**Sets.*

Mercury

5th March, in West.

9th April, in East.

14th June, in West.

14th August, in East.

10th October, in West.

2nd December, in East.

25th January, in East.

19th March, in West.

15th May, in East.

22nd July, in West.

3rd September, in East.

18th November, in West.

Venus

8th September, in East.

18th August, in West.

Mars

22nd December.

17th August.

Jupiter

20th December.

25th November.

Saturn

4th January.

17th December.

A Partial Eclipse of the Moon, 25th March, 1959.

		H.	M.
First Contact	..	0	46
Middle of the Eclipse	..	1	41
Last Contact	..	2	36

Magnitude the Eclipse 0.27 (Moon's diameter 1.0)

Position Angle

First	49°
Last	347°

Elements of the Planetary Orbits for 12 o'clock Noon (I. S. T.) on 1st January 1959

Planet.	Mean. Long.	Mean. Daily Motion.	Per. of Revolu- tion (Sid.)	Long. of Asc. Node	Long. of Perihelion or Perigee.	Eccen- tricity.	Mean Distance from the Sun.	Inclina- tion of the Orbit.
	° ' "	° ' "	Days.	° ' "	° ' "			° ' "
Mercury	167 57 58	4 5 32	87.9693	47 50 43	76 49 3	0.205626	0.3870984	7 0 14
Venus	309 8 9	1 36 8	224.701	76 18 38	130 59 41	0.006792	0.7233302	3 23 39
Earth	280 10 15	0 59 8	365.256	..	282 14 7	0.016727	1.0000000	..
Mars	67 20 57	0 31 26	686.980	49 14 29	335 18 15	0.093367	1.523678	1 51 0
Jupiter	229 28 9	0 4 59	4332.59	100 2 23	13 40 15	0.048432	5.202561	1 18 19
Saturn	268 26 8	0 2 0	10759.2	113 18 20	92 15 13	0.055689	9.554747	2 29 25
Uranus	137 49 4	0 0 42	30688.5	73 46 17	172 25 28	0.046329	19.21824	0 46 22
Neptune	214 11 26	0 0 21.6	60181.3	131 19 47	47 34 4	0.009001	30.10957	1 46 25
Moon	178 46 2	13 10 35	27.3216	198 2 21	215 3 30	0.05490	..	5 8 13

° ' "

Daily Motion of Moon's Node — 0 3 10.62.

" " " Perigee + 0 6 41.05.

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

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

[illegible]

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

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

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

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

December

1	ψ	11 40	29	ψ	11 51
	ψ	14 26		ψ	12 5
	ψ	14 30		ψ	12 41
	ψ	16 43		ψ	19 34
	ψ	23 30		ψ	22 11
	ψ	11 13		ψ	11 49
	ψ	11 16		ψ	12 12
	ψ	11 19		ψ	14 17
	ψ	14 12		ψ	14 54
	ψ	15 53		ψ	20 55
	ψ	16 54			
	ψ	21 7			
	ψ	0 34			
	ψ	11 20			
	ψ	11 25			
	ψ	15 48			
	ψ	18 24			
	ψ	18 59			
	ψ	21 54			
	ψ	2 19			
	ψ	12 10			
	ψ	12 35			
	ψ	15 27			
	ψ	22 3			
	ψ	23 31			
	ψ	13 59			
	ψ	14 34			
	ψ	19 9			
	ψ	2 11			
	ψ	8 53			
	ψ	16 45			

