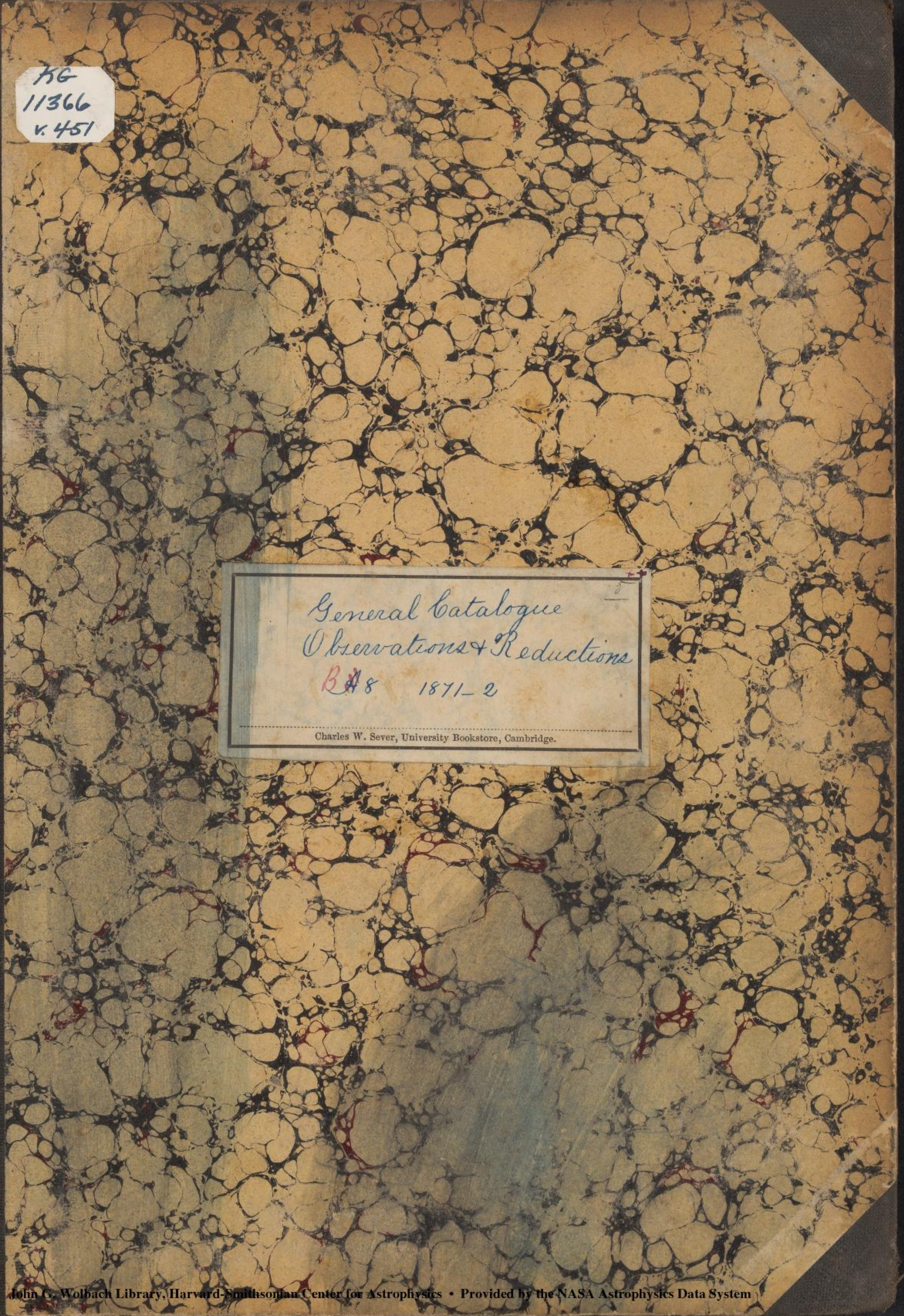
KG
11366
v. 451



5

General Catalogue
Observations & Reductions
B~~A~~8 1871_2

Charles W. Sever, University Bookstore, Cambridge.

Gb.
1871-2 Ag

5 4 40 (187 2

sin δ 9.5621
cos δ 9.9690

i Tauri

4 55 26
55 26.78 23.20
+21 24

(+.39)

sin z = +.36

δ

						21°	24′	17″.9	17″.9	+.0	
Jan 1	4	55	26.92					17.9	17.9	.1	
6			.92	.00				18.0	18.0	.0	-2
11			91	01				18.1	18.0	.1	
16			89	02				18.1	18.1	.0	-4
21	(00)		26.86	03				18.1	18.1	.1	
26	(-.01)		82	04				18.1	18.2	.0	-4
31			77	05				18.2	18.2	.0	
Feb. 5			71	06				18.2	18.2	.0	-5
10			26.65	06				18.2	18.2 +	.0	
15			57	08				18.2	18.2 −	.1	-10
20			49	08				18.1	18.1	9	
25			41	08				18.1	18.1		15
Mar 1			26.32	.09							

26.72	.74	-4
75	.74	-4
80	.81	+3
82	.80	+2
79	.79	+1
82	.76	-2
470		
26.78	26.77	(-.01)
	-3.58	
	23.19	

	Jan. 10	Jan. 30	Feb. 7	Feb. 8	Feb. 26	Feb. 28
	+.41 +394	+49 +477	+40 +387	+3 +352	+30 +372	+41 +438
-.016 sin δ 9.56215 cos δ 9.96898 12669 .09567	54 42.9 55 9.8 55 45.0 11.0 47.2 12.1 51.5 329 53.9 56.0 58.1 60.4 64.8 67.0 69.2 55 10.9 6160	6.9 55 .14 55 9.2 3.1 11.5 4.5 15.8 90 17.9 3.00 20.3 55 51.0 22.4 24.6 29.1 31.3 33.6 55 8.0 2226	55 26.655 12.4 14.5 16.6 19.0 21.1 836 55 26.6	3.055 1.2 55 5.3 2.5 7.4 3.3 11.9 7.0 14.1 16.3 18.5 20.7 25.0 27.3 29.6 55 2.3 1791	0.1 55 31.8 2.1 32.7 4.3 33.6 8.8 98.1 55 11.0 13.2 15.4 17.7 22.1 24.3 26.6 55 32.7 1456	55 13.4 35.0 35.9 13.3 36.9 15.5 107.8 17.8 22.1 24.6 26.6 13.24 55 35.9 1.0
9.96898 11804 .08702	26.91 56.00 55.98 55.98 26.91 26.91 30.83 -30.93	20.21 2678 20.24 -6.57 20.21 26.78 -6.57	16.70 26.70 16.72 -10.00 16.70 26.68 -9.98	16.28 ~~15.34~~ 26.67 ~~15.37~~ 11.33 16.26 15.39 26.67 -11.33	13.22 2639 13.24 -13.17 13.22 26.39 -13.17	13.32 2634 13.34 13.02 13.32 26.36 -13.04
	55.98 55.98 +30.71 +30.74 -13 +15 +16 -13 26.72 26.74	20.21 20.21 +6.34 +6.34 +.00 +.19 +.20 .00 26.75 26.75	1670 16.70 +9.86 +9.86 +8 +.15 +16 +.10 26.80 26.81	15.35 16.26 +10.28 +10.21 +.11 +.14 +.18 +.11 26.82 26.72	13.22 ~~13.22~~ +13.04 +13.04 +.39 +.14 +.14 +.39 26.79 26.79	13.32 13.32 +12.50 +12.85 +.44 +.17 +.16 +.42 26.82 26.76
	55 4 35.0 19.1 541 27.05	4 24.7 2 25.13 3 526 52.8 8 193 178 4 0865 2 885	3 48.9 18.9 678 3390	4 19.2 49.9 69.1 34.55	3 19.9 51.8 71.7 35.85	3 18.9 50.0 68.9 34.45
0 +21 - 0	-14.9 Δt 1.17319 n 1.26886 n -1857 59 27.05 59 8.48 23 39.87 24.05	+17.2 1.23553 1.32255 -2103 59 8.65 58 47.62 24 0.73 -0 25.38	-9.9 0.99563 n 1.08265 n +1209 58 3390 58 4699 24 236 - 24.94	+13.1 14.0 (17.12) ~~1.11727~~ 1.14610 1.20429 1.23312 -1641 -17.11 ~~59 4.55~~ 455 58 ~~48.54~~ 47.44 24 0.91 - 24.62	-19.5 1.29003 n 1.37705 n +2383 58 5.85 58 29.68 24 18.67 - 24.32	-22.6 1.35411 n 1.44113 n +27.62 58 4.45 58 32.07 5.28 24 16.28 - 23.93
21 δ′ = +21	23 15.8 24 18.0 23 39.87 1.20	23 35.3 24 18.2 24 0.73 1.40	23 37.4 24 18.2 24 2.36 1.40	23 36.3 24 18.2 24 0.81 1.40	23 54.3 24 18.1 24 18.01 1.30	23 52.3 24 18.1 24 16.28 1.30
-.33 I +1 ~~+21 2~~ +21 δc	2.2 1.9 23 39.87 -1.20	429 + ~~43.1~~ 42.6 24 0.73 1.40	+ 41.8 40.4 24 2.36 1.40	+ 41.9 41.6 24 0.91 1.40	+ 23.8 23.5 24 1867 1.30	+ 25.8 25.4 24 16.28 -1.30

Δ = +0′

$v = +21° 24' 17''$

$\zeta = +20° 58' 31''$
$ 22$

$z = +20\ 58{:}1$

$\mu = 1.3437$

$\delta = +21° 24' 16.8''$

Let ζ = The True z. D.,
z = The App z. D.,
r = The refraction.

Then $z = \zeta - r$

1871phae.proj.1455.

E Mus Min √ V ☆

4 5 9 16
59 10.00 —.10 1631 = P
+97 45

−7.35

8 14.20

−7.41

Min Z = −.82

Jan 1.9 16 59 3.18
6.9 4.9 31 8
11.9 3.88 39 7
Jan 1.9 16. −.16 4.34 46 6
11.9 21.9 −.09 4.86 52 6
21.9 26.9 5.45 59 4
31.8 31.8 .25 6.08 63 5
Feb. 10.8 6.76 68
20.8 Feb. 10.8 (−.12) 7.49 73 5
Mar. 1.8 8 8.25 76 3
11.7 20.8 (−.16) 9.03 78 2
25.8 9.84 81 3
Mar. 1.8 10.65 81 0
11.47 82 1
11.7 12.29 .82 0

8° 82° 14′ 30″.2 1.7
28.5 1.6
26.9 1.5
24.4 1.5
23.9 1.4
22.5 1.2
21.3 1.1
20.2 .9
19.3 .8
18.5 .6
17.9 .4
17.5 .3
17.2 .1
17.1 .0
17.1

1651 9.92 = P.

+.41 +.354	+.41 +.405	+.49 +.477	+.40 +.387	+.34 +.352	+.41 .400
Jan. 10	Jan. 12	Jan. 30	Feb. 7	Feb. 8	Feb. 22

+.11 57 3.50 0 14.2 57 32.6 57 7.2 57 31.0 57 17.8 57 27.7 56 45.9 57 2.28 59 46.8 57 27.0 56 48.0
19.4 15.3 47.4 10.5 46.1 19.2 42.3 48.5 57.9 42.3 49.0
34.3 17.0 58 3.6 13.7 58 1.6 21.0 58.3 52.6 58 28.6 58.1 97.0
58 5.0 46.5 33.5 31.4 33.6 58 0 58 28.8 55.8 44.0 58 28.7
20.0 49.0 48.1 19.33 44.3 61.2 59.3 44.1
35.6 59 3.6 59 3.15 0 44.0 59.0 26.40 59 14.0 59.2
57.0 19.0 18.4 46.6 59 13.9 29.5 59 14.2
59 66.2 34.5 33.1 49.3 29.4 59.7 29.6
36.2 0 15.5 0 5.1 57 10.5 0 3.7 57 19.31 49 59.6 56 52.8 15.3 57 46.8 59.9 56 48.5
9.99601 67.8 20.0 19.8 46.63 14.0 20.6 15.6
0 64.9 35.4 34.3 31.3 40 9 0 30.7
38 9 9 35.56 28.37 4.08 27 3 2 3.13 40 8 59.08 240 59.11 409 3 59.14
3.67 240 3.81 24 0 6.81 24 0 6.92 649.0 7.06 240 9.18
28.11 43.7 +0.27 33.2 −2.68 648.0 59.08 7.66 649 3 −10.04
9.12985 35.45 59 3.97 3.018 58.964 −7.00 59.000 59.028
12669 35.33 35.56 59 3.82 4.08 59 3.13 +1.5 59.08 59.11 59.14
9.25654 3.75 +0.15 3.92 5.89 6.59 7.11 9.26
35.56 −28.19 4.08 +0.16 3.13 −2.76 59.08 −1.89 59.11 −8.00 59.14 −10.12
+30.72 + .12 +2.72 + .12 +6.34 + .12 +9.85 + .12 +10.23 + .12 +12.99 + .12
9.12485 −3.01 −28.07 −3.01 +0.28 −3.60 −2.64 −2.94 8.77 −2.50 7.88 −3.01 10.00
11804 +6.38 +6.24 +4.24 +3.13 +2.99 +0.87
9.24789 35.56 4.08 3.13 +1.5 59.08 59.11 59.14
9.65 +30.73 10.03 +2.71 10.11 +6.34 (9.12) +9.86 9.83 +10.24 9.89 +12.99
−2.92 −3.00 −3.54 −2.87 10.15 −2.61 −2.96
+6.30 = 9.77 +6.13 = 9.92 40 +4.16 10.09 +3.08 +2.94 9.65 +0.79 9.96

35 4 41.6 40 0 16.0 35 4 25.6 0 4.8 4 19.2 4 46.4 4 1.2
18.8 54.0 3 45.8 23.7 43.2 10.5 21.8
60.4 70.0 8 11.4 8 85 62.4 56.9 23.0
30.20 35.00 4 5.70 39 44.25 31.20 28.45 11.50
Use

−100.1 +113.5 +103.7 −103.5 +126.2 −47.8 +130.5
2.00043 n 2.01494 2.01578 2.10106 1.67943 n 2.11561
1.25697 1.27148 n 1.26367 n 1.34895 n 0.92732 1.36350 n
+ 18.07 + 18.68 + 18.35 − 18.34 + 22.32 − 8.46 + 23.09
39 30.20 40 5.00 39 5.70 39 44.25 39 1.20 39 28.45 38 41.50
39 48.27 39 46.32 39 24.05 25.51 39 23.52 39 19.99 39 4.59
+ 9° 43 0.08 43 2.03 43 24.30 22.44 43 24.83 43 28.36 43 43.76
+ 27.64 + 26.68 + 32.46 + 31.55 + 30.02 + 27.83
97 43 27.7 28.7 43 56.8 56.4 58.4 11.6
−.04 14 27.2 26.6 21.5 19.8 19.6 17.7
26.8 26.2 21.1 17.4 17.2 13.3
45 33.2 33.8 38.9 40.6 40.8 42.3
+.76 97 + 1 5.5 6.3 + 1 5.1 5.8 + 42.1 42.9 + 44.2 44.9 + 42.4 43.2 + 31.1 31.8

+ 9°

δ = + 97 43 0.08 43 2.03 43 24.30 43 24.83 43 28.36 43 43.76

+ 10.90 + 11.50 + 16.60 + 14.30 + 14.50 + 20.40

☆
☆
The
Lo
Co

9.65 .77 − 15
10.03 .92 − 0
10.11 .09 +.17
9.83 .08 +.16
9.89 .65 −.27
10.00 .66 + 4
10.20 .72 −.20
10.21 .67 −.25
.16 +.24
* 9.99 9.89 −.03
+6.3 16.28

(\# This includes the corr. −.10^s
The real correction becomes −.16^s)

Look out in future not to confound the
corr. with the reduction to beginning of year.

