

Ptolemy's
ALMAGEST

Translated and Annotated by

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TABLE OF CONJUNCTIONS

1 25-year periods	2 Days of Thoth	3	4	5
		Distance of Sun from its Apogee ° ' "	Anomaly of Moon from Epicyclic Apogee ° ' "	Latitude from Northern Limit ° ' "
1	24 44 17	288 38 50	218 57 15	308 17 21
26	24 41 30	282 31 24	276 18 59	65 30 11
51	24 38 43	276 23 58	333 40 43	182 43 1
76	24 35 56	270 16 33	31 2 27	299 55 51
101	24 33 9	264 9 7	88 24 11	57 8 41
126	24 30 22	258 1 41	145 45 55	174 21 31
151	24 27 35	251 54 15	203 7 39	291 34 20
176	24 24 47	245 46 50	260 29 23	48 47 10
201	24 22 0	239 39 24	317 51 7	166 0 0
226	24 19 13	233 31 58	15 12 51	283 12 50
251	24 16 26	227 24 32	72 34 35	40 25 40
276	24 13 39	221 17 6	129 56 19	157 38 30
301	24 10 52	215 9 41	187 18 3	274 51 20
326	24 8 5	209 2 15	244 39 47	32 4 10
351	24 5 18	202 54 49	302 1 31	149 17 0
376	24 2 31	196 47 23	359 23 15	266 29 50
401	23 59 44	190 39 57	56 44 59	23 42 39
426	23 56 57	184 32 32	114 6 43	140 55 29
451	23 54 10	178 25 6	171 28 27	258 8 19
476	23 51 22	172 17 40	228 50 11	15 21 9
501	23 48 35	166 10 14	286 11 55	132 33 59
526	23 45 48	160 2 49	343 33 39	249 46 49
551	23 43 1	153 55 23	40 55 23	6 59 39
576	23 40 14	147 47 57	98 17 7	124 12 29
601	23 37 27	141 40 31	155 38 51	241 25 19
626	23 34 40	135 33 5	213 0 35	358 38 9
651	23 31 53	129 25 40	270 22 19	115 50 58
676	23 29 6	123 18 14	327 44 3	233 3 48
701	23 26 19	117 10 48	25 5 47	350 16 38
726	23 23 32	111 3 22	82 27 31	107 29 28
751	23 20 45	104 55 57	139 49 16	224 42 18
776	23 17 57	98 48 31	197 11 0	341 55 8
801	23 15 10	92 41 5	254 32 44	99 7 58
826	23 12 23	86 33 39	311 54 28	216 20 48
851	23 9 36	80 26 13	9 16 12	333 33 38
876	23 6 49	74 18 48	66 37 56	90 46 28
901	23 4 2	68 11 22	123 59 40	207 59 17
926	23 1 15	62 3 56	181 21 24	325 12 7
951	22 58 28	55 56 30	238 43 8	82 24 57
976	22 55 41	49 49 4	296 4 52	199 37 47
1001	22 52 54	43 41 39	353 26 36	316 50 37
1026	22 50 7	37 34 13	50 48 20	74 3 27
1051	22 47 20	31 26 47	108 10 4	191 16 17
1076	22 44 32	25 19 21	165 31 48	308 29 7
1101	22 41 45	19 11 56	222 53 32	64 41 57