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

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

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

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	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	14
15	96	13	96	37	97	1	97	25	97	50	98	14	98	39	99	3	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	2	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	33	107	3	107	27	107	52	108	17
0	106	31	106	54	107	16	107	40	108	8	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	2	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	19	118	40	119	2	119	23	119	45	120	6	120	27	120	49	121	11	121	32
0	120	23	120	44	121	4	121	25	121	45	122	7	122	27	122	47	123	9	123	29	123	50	124	11	124	33	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	24	129	39	129	58	130	17	130	37	130	56	131	15	131	34
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
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	22	140	38	140	54	141	10	141	25	141	41
30	141	33	141	50	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	35	145	50	146	14	146	19	146	31	146	45	146	59	147	12	147	27	147	39	147	52	148	5	148	19	148	33
0	149	20	149	33	149	45	149	59	150	10	150	22	150	35	150	47	150	59	151	11	151	23	151	35	151	46	151	58
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	26
30	156	54	157	3	157	12	157	22	157	32	157	41	157	51	158	0	158	9	158	19	158	29	158	37	158	46	158	55
45	160	41	160	51	161	2	161	12	161	18	161	27	161	35	161	42	161	50	161	58	162	5	162	13	162	20	162	28
0	164	33	164	39	164	45	164	51	164	58	165	4	165	11	165	17	165	23	165	30	165	36	165	42	165	49	165	55
15	168	22	168	28	168	33	168	38	168	43	168	47	168	52	168	57	169	2	169	7	169	11	169	16	169	20	169	25
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	12	176	14	176	15	176	16	176	17	176	19	176	20	176	22	176	23	176	24	176	26
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.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
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
15	183 53 183	51 183	49 183	48 183	46 183	45 183	42 183	41 183	40 183	38 183	37 183	36 183	33 183	32 183
30	187 45 187	41 187	39 187	36 187	32 187	29 187	25 187	23 187	20 187	18 187	13 187	9 187	6 187	3 187
45	191 36 191	32 191	27 191	22 191	17 191	13 191	8 191	3 191	58 190	53 190	49 190	44 190	40 190	35 190
7	0 195	27 195	22 195	15 195	2 194	56 194	49 194	43 194	37 194	30 194	24 194	18 194	11 194	5 194
15	199 19 199	16 199	2 198	52 198	46 198	37 198	25 198	18 198	14 198	6 198	0 197	51 197	44 197	32 197
30	203 7 202	57 202	48 202	38 202	28 202	19 202	9 202	0 201	51 201	41 201	32 201	23 201	14 201	5 201
45	206 55 206	43 206	31 206	20 206	10 205	59 205	49 205	38 205	27 205	17 205	5 204	55 204	45 204	34 204
8	0 210	40 210	27 210	15 210	1 209	50 209	38 209	25 209	13 209	1 208	49 208	37 208	25 208	14 208
15	214 24 214	10 213	56 213	41 213	29 213	15 213	12 212	48 212	33 212	21 212	8 211	55 211	41 211	28 211
30	218 4 217	50 217	35 217	20 217	5 216	50 216	35 216	21 216	6 215	52 215	37 215	23 215	8 214	54 214
45	221 46 221	30 221	13 220	56 220	41 220	25 220	9 219	54 219	38 219	22 219	6 218	50 218	35 218	19 218
9	0 225	22 225	6 224	49 224	31 224	15 223	58 223	41 223	24 223	7 222	50 222	34 222	17 222	0 221
15	229 0 228	42 228	23 228	4 227	47 227	29 227	11 226	53 226	35 226	17 225	59 225	40 225	22 225	4 225
30	232 34 232	15 231	56 231	36 231	18 230	59 230	56 230	42 230	21 230	2 229	43 229	33 229	4 228	26 228
45	236 6 235	46 235	26 235	5 234	46 234	26 234	7 233	47 233	27 233	7 232	47 232	27 232	7 231	47 231
10	0 239	37 239	17 238	56 238	35 238	15 237	53 237	33 237	13 236	51 236	31 236	10 235	29 235	7 235
15	243 7 242	46 242	24 242	2 241	41 241	20 240	58 240	37 240	15 239	54 239	33 239	11 238	49 238	28 238
30	246 36 246	13 245	51 245	29 245	7 244	45 244	23 244	1 243	39 243	17 242	53 242	32 242	9 241	46 241
45	250 2 249	40 249	18 248	55 248	32 248	9 247	47 247	25 247	1 246	39 246	15 245	52 245	29 245	6 245
11	0 253	29 253	7 252	44 252	20 251	57 251	34 251	11 250	47 250	24 250	0 249	37 249	24 248	24 248
15	256 56 256	32 256	8 255	45 255	21 254	57 254	33 254	10 253	45 253	22 252	37 252	33 252	8 251	43 251
30	260 21 259	34 259	10 258	24 258	10 258	22 257	58 257	35 257	9 256	45 256	20 255	55 255	29 255	8 255
45	263 47 263	23 262	59 262	35 262	10 261	46 261	21 260	57 260	32 260	7 259	42 259	16 258	50 258	24 258
12	0 267	13 266	48 266	23 266	0 265	35 265	10 264	45 264	20 263	55 263	30 263	4 262	38 262	13 261