$\nu = 97° 45' 22''$
$\zeta = $ ~~7 37 26~~
− 55 22 34
+ 1 24
$z = −55° 21' 10''$

$\delta = + 82° 14' 38.''1$

$\delta = 82\ 14\ 38.58 = $ N. H.
3813 = ρ

+35 +.372
Feb. 26

57 27.7
43.0
58.2
58 29.1
43.9
58 {59.0}
14.4
29.8
0.3
15.0
56 48.2
49.2
50.2
54.0
201.6
56 50.4
308
3512
30
6572
39.200
59.31
5.83
−10.52
59.31
9.92
−10.61
+.12
10.49
59.31
+13.04
−2.07
+0.22
10.00
59.31
+13.04
−2.76
+0.13
9.72
9.96

35
4 0.0
23.3
233
11.65
+128.8
2.10992
1.35781n
+2280
38 41.65
39 4.45
43 43.90
+30.29
14.2
17.4
17.0
43.0
+28.8 29.6

43 43.90

+20.70

+.41 +.438
Feb. 28

57 28.4
43.9
59.4
58 29.4
44.7
59 0.7
15.2
30.7
1.4
16.5
31.4
301
300
1.7
0.154
57 10.4
12.0
13.3
35.7
57 11.9
0.26
10.10
−10.06
0.26
10.24
−9.98
+.12
9.86
0.26
+12.90
−3.01
+0.15
10.20
0.26
+12.85
−3.25
−.19
9.67

4 0.4
23.0
234
11.70
+108.3
2.03463
1.28252n
+1916
38 41.70
39 0.86
43 47.49
+27.97
15.5
17.3
16.9
43.1
+27.6 28.3

43 47.49

+20.80

+.41 +.398
March 11

4
59 30.7
46.7
1.3
16.9
31.5
1271
120
7.1
1.420
5
0 25.5
25.5
1.53
12.12
−10.59
1.420
1.53
12.21
−10.68
+.12
10.56
1.53
+13.76
−3.01
−2.07
10.21
1.53
+13.74
−2.95
−2.16
10.16

4 16.0
44.8
60.8
30.40
−24.1
1.38202n
0.62991
−426
39 0.40
38 56.14
43 52.21
+26.61
18.8
17.1
16.7
43.3
+24.5 25.3

43 52.21

+21.00

ε Urs Min 19 Camel 5 01
4 59 16
+97 45

Wire intervals for ε Urs Min.

for regular order of wires for L.C.

Jan 10 〃		6-1		6-2		6-3		6-4		6-5		6-6		6-7		6-8		6-9		6-10		6-11
12 10	+1	31.9	+1	16.0	+1	1.1	+0	30.4	+0	15.4	−0	0.2	−0	15.6	−0	30.8	−1	0.8	−1	16.4	−1	31.5
30 12		31.4		16.6		0.4		30.5		15.0	+	0.4		15.0		30.5		1.1		16.0		31.4
Feb 7 30		32.0		16.9		1.4		29.4		14.9	−	0.5		15.4		(30.1)		0.7		16.8		31.3
8 7		31.3		16.7		0.7		30.2		14.7	+	0.0		14.9		30.4		0.6		15.0		32.3
22 8		31.7		16.2		1.1		30.4		15.0	−	0.3		15.0		30.5		0.7		16.3		31.6
26 22		32.0		16.7		0.9		30.3		14.9	−	0.2		15.2		30.6		0.9		16.0		31.7
28 26		31.5		16.2		1.0		30.1		15.3	+	0.2		15.2		30.6		1.1		15.8		31.6
28		31.7		16.2		0.7		30.7		15.4	−	0.6		15.1		30.6		1.3		16.4		31.3
		31.73		16.44	+	0.91		30.25		15.08	−	0.15	−	15.19		30.51		0.90		16.09		31.59

Jan 10	+1	~~31.94~~
12	1	~~16.04~~
30	1	~~1.14~~
Feb. 7		~~30.44~~
8	+	~~15.44~~
22	−	~~.16~~
26		
28		

		6-1		6-2		6-3		6-4		6-5		6-6		6-7		6-8		6-9		6-10		6-11
Jan. 10	+1	31.94	+1	16.04	+1	1.14	+0	30.44	+0	15.44	−0	0.16	−0	15.56	−0	30.76	−1	0.76	−1	16.36	−1	31.46
12		31.37		16.57		0.37		30.47		14.97	+	.37		15.03		30.53		1.13		16.03		31.43
30		32.02		16.92		1.42		29.42		14.92	−	.48		15.38		30.08		0.68		16.78		31.28
Feb. 7		31.26		16.66		0.66		30.16		14.66	−	.04		14.94		30.44		0.64		15.04		32.34
8		31.70		16.20		1.10		30.40		15.00	−	.30		15.00		30.50		0.70		16.30		31.60
22		32.03		16.73		0.93		30.33		14.93	−	.17		15.17		30.57		0.87		16.47		31.67
26		31.50		16.20		1.00		30.10		15.30	+	.20		15.20		30.60		1.10		15.80		31.60
28		31.75		16.25		0.75		30.75		15.45	−	.55		15.05		30.55		1.25		16.35		31.25
		31.70 ~~31.42~~		16.44		0.92		30.26		15.08	−	0.14	−	15.77		30.50		0.89		16.14		31.58

19 U Camel
5 1 24
1904

λ Eridani

sin δ −9,1903
cos δ 9,9947

5 3 00
1.33
− 8° 55 58.46

(−.16)
−16

sin z = +.78

Jan 1	5 03		1.65	
6			64	01
11			.63	01
16			61	02
21			1.58	03
26		(00)	54	04
31		(.00)	49	05
Feb. 5			42	06
10			1.36	07
15			28	.08
20			20	.08
25			12	.08
Mar 1			1.04	.08

δ .58

− 8°	54′	76.8	76.80	
		77.6	77.59	79
		78.3	78.32	73
		79.0	78.99	67
		79.6	79.60	61
		80.1	80.13	53
		80.6	80.61	48
		81.0	81.03	42
		81.4	81.40	37
		81.6	81.70	30
		81.8	81.95	25
		82.0	82.14	19
		82.3	82.30	16

1.32	33	0
41	.41	+8
28	.29	+4
27	.28	−5
35	36	+3
163		
1.33	1.33	.00
	−2.87	
	5.84 6	

	Jan. 10 +41 +354		Jan. 30 +49 +477		Feb. 7 +40 +387		Feb. 22 +41 +400		Feb. 26 +35 +372	
−.016 2	18.62	11.6 2	42.92	37.2 2	2	48.6 2	35.8 2	26.5 2	35.6 2	28.0
	20.6	12.6	44.9 20	38.3			37.8	27.7	37.7	29.0
	22.7	13.5	47.0 21	39.6			39.9	29.2	39.9	30.1
	26.8	37.7	51.2 42	125 1	475		44.0	83.4	43.9	87.1
	28.8		53.4 22 19	38.36	49.7		46.1		46.0	
	31.0		55.33	21.8	51.5		48.2		48.2	
	33.0		57.5	23.3	53.6		50.3		50.3	
	35.1		59.5 20	24.8	55.7		52.3		52.4	
	39.3		3.6 41	99	2579		56.6		56.5	
sin δ 9.19033	41.4		6.7 31	2 3.30			58.6		58.5	
	43.42	12.6	7.72	38.4	2	48.6	60.7 2	27.8	0.6 2	27.0
	3407.		6087				5303		5296	
									48145	
cos δ 9.99472	30.973		55.386		51.580		48.209		48135	
12669	30.96	30.96	55.32	55.32	51.56	51.56	48.19	48.19	~~49.07~~	48.13
.12141	1.63	1.63	1.50	1.50	1.40	1.40	1.17	1.17	1.10	1.10
	−30.67	−30.67	−6.18	−6.18	−9.84	−9.84	−12.98	−12.98	−12.97	−12.97
9.99472	30.96	30.96	55.32	55.32	51.56	51.56	48.19	48.19	48.13	48.13
11804	+30.72	+30.73	+6.34	+6.34	+9.85	+9.86	+12.99	+12.99	+13.04	+13.04
.11276	−6	−6	−8	−8	−6	−6	−6	−.06	−5	−6
	−30	−.30	−17	−.17	−7	−.7	+16	+.16	+.23	+.23
	1.32	1.33	1.41	1.41	1.28	1.29	1.27	1.28	1.35	1.36

15 2 31.6	15 2	63.3 2	12.6 2	45.0	2 54.1	2 53.7
23.8	32 3,	38.9	42.6	22.8	29.3	29.3
554		102.2	115 2	67.8	83.4	83.0
27.70	1	51.10	1 57.60	33.90	41.70	41.50

	+18.4	+16.9	+3.0	+20.4	+19.1
	1.26482	1.22789	0.47712	1.30963	1.28103
	1.38623	1.34065	0.58988	1.42239	1.39379
	+2434	−2191	+389	+26.45	−24.76
	17 27.70	17 51.10	17 33.90	17 41.70	17 41.50
	17 52.04	17 29.19	17 30.01	17 15.25	17 16.74
−8°	′ ″ 55 3.69	54 40.84	54 41.66	54 26.90	54 28.39
	−1 16.384	−1 20.421	−1 19.489	−1 15.79 80	−1 17.986

	56 20.0	56 01.2	56 01.1	55 42.7	55 46.3
	54 78.2	54 80.5	54 81.2	54 81.9	54 82.1
δ′ = −8	55 3.69	54 40.84	54 41.66	54 26.90	54 28.39
	±4.79	7.00	7.70	8.40	8.60
.72 I	+1 1.8 1.1	+ 40.7 40.0	+0 39.9 39.2	+ 20.8 20.0	+ 24.2 23.5
	−8 55 369	54 4084	54 4166	54 2690	54 2839
	+ 4.70	7.00	7.70	8.40	+8.60

$\delta = -8^{\circ}\ 55'\ 13''$ $\delta = -8\ 55\ 13.5$

$\zeta = +51\ 18\ 01$

$-\ 1\ 13$

$z\ \ +51\ 16\ 48$

5 01 40

μ Aurigae

5 4 36
+38 40.29 36.20

(+.79)

(+.79)

sin z = +.07

sin δ = 9.7926
cos δ = 9.8945

				δ			
Jan. 1	5 04	40.53		+38	19	51.4	51.4 +.6
6		53	0			51.9	52.0 .5
11		52	1			52.4	52.5 .5
16		50	2			52.9	53.0 .4
21		40.47	3			53.4	53.4 .4
26	(.00)	42	5			53.7	53.8 .3
31		37	5			54.0	54.1 .3
Feb. 5		39	7			54.4	54.4 .3
10	(-.01)	40.22	8			54.7	54.7 .2
15		13	9			54.9	54.9 .2
20		03	10			55.1	55.1 .2
25		93	10			55.3	55.3 .1
Mar. 1		39.82	11			55.4	55.4 0
6		71	11			55.3	55.4
11		39.61	10			55.2	55.

-.020

sin δ 9.79256

cos δ 9.89455
12669
.02124

9.89455
11804
.61259

+4.1 +39.4
Jan. 10

3 53.8 3 | 45.4 4
56.5 | 46.8
59.1 | 48.6
4.3 | 140.8
6.9
9.5
12.1
14.7
20.0
22.6
25.2
28.47 3 | 46.9
18.0
104.7

9.527
9.50 | 9.50
40.52 | 40.52
-31.02 | -31.02

9.50 | 9.50
+30.72 | +30.73
+0.32 | +.31
-.23 | +.23
40.31 | 40.31

0 3 39.8
24.0
63.8
31.90

+22.6
1.35411
1.37535
+23.73
3 31.90
3 55.63
+38 18 52.72
-0 4.70 4.87

18 47.8 ~~48.0~~
19 52.4
δ' = +38 18 52.72
4.40

-.06 I +1 4.6 4.5

+38 18 52.72
-4.40

+4.1 +40.5
Jan. 12

21.8 4 | 14.6 4
24.4 | 15.9
27.0 | 17.4
32.3 | 47.9
34.9
37.6
40.1
42.7
48.0
50.6
53.2
41.26 4 | 15.9

37.509
37.49 | 37.49
40.52 | 40.52
-3.03 | -3.03

37.49 | 37.49
+2.72 | +2.71
+.32 | +.32
-.23 | -.23
40.30 | 40.29

0 3 36.3
21.2
57.5
28.75

+21.6
1.33444
1.35569
+22.68
3 28.75
3 51.43
18 56.92
-0 4.63 80

18 52.1
19 52.6
18 56.92
4.60

+1 0.5 0.4

18 56.92
4.60

+4.5 +47.7
Jan. 30

18.0 4 | 9.0 4
20.6 | 10.6
23.3 | 12.8
28.5 | 32 4
31.0 | 10.80
33.7 4 | 58.4
36.2 | 59.8
38.9 | 60.9
44.1 | 179.1
46.7 | 59.70
49.5
37.05 4 | 10.8

33.682
33.66 | 33.66
40.38 | 40.38
-6.72 | -6.72

33.66 | 33.66
+6.34 | +6.34
+40 | +38
-9 | -9
+229 | -260
40.31 | 40.29

0
4 11.8 2 | 21.0 4
39.2 | 48.8
111.0 | 129.8
3 55.50 3 | 49.0

+22.9
1.35984
1.37243
-33.57
3 55.50
3 31.93
19 16.42
-0 5.15 22

19 11.2
19 54.1
19 16.42
6.10

+ 42.9 42.9

19 16.42
6.10

+4.0 +38.7
Feb. 7

14.4 4 | 3.9 4
16.9 | 5.2
19.7 | 6.6
24.8 | 15.7
27.4
30.2
32.7
35.4
40.7
43.3
45.9
33.14 4 | 5.2

30.137
30.11 | 30.11
40.27 | 40.27
-10.16 | -10.16

30.11 | 30.11
+9.85 | +9.86
+32 | +.31
+2 | +2
40.30 | 40.30

4 11.9
42.1
114.0
57.00

+24.9
1.39620
1.40879
-25.63
3 57.00
3 31.37
19 16.98
-0 5.11 20

19 11.8
19 54.85
19 16.98
6.50

+ 42.7 42.6

19 16.98
6.50

+3.9 +35.2
Feb. 8

14.0 4 | 6.8 4
16.6 | 8.0
19.2 | 9.0
24.4 | 23.8
27.0
29.7
32.5
35.0
40.2
42.9
45.4
32.69 4 | 7.9