TABLE OF OPPOSITIONS

1 25-year periods	2 Days of Thoth	3	4	5
		Distance of Sun from its Apogee ° ' "	Anomaly of Moon from Epicyclic Apogee ° ' "	Latitude from Northern Limit ° ' "
1	9 58 22	274 5 38	26 2 45	112 57 15
26	9 55 35	267 58 12	83 24 29	230 10 5
51	9 52 48	261 50 46	140 46 13	347 22 55
76	9 50 1	255 43 21	198 7 57	104 35 45
101	9 47 14	249 35 55	255 29 41	221 48 35
126	9 44 27	243 28 29	312 51 25	339 1 25
151	9 41 40	237 21 3	10 13 9	96 14 14
176	9 38 52	231 13 38	67 34 53	213 27 4
201	9 36 5	225 6 12	124 56 37	330 39 54
226	9 33 18	218 58 46	182 18 21	87 52 44
251	9 30 31	212 51 20	239 40 5	205 5 34
276	9 27 44	206 43 54	297 1 49	322 18 24
301	9 24 57	200 36 29	354 23 33	79 31 14
326	9 22 10	194 29 3	51 45 17	196 44 4
351	9 19 23	188 21 37	109 7 1	313 56 54
376	9 16 36	182 14 11	166 28 45	71 9 44
401	9 13 49	176 6 45	223 50 29	188 22 33
426	9 11 2	169 59 20	281 12 13	305 35 23
451	9 8 15	163 51 54	338 33 57	62 48 13
476	9 5 27	157 44 28	35 55 41	180 1 3
501	9 2 40	151 37 2	93 17 25	297 13 53
526	8 59 53	145 29 37	150 39 9	54 26 43
551	8 57 6	139 22 11	208 0 53	171 39 33
576	8 54 19	133 14 45	265 22 37	288 52 23
601	8 51 32	127 7 19	322 44 21	46 5 13
626	8 48 45	120 59 53	20 6 5	163 18 3
651	8 45 58	114 52 28	77 27 49	280 30 52
676	8 43 11	108 45 2	134 49 33	37 43 42
701	8 40 24	102 37 36	192 11 17	154 56 32
726	8 37 37	96 30 10	249 33 1	272 9 22
751	8 34 50	90 22 45	306 54 45	29 22 12
776	8 32 2	84 15 19	4 16 29	146 35 2
801	8 29 15	78 7 53	61 38 14	263 47 52
826	8 26 28	72 0 27	118 59 58	21 0 42
851	8 23 41	65 53 1	176 21 42	138 13 32
876	8 20 54	59 45 36	233 43 26	255 26 22
901	8 18 7	53 38 10	291 5 10	12 39 11
926	8 15 20	47 30 44	348 26 54	129 52 1
951	8 12 33	41 23 18	45 48 38	247 4 51
976	8 9 46	35 15 52	103 10 22	4 17 41
1001	8 6 59	29 8 27	160 32 6	121 30 31
1026	8 4 12	23 1 1	217 53 50	238 43 21
1051	8 1 25	16 53 35	275 15 34	355 56 11
1076	7 58 37	10 46 9	332 37 18	113 9 1
1101	7 55 50	4 38 44	29 59 2	230 21 51

YEARLY [AND MONTHLY] INCREMENTS for CONJUNCTION and OPPOSITION

1 Single years	2 Days	3 Sun from Apogee ° ' ''	4 [Moon's] Anomaly ° ' ''	5 Latitude ° ' ''
1	18 53 52	18 22 59	335 37 2	38 43 4
2	8 15 53	7 39 36	285 25 4	46 45 54
3	27 9 45	26 2 35	261 2 5	85 28 57
4	16 31 47	15 19 11	210 50 7	93 31 47
5	5 53 49	4 35 47	160 38 9	101 34 37
6	24 47 40	22 58 47	136 15 11	140 17 41
7	14 9 42	12 15 23	86 3 12	148 20 30
8	3 31 44	1 31 59	35 51 14	156 23 20
9	22 25 36	19 54 59	11 28 16	195 6 24
10	11 47 37	9 11 35	321 16 18	203 9 14
11	1 9 39	358 28 11	271 4 19	211 12 3
12	20 3 31	16 51 10	246 41 21	249 55 7
13	9 25 32	6 7 47	196 29 23	257 57 57
14	28 19 24	24 30 46	172 6 25	296 41 1
15	17 41 26	13 47 22	121 54 26	304 43 50
16	7 3 28	3 3 59	71 42 28	312 46 40
17	25 57 19	21 26 58	47 19 30	351 29 44
18	15 19 21	10 43 34	357 7 32	359 32 34
19	4 41 23	0 0 10	306 55 33	7 35 23
20	23 35 14	18 23 10	282 32 35	46 18 27
21	12 57 16	7 39 46	232 20 37	54 21 17
22	2 19 18	356 56 22	182 8 39	62 24 7
23	21 13 10	15 19 22	157 45 41	101 7 10
24	10 35 11	4 35 58	107 33 42	109 10 0
[ECLIPSE] LIMITS OF SUN IN MEAN [LATITUDINAL] MOTION: from 69:19' to 101:22' and from 258:38' to 290:41' [ECLIPSE] LIMITS OF MOON IN MEAN [LATITUDINAL] MOTION: from 74:48' to 105:12' and from 254:48' to 285:12'				
Months	Days	Sun from Apogee	[Moon's] Anomaly	Latitude
1	29 31 50	29 6 23	25 49 0	30 40 14
2	59 3 40	58 12 46	51 38 0	61 20 28
3	88 35 30	87 19 9	77 27 0	92 0 42
4	118 7 21	116 25 32	103 16 1	122 40 57
5	147 39 11	145 31 55	129 5 1	153 21 11
6	177 11 1	174 38 18	154 54 1	184 1 25
7	206 42 51	203 44 41	180 43 1	214 41 39
8	236 14 41	232 51 4	206 32 1	245 21 53
9	265 46 31	261 57 27	232 21 1	276 2 7
10	295 18 21	291 3 50	258 10 1	306 42 21
11	324 50 12	320 10 13	283 59 2	337 22 36
12	354 22 2	349 16 36	309 48 2	8 2 50