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.														
12 0	267	13 266	48 266	23 266	0 265	35 265	10 264	45 264	20 263	55 263	30 263	4 262	38 262	13 261
15 0	270	38 270	14 269	49 269	25 269	0 268	35 268	10 267	44 267	19 266	53 266	27 266	1 265	34 265
30 0	274	4 273	41 273	17 272	51 272	27 272	2 271	36 271	11 270	47 270	21 269	55 269	27 269	0 268
45 0	277	34 277	9 276	44 276	20 275	55 275	30 275	4 274	39 274	13 273	47 273	21 272	54 272	27 271
13 0	281	3 280	38 280	14 279	50 279	25 279	0 278	35 278	9 277	43 277	17 276	51 276	24 275	57 275
15 0	284	34 284	10 283	45 283	21 282	56 282	31 282	6 281	41 281	15 280	49 280	22 279	55 279	28 278
30 0	288	8 287	44 287	19 286	55 286	30 286	6 285	41 285	15 284	50 284	24 283	58 283	30 283	3 282
45 0	291	41 291	19 290	55 290	32 290	7 289	43 289	18 288	53 288	27 288	0 287	35 287	8 286	41 286
14 0	295	19 294	56 294	33 294	11 293	46 293	22 292	58 292	34 292	8 291	42 291	17 290	50 290	23 289
15 0	299	0 298	38 298	15 297	52 297	28 297	5 296	41 296	16 295	52 295	27 295	2 294	35 294	9 293
30 0	302	43 302	21 301	59 301	37 301	14 300	51 300	26 300	4 299	40 299	15 298	50 298	25 297	59 297
45 0	306	29 306	8 305	46 305	27 305	3 304	41 304	18 303	55 303	32 303	8 302	44 302	19 301	54 301
15 0	310	17 309	59 309	38 309	17 308	56 308	33 308	13 307	51 307	28 307	5 306	41 306	17 305	52 305
15 0	314	11 313	52 313	32 313	12 312	52 312	32 312	12 311	51 311	35 311	14 310	45 310	22 309	58 309
30 0	318	7 317	50 317	32 317	12 316	55 316	34 316	15 315	55 315	35 315	14 314	53 314	31 314	9 313
45 0	322	6 321	50 321	32 321	18 320	58 320	41 320	23 320	3 319	45 319	25 319	5 318	45 318	24 318
16 0	326	11 325	55 325	39 325	24 325	7 324	51 324	34 324	17 324	0 323	42 323	23 323	59 322	45 322
15 0	330	14 330	2 329	48 329	33 329	20 328	5 328	49 328	34 328	18 328	2 327	46 327	29 327	10 326
30 0	334	25 334	11 334	0 333	47 333	35 333	22 333	9 332	56 332	41 332	28 332	13 331	58 331	42 331
45 0	338	37 338	25 338	15 338	5 337	54 337	42 337	31 337	19 337	8 336	56 336	43 336	30 336	17 336
17 0	342	37 342	41 342	33 342	25 342	15 342	6 341	58 341	48 341	38 341	28 341	17 341	7 340	56 340
15 0	346	5 346	58 346	52 346	47 346	39 346	33 346	25 346	18 346	11 346	3 345	55 345	47 345	39 345