29.718
29.70 | 29.70
40.25 | 40.25
-10.55 | -10.55

29.70 | 29.70
+10.23 | +10.21
+.27 | +.28
+4 | +4
40.24 | 40.23

4 8.9
38.8
107.7
53.88

+21.8
1.33846
1.35105
-22.44
3 53.85
3 31.41
19 16.94
-0 5.02 08

19 11.9
19 54.6
19 16.94
6.60

+ 42.7 42.7

19 16.94
6.60

+3.6 +37.2
Feb. 26

10.8 4 | 36.1
13.3 25
15.9 26
21.1 52
23.9 28
26.4 25
29.1 27
31.8 27
36.8 50
39.7 29
42.3 26
29.11 4 | 36.1

26.464
26.44 | 26.44
39.91 | 39.91
-14.47 | -14.47

26.44 | 26.44
+13.04 | +13.04
+28 | +.29
+.38 | +38
40.14 | 40.15

3 19.8
49.9
129.7
64.88

-9.6
0.98227n
0.99486n
+8.88
3 4.85
3 14.73
19 33.62
-0 4.68 9

19 28.9 ~~29.0~~
19 55.3
19 33.62
7.30

+ 26.4 26.3

19 33.62
7.30

40.30 31 + 2
30 29 + 0
31 29 + 0
30 30 + 1
(24 23 − 6
(14) ~~45~~
31 21 − 2 (−.01)
40.29 40.28+
− 4.10−
36.19

$\delta = +38^\circ\ 19'\ 48''$
$\delta = +4\ 03\ 00$
$-\ 4$
$\delta = +4\ 2\ 56$

$\delta = +38^\circ\ 19'\ 48''.0$

March 11 +41 (+398)

4 10.0 4 2.5
12.5 3.4
15.0 4.6
20.3 10.5
22.9
25.6
28.2
30.8
36.0
38.6
41.3
28124 3.5

− 25.564

25.54 25.54
39.61 39.61
−14.07 −14.07

25.55 25.57
+13.76 +13.74
+ .32 + .31
+ .68 + .68

40.31 40.27

0
3 49.8
23.4
32
36.6

+ 22.1
1.34439
1.35698
− 22.75
3 36.60
3 13.85
~~19 25.50~~ 19 34.50
−0.. 4.78
81

19. 29.7 ~~30.6~~
19 55.2
19 25.50
7.20
25.5 − 25.5
+ ~~34.5~~ ~~34.5~~

19 25.50
− 7.20

8 30

a Aurigae

5 7 10
7 14.18 9.76
+45 52

+1.03

(+1.03)

Sin z = −.06

Sin √ 9.8560
cos √ 9.8430

Jan 1		5 07 14.52		+45° 51' 57.1"	57.1	.7
6		.52	,00	57.8	57.8	.7
11		51	,01	58.5	58.5	.7
16		49	,02	59.2	59.2	.6
21		14.45	,04	59.8	59.8	.6
26	(−.09)	39	,06	60.3	60.4	.5
31		.32	,07	60.8	60.9	.5
Feb. 5	(−.09)	24	,08	61.3	61.4	.4
10		14.15	,09	61.8	61.8	.3
15		04	,11	62.0	62.1	.3
20		13.93	,11	62.3	62.4	.2
25		.82	,11	62.5	62.6	.1
Mar. 1		13.70	,12	62.7	62.7	.0
6		59	,11	62.6	62.7	
11		13.48	,11	62.5	62.5	

+.41 +.394
jan. 10

−.122 6 25.56 48.3 6
28.6
31.6
37.5
sin √ 9.85598 40.4
43.4
46.4
49.1
55.1
cos √ 9.84281 58.1
12669 60.0
9.96950 4757 6 48.2

9.84281 43.2 6
11.804 43.22 43.22
9.96085 14.51 14.51
−31.29 −31.29
+ 9
43.22
+30.72 −31.20
+ 43
−.33 43.22
14.04 +30.74
+ 40 1403
−.33 201

30 2 11.1
55.0
66.1
33.05

−5.1
0.70757n
0.67707n
−475
32 3.05
31 58.30 √
+45 50 50.06
+ 0 3.48

+.41 +.405
jan. 12

53.6 6 43.3 6
56.6 44.7
59.4 46.0
5.3 134.0
8.4
11.2
14.3
17.1
23.0
26.2
29.0
3041 6 44.7
180
124.1
11282
14.50 11.26
− 3.22 14.51
3.26
11.26
14.51
11.26 −13.25
+2.72 + 9
+ .43 −3.16
−.33 11.26
14.08 +2.71
+ .42 1406
−.33

30.6
22.3 Sp.
29.9
29.95

+26.6
1.42488
1.37438
+2480
31 29.95 √
32 54.75
49 53.60

+.49 +.477
jan. 30

49.6 6 44.3 6
52.7 45.2
55.6 46.1
1.6 135.6
4.4 45.20
7.47 29.3
10.3 30.8
13.3 32.0
19.2 92.1
22.3 30.70
25.1
2615 6 45.2
180
81.5
7.409
7.39 7.39
14.33 14.33
6.94 6.94
+ 9
7.39 −6.85
+6.34
+ .51 7.39
−.15 +6.34
14.09 + .49 1407
−.15

2 12.5 1 29.61
1 37.7 0 55.0
3 115.0 2 2 +9.46
1 55.10 1 12.30

+22.2
1.34635
1.30720
−2029
31 55.10
31 34.81
51 13.54
+ 3.55

+.40 +.387
Feb. 7

46.2 6 58.8 6
49.1 59.4
52.0 118.2
55.0
0.8
3.9
6.8
9.7
15.7
18.8
21.6
2826 6 59.1
240
42.6
3.873
3.85 3.85
14.21 14.21
10.36 −10.36
+ 9
3.85 −10.27
+9.85
+ 41
− 3 3.85
14.08 +9.86
+ .40 14.08
−.03

52.6
21.0
73.6
86.80

+4.8
0.68124
0.64209
−439
31 36.80
31 32.41
51 15.94
+ 3.66

+.34 +.352
Feb. 8

45.7 6 40.5 6
48.9 42.0
51.6 43.1
57.6 125.6
0.7
3.5
6.5
9.4
15.3
18.4
21.3
2789 6 41.9
240
38.9
3.596
3.52 3.52
14.19 14.18
10.67 −10.66
+ 9
3.52 −10.57
+10.23
+ .34
− 1 3.52
14.08 +10.21
+ .36 1409
.00

2 8.0
37.0
105.0
52.50

+21.6
1.33445
1.29530
− 1974
31 52.50
31 32.76
51 15.59
+ 3.45

+.3 +.372
Feb. 26

42.5 6 53.3
45.5
48.4
54.3
57.4
0.3
8.2
6.2
12.3
15.2
18.2
3035 6 53.3
300
3.5
0.328
0.29 0.29
13.80 13.80
13.51 13.51
+ 9
0.29 13.42
+13.04
+ .36
+ .38 0.29
14.07 +13.04
+ .38 1404
+ .36

1 38.0
5.0
43.0
21.50

+7.0
0.84510
0.80595
− 640
31 27.50
31 15.10
51 33.25
+ 3.71

50 53.5
51 58.4
δ' = +45 50 50.05
5.60

51 17.1
51 60.8
51 13.54
8.00

51 19.6
51 61.6
51 15.94
8.80

51 19.0
51 61.7
51 15.59
8.90

51 37.0
51 62.6
51 33.25
9.80

+.05 I +1 4.9 50 | + 43.7 43.7 | + 42.0 42.1 | + 42.7 42.7 | + 25.6 25.7

+45 50 50.05
− 5.60

49 53.60

51 13.54
8.00

51 15.94
8.80

51 15.59
8.90

51 33.25
9.80

° ′ ″
ν = +45 51 53
σ = − 3 29 05
σ₂ = + 4
η = − 3 29 1

δ = +45° 51′ 52.8″

14.04	.03	+15
08	06	−12
09	07	−11
08	08	−10
08	09	−9
07	09	−9
15	16	−2
10	09	−9
16	12	−6
14.09	14.09 (−.09)	
	−4.42	
	9.67	

+.38 +.306 March 3 — +.41 +.398 March 11

7 23.4 — 6 41.5 7 4.8
25.7 — 44.4
27.3 — 47.4
76.4 — 53.4

+.42 +.416
Feb. 27 — 7 0.3 — 56.3
3.4 — 59.4
6 54.56 45.6 6.4 — 2.4
57.5 46.8 12.4 — 5.2
Md.gr 60.4 48.4 15.3 — 11.1
63.4 140.8 18.3 — 14.1
66.3 561 — 617.0
3021 — 3522
300
59.294 — 6652.2
1.200

Feb. 27		March 3		March 11	
6 46.9		7 25.5		7 4.8	
60.42		0.491		59.291	
0.40	0.40	0.47	0.47	59.27	19.27
13.77	13.77	13.65	13.65	13.48	13.48
13.37	13.37	13.18	1318	−14.21	−14.21
	+9		+9		+9
0.40	−1328	0.47	−1309	59.27	−1412
+12.91		+12.71		+13.46	
+.43		+.38		+.43	
+.41	0.40	+.53	0.47	+.70	19.27
14.15	+12.92	1410	+12.73	14.16	+13.44
30	+.43 +.41 1416		+.36 +.53 1409		+.40 +.40 1412
1 41.1		1 7.0		1 23.8	
10.3		37.0		55.0	
51.4		104.0		138.8	
25.70		52.00		69.40	
+13.5		−25.0		−5.5	
1.13033		1.89794n		0.74036n	
1.09118		1.35879n		0.70121n	
−1234		+2285		+504	
31 25.70		30 52.00		31 9.40	
31 13.36		31 14.85		31 14.44	
51 34.99		51 33.50		51 33.91	
+3.640		+3.45		+3.59	
51 38.6		51 36.9		51 37.5	
51 62.6		51 62.7		51 62.5	
51 34.99		51 33.50		51 33.91	
9.80		9.90		9.70	
+ 24.0	24.0	+ 25.8	25.9	+ 25.0	25.0
51 34.99		51 3350		51 3391	
9.80		9.90		− 9.70	

β Orionis

δ 5 8 24 23.28

−8 21 20.35

sin δ −9.1620
cos δ 9.9954

					−8° 20′	
Jan 1		5 08 23.56			69.4	69.4 .8
6		.56	.00		70.1	70.2 .7
11		55	.01		70.8	70.9 .7
16		53	.02		71.5	71.6 .6
21		23.50	.03		72.2	72.2 .5
26	+.01	46	.04		72.7	72.7 .5
31		41	.05		73.1	73.2 .4
Feb. 5	(.00)	35	.06		73.6	73.6 .4
10		23.29	.06		74.0	74.0 .3
15		21	.08		74.2	74.3 .2
20		13	.08		74.4	74.5 .2
25		.05	.08		74.6	74.7 .2
Mar. 1		22.97	.08		74.9	74.9 .2
6					74.9	
11		.79			74.9	

(−.15)

(−.15)

sin z = +.77

+.41 +.394
Jan. 10

−.416 7 40.57 36.1 8
42.6
44.7
48.8
sin δ 9.16203 50.9
53.0
55.0 52.56
57.1 +30.74
61.2 − 6
cos δ 9.99537 63.4 −.32
12669 65.5
.12206 56 21.7 23.32
7 36.1

~~9.99537~~ 52.973
~~72669~~ 52.96 52.96
~~.12206~~ 23.55 28.55
9.99537 30.59 = 30.55
11804 − 1
.11341 52.96 − 30.60
+30.72 +3
− 6 52.96
− 3.2 +30.74
23.30

+.49 +.477
Jan. 30

4.58 3.38
6.8 4.0
8.9 7.3
13.0 3.65
15.1
17.1 8 40.8
19.1 17.15 42.0
21.2 + 6.34 42.9
25.5 − 7 5.7
27.6 −.19 41.90
29.7
18.88 23.23
8 3.6

17.164
17.15 17.15
23.42 23.42
−6.27 −6.27
− 1
17.15 −6.28
+6.34
− 7 17.15
−.19
23.23

+.40 +.387
Feb. 7

1.07 56.6
3.1 59.7
5.2 61.4
9.4 177.1 8
11.4
13.5
15.6 13.49
17.7 +9.86
21.8 − 6
23.9 − 9
26.0
14.86 23.20
− 7 59.2

13.509
13.49 13.49
23.32 23.32
−9.83 −9.83
− 1
13.49 −9.84
+9.85
− 6 13.49
− 9
23.19

+.34 .352
Feb. 8

8 8.18
8.9 9.7
11.0 10.1
13.2 28.6
15.2 13.12
17.4 +10.21
65.7 − .5
− 8
23.20
8 9.5

13.140
13.12 13.12
23.31 23.31
−10.19 −10.19
− 1
13.12 −10.20
+10.23
− 5 13.12
− 8
23.22

+.37 +.372
Feb. 26

7 57.6 7 50.0 8
59.6 51.0
1.7 52.2
5.9 153.2
8.0
10.2
12.3 10.07
14.2 +13.04
18.4 − 6
20.5 +20
22.6
23.10 23.25
120 7 51.1
111.0
10.091
10.07 10.07
23.03 23.03
−12.96 −12.96
− 1
10.07 −12.97
+13.04
− 5 10.07
+20
23.21

+.42 +.416
Feb. 27

6.0 8 23.4
~~8.0~~ 24.5
10.1 25.7
12.2 73.6
14.5
50.8
10.14
+12.92
− 6
+ 21
23.21
8 24.5

10.160
23.01 10.14
12.95 23.02
−12.88
− 1
10.14 −12.89
+12.91
− 6 10.14
+21
23.20

40 3 27.2	3 54.83 66.4	3 52.7	3 41.7	3 46.0	3 6.5
19.0	29.0 40.8	31.0	20.1	23.0	44.7
46.2	83.8 107.2	83.7	61.8	69.0	111.2
23.10	41.902 53.60	41.85	30.90	34.50	55.60
+16.9 *	+13.6	+14.3	+3.6	+19.0	−14.3
1.22789	1.13354	1.15534	0.55630	1.27875	1.15534
1.34995	1.24695	1.26875	0.66971	1.39216	1.26875
+22.38	+17.66	−18.57	−4.67	−24.67	+18.57
43 23.10	43 41.80	43 41.85	43 30.90	43 34.50	42 55.60
43 45.48	43 24.24	43 23.28	43 26.23	43 ~~59.17~~ 9.83	43 14.17
−8° 20 57.13	20 35.89	20 34.93	20 37.88	20 21.48	20 25.82
− 1 14.97 2	− 1 18.48 1	− 1 18.04 4	− 1 16.74 5	− 1 16.45 6	− 1 15.54 3