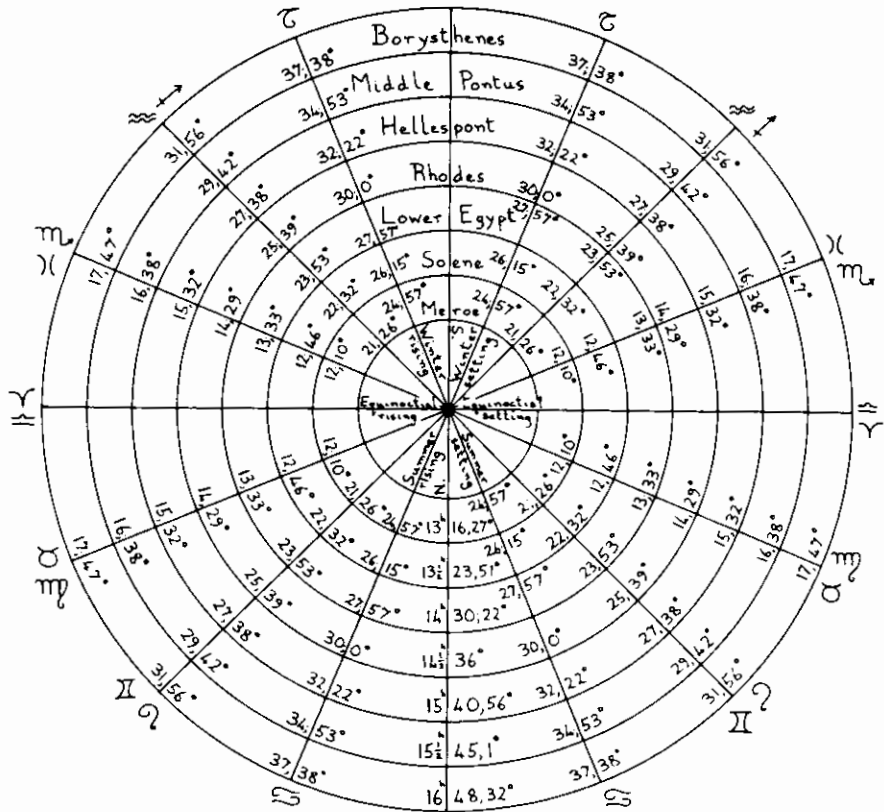


Fig. 6.7

The result of this procedure will give us the point on the horizon towards which (speaking roughly, as we said), are inclined those points of the luminaries comprising the significant [moments of the phases], namely the beginning and end of eclipse and of total phase.⁸⁷

⁸⁷ Literally 'the beginnings and ends of the eclipse and emersion', i.e. beginning of eclipse, end of partial phase = beginning of totality, beginning of emersion (= end of totality), end of emersion.