30 0	351	22 351	18 351	15 351	11 351	6 351	1 350	56 350	51 350	46 350	41 350	36 350	30 350	25 350
45 0	355	42 355	40 355	38 355	34 355	33 355	31 355	29 355	26 355	23 355	20 355	17 355	15 355	13 355
18 0	0	0	0	0	0	0	0	0	0	0	0	0	0	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.														
18 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 0	4 19	4 20	4 23	4 26	4 27	4 29	4 31	4 34	4 37	4 40	4 43	4 45	4 47	4 50
30 0	8 37	8 42	8 46	8 49	8 54	8 59	9 04	9 09	9 14	9 19	9 24	9 30	9 35	9 40
45 0	12 56	13 2	13 8	13 13	13 18	13 23	13 28	13 33	13 38	13 43	13 48	13 53	13 58	14 03
19 0	17 14	17 19	17 27	17 35	17 45	17 54	18 02	18 10	18 18	18 26	18 34	18 42	18 50	18 58
30 0	25 35	25 48	26 0	26 13	26 25	26 38	26 51	27 04	27 17	27 30	27 43	27 56	28 09	28 22
45 0	29 46	29 58	30 12	30 26	30 40	30 53	31 06	31 19	31 32	31 45	31 58	32 11	32 24	32 37
20 0	33 51	34 5	34 21	34 36	34 50	35 04	35 18	35 32	35 46	36 00	36 14	36 28	36 42	36 56
15 0	37 54	38 10	38 27	38 52	39 2	39 19	39 37	39 57	40 15	40 35	40 55	41 15	41 36	41 57
30 0	41 53	42 10	42 28	42 48	43 5	43 26	43 45	44 5	44 25	44 46	45 7	45 29	45 51	46 14
45 0	47 48	48 6	48 24	48 46	49 8	49 25	49 48	50 11	50 34	50 57	51 20	51 43	52 6	52 29
21 0	51 30	52 54	54 14	55 33	56 52	58 11	59 30	60 49	62 6	63 25	64 44	65 63	66 82	67 1
30 0	57 17	57 53	58 58	59 58	60 58	61 58	62 58	63 58	64 58	65 58	66 58	67 58	68 58	69 58
45 0	61 01	61 22	61 45	62 8	62 32	62 55	63 19	63 44	64 6	64 33	64 58	65 23	65 48	66 19
22 0	64 41	65 4	65 27	65 49	66 14	66 38	67 2	67 26	67 52	68 18	68 43	69 10	69 37	70 4
15 0	68 19	68 41	69 5	69 28	69 53	70 17	70 42	71 7	71 33	72 0	72 25	72 50	73 17	73 45
30 0	71 53	72 17	72 41	73 5	73 30	73 54	74 19	74 45	75 10	75 36	76 2	76 30	76 57	77 24
45 0	75 27	75 50	76 15	76 39	77 4	77 29	77 54	78 19	78 45	79 12	79 38	80 5	80 32	81 0
23 0	78 58	79 21	79 46	80 10	80 35	81 0	81 25	81 51	82 17	82 43	83 9	83 36	84 3	84 31
15 0	82 28	82 51	83 16	83 40	84 5	84 30	84 56	85 21	85 47	86 13	86 39	87 6	87 33	88 1
30 0	85 45	86 19	86 43	87 9	87 33	87 58	88 24	88 49	89 17	89 39	90 5	90 33	91 0	91 26
45 0	89 21	89 46	90 11	90 35	91 0	91 25	91 50	92 16	92 41	93 7	93 33	93 59	94 26	94 52
24 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 14