22 12.0	21 54.8	21 53.0	21 54.6	21 37.9	21 41.4
20 70.8	20 73.2	20 73.8	20 73.8	20 74.7	20 74.7
δ′ = −8 20 57.13	20 35.89	20 34.93	20 37.88	20 21.48	20 25.82
+4.50	6.90	7.50	7.50	8.40	8.40
−72 I +1 01.2 0.5	+ 41.6 40.9	+ 39.2 38.4	+ 40.8 40.1	+ 23.2 22.5	+ 26.7 25.9
−8 20 57.13 ~~4.50~~	20 35.89 ~~7.00~~	20 34.93 ~~7.50~~	20 37.88 ~~7.50~~	20 21.48 ~~8.40~~	20 25.82 ~~8.40~~

$\delta = -8^\circ\ 21'\ 6''$
$\bar{\delta} = +50\ \ 43\ \ 54$
$-\ \ 1\ \ 11$
$z_1 = +50\ \ 42\ \ 43$

$\delta = -8^\circ\ 21'\ 6''.3$

23.30 ,32 + 3 + 9
23 ,23 + ~~13~~ + 0
19 ,20 + ~~10~~ − 3
22 ,20 − 3
26 ,25 + 2
20 ,21 − 2
25 ,23 + 0
23.24 23.23 (00)
− 2.88
20.35

+.41 +.39 (

March 11

7 56.6 7 50.3
58.7 51.3
0.8 52.1
5.0 153.7
7.1
− 9.1
11.2
13.2
17.4
19.6
21.7

2204 9.11
120 +13.74
1002.1 −.06
+.44
23.23
51.2

9.127
~~20036~~

9.11 9.11
22.79 22.79
−13.68 −13.68
− 1
9.11 −13.69
+13.76
− 6 9.11
+ 44
23.25

40

3 45.6
26.8
72.4
86.20

+17.9
1.25285
1.36626
−23.24
43 36.20
43 12.96

20 24.61
− 1 14.55

21 39.2
20 74.9
20 24.61
+8.60

+ 24.3 23.6

20 24.61
~~8.60~~

5 5 40

T Orionis ✓ sin δ - 9.0849
cos δ 9.9968

5 11 24
11 23.55
-6 5 9 20.63

(-.12)

(-.12)

Cui z = +.76

Jan 1 23.87
Jan 21 5 11 23.82
26 78 .04
31 .73 .05
Feb. 5 67 .06
10 23.61 .06
15 (+.01) 54 .07
20 46 .08
25 (.00) 38 .08
Mar. 1 23.30 .08
6 21 .09
11 12 .09
1
— 22.94

- 6° 58' 68.2
70.8 70.8 .6
71.3 71.4 .5
71.8 71.9 .4
72.2 72.3 .3
72.6 72.6 .3
72.8 72.9 .2
73.0 73.1 .2
73.2 73.3 .2
73.5 73.5
73.5
73.5

+.49 +.477
Jan. 30

-.016 11 50.0 11 | 0.5 11
7.0 | 1.9
9.3 | 3.1
13.3 | 5.5
sin δ 9.08383 n 15.3 | 1.83
17.5 11 | 39.0
19.6 | 40.3
21.6 | 41.6
25.8 | 17.09
cos δ 9.99678 27.9 | 40.30
17804 30.1 11 | 1.8
.11482 1924

17.491
17.48 | 17.48
23.74 | 23.74
- 6.26 | - 6.26
| - 1
17.48 | 6.27
+~~26~~.34
- 5 | 17.48
- 19 | +6.34
| - 6
23.58 | -.14
23.57

+ 15.7 - 22.8

+.40 +.387
Feb. 7

1.4 10 | 57.1 10
3.5 | 58.0
5.5 | 58.8
9.8 | 173.9
11.7
13.8
15.8
17.9
22.2
24.3
26.3 10 | 57.9
1522
—
—
13.836
13.82 | 13.82
23.64 | 23.64
- 9.82 | - 9.82
| - 1
13.82 | 9.83
+ 9.85
- 5 | 13.82
- 9 | +9.86
| - 4
23.53 | - 9
23.55

+.37 +.400
Feb. 15.

59.8 10 | 50.1 10
1.8 | 51.0
3.9 | 51.7
8.2 | 152.8
10.2
12.3
14.4
16.4
20.6
22.5
24.7 10 | 50.9
1946
60
134.8
12.255
12.24 | 12.24
23.54 | 23.54
- 11.30 | - 11.30
| - 1
12.24 | - 11.31
+11.34
- 4 | 12.24
+ 1 | +11.31
| - 5
23.54 | + 1
23.51

+.41 +.400
Feb. 22

58.1 10 | 51.7 10
0.1 | 52.7
2.2 | 54.0
6.2 | 158.4
8.3
10.4
12.5
14.7
18.8
20.8
23.0 10 | 52.8
1751
60
115.1
10.464
10.45 | 10.45
23.43 | 23.42
- 12.98 | - 12.97
| - .1
10.45 | - 12.58
+12.99
5
| 10.45
+ 12 | +12.99
| - 5
23.51 | + 18
23.52

+.37 +.372
Feb. 26

57.9 10 | 49.5 10
0.0 | 50.4
2.1 | 51.3
6.2 | 151.2
8.3
10.4
12.5
14.6
18.8
20.7
22.8 10 | 50.4
1743
60
114.3
10.391
10.37 | 10.37
23.36 | 23.36
- 12.99 | - 12.99
| - .1
10.37 | - 13.00
+13.04
- | 10.37
+.19 | +13.04
| - 4
23.56 | +.19
23.56

+.42 +.416
Feb. 27

58.0 10 | 50.8
0.2 | 52.0
2.3 | 52.7
6.4 | 155.5
8.5
10.5
12.7
14.8
18.8
21.0
23.1 10 | 51.8
1763
60
116.3
10.573
10.56 | 10.56
23.34 | 23.35
- 12.78 | - 12.79
| - .1
10.56 | - 12.80
+ 12.91
- 5 | 10.56
+.21 | +12.92
| - 5
23.63 | +.20
23.63

20
2 61.7 1 | 10.6 1 | 59.7
35.2 | 441 | 36.6
96.9 | 1147 | 96.3
1 48.45 0 | 57.35 | 48.15

2 12.1
49.7
121.8
60.90

1 46.0
21.8
67.8
33.90

1 51.3
27.6
78.9
39.45

1 51.9
28.9
80.8
40.40

+15.7
1.19590
1.31072
- 2045
21 48.45
21 28.00
-6° 58 39.65
- 1 14.97
8

+15.9
1.20140
1.31622
- 2071
21 48.15
21 27.44
58 39.09
- 1 14.17
8

+21.4
1.33841
1.44523
- 27.88 Sf.
22 0.90
21 33.02
58 44.67
- 1 11.48
9

+ 17.7
1.24797
1.36277
- 23.05
21 33.90
21 10.85
58 22.50 ✓
- 1 10.78
8

+20.0
1.30103
1.41585
- 26.05
21 39.45
21 13.40
58 25.05
- 1 12.74
5

+18.8
1.27416
1.38898
- 24.48
21 40.40
21 15.92
58 27.57
- 1 11.84
90

δ

59 54.6 | 59 53.3 | 59 56.2 | 59 33.3 | 59 37.8 | 59 39.5
58 71.7 | 58 72.2 | 58 72.8 | 58 73.1 | 58 73.3 | 58 73.3
δ' = -6 58 39.65 | 58 39.09 | 58 44.67 | 58 22.50 | 58 25.05 | 58 27.57
+ 6.30 | 6.80 | 7.40 | 7.70 | 7.90 | 7.90

-.69 I +0 42.9 42.2 | + 41.1 40.4 | + 43.4 42.7 | + 20.2 19.5 | + 24.5 23.9 | + 26.2 25.5

δ = −6° 59′ 5″

ζ = +49 21 53
− 1 8
ζ = +49 20 45

δ = −6° 59′ 5.4″

23.58 .57 + 2
53 .55 + 0
54 .57 − 4
57 .52 − 3
56 .56 + 1
63 .63 + 5
54 .57 − 4
−00
23.56 23.55
− 2.91 +
20.68

+.41.398

March 11

10 57.0 10 49.2
59.0 50.1
1.1 51.0
5.2 150.3
7.4
− 9.4
11.6
13.6
17.7
19.7
21.8 10 50.1
~~22~~ 35
120
103.5
~~20.318~~
9.409
9. 39 9.39
~~22.94~~ 23.12 23.12
~~−13.55~~ −13.73
− 1
−13.74
9.39
+13.76
− 5
+ 44
23.54
9.39
+13.74
− 5
+ .43
23.51

20
1 51.1
31.9
83 0
41.50

+19.3
1.28.556
1.40 038

− 25.74
21 41.52
21 16.36

58 28.01
− 1 10.87

	Jan 30	Feb 7	Feb 15	Feb 22	Feb 26	Feb 27	Mar. 11
−6	58 39.65 6.30	58 39.09 6.80	58 44.67 7.40	58 22.50 7.70	58 25.05 7.90	58 27.57 7.90	58 28.01 8.10

59 38.9
58 73.5
58 28.01
+ 8.10

+ 2.54 24.7

ν Leporis

sin δ − 9.3336
cos δ 9.9897

5 14 04
−12 27
−.22

	Jan. 30		Feb. 7		Feb. 15		Feb. 22		Feb 26		March 3	
					39.0							
	13 44.2 13	40.0 13	40.5 13	36.0 13	41.1 14	3.5	13 37.0 13	31.4	13 37.0 13	26.8	13 37.3 13	34.0
	46.3	41.2	42.6	37.0	43.1		39.1	32.3	39.1	29.7	39.3	34.9
	48.4	42.3	44.7	38.0	47.4		41.4	33.2	41.1	31.0	41.5	35.9
	52.6	123.5	48.8	111.0	49.5		45.5	96.9	45.4	89.5	45.7	104.8
sin δ 9.33362 n	54.8	4 1.76	51.0		− 51.6		47.5		47.5		47.8	
	56.7 14	15.4	53.1		53.8		49.8		49.7		49.9	
	58.8	16.5	55.2		55.8		51.9		51.7		52.0	
	1.0	119	57.3		0.0		54.0		53.9		54.2	
	5.3	1595	61.5		2.1		58.2		58.1		58.3	
cos δ 9.98987	7.4		63.6		4.2		0.4		0.1		0.6	
11804	9.5 13	41.2	65.7 13	37.0	3876 14	3.5	2.5 13	32.3	2.3 13	29.8	2.6 13	34.9
.10771	6250		5840		18		5473		5459		5492	
	−		−		5676		−					
	−		−		57.600							
	56.82		53.09		~~35236~~		49.755		49.627		49.920	

+15.6 −19.1

45							
4	34.6 3	53.04	35.2	4 4.6	4 21.2	4 26.1	4 22.2
	11.1	28.0	14.2	43.8	58.4	4.7	3.2
	457	810	49.4	108.4	189.6	30.8	25.4
	2285	40.50	24.70	54.20	69.80	15.40	12.70
	+15.6		+16.1	−11.9	+17.5	+19.8	+15.0
	1.19312		1.20683	1.07555 n	1.24304	1.29066	1.17609
	1.30083		1.31454	1.18326 n	1.35075	1.40437	1.28380
	− 19.99		− − 20.63	+ 14.25	− 22.43	− 25.38	− 19.22
	49 22.85		49 24.70	48 54.20	49 9.80	49 15.40	49 12.70
	49 2.86		49 4.07	49 8.45	48 47.37	48 50.02	48 53.48
−12°	26 14.51″		26 15.72	26 20.10	25 59.02	26 1.67	26 5.13

34.0
34.9
35.9
104.8

34.9

4 56 40

m Orionis

5 16 05

+3 25

+0.6

sin δ 8.7759
cos δ 9.9992

jan. 30

42.8
15 50.0 15 43.4
52.0 44.6
56.0 45.6
58.1 133.6
sin δ 8.77522 0.2 44.53
2.3 16 22.6
4.5 23.7
8.5 24.9
10.6 11.62
cos δ 9.99923 12.8 23.76
11604 3029
.11729 303 15 44.5
29

0.264

Feb. 7

15 44.2 15 40.2
46.4 41.8
48.5 43.4
52.6 125.4
54.7
56.8
58.6
60.8
64.8
67.0
69.0
6234 15 41.8

56.673

Feb. 15

15 42.6 15 29.1
44.7 30.0
46.8 30.8
51.0 89.9
53.0
55.0
57.0
59.1
3.2
5.4
7.4
6952 15 29.9

55.028

Feb. 18

15 57.4 15 49.6
~~9.5~~ 50.4
~~1.5~~ 51.7
~~5.7~~ 151.7
~~7.6~~
~~7.8~~
11.8
13.9
18.0
20.0
22.0
wrong
2272 15 50.6
126
107.2
97.646

Feb. 26

15 40.9 15 35.7
42.9
45.0
49.0
51.1
53.2
55.3
57.4
1.5
3.5
5.6
5854 15 35.7
~~53.22~~

53.278

Feb. 27

15 40.9 15 33.6
43.0 34.7
45.1 36.1
49.1 104.4
51.2
53.4
55.4
57.5
61.6
63.7
65.7
5866 15 34.8

53.326

15
5

+17.8 − 21.5

3.5
3 66.9 2 16.0 3 4.5
38.2 47.3 39.1
1051 1233 108.6
2 52.55 2 1.65 51.80

+15.8
1.19866
1.31593
− 2070
57 52.55
57 31.78
+3° 25 16.57 ✓

+14.9
1.17319
1.29046
− 1952
57 51.80
57 32.28
25 16.07

3 22.7
57.2
139.9
69.95

+25.1
1.39967
1.51694
− 3287
58 9.95
57 37.08
25 11.27

1 46.3
23.2
69.5
34.75

+19.5 √192
1.29003 (25.15)
1.40730 1.28833
− 2515 1.40057
56 34.75
56 9.60
26 3875

2 54.2
27.0
81.2
40.60

+17.5
1.24304
1.36031
− 2292
57 40.60
57 17.68
25 30.67

2 56.3
31.2
87.5
43.75

+18.5
1.26717
1.38444
− 2423
57 43.75
~~57 19.50~~
57 19.52
25 28.83

2
1.1
1.3
57
57
25.

March 3

33.6	15	41.1	15	37.1
34.7		43.0		38.0
36.1		45.1		39.1
4.4		49.2		114.2
		51.3		
		53.4		
		55.5		
		57.6		
		1.7		
		3.7		
		5.8		
34.8		5874.5		38.1

53.400

2 52.4
27.4
79.8
39.90

+153
1.18469
1.30196
—20.04
57 39.50
57 19.86
25.2849

4 5040

β Tauri

sin δ 9.67877
cos δ 9.94039

6 18 10
18 12.09
+28 30 8.30

(+.54)
+.54

Refr z = +.24

		gau 1 12.31	
Jan 21	6 18	12.29	
26		25	.04
31		21	04
Feb. 5		15	06
10		12.09	06
15		02	07
20	(−.01)	93	09
25		84	09
Mar. 1	(−.01)	11.75	09
6		66	09
11		56	10
16		46	10
21		11.37	.09

49. 0

+ 28° 29′ 49″.9
50.1
50.3 + .8
50.5
50.7 −.4
50.8
51.0 50.9
51.0 + .4
51.0
51.1 −.5
51.0
51.0 − .1
51.0 −.7
50.4 − .6?