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

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Sid. Time.	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°	32°	33°	34°
H. M.	°	'	°	'	'	'	'	'	'	'	'	'	'	'
0	0 98	41 99	8 99	35 100	3 100	31 100	59 101	27 101	56 102	34 102	57 103	26 103	57 104	29 105
1	15 102	2 102	28 102	55 103	22 103	49 104	17 104	45 105	18 105	43 106	12 106	41 107	11 107	42 108
2	30 105	22 105	48 106	14 106	40 107	7 107	33 108	2 108	29 108	58 109	26 109	54 110	24 110	53 111
3	45 108	42 109	7 109	37 109	57 110	23 110	49 111	16 111	43 112	11 112	38 113	6 113	34 114	2 114
4	0 112	0 112	24 112	49 113	14 113	39 114	5 114	31 114	56 115	22 115	49 116	16 116	43 117	10 117
5	15 115	18 115	42 116	16 116	30 116	54 117	19 117	44 118	9 118	34 119	0 119	25 119	50 120	18 120
6	30 118	39 119	0 119	23 119	46 120	10 120	33 120	57 121	21 121	46 122	11 122	35 123	0 123	25 123
7	45 121	54 122	17 122	38 123	2 123	24 123	47 124	9 124	32 124	56 125	21 125	54 126	17 126	37 126
8	0 125	14 125	35 125	57 126	18 126	39 127	1 127	23 127	45 128	8 128	31 128	54 129	17 129	37 130
9	15 128	31 128	53 129	14 129	34 129	54 130	15 130	36 130	57 131	19 131	40 132	2 132	24 132	45 133
10	30 131	54 132	13 132	35 132	51 133	10 133	30 133	50 134	9 134	29 134	50 135	11 135	30 135	51 136
11	45 135	15 135	32 135	50 136	7 136	26 136	44 137	3 137	22 137	41 138	1 138	18 138	37 138	57 139
12	0 138	34 138	52 139	9 139	26 139	43 140	0 140	17 140	34 140	51 141	11 141	28 141	45 142	3 142
13	15 141	57 142	13 142	29 142	45 143	1 143	17 143	33 143	49 144	5 144	23 144	39 144	55 145	12 145
14	30 145	20 145	35 145	50 146	5 146	19 146	33 146	48 147	3 147	18 147	33 147	49 148	14 148	19 148
15	45 148	45 148	59 149	12 149	26 149	38 149	51 150	5 150	19 150	33 150	46 150	59 151	13 151	28 151
16	0 152	10 152	22 152	32 152	46 152	58 153	10 153	22 153	35 153	47 153	59 154	11 154	24 154	36 154
17	15 155	36 155	47 155	58 156	8 156	19 156	30 156	40 156	51 157	2 157	13 157	24 157	34 157	45 157
18	30 159	4 159	13 159	22 159	31 159	40 159	50 159	59 160	8 160	18 160	27 160	36 160	46 160	55 161
19	45 162	35 162	44 162	50 162	26 163	3 163	18 163	25 163	33 163	41 163	49 163	57 164	6 164	12 164
20	0 166	2 166	8 166	14 166	20 166	26 166	32 166	38 166	44 166	50 166	57 167	3 167	9 167	16 167
21	15 169	30 169	35 169	40 169	44 169	48 169	53 169	58 170	2 170	7 170	13 170	17 170	22 170	26 170
22	30 173	0 173	3 173	6 173	9 173	12 173	15 173	19 173	21 173	24 173	28 173	31 173	34 173	37 173
23	45 176	29 176	32 176	33 176	34 176	36 176	38 176	40 176	41 176	43 176	44 176	45 176	47 176	50 176
24	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

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

59

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	0 180
7	15 183	31 183	28 183	27 183	24 183	22 183	20 183	19 183	17 183	16 183	15 183	13 183	10 183	10 183
8	30 187	0 186	57 186	54 186	51 186	46 186	45 186	41 186	39 186	36 186	32 186	29 186	26 186	23 186
9	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
10	0 193	58 193	52 193	46 193	40 193	34 193	28 193	22 193	16 193	10 193	3 192	57 192	31 192	4 192
11	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
12	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
13	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
14	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	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
16	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
17	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
18	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
19	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
20	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
21	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
22	0 234	46 234	25 234	3 233	42 233	21 232	59 232	37 232	15 231	52 231	29 231	6 230	45 230	23 229
23	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
24	30 241	22 241	0 240	37 240	14 239	50 239	27 239	3 238	38 238	14 237	49 237	25 237	9 236	35 236
25	45 244	42 244	18 243	54 243	30 243	6 242	41 242	16 241	51 241	26 241	0 240	35 240	9 239	42 239
26	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	58 242
27	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
28	30 254	38 254	12 253	46 253	20 252	53 252	26 251	58 251	31 251	2 250	31 250	4 249	36 249	7 248
29	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
30	0 261	19 260	52 260	25 259	57 259	29 259	1 258	31 258	4 257	34 257	3 256	31 256	3 255	31 254