49.9 .2
50.1 .2
50.3 .2
50.5 .2
50.7 .2
50.9 .1
51.0 .1
51.1 0
51.1 0
51.1
51.1
51.1 0
51.0 −.1

δ =

	+.45 +.477		+.40 +.387		+.34 +.352		+.37 +.400		+.45 +.417		+.35 +.372	
	Jan. 30		Feb. 7		Feb. 8		Feb. 15		Feb. 18		Feb. 26	
−.018	17 51.6	17 44.0	17 48.0	17 38.3	17 47.7	17 38.6	17 46.4	17 48.1	17 45.7	17 36.4	17 44.5	17 34.7
	53.9	45.5	50.4	39.5	50.0	39.5	48.8		48.0	37.7	46.9	35.8
	56.4	47.2	52.7	40.6	52.2	40.6	51.1		50.4	38.9	49.3	37.1
	1.0	136.7	57.4	118.4	56.4	118.7	55.8		55.0	113.0	53.9	107.3
sin √ 9.67866	3.2	4 5.80	59.6		59.4		58.1		57.4		56.3	
	18 5.6	18 24.7	2.1		1.7		0.5		59.8		58.6	
	8.0	23.6	4.5		4.4		2.8		2.1		0.9	
	10.3	26.5	6.8		6.4		5.2		4.4		3.2	
	15.0	16.8	11.4		11.1		9.9		9.1		7.8	
cos √ 9.94390	17.4	25.60	13.8		13.4		12.2		11.4		10.3	
11.804	19.7		16.2		15.6		14.6		13.8		12.7	
,0619424	21	17 45.6	3229	17 39.5	3185	17 39.6	3054	17 48.1	3571	17 37.7	3444	17 35.8
	180		300		300		300		306		300	
	62.1		22.9		18.5		5.4		657.1		644.4	
	5,6676		2.082		1.682		0.491		59.786		58.582	
	5.63	5.63	2.06	2.06	1.66	1.66	0.47	0.47	59.72	59.72	58.57	58.57
	12.22	12.22	12.12	12.12	12.11	12.11	12.02	12.02	11.97	11.96	11.82	12.82
	−6.59	−6.57	−10.06	−10.06	−10.45	−10.45	−11.56	−11.55	−12.26	−12.24	−13.25	13.25
		+ 1		+ 1		+ 1		+ 1		+ 1		+ 1
	5.63	− 6.55	2.06	−10.05	1.66	−10.44	0.47	−11.54	59.72	−12.23	58.57	−13.24
	+6.34	*	+9.85		+10.23		+11.34		+12.01		+13.04	
	+ 27	∓5.63	+ 22	2.06	+ .18	1.66	+ 20	0.47	+ .24	59.72	18	58.57
	−1.13	+6.34	− 03	+9.86	−.02	+10.22	+ 7	+11.31	+ .12	+12.02	+ + .27	+13.04
		+ .26		+ 21		+ .19		+ .22		+ .22		+ .20
	12.11	− .13	12.10	− 3	12.05	− .2	12.08	+ 7	12.09	+ .13	12.06	+ .27
		12.10		12.10		12.05		12.07		12.09		12.08

+201 −20.0

50						
4 2.3	3 17.5	4 3.4	4 4.4	3 53.8	4 4.9	3 47.2
28.1	43.3	33.2	34.0	24.0	37.8	15.6
9 04	12 88	96.6	98.4	77.8	102.7	62.8
3 45.20	3 0.40	48.30	49.20	38.90	51.35	31.40

	Jan. 30	Feb. 7	Feb. 8	Feb. 15	Feb. 18	Feb. 26
	+20.0 ✗	+22.6	+22.1	+12.4	+22.0	+22.8
	1.30103	1.35411	1.34439	1.09342	1.34240	1.35793
	1.36297	1.41605	1.40633	1.15536	~~1.44472~~ 1.40433	1.41987
	−2241	−2606	−2549	−1430	~~+4333~~ −25.37	−26.30
	53 45.20	53 48.30	53 49.20	53 38.90	53 51.35	53 31.40
	53 22.79	53 22.24	53 23.71	53 24.60	53 25.98	53 5.10
+28°	29 25.56	29 26.11	29 24.64	29 23.75	29 22.37	29 43.25
	− 0 16.53	− 16.40	− 16.13	− 15.53	− 15.58	− 15.89

	29 9.0	29 9.7	29 08.5	29 8.2	29 6.8	29 27.4
	29 50.3	29 50.6	29 50.6	29 50.9	29 51.0	29 51.1
δ′ = +28	29 25.56	29 26.11	29 24.64	29 23.75	29 22.37	29 43.25
	− 3.20	3.50	3.50	3.80	3.90	4.00
−.22 I	+ 41.3 41.1	+ 40.9 40.7	+ 42.1 41.9	+ 42.7 42.4	+ 44.2 44.0	+ 23.7 23.5

$\delta = +28^\circ\ 29'\ 47''$
$\zeta_2 = +13\ \ 53\ \ 01$
$\zeta_2 = -\ \ \ \ \ \ \ \ \ 14$
$\zeta_1 = +13\ \ 52\ \ 47$

$\delta = +28^\circ\ 29'\ 47''.1$

12.11	.10	+ 1
10	.10	+ 1
5	.5	− 4
8	.7	− 2
9	.9	− 0
6	.8	− 1
10	.12	+ 3
4	.5	− 4
12.08	12.08	(−.01)
	− 3.79	
	8.29	

Feb. 27				March 3			
+.42	+.46			+.38	+.36		
17	44.7	17	36.1	17	44.7	17	39.6
	47.0		37.7		47.1		
	49.3		39.6		49.5		
	54.0		113.4		54.0		
	56.3				56.4		
	58.7				58.7		
	1.0				1.0		
	3.4				3.5		
	8.0				8.1		
	10.4				10.5		
	12.7				12.9		
	345.5	17	37.8		346.4	17	39.6
	300				300		
	645.5				646.4		
	58.682				58.764		
	58.67		58.67		58.75		58.75
	11.80		11.50		11.71		11.71
	−13.18		−13.13		−12.96		−12.96
			+ 1				+ 1
	58.67		13.12		58.75		12.95
	+12.91		58.67		+12.71		58.75
	+ .23		+12.92		+ .20		+12.73
	+ 29		+ 20		+ 38		+ .19
	12.10		+.29		12.04		+ .38
			12.10				12.05

Mar 3
29 42.80
4.50

3	45.3	B	48.1
	14.9		15.3
	60.2		55.4
	30.10		27.70
	+20.9		+19.2
	1.32015		1.28330
	1.38209		1.34524
	− 2410		− 2215
53	30.10	53	27.70
53	6.00	53	5.55
29	42.35	29	42.80
	− 15.77		~~15.51~~
			−15.51

Jan 30	Feb 7	Feb 8	Feb 15	Feb 18	Feb 26	Feb 27
+28 29 25.56	29 26.11	29 24.64	29 23.75	29 22.37	29 43.25	29 42.35
3.20	3.50	3.50	3.80	3.90	4.00	4.00

				27.3	
29	26.6		29	~~27.3~~	
20	51.1		20	51.1	
29	42.35		29	42.80	
	4.06			− 4.00	
				23.8	
+	24.5	24.2	+	~~22.8~~	23.6

4 51 10

ψ_2 Orionis

sin δ 8.7164
cos δ 9.9994

5 20 05
+2 59
+05

Jan. 30

19 49.5 19 41.2 19
57.5 42.3
53.5 835
57.6 4175
59.8
1.8 20 29.6
3.9 31.5
6.0 33.1
10.1 9 42
12.1 31,40
14.1
3199 19 41.7
300
19.9
1.809

sin δ 8.71639
cos δ 9.99941
11804
.11745

Feb. 7

19 19 43.4 19
44.0
45.0
54.0 132.4
56.0
58.2
0.2
2.3
2907
19 44.1
58.140

Feb. 8

45.3 19 39.1 19
47.4 40.2
49.4 41.1
53.6 120.4
55.7
57.8
59.9
2.0
6.0
8.1
10.2
6354 19 40.1
57.764

Feb. 26

42.3 19 38.3 19
44.3 39.4
46.4 40.6
50.6 118.3
52.7
54.7
56.8
58.8
2.9
5.0
7.0
6015 19 39.4
54.682

Feb. 27

42.4 19 34.6
44.5 35.7
46.6 36.8
50.7 107.1 19
52.8
54.8
56.8
58.9
2.9
5.0
7.2
6026 19 35.7
54.782

March 3

19 53.6
50.5
52.8
54.8
56.9
59.0
2743
19 53.6
54.860

+20.1 − 29.6

20						
4 22.3 3 19.2	4 14.0	4 19.3	4 1.7	4 7.2	3 44.8
5 53.2 4 49.9	48.1	55.3	34.7	41.9	18.8
10 153 8 091	122.1	134.6	96.4	109.1	63.6
5 7.75 4 04.55	61.05	67.30	48.20	54.55	31.80
+20.1	+14.0	+17.7	+15.3	+19.1	+1.1
1.30320	1.14613	1.24797	1.18469	1.28103	0.04139
1.42065	1.26358	1.36542	1.30214	1.39848	0.15884
−26.34	−18.35	−23.20	−20.05	−25.03	−1.44
24 7.75	24 1.05	24 7.30	23 48.20	23 54.55	23 31.80
23 41.41	23 42.70	23 44.10	23 28.15	23 29.52	23 30.36
+2° 59′ 6.94″	59 5.65	59 4.25	59 20.20	59 18.83	59 17.99

March 11

53.6 19 41.4 19 46.7
43.4
45.5
49.6
51.7
-53.8
55.7
57.8
2.0
4.0
6.1
53.6 41 1.0 19 46.7
18
~~59 1.0~~
~~37.2~~
58.727

20
3 50.2
28.0
78 2
39.10
+7.0
~~+12.0~~
~~1.07918~~ .84510
~~1.17663~~ .96255
~~-11.72~~ -9.17
~~23 39.10~~ 23 39.10
~~23 23.38~~ 23 29.93

59 18.42

5 0 40

Br 96 6

sin √ 9.9848
cos √ 7.4144

5 22 30
22 37.45 ~~37.45~~ 29.50
+74 57

(+3.721)
+3.72

sin z = −.54

Jan 31	5 22 38.97	26	+ 74° 57'	26".4	264		26.4	10
Feb. 5	.71	26		27.4		+1.7	27.4	09
10	38.43	28		28.3	28.3	−.3	28.3	08
15 (−.17)	.11	32		29.0		1.4	29.1	06
20	37.78	33		29.7	29.7	−.5	29.7	5
25 (−.18)	43	35		30.1		0.9	30.2	4
Mar 1	37.07	36		30.6	30.6	−.6	30.6	
6	36.70	37		30.7		0.3	30.8	2
11	36.32	38		30.9	30.9	−.7	30.9	1

	Jan. 30		Feb. 5		Feb. 7		Feb. 8		Feb. 18		Feb. 26	
	+.49 +.477		+.48 +.460		+.40 +.387		+.37 +.352		+.41 +.417		+.37 +.372	
−.059	21 43.2 21	~~43.2~~ 21	40.2 21	50.8 21	~~34.4~~ 21	24.6 21	39.0 21	30.8 21	36.4 22	24.7 21	35.1 21	58.2
	51.4	44.6	47.9	52.7	~~47.7~~	28.8	47.5	31.7	45.0	27.1	42.9	59.3
	59.2	46.0	55.8	103.5	~~47.8~~	32.0	55.0	32.7	52.4	29.8	50.8	43
	15.3	906	12.0		55.5	33.2	11.0	95.2	8.8	81.6	6.6	7.4
sin √ 9.98484	22.7	45.30	19.5		114 11.4	118.6	19.0		16.2		14.5	249.2
	30.8 22	69.5	27.6		194 19.4		26.7		24.3		22.7	
	38.6	61.3	35.3		271 27.1		34.6		32.2		30.6	
	46.8	62.7	43.6		350 35.0		42.4		40.1		38.4	
	2.7	183/5	59.5		430 43.0		58.3		55.8		54.4	
cos √ 9.41441	10.6	61.16	7.3		1359		6.3		4.0		2.3	
11804	18.4		15.7		22.8		14.3		11.9		10.4	
9.53245	339.7 21	45.3	484.4 21	51.7	367.2 21	29.6	474.1 21	31.7	327.1 23	27.2	308.7 22	62.3
	−		180				180		60		60	
			304.4		307.2		294.1		267.1		248.7	
	22 30.882		27.673		27.180 27.93		26.736		24.282		22.609	
	30.82	30.82	27.61	27.61	27.12	27.12	26.68	26.68	24.22	24.22	22.56	22.56
	39.01	39.01	38.70	38.70	38.69	38.59	38.64	38.53	37.80	37.79	37.34	37.34
	8.19	−8.19	−11.09	−11.09	−11.57	−11.47	−11.96	+11.85	−13.58	−13.57	−14.79	−14.78
		+ .17		+.17		+.17		+.17		+.17		+.17
	30.82	−8.02	27.61	−10.92	27.12	−11.30	26.68	−11.68	24.22	−13.40	22.56	−14.6
	+6.34		9.12		+9.85		+11.34		+12.01		+13.04	
	+1.82	30.82	+1.79	27.61	+1.49	27.12	+1.38	26.68	+1.67	24.22	+1.30	22.56
	−1.56	+6.34	−1.25	+9.17	−1.24	+9.86	−1.19	+10.22	~~+~~ −.35	+12.02	+0.11	+13.04
		+1.77		+1.41		+1.44		+1.31		+1.55		1.39
	37.42	+1.56	37.27	−1.25	37.22	−1.14	37.21	−1.08	37.55	−.34	37.01	+.11
		37.37		37.24		37.28		37.13		37.45		37.10

+25.8 ~ 30.3

25

	2 19.61	53.82	9.6	2 21.2	2 18.1	2 16.8	1 49.3
	3 40.8	15.2	36.2	45.7	44.0	46.1	13.0
	6 0.04	69.0	45.8	66.9	62.1	62.9	122.3
	3 0.20	34.50	22.90	33.45	31.05	31.45	61.15
						+57.1 −2.9	
	+45.6		+36.0	+57.6	+55.0		+20.3
	1.65896		1.55630	1.76042	1.74036	0.46240 2.75660	1.30750
	1.19141		1.08875	1.29287	1.27281	9.99485 1.28905	0.83995
	−15.53		−12.27	−19.63	−18.74	+ 19.46	−6.92
	27 3.20		26 52.90	26 03.45	27 1.05	27 7.45	26 31.15
	26 44.67		26 40.63	26 43.82	26 42.31	26 41.99	26 24.23
+74°	56' 3.68"		56 7.72	56 4.53	56 6.04	56 6.36	56 24.12
+	40.67		+ 38.66	+ 40.04	+ 39.38	+ 38.63	+ 39.85 3

	56 44.3	56 46.4	56 44.6	56 48.4 5	56 45.0	57 04.0
	57 26.2	57 27.5	57 27.8	57 28.0	57 29.5	57 30.3
δ' = +74	56 3.68	56 7.72	56 4.53	56 6.04	56 6.36	56 24.12
	− 13.60	14.90	15.20	15.40	16.90	17.70
+.50 I	+ 41.9 42.4	+ 41.1 41.6	+ 43.2 43.7	+ 42.6 ~~44.6~~ 43.1	+ 44.5 45.0	+ 26.3 26.8

″	
26.4	10
27.4	09
28.3	08
29.1	06
29.7	5
30.2	4
30.6	2
30.8	1
30.9	

δ = +74° 57′ 13″
ζ = −32 34 25
+ 35
z = −32 33 50

δ = +74° 57′ 12.6″

37.42	.37	− 8
27	.24	−21
22	.28	−17
21	.13	−32
55	.45	− 0
01	.10	−35
28	.39	− 6
16	.10	−35
44	.37	− 8
37.28	37.27	[−16]
	−7.95	
	29.32	

+.42 +.446		+.387 +.356		+.41 +.388	
Feb. 27		March 3		March 11	
21 35.3	21 18.2	21 35.2	21 26.3	21 33.4	21 53.5
43.3	20.6	42.6	29.6	41.2	56.0
60.9	26.1	50.7	34.7	49.3	58.0
6.6	64.9	6.7	90.6	5.4	59.6
14.6		14.5		13.2	227.1
22.6		22.5		21.2	
30.7		30.6		28.7	
38.5		38.8		36.8	
64.5		54.2		52.9	
2.2		2.1		1.0	
10.6		10.3		8.6	
309.6	21 21.6	308.2	21 30.2	291.7	21 56.8
60		60		6	
249.6		248.2		231.4	
22.691		22.564		21.064	
22.63	22.63	22.50	22.50	21.00	21.00
37.27	37.27	36.91	36.90	36.30	36.30
−14.64	−14.64	−14.91	−14.90	−15.30	−15.30
	+.17		+.17		+.17
22.63	−14.47	22.50	−14.73	21.00	−15.13
+12.91		+12.74		+13.76	
+1.56		+1.41		+1.63	
+.18	22.63	+.54	22.50	+1.15	21.00
	+12.92		+12.73		+13.74
37.28	+1.55	37.16	+1.32	37.44	+1.48
	+.18		+0.55		+1.15
	37.28		37.10		37.37

25

2 2.7	1 56.3	1 45.1
25.6	24.0	75.0
28.3	80.3	120.1
14.15 −	40.15 −	60.05 −
+61.1	+52.4	+24.3
1.78604	1.71933	1.38561
1.31849	1.25178	0.91806
− 2082	− 1786	− 828
26 44.65	26 40.15	26 30.05
26 23.83	26 22.29	26 21.77
56 25.02	56 26.06	56 26.58
+ 38.85 9	+ 38.36	+ 38.73
57 03.9	57 4.4	57 05.3
57 30.4	57 30.7	57 30.9
56 25.02	56 26.06	56 26.58
17.80	18.10	− 18.30
+ 26.5 270	+ 26.3 268	+ 25.6 261

72
8.2
59.3
4.3
7.4
9.2
52.3
.56
04
39
11
10

δ Orionis

5 25 28
25 28.12
−0 24 28.12 25.05
(−.01 / −.01)

z = +.68

Feb. 5	5 25 28.33		.06
10	.21		.06
15	.14		.07
20	07		.07
25	99	(−.03)	.08
Mar 1	27.91	(−.04)	.08
6	82		.09
11	27.73		.09

− 0° 23′

50.3			51.1
51.4	1.4		51.4
51.7		−.6	51.7
51.9			52.0
52.1	+ .8		52.2
52.3			52.4
52.5			52.5
52.5		−.8	52.6
52.5	0.0		52.6
52.5			52.5

+.40	+.34 +.352	+.37 +.400	+.45 +.417	+.41 +.400	+.35 +.372
Feb. 5.	Feb. 8.	Feb. 15	Feb. 18	Feb. 22	Feb. 26
−.015 25 10.9 25 43.0	25 5.6 24 58.2	25 4.5 24 57.2	26 3.6 25 56.3	25 2.7 24 55.0	25 2.6 24 57.3
12.9	7.7 59.2	6.5 58.0	5.7 57.2	4.8 56.0	4.7 58.4
15.0	9.7 60.2	8.7 59.3	7.7 58.0	6.8 56.7	6.7 59.7
19.0	14.0 177.6	12.8 174.5	12.0 171.5	10.9 167.7	10.8 175.4
log √ 7.48393 21.0	16.0	14.8	14.0	12.9	12.9
23.2	18.1	16.8	16.0	15.0	15.0
25.2	20.1	18.8	18.0	17.0	17.0
27.2	22.1	21.0	20.2	19.0	19.0
31.4	26.3	25.0	24.3	23.2	23.2
cos √ 9.99999 33.4	28.3	27.1	26.3	25.3	25.2
11.804 35.5 25 43.0	30.3 24 57.2	29.2 24 58.2	28.4 25 57.2	27.4 24 55.9	27.3 24 58.5
11.803 25 47	1982	1652	1762	1650	1644
23.154	18.078	16.836	16.027	15.000	14.946
23.14	18.00 18.00	16.82 16.82	16.02 16.00	14.98 14.98	14.93 14.93
28.27	28.23 28.23	28.14 28.14	28.10 28.10	28.04 28.04	27.97 27.97
5.13	−10.23 −10.23	−11.32 −11.32	−12.10 −12.10	−13.06 −13.06	−13.04 −13.04
+4	+ 3	+ 3	+ 3	+ 3	+ 3
23.14 23.14	18.00 −10.20	16.82 −11.29	16.00 −12.07	14.98 −13.02	14.93 13.01
+9.79 9.12	+10.22	+11.34	+12.01	+12.99	+13.04
0 0	0 18.00	0 16.82	0 16.00	0 14.98	0 14.93
−.15 −.15	−11 +10.22	−2 +11.31	+2 +12.02	+8 +13.00	+15 13.04
	00	00	.20	.00	00
28.11	28.11 −.11	28.14 −2	28.03 +.2	28.05 +8	28.12 +.15
	28.11	28.11	28.04	28.06	28.12

	45 1 59.6	2 3.0	2 4.0	1 43.3	1 41.47
	35.0	39.0	42.2	17.1	15.3
	94.6	102.0	106.2	60.4	56.75
	47.30	51.00	58.10	30.20	28.35
	+18.8	+18.6	+18.8	+19.1	+16.4
	1.27416	1.26951	1.27416	1.28103	1.21484
	1.39219	1.38754	1.39219	1.39916	1.33287
	−2467	−2441	−2467	−2506	−2152
	46 47.30	46 51.00	46 53.10	46 30.20	46 28.35
	46 22.63	46 26.59	46 28.43	46 5.14	46 6.83
−0°	23′ 34.28″	23 38.24	23 40.08	23 16.79	23 18.48
−	0 58.11	− 0 56.98	− 0 56.79	− 0 56.37	− 0 57.92
	24 32.4	24 35.2	24 36.9	24 13.2	24 16.4
	23 51.6	23 52.0	23 52.1	23 53.3	23 52.4
δ′ = −0	23 34.28	23 38.24	23 40.08	23 16.79	23 18.48
	+5.60	5.40	5.50	5.78	5.80
−.63 I	+ 40.8 402	+ 43.2 426	+ 44.8 44.1	+ 20.9 20.3	+ 24.0 23.4

$\delta = -0^\circ\ 23'\ 46.''6$

28.11	,11	−1
14	11	−1
03	4	−8
05	6	−6
12	12	−0
10	10	−2
7	4	−8
28.09	28.08	(−.04)
	3.07	
	25.01	

+.42 +.446				+.38 +.356			
Feb. 27				March 3			
25	2.6	24	54.7	25	2.7	24	59.3
	4.7		55.8		4.8		~~27~~
	6.8		57.0		6.8		~~4.5~~
	10.9		167.5		11.0		
	13.0				13.0		
	15.0				15.0		
	17.1				17.1		
	19.1				19.3		
	23.3				23.3		
	25.4				25.4		
	27.4	24	55.8		27.4	24	59.3
	1653				1658		
	—						
	—						
	15.0327				15083		
	15.01		15.01		15.06		15.06
	27.95		27.51		27.88		27.87
	−12.94		−12.94		−12.82		−12.81
			+.3				+.3
	15.01		−12.91		15.06		−12.78
	+12.91				+12.71		
	0		15.01		0		15.06
	+18		+12.92		+30		+12.73
			00				.00
	28.10		+.17		28.07		+.25
			28.10				28.04

1	45.5	1	40.6
	21.1		17.3
	66.6		57.9
	33.30		28.95
	+19.2		+15.8
	1.28330		1.19866
	1.40133		1.31669
	−2520		−2073
46	33.30	46	28.95
46	8.10	46	~~8.13~~ 8.22
23	19.75	23	19.87
−0	57.25	−0	56.36
24	17.0	24	16.2
23	52.4	23	52.5
23	19.75	23	19.87
	5.80	+	5.90
+	24.6 23.9	+	23.7 23.1

a Leporis
6 27 08
−17 55
−32

	Feb. 7		Feb. 15		Feb. 22		Feb. 26		Feb. 27		March 3	
	26 42.7	26 36.8	26	27 3.5	26 39.5	26 34.1	26 39.2	26 36.0	26 39.3	26 37.3	26 39.3	26 34.1
	44.9	38.1		4.8	41.4	35.0	41.3	37.8	41.5		41.5	35.1
	47.0	38.8		5.8	43.7	36.2	43.4	39.4	43.6		43.8	36.1
	51.4	113.7	49.8	14.4	48.0	1053	47.8	113.2	48.0		48.0	1053
sin √ 9.48803	53.5		52.0		50.2		50.0		50.2		50.3	
	55.6		54.2		52.3		52.3		52.4		52.5	
	57.8		56.3		54.5		54.4		54.6		54.7	
	0.1		58.5		56.6		56.5		56.5		56.7	
	4.4		2708		1.0		0.9		1.0		1.0	
cos √ 9.97844	6.5				3.0		3.0		3.1		3.1	
11804	8.7	26 37.9		27 4.8	5.3	26 35.1	5.2	26 37.7	5.4	26 37.3	5.5	26 35.1
.05645	6121				5755		5740		5756		5764	
	55.691		54.160		52.326		52.182		52.337		52.400	

15					
2 16.8	1 46.0	1 59.6	2 0.0	2 4.2	2 6.0
54.9	24.8	35.3	37.0	42.0	46.0
131.7	70.8	94.9	97.0	106.2	112.0
65.85	35.40	47.45	48.50	53.10	56.00
+17.8	−10.6	+17.0	+14.5	+15.0	+17.3
1.25642	1.02531 n	1.23645	1.16137	1.17609	1.23805
1.34687	1.12176 n	1.32690	1.25782	1.27254	1.33450
− 2223	+ 1323	− 2123	− 1811	− 1873	− 2160
17 5.85	16 35.40	16 47.45	16 48.50	16 53.10	16 56.00
16 43.62	16 48.63	16 26.22	16 30.39	16 34.37	16 34.40
−17° 53′ 55.27″	54 0.28	53 37.87	53 42.04	53 46.02	53 46.05

March 11

26 38.2 26 30.5
40.4 31.5
42.6 32.7
46.8 94.7
49.1
51.1
53.4
55.5
59.9
2.0
4.1 26 31.6
5631

51,191

15

2 8.2
4.9.9
1.8.1
59.05
+19.6
1.29226
1.38871
— 2448
16 59.05
16 34.57

53 46.22

ε Orionis

5 29 43
29 43.16
−1 17 43.16 40.11

−92
(−02)

lim z = +.68

					70.9
Jan 21	5 29	43.45		−1° 16′ 73.1	73.1
26		41	.04	73.5	73.5
31		37	.04	73.9	73.9
Feb. 5		32	.05	74.3	74.3
10		43.27	.05	74.6	74.6
15	(+.02)	20	.07	74.8	74.9
20	(+.02)	13	.07	75.0	75.1
25		05	.08	75.2	75.3
1		42.97	.08	75.4	75.4
6		88	.09	75.4	75.5
11		79	.09	75.5	75.5
16		71	.08	75.5	75.5
21		42.62	.09	75.5	75.5
				74.8	

δ=

Sec δ 8.35018

cos δ 9.99989
11804
.11893

Feb. 1	Feb. 5		Feb. 7		Feb. 8		Feb. 18		Feb. 26	
+.52 +.505	+.48 +.460		+.40 +.387		+.34 +.352		+.40 +.417		+.35 +.372	
−.015 29 23.0	29 21.9	29 10.6	29 21.1	29 ~~41.8~~	29 20.8	29 12.4	29 18.8	29 13.0	29 17.6	29 14.1
25.0 no δ	24.0	11.6	23.3	~~43.8~~	23.0	13.4	20.8	14.0	19.7	15.2
27.0	26.0	13.0	25.3	~~45.9~~	25.0	14.5	22.9	15.2	21.8	16.0
31.2	30.1	35.2	29.4	13.2	29.0	40.3	27.0	43.2	25.9	45.3
33.1	32.1		31.5	14.1	31.1		29.0		28.0	
35.3	34.2		33.5	14.8	33.1		31.1		30.0	
37.0	36.2		35.5	42.1	35.2		33.3		32.1	
39.1	38.3		37.6		37.3		35.3		34.2	
41.4	42.5		41.8		41.4		39.4		38.3	
45.4	44.5		43.8		43.4		41.5		40.4	
47.7	46.6 29	11.7	45.9 29	14.0	45.6 29	13.4	43.5 29	14.1	42.5 29	15.1
38.7	37.64		36.87		36.49		34.26		33.05	
35.200	34.278		33.528		33.178		31.146		30.046	
35.18 30.18	4330 43.20 34.20		33.50	33.50	33.16	33.16	31.13	31.13	30.03	30.03
43.36 43.36	9.08 43.32 43.32		43.30	43.30	43.29	43.29	43.16	43.16	43.03	43.03
−8.18 −8.18	−9.12 −9.12		−9.80	−9.80	−10.13	−10.13	−12.03	−12.03	−13.00	−13.00
+1. −2	+2			−2		−2		−2		−2
8.	−9.14			−9.82		−10.15		−12.05		−13.02
35.18 35.18	34.20	3420	33.50	33.50	33.16	33.16	31.13	31.13	30.03	30.03
+7.48 +7.47	+9.17	+9.17	+9.85	+9.86	+10.22	+10.22	+12.01	+12.02	+13.04	+13.04
−1 −1	−1	−1	−1	−1	−1	−1	−1	−1	−1	−1
−.20 −.20	−16	−.16	−14	−.14	−.13	−.13	−0	−0	+13	+.13
(42.45)	(43.15)	43.20	43.20	43.21	43.25	43.24	43.13	43.14	43.19	43.19