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

60

Sid. Time.	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°	32°	33°	34°
H. M.														
12	0 261	19 260	52 260	25 259	57 259	29 259	0 258	31 258	4 257	34 257	3 256	34 256	3 255	31 254
15	0 264	41 264	14 263	45 263	18 262	49 262	20 261	51 261	22 260	51 260	19 259	49 259	18 258	45 258
30	0 268	6 267	38 267	8 266	41 266	12 265	42 265	12 264	42 264	11 263	39 263	8 262	36 262	22 261
45	0 271	32 271	4 270	35 270	6 269	38 269	7 268	37 268	6 267	34 267	21 266	29 265	56 265	22 264
13	0 275	1 274	33 274	4 273	34 273	6 272	34 272	4 271	33 271	0 270	27 269	54 269	21 268	46 268
15	0 278	32 278	3 277	35 277	5 276	36 276	4 275	34 275	2 274	29 273	55 273	22 272	48 272	12 271
30	0 282	7 281	38 281	9 280	39 280	10 279	38 279	8 278	35 278	2 277	58 276	54 276	19 275	43 275
45	0 285	46 285	17 284	48 284	18 283	49 283	17 282	47 282	13 281	40 281	5 280	32 279	57 279	20 278
14	0 289	28 288	59 288	30 288	0 287	31 286	59 286	29 285	55 285	22 284	48 284	14 283	36 283	1 282
15	0 293	14 292	46 292	17 291	48 291	18 290	46 290	16 289	43 289	10 288	35 288	1 287	25 286	49 286
30	0 297	5 296	38 296	9 295	40 295	11 294	11 294	11 293	38 293	5 292	30 291	57 291	20 290	43 290
45	0 301	2 300	34 300	7 299	38 299	9 298	39 298	10 297	38 297	5 296	31 295	57 295	22 294	45 294
15	0 305	2 304	36 304	8 303	41 303	13 302	44 302	14 301	42 301	10 300	36 300	3 299	28 298	52 298
15	0 309	9 308	44 308	18 307	51 307	24 306	55 306	26 305	56 305	24 304	52 304	20 303	46 303	10 302
30	0 313	22 312	59 312	54 312	8 311	42 311	15 310	47 310	18 309	48 309	17 308	45 308	13 307	38 307
45	0 317	41 317	18 316	56 316	31 316	6 315	40 315	14 314	47 314	18 313	48 313	19 312	48 312	15 311
16	0 322	5 321	43 321	21 320	59 320	36 320	52 320	30 324	6 323	42 323	16 322	51 322	24 321	55 321
15	0 326	33 326	15 325	56 325	35 325	14 324	52 324	38 324	57 323	35 328	12 327	50 327	25 326	59 326
30	0 331	9 330	35 330	35 330	3 334	48 334	31 334	14 333	55 333	36 333	17 332	57 332	33 332	13 331
45	0 335	49 335	53 335	19 335	3 334	48 334	31 334	16 339	0 338	44 338	29 338	12 337	58 337	35 337
17	0 340	34 340	22 340	9 339	56 339	43 339	30 339	16 339	11 343	59 343	46 343	33 343	19 343	4 342
15	0 345	22 345	13 345	3 344	54 344	44 344	33 344	22 344	25 349	17 349	8 348	59 348	49 348	40 348
30	0 350	14 350	7 350	1 349	54 349	47 349	41 349	34 349	42 354	38 354	33 354	29 354	24 354	19 354
45	0 355	7 355	4 354	59 354	56 354	53 354	49 354	46 354	0 0	0 0	0 0	0 0	0 0	0 0
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

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

61

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
15	4 53	4 56	5 1	5 4	5 6	7 5	14 5	18 5	5 22	5 27	5 31	5 36	5 41	5 46
30	9 46	9 53	9 59	10 6	10 13	10 19	10 26	10 35	10 43	10 52	11 1	11 11	11 20	11 31
45	14 38	14 47	14 57	15 6	15 16	15 27	15 38	15 49	16 1	16 14	16 27	16 41	16 56	17 12
19	0 19	26 19	38 19	51 20	4 20	17 20	29 20	44 21	0 21	16 21	31 21	48 22	6 22	22 44
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	28 51	29 7	29 25	29 44	30 3	30 22	30 42	31 3	31 31	31 48	32 10	32 35	33 1	33 28
45	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
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	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	50 51	51 16	51 42	52 9	52 36	53 5	53 30	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	58 18	58 50	59 24	59 57	60 32	61 8	61 45
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	62 55	63 22	63 41	64 20	64 48	65 19	65 49	66 22	66 55	67 30	68 3	68 40	69 17	69 54
45	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	77 35
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	77 53	78 22	78 51	79 21	79 50	80 22	80 52	81 25	81 54	82 32	83 6	83 41	84 17	84 52
45	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 89	0 89	33 90	6 90	39 91	41 49
15	88 28	88 56	89 25	89 54	90 22	89 53	91 23	91 54	92 26	92 59	93 3	94 4	94 38	95 11
30	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	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

LOGARITHMIC TABLE.

Hours or Degrees.