	Feb. 5	Feb. 7	Feb. 8	Feb. 18	Feb. 26
	40 28.6	17.8	21.3	25.4	−22.0
	0 25.6	0 20.0	0 21.9	0 24.2	0 1.3
	3.0	−3.0	−0.6	1.2	−23.3
	14.30	8.50	10.65	12.70	−11.00
	+22.5	+19.5	+19.8	+17.0	+14.9
	1.35218	1.29003	1.29666	1.23045	1.17319
	1.47011	1.40796	1.41459	1.34838	1.29112
	−2952	−2558	−2598	−2230	−1955
	40 14.30	40 8.50	40 10.65	40 12.70	39 49.00
	39 44.78	39 42.92	39 44.67	39 50.40	39 29.45
−1°	16 56.43	16 54.57	16 56.32	17 2.05	16 41.10
	−0 58.31	−0 60.76	−0 59.73	−0 58.45	−0 57.96
	17 54.7	17 55.3	17 56.0	18 00.5	17 41.1
	16 75.5	16 74.5	16 74.5	16 75.0	16 75.3
δ′ = −1	16 56.43	16 54.57	16 56.32	17 2.05	16 41.10
	+4.80	5.00	5.00	6.50	5.80
	40.4				
−.64 I	+ ~~39.2~~ 39.8	+ 40.8 40.2	+ 41.5 40.8	+ 45.5 44.9	+ 25.8 25.1

$\delta = -1^\circ\ 17'\ 19''.5$

	20 + 4
43.20	21 + 5
25	24 + 8
13	14 + 2
19	19 + 3
16	9 − 7
15	18 + 2 (+0.02)
43.18	43.18
	3.05
	40.13

+.42 +.44.6 | +.38 +.35.6

Feb. 27				March 3			
29	17.6	29	10.8	29	17.9	29	12.5
	19.6		12.0		19.9		14.0
	21.9		13.2		22.0		15.2
	25.8		26.0		26.2		41.7
	27.9				28.1		
	30.0				30.3		
	32.1				32.3		
	34.2				34.3		
	38.3				38.5		
	40.5				40.6		
	42.5	29	12.0		42.6	29	13.9
33 04				33 27			

30.036		30.246	
30.02	30.02	30.23	30.23
43.02	43.01	42.99	42.93
−13.00	−12.99	−12.71	−12.70
	−2		−2
	−13.01		−12.72
30.02	30.02	30.23	30.23
+12.91	+12.92	+12.71	+12.43
−1	−1	−1	−1
+.14	+.15	+.22	+.23
43.06	43.09	43.15	43.18

	−12.0		−9.6
0	5.3	0	6.5
	−17.3		−16.1
	−6.00		−4.80
	+18.0		+16.8
	1.25527		1.21219
	1.37320		1.33012
	−2362		−2139
39	54.00	39	55.20
39	30.38	39	33.81
16	42.03	16	45.46
−0	59.40	−0	58.48
17	41.4	17	43.9
16	75.3	16	75.4
16	42.03	16	45.46
	5.80		+5.90
+	26.1 25.5	+	28.5 27.8

o Aurigae

5 35 55
35 59.09 ~~55.09~~
+49 46 54.45

(+1.18)

(+1.18)

Sin z = -.13

Jan 21	5 35 59.58		+ 49° 45′	67.″3	67.″3 8
26	54	.04		68.0	68.1 1.5 7
31	48	.06		68.7 0.7	68.8 -3 7
Feb. 5	(+.03) 41	.07		69.4	69.4 1.2 6
10	59.33	.08		70.0 -1.1	70.0 -2 6
15	(+.04) 23	.10		70.4	70.5 1.0 5
20	11	.12		70.8 1.6	71.0 -4 4
25	99	.12		71.2 -1.4	71.3 .6 3
Mar. 1	58.87	.12		71.6	71.6 5 3
				71.8 0.2	

+.50 +.513
Jan. 31

-.024

35 33.0 | 35 15.8
36.1 | 17.0
39.2 | 18.3
45.6 | 57.1
48.8
52.0
55.1
58.5
4.7
7.9
11.3 | 35 17.0
5722
52.078
51.99 | 51.99
59.48 | 59.48
-7.49 | -7.49
 | - 3
51.99 | ~~7.52~~
+6.93 | ~~+6.91~~
+ .59 | 51.99
- .39 | +6.91
59.12 | + .62
 | - .39
 | 59.13

Sin 9.88276
cos 9.81017
1.18019
9.92826

+.48 +.460
Feb. 5.

35 30.7 | 36 23.5
33.8 | 24.7
36.9 | 26.0
43.4 | 74.2
46.6
49.8
52.9
56.2
2.4
5.6
9.0 | 36 24.7
5473
49.755
49.73 | 49.73
59.41 | 59.41
-9.68 | -9.68
 | - 3
49.73 | 9.71
+9.12 | ~~+9.17~~
+ .57 | 49.73
- .32 | +9.17
(59.10) | + .84
 | - .32
 | 59.12

+.40 +.387
Feb. 7

35 30.1 | 35 13.5
33.2 | 15.1
36.4 | 16.7
42.8 | 45.3
45.9
49.1
52.3
55.6
2.0
5.1
8.2 | 35 15.1
5487
49.15
49.155
49.13 | 49.13
59.38 | 59.38
-10.26 | -10.25
 | - 3
49.13 | ~~10.28~~
+9.85 | ~~+9.86~~
+ .47 | 49.13
- .29 | +9.86
59.16 | + .45
 | - .29
 | 59.150

+.384 +.382
Feb. 8

35 29.6 | 36 2.6
32.8 | 5.0
35.9 | 6.1
42.4 | 13.7
45.5
48.7
51.9
55.0
1.4
4.6
7.8 | 36 4.6
32 31 65 31 32 32 31 64 32 32
5356
~~50.9~~
48.591
48.67 | 48.67
59.36 | 59.36
-10.69 | -10.69
 | - 3
48.67 | ~~10.72~~
+10.22 | ~~+13.04~~
+ .40 | 48.67
- .27 | +10.22
59.02 | + .42
 | - .27
 | 59.04

+.30 +.372
Feb. 26

35 39.2 | 35 21.3
42.3 | 22.4
45.6 | 23.9
48.7 | 67.6
52.0
2278 | 35 22.5
45.560
45.54 | 45.54
58.96 | 58.96
-13.42 | 13.42
 | - 3
45.54 | ~~13.45~~
+13.04 | 45.54
+ .41 | +13.04
+ .13 | + .44
59.12 | + .13
 | 59.15

~~Feb. 27~~

~~35 33.9~~

35

3 16.6	2 14.0	3 14.2	2 30.4	2 46.8
40.7	41.6	41.1	58.4	12.0
57.3	55.6	52.26	88.8	58.8
28.65	27.80		44.90	29.49
+35.0	+25.1	+34.1	-35.9	+23.1
1.54407	1.39967	1.53275	1.20140	1.36361
1.47228	1.32788	1.46196	1.12961	1.29182
-29.67	2127	-2897	+ 1348	- 19.58
38 58.65	36 57.81	38 57.65	37 44.90	37 29.40
37 28.98	37 36.54	37 28.68	37 31.42 28.38	37 9.82
+49° 45 19.37	45 20.97	45 19.67	45 19.97	45 38.53
+ 0 7.60	+ 7.359	+ 7.62	+ 7.81	7.84

√-349 (29.58)
1.54280
1.47101
36 + 29.58
36 57.80
(37 37.38)

	45 27.0	45 28.3	45 27.3	45 27.8	45 46.4
	45 68.8	45 69.4	45 69.7	45 69.8	45 71.4
δ′ = +49	45 19.37	45 10.97	45 19.67	45 19.97	45 38.53
	- 8.50	9.10	9.40	9.50	11.10
+.13 I	+ 41.8 41.9	+ 41.1 41.2	+ 42.4 42.6	+ 42.0 42.1	+ 25.0 25.1

$\delta = +49^\circ\ 46'\ 0''.3$

59.12 ~~13~~ .13 +4
16 ~~17~~ .12 .16 +3
02 ~~16~~ .04 +7
12 ~~0~~ .15 +5
19 .18 +6 +9
59.12 59.13 (+.04)
−4.64
54.49

+3.8 +.356
March 3

33.9

35 35 16.0
17.4
18.4
39.3 51.8
42.6
45.8
49.0
52.2
2289

35 17.8

45.780
45.76 45.76
58.82 58.82
−13.06 −13.06
−.3
45.76 −13.09
+12.71
+ .45 45.76
+ .27 +12.73
59.19 + .42
+ .27
59.18

2 49.4
18.0
67.4
33.70
+28.5
1.45484
1.38305
−24.16
37 33.70
37 9.54
45 38.81
7.46

45 46.3
45 71.7
45 38.81
− 11.40

+ 25.4 25.6

ω Draco Ho.

5 37 24

111 11 68°. 48

−2.58

sin z = −.93

δ = 68° 48′ 58″.90 = N A.

57.92 = D

Feb. 5

37

37 54.0

54.8

56.0

164.8

sin √9.96962

20.7

26.2

31.8

37.8

43.2

59.7

cos √9.55793 n

11804

9.67603 n

37 54.9

31.940

Feb. 8

36 56.6

2.3

8.0

19.4

25.0

30.7

36.2

42.8

53.5

58.8

5.0

39 83

60

338.3

30.755

36 42.8

46.0

50.7

139.5

36 46.5

Feb. 18

36 55.7

1.4

7.1

18.3

24.2

29.6

35.8

41.0

52.6

57.9

4.0

32 76

29.782

36 47.9

50.7

53.0

151.6

36 50.5

Feb. 26

36 55.0

0.5

6.3

17.7

23.5

29.0

34.7

40.4

52.0

57.5

3.4

38 00

60

320.0

29.091

36 6.9

8.0

8.9

23.8

35 7.9

Feb. 27

36 55.2

1.4

7.1

18.3

24.0

30.0

35.4

41.0

52.8

58.2

36 4.0

38 74

60

327.4

29.764

36 50.7

52.1

53.6

156.4

36 52.1

March 11

37 ~~55.0~~

0.6

6.4

17.9

23.5

−29.0

34.8

40.7

~~40.7~~

52.0

57.7

3.3

38 0.9

60

320.9

29.173

37 49.4

37 49.4

15

0 18.8

− 18.7

00.1 ~~97.75~~

00.05 ~~48.75~~

− 2.20

1.36173 n

1.03776

− 10.82

15 0.05

14 49.13

+111° 7′ 59.22″

+ 2 35.48

+111 10 34.7

+1.0 68 48 41.2

42.4

11 17.6

+.86 I +0 42.9 43.8

−17.7

10

4 53.0

14.7

67.7

33.85

+44.3

1.64640

1.32243 n

+ 21.01

14 33.85

14 54.86

7 53.49

2 39.05

10 32.5

40.4

41.7

18.3

+ 45.8 46.6

−18.2

10

4 47.8

13.5

61.3

30.65

+39.3

1.59439

1.27042 n

+ 18.64

14 30.65

14 49.29

7 59.06

2 35.84

10 34.9

38.5

39.5

20.5

+ 45.6 46.5

−20.4

15

0 14.8 ?

16 32.7 47.5

58.75

122.1

51.05

− 38.8

1.58883 n

1.26486

− 18.40

14 58.75

14 38.35

8 13.00

2 38.99

10 52.0

57.3

38.3

21.7

+ 29.7 30.5

−21.6

10

4 34.5

54.9

149.4

74.70

+37.7

1.57634

1.25237 n

+ 17.88

14 14.70

14 32.58

8 15.77

2 36.99

10 52.8

57.2

38.2

21.8

+ 29.0 29.9

−21.7

14

0 54.5

19.9

+4.14

87.29

+39.8

1.59988

1.27591 n

√202

(9.58)

+ ~~18.8~~ − 9.58

15 37.2 37.20

14 27.62

8 20.73

2 34.81

10 55.6

36.2

34.2

22.8

+ 27.3 28.1

−22.7

49.4

49.4

02
58)

58
7.20
62

0.73
4.81
56

281

ζ Leporis
5 41 10
−14 52
−7°

	Feb. 2		Feb. 8		Feb. 18		Feb. 22		March 3		March 11	
	40 49.0	40 40.4	40 46.9	40 39.8	40 44.8	40 43.4	40 43.7	41 4.1	40 43.9	40 37.9	40 42.7	40 38.0
	51.3	41.7	48.9	40.7	47.0	44.1	45.9		46.1	39.2	44.7	
	53.3	42.9	51.1	42.1	49.1	44.8	48.0		48.2	40.6	47.0	
	57.7	125.0	55.5	122.6	53.4	132.3	52.1		52.5	117.7	51.3	
sin √ 9.40921	59.7		57.6		55.4		54.5		54.5		53.4	
n	2.0		59.7		− 57.6		56.7		56.8		55.4	
	4.1		1.7		59.7		58.7		58.7		57.6	
	6.1		3.8		1.8		0.9		1.0		59.7	
	10.4		8.1		6.1		5.0		5.2		4.0	
cos √ 9.98521	12.5		10.2		8.3		7.0		7.3		6.1	
11.804	14.7 40	41.7	12.3 40	40.9	10.3 40	44.1	9.5 41	4.1	9.4 40	39.2	8.3 40	38.0
.10325	32 06		3556		393.5		3820		62 35		4302	
	300		300		24		240				780	
	28.8		655.8		6330		6220				6702	
	1.891		59.628		57.591		56.545		56.682		55.473	

10

4 54.1	4 53.1	4 51.8	4 02.0	4 38.6	4 35.5
30.3	31.3	32.0	48.2	19.0	17.7
84.4	84.4	83.8	100.2	57.6	53.2
42.20	42.20	41.90	50.10	28.80	26.60
+20.2	+18.7	+13.5	−7.6	+17.5	+17.5
1.30535	1.27184	1.13033	0.88081n	1.24304	1.24304
1.40860	1.37509	1.23358	0.98406n	1.34629	1.34629
− 25.62	− 23.72	− 17.12	+ 9.64	− 22.20	− 22.20
14 42.20	14 42.20	14 41.90	13 59.10	14 28.80	14 26.60
14 16.58	14 18.48	14 24.78	14 08.74	14 6.60	14 4.40
−14° 51′ 28.23″	51 30.13	51 36.43	51 16.39	51 18.25	51 16.05

ν Aurigae

5 42 32
42 37.08
+39 06 37.08 32.92

(+.81)
(+.82)

Sin z = +.06

Jan 21	5 42	37.44	
26		42	.02
31		38	.04
5		32	.06
10	(+.09)	37.25	.07
15		17	.08
20	(+.10)	08	.09
25		98	.10
1		36.89	.09

+ 39° 6′

35″.2		35″.2		35.7
35.7		35.7	.5	36.2
36.1	1.8	36.2	.5	36.7
36.6		36.7	.5	
37.0	.6	37.0	.3	
37.3		37.4	.4	
37.6	1.2	37.7	.3	
37.9		38.0	.3	
38.2	.9	38.2	.2	
38.5	0.3			