Min.	0	1	2	3	4	5	6	7	8	9	10	11	Min
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	2-8512	1-3590	1-0685	.8959	.7728	.6764	.5985	.5320	.4744	.4236	.3780	.3368	3
4	2-8563	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	2-3802	1-3388	1-0580	.8888	.7674	.6726	.5949	.5289	.4717	.4212	.3759	.3349	6
7	2-3133	1-3323	1-0546	.8865	.7674	.6712	.5937	.5279	.4698	.4196	.3752	.3342	7
8	2-2553	1-3258	1-0511	.8842	.7639	.6698	.5925	.5269	.4699	.4196	.3752	.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	.3671	.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	.3646	.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	.3618	.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	.5696	.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	.3516	.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	.7050	.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	.6904	.6094	.5414	.4826	.4308	.3846	.3428	.3047	54
55	1-4180	1-0977	.9153	.7873	.6885	.6081	.5403	.4817	.4300	.3838	.3421	.3041	55
56	1-4102	1-0939	.9128	.7854	.6871	.6069	.5393	.4808	.4292	.3831	.3415	.3034	56
57	1-4025	1-0902	.9104	.7836	.6856	.6057	.5372	.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.			
Min.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
0	.3010	.2663	.2341	.2041	.1761	.1498	.1249	.1015	.7922	.5800	.3788	.1855							
1	.3004	.2657	.2336	.2036	.1756	.1493	.1245	.1011	.7888	.5776	.3765	.1832							
2	.2998	.2652	.2330	.2030	.1752	.1489	.1241	.1007	.7885	.5773	.3761	.1829							
3	.2992	.2646	.2325	.2027	.1747	.1485	.1237	.1003	.7881	.5770	.3758	.1825							
4	.2986	.2640	.2320	.2022	.1743	.1481	.1233	.9999	.7778	.5666	.3663	.1822							
5	.2980	.2635	.2315	.2017	.1738	.1476	.1229	.9996	.7774	.5663	.3661	.1819							
6	.2974	.2629	.2310	.2012	.1734	.1472	.1225	.9992	.7770	.5659	.3658	.1816							
7	.2968	.2624	.2305	.2008	.1729	.1468	.1221	.9988	.7766	.5656	.3655	.1813							
8	.2962	.2618	.2300	.2003	.1725	.1464	.1217	.9984	.7763	.5652	.3652	.1810							
9	.2956	.2613	.2295	.1998	.1720	.1459	.1213	.9980	.7759	.5649	.3648	.1807							
10	.2950	.2607	.2289	.1993	.1716	.1455	.1209	.9977	.7756	.5646	.3645	.1804							
11	.2944	.2602	.2284	.1988	.1711	.1451	.1205	.9973	.7752	.5642	.3642	.1801							
12	.2938	.2596	.2279	.1984	.1707	.1447	.1201	.9969	.7749	.5639	.3639	.1798							
13	.2933	.2591	.2274	.1979	.1702	.1443	.1197	.9965	.7745	.5635	.3635	.1795							
14	.2927	.2585	.2269	.1974	.1698	.1438	.1193	.9962	.7741	.5632	.3632	.1792							
15	.2921	.2580	.2264	.1969	.1694	.1434	.1190	.9958	.7738	.5629	.3629	.1789							
16	.2915	.2574	.2259	.1965	.1689	.1430	.1186	.9954	.7734	.5625	.3626	.1786							
17	.2909	.2569	.2253	.1960	.1685	.1426	.1182	.9950	.7731	.5622	.3622	.1783							
18	.2903	.2564	.2249	.1955	.1680	.1422	.1178	.9947	.7727	.5618	.3619	.1780							
19	.2897	.2558	.2244	.1950	.1676	.1417	.1174	.9943	.7724	.5615	.3616	.1777							
20	.2891	.2553	.2239	.1946	.1671	.1413	.1170	.9939	.7720	.5612	.3613	.1774							
21	.2885	.2547	.2234	.1941	.1667	.1409	.1166	.9935	.7716	.5608	.3609	.1771							
22	.2880	.2542	.2229	.1936	.1662	.1405	.1162	.9932	.7713	.5605	.3606	.1768							
23	.2874	.2536	.2223	.1932	.1658	.1401	.1158	.9928	.7709	.5601	.3603	.1765							
24	.2868	.2531	.2218	.1927	.1654	.1397	.1154	.9924	.7706	.5598	.3600	.1762							
25	.2862	.2526	.2213	.1922	.1649	.1392	.1150	.9920	.7702	.5595	.3596	.1759							
26	.2856	.2520	.2208	.1917	.1645	.1388	.1146	.9917	.7699	.5592	.3593	.1756							
27	.2850	.2515	.2203	.1913	.1640	.1384	.1142	.9913	.7695	.5589	.3590	.1753							
28	.2845	.2509	.2198	.1908	.1636	.1380	.1138	.9909	.7692	.5586	.3587	.1750							
29	.2839	.2504	.2193	.1903	.1632	.1376	.1134	.9906	.7689	.5583	.3584	.1747							

LOGARITHMIC TABLE. — (concl'd.)

Hours or Degrees.																Min.			
Min.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
30	.2833	.2499	.2188	.1899	.1627	.1372	.1130	.9902	.6885	.4780	.2800	.0991							
31	.2827	.2493	.2183	.1894	.1623	.1368	.1127	.9898	.6881	.4774	.2797	.0988							
32	.2821	.2488	.2178	.1889	.1618	.1363	.1123	.9894	.6878	.4771	.2794	.0985							
33	.2816	.2483	.2173	.1885	.1614	.1359	.1119	.9891	.6874	.4768	.2791	.0982							
34	.2810	.2477	.2168	.1880	.1610	.1355	.1115	.9887	.6870	.4764	.2787	.0979							
35	.2804	.2472	.2164	.1875	.1605	.1351	.1111	.9883	.6867	.4761	.2784	.0976							
36	.2798	.2467	.2159	.1871	.1601	.1347	.1107	.9880	.6863	.4758	.2781	.0973							
37	.2793	.2461	.2154	.1866	.1597	.1343	.1103	.9876	.6860	.4754	.2778	.0970							
38	.2787	.2456	.2149	.1862	.1592	.1339	.1099	.9872	.6856	.4751	.2775	.0967							
39	.2781	.2451	.2144	.1857	.1588	.1335	.1095	.9869	.6852	.4748	.2772	.0964							
40	.2775	.2445	.2139	.1852	.1584	.1331	.1091	.9865	.6849	.4744	.2769	.0961							
41	.2770	.2440	.2134	.1848	.1579	.1326	.1088	.9861	.6846	.4741	.2766	.0958							
42	.2764	.2435	.2129	.1843	.1575	.1322	.1084	.9857	.6842	.4738	.2763	.0955							
43	.2758	.2430	.2124	.1838	.1571	.1318	.1080	.9854	.6839	.4734	.2760	.0952							
44	.2753	.2424	.2119	.1834	.1566	.1314	.1076	.9850	.6835	.4731	.2757	.0949							
45	.2747	.2419	.2114	.1829	.1561	.1310	.1072	.9846	.6832	.4728	.2754	.0946							
46	.2741	.2414	.2109	.1825	.1558	.1306	.1068	.9843	.6828	.4724	.2751	.0943							
47	.2736	.2409	.2104	.1820	.1553	.1302	.1064	.9839	.6825	.4721	.2748	.0940							
48	.2730	.2403	.2099	.1816	.1549	.1298	.1061	.9835	.6822	.4718	.2745	.0937							
49	.2724	.2398	.2095	.1811	.1545	.1294	.1057	.9832	.6818	.4714	.2742	.0934							
50	.2719	.2393	.2090	.1806	.1540	.1290	.1053	.9828	.6815	.4711	.2739	.0931							
51	.2713	.2388	.2085	.1802	.1536	.1286	.1049	.9825	.6811	.4708	.2736	.0928							
52	.2707	.2382	.2080	.1797	.1532	.1282	.1045	.9821	.6808	.4704	.2733	.0925							
53	.2702	.2377	.2075	.1793	.1528	.1278	.1041	.9817	.6804	.4701	.2730	.0922							
54	.2696	.2372	.2070	.1788	.1523	.1274	.1038	.9814	.6801	.4698	.2727	.0919							
55	.2691	.2367	.2065	.1784	.1519	.1270	.1034	.9810	.6797	.4694	.2724	.0916							
56	.2685	.2362	.2061	.1779	.1515	.1266	.1030	.9806	.6794	.4691	.2721	.0913							
57	.2679	.2356	.2056	.1774	.1510	.1261	.1026	.9803	.6790	.4688	.2718	.0910							
58	.2674	.2351	.2051	.1770	.1506	.1257	.1022	.9799	.6787	.4684	.2715	.0907							
59	.2668	.2346	.2046	.1765	.1502	.1253	.1018	.9795	.6783	.4681	.2712	.0904							

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