	+.50 +.513	+.48 +.460	+.34 +.352	+.41 +.400	+.3 +.372	+.42 +.416
	Jan. 31	Feb. 5	Feb. 8	Feb. 22	Feb. 26	Feb. 27
-020	42 14.3 42 6.0	42 12.0 42 5.5	42 36.8	42 6.8 42 35.8	42 7.7 42 0.0	42 7.8 42 1.5
	16.9 7.0	14.6 6.5		10.5 27	10.5 1.1	10.6 3.0
	19.5 7.9	17.3 7.6		13.4 28	13.0 2.3	13.1 4.8
	24.7 20.9	22.6 19.6	42 21.7	18.8 54	18.5 3.4	18.6 9.3
Sin √9.79981	27.4	25.2	24.3	21.3 25	21.0	21.1
	30.2	27.8	26.8	23.8 25	23.7	23.7
	32.7	30.6	29.5	26.6 28	26.3	26.5
	35.5	33.3	32.2	29.4 28	29.0	29.1
	40.7	38.6	1345	34.4 50	34.4	34.4
cos √9.88989	43.5	41.2		37.2 28	37.0	37.0
11894	46.0 42 6.9	43.8 42 6.5	42 36.8	39.8 26 35.8	39.7 42 1.1	39.7 42 3.1
.00993	3314	3070		2630	2608	2616
	30.13	27.91	26.90	23.909	23.709	23.782
	30.11 30.11	27.89 27.89	26.88 26.88	23.89 23.89	23.69 23.69	23.76 23.76
	37.38 37.38	37.32 37.32	37.28 37.28	37.04 37.04	36.96 36.96	36.94 36.94
	-7.27 -7.27	-9.43 -9.43	-10.40 -10.40	-13.33 -13.15	-13.27 -13.27	-13.18 -13.18
	-.9	-.9	-.9	-.9	-.9	-.9
	30.11 -7.36	27.89 -9.52	26.88 -10.49	23.89 -13.24	23.69 -13.36	23.76 -13.27
	+6.93	+9.12	+10.22	+13.00	+13.04	+12.91
	+.40 30.11	+.39 27.89	+.27 26.88	+.33 23.89	+.28 23.69	+.34 23.76
	-.30 +6.91	-.24 +9.17	-.20 +10.22	+.4 +13.00	+.12 +13.04	+.14 +12.92
	+.42	+.38	+.29	+.33	+.31	±.34
	37.14 -.30	37.16 -.24	37.17 -.20	37.26 +.4	37.13 +.12	37.15 +.14
	37.14	37.20	37.19	37.26	37.16	37.16

	15	276				
	2 32.2	2 28.0	1 56.6	1 37.9	2 13.1	2 10.4
	59.1	-0.4	27.1	4.9	41.5	40.7
	9.3	~~14.00~~ 13.80	83.7	42.8	54.6	51.1
	45.65		41.85	21.40	27.30	25.55
	+23.2	+21.4	-4.9	-11.9	+22.6	+20.6
	1.36549	1.33041	0.99563 n	1.07555 n	1.35411	1.31597
	1.37342	1.33334	1.00356 n	1.08348 n	1.36204	1.32390
	-23.63	-21.79	+10.08	+12.12	-23.02	-21.08
	17 15.65	17 13.80	16 41.85	16 21.40	16 57.30	16 55.55
	16 52.02	16 52.01	16 51.93	16 33.52	16 34.28	16 34.47
+39°	5′ 56.33″	5 56.34	5 56.42	6 14.83	6 14.07	6 13.88
-	0 4.10	-3.92	-3.84	-3.62	-3.86	-3.85
	5 52.2	5 52.4	5 52.6	6 11.2	6 10.2	6 10.0
	6 36.2	6 36.7	6 36.9	6 37.8	6 38.0	6 38.1
δ′ = +39	5 56.33	5 56.34	5 56.42	6 14.83	16 14.07	6 13.88
	-5.80	6.36	6.50	7.40	7.60	7.70
-.05 I	+ 44.0 44.0	+ 44.3 44.2	+ 44.3 44.3	+ 26.6 26.5	+ 27.8 27.8	+ 28.1 28.0

$\delta = +39^\circ\ 6'\ 30.''4$

37.14 .14 +6
16 .20 +12
17 .19 +11
26 .26 +18
13 .16 +8
15 .16 +8
15 .15 +7
37.17 37.18 +10
−4.15
33.02

+.38 +.356

March 3

42 42 31.7
32.6
33.6
97.9

18.5
21.3
23.9
26.7
29.2
119.6

42 32.6

23.920
23.90 23.90
36.85 36.85
−12.95 12.95
+12.94

23.90 23.90
+12.71 +12.73
+ .31 + .29
+ 23 + .23
37.15 37.15

1 40.8
12.1
52.9
26.45
−8.6
0.93952
0.94745

+ 8.86
16 26.45
16 35.31

6 13.04
− 0 3.66

6 9.4
6 38.2
6 13.04
− 7.80

+ 28.8 28.8

♈ Decl
1
5 − 4 4 27
44 1306
10 47 1306
17 47
72 13
72 13
(−311)
−312

Jan 31 17 44 10.19 .28
~~31~~ .47 .30
Feb. 5 ~~10.71~~
10 10.77 .32
15 (+.12) 11.09 .34
20 11.43 .36 (+.12)
14.15 25 ±.00 .79 .36
Mar. 1 +.06 12.15 .37
6 .52 .37
11 12.89

+ 72° 12′ 23″.1 . 23″.1
21.8 −.6 21.7
20.5 . +.6 20.5
19.5 −2.0 19.4
18.5 . +.6 18.5
17.8 −1.4 17.7
17.1 . +.7 17.1
16.7 −0.7 16.7
16.3 . +.6 16.3
16.2 −0.1

			diff
13.14	.07	+01	
3.26	.34	+28	
20	.15	+9	1.4
12	.24	+18	1.2
19	.11	+5	1.1
77		(+.12)	.9
13.18			.8
	13.18		.6
	+1.09		.4
	14.27		.4

Σ 3.18

sin z = −.91 +.50 +.513 | +.55 +.522 | +.34 +.352 | +.45 +.417 | +.41 +.398

Jan. 31 | Feb. 2 | Feb. 8 | Feb. 18 | March 11

+0.50

Jan. 31:
— 44 23.8 43 50.8
— 26.0 57.2
— 28.7 3.8
— 78.5 10.8
— 17.9
— 1405
44 11.5 4.4 120
18.1 0 20.5
31.8 1
38.6 0
45.6 2
1456 4.14
44 26.2

Feb. 2:
44 23.1
24.8
26.6
(45 43

Feb. 8:
44 13.8 43
15.2
29.0
48.4
54.8
1.8
8.2
14.6
1278
120
7.8
44 14.5
44 24.8

Feb. 18:
20.2 43 13.2 43
26.8 15.7
33.8 17.8
47.2 46.7
54.0
0.6
7.3
14.1
27.7
34.6
41.2
3075
3075 43 15.6

March 11:
19.9 43 12.8
26.7 14.9
33.4 18.6
46.9 46.3
53.8
0.4
7.1
13.7
27.3
34.0
40.9
3041
3041 43 15.4
.41

sin √ 9.97874
cos √ 9.48480
11807
9.60294 n

	Jan. 31		Feb. 2		Feb. 8		Feb. 18		March 11	
	29.120	4.82	4.100		1.560		~~27.955~~		0.373	
4.82	29.17	4.87	4.15	4.15	1.61	1.61	0.682	0.73	0.42	0.42
10.17	10.22	10.17	10.28	10.28	10.68	10.64	11.27	11.27	12.87	12.87
−5.30	17		−6.13	−6.13	−9.02	−9.03	10.54	−10.54	−12.45	−12.45
−6	−31.90			−6		−6		−6		−6
−5.36				−6.19		−9.09		−10.60		−12.51
4.87	29.17	4.87	4.15	4.15	1.61	1.61	0.73	0.73	0.42	0.42
+6.9	+6.93	6.93	+8.04	+8.04	+10.22	+10.22	+12.02	+12.02	+13.76	+13.74
−1.60	−1.55	−1.55	−1.71	−1.63	−1.06	−1.10	−1.40	−1.80	−1.28	−1.24
+2.89	+2.89	+2.89	+2.78	+2.78	+2.43	+2.42	+1.79	+1.79	+.19	+0.19
13.07	7.44	13.14	+13.26	13.34	13.20	13.15	13.12	13.24	13.19	13.11

35

	3	43.2	3	44.3	3	33.6	3	2.9	2	40.9
		2.2		5.2		55.7		29.0		6.3
		45.4		47.5		57.3		31.7		47.2
		22.70		24.75		44.65		45.9		28.60
		−21.4		−20.7		−12.9		+45.1		+45.0
Δp′		1.33041 n		1.21597 n		1.11059 n		1.65418		1.65321
		0.93335		0.91891		0.71353		1.25712 n		1.25615 n
	−	858	−	830	−	517	+	1808	+	1804
	38	22.70	38	24.75	38	14.65	37	45.95	37	23.60
	38	14.12	38	16.45	38	9.48	38	4.03	37	41.64
+107°	44′	34.23″	44	31.90	44	38.87	44	44.32	45	6.71
+	2	17.72	+2	14.84	+ 2	15.01	+ 2	12.64	+ 2	11.06
	46	51.9	46	51.4	46	53.9	46	57.0	47	17.8
	47	36.8	47	37.3	47	40.0	47	41.1	47	43.6
	~~13~~	~~08.1~~	~~13~~	~~8.3~~	~~13~~	~~6.1~~	~~13~~	~~3.1~~	~~13~~	~~42.2~~
	12	23.7	12	22.7	12	20.0	12	18.9	12	16.4
I	+	45.2	+	45.6	+	46.5	+	44.2	+	25.8 26.7
+.84	+	449 457	+	459 467		461 470		44.1 44.9		
		−15.9		−164		−1910		−202		−227

$\delta = +72\ 12\ 39.1$

β Columbae
5 46 37
−35 49
.72

	Jan. 31		Feb. 5	Feb. 8		Feb. 22	
	46 6.0	46 16.0?	46	46 2.445	53.0	45 59.3	45 55.5
	8.2	37.3?		5.1	54.1	1.8	56.8
	10.6	46 (27.6)?		7.5	55.6	4.4	60.0
	16.0	80.9	13.4	12.6	162.7	9.4	172.3
Sin √9.76730	18.5		16.3	15.1		12.2	
	21.2		18.8	17.6		14.6	
	23.8		21.2	20.2		17.1	
	26.2		23.6	22.7		19.8	
	31.6		933	27.9		24.8	
cos √9.90896	33.9			30.4		27.1	
11804	36.5	46 26.9		32.8	45 54.2	29.9	45 57.4
.02700	23 25			1943		220.4	
	=					×60	
						160.4	
	21.186		18.660	17.664		1.4582	

5
2 46.2
18.3
64.5
3225
+5.8
1.76343 n
1.79043 n
Σ + 617
7 32.25

A. R. only

3 33.5
9.7
43.2
21.60
+23.5
1.37107
1.39807
− 25.01
8 21.60
7 56.59
° ′ ″
−35 45 8.24

3 3.0
39.0
102.0
51.00
+17.2
1.23553
1.26253
− 18.30
7 51.00
7 32.70
44 44.35

5 6 10

a Orionis

sin δ 9.1089
cos δ 9.9964

5 48 14
4.8 14.55
+ 7 23 14.55 11.30

+13
+.13

sin z = +.57

Jan 21		5 48	14.85		+ 7° 22'	48".8 .		48".8 .3
26			83	.02		48. 6		48.5 .5 .2
31			80	03		48. 4	=.4	48.3 .2
Feb. 5			76	04		48. 2		48.1 .2
10	(-.01)		14.71	05		47. 9 .		47.9 .2
15			65	06		47. 8		47.7 .1
20	(+.01)		58	07		47. 7	-.5	47.6 .1
25			51	07		47. 6		47.5 .1
Mar. 1			14.43	.08		47. 4 .	+.5	47.4
6							.0	
11						7.4.		

W.A.R Obs.

Jan. 30	Jan. 31	Feb. 2	Feb. 5	Feb. 8	Feb. 18
+.45 +.473	+.50 +.513	+.55 +.522	+.48 +.460	+.34 +.352	+.47 +.417
-.016 47 56.0 47 51.2 56.1 53.3 0.0 54.7 4.3 159.2 6.3 53.06 8.3 48 33.0 10.4 34.6 12.5 36.3 16.5 139 18.7 34.63 20.6 211.7 120 47 53.1 91.7	47 55.5 47 53.1 57.6 54.3 59.6 55.8 3.8 163.2 5.8 7.8 10.2 12.1 16.3 18.4 20.4 267.6 180 47 54.4 87.8	47 54.2 47 49.5 56.3 50.4 58.4 51.3 2.5 151.2 4.5 6.6 8.7 10.9 15.0 17.2 19.3 253.6 180 47 50.4 73.6	48 — 48 30.4 — 30.9 — 61.3 — 3.3 5.6 1.66 7.7 9.8 13.8 16.0 18.0 76.91 1.143 48 30.6	47 52.1 47 40.5 54.2 41.3 56.3 42.6 0.4 124.4 2.5 4.5 6.6 8.7 12.8 15.0 17.0 230.1 150 47 41.5 50.1	47 50.0 47 44.6 52.1 45.8 54.2 47.0 58.4 137.4 0.4 -2.5 4.5 6.6 10.9 12.8 15.0 267.4 240 47 45.8 27.4
8.386 8.32 14.83 14.85 6.49 6.53 5.47 8.32 14.85 14.81 -9.84 -6.49 + 1 8.32 -6.48 +6.43 + 6 8.32 -.30 +6.39 + 6 14.51 -26 +15.2 14.57	7.964 14.82 6.86 6.84 7.96 14.80 14.80 -7.96 -6.86 + 1 6.84 -6.85 +6.93 + 6 7.94 -25 +6.91 + 6 14.58 -25 14.66	6.691 6.68 6.68 14.79 14.79 -8.11 -8.11 + 1 6.68 -8.10 +8.04 + 7 6.68 -24 +8.04 + 7 14.55 -24 14.55	48 5.548 1478 925 5.53 5.53 14.76 14.76 -9.23 -9.23 + 1 5.53 -9.22 +9.12 + 6 5.53 -21 +9.17 + 6 14.50 -21 14.55	~~4.656~~ 4554 4.54 4.54 14.73 14.73 -10.19 -10.19 + 1 4.54 -10.18 +10.22 + 4 4.54 +.18 +10.22 + 4 14.62 -18 14.62	2.491 2.47 2.47 14.61 14.61 -12.14 -12.14 + 1 2.47 -12.15 +12.02 + + 6 2.47 - 6 +12.02 ± 5 6 14.49 14.49

2ond " 1st

Jan. 30	Jan. 31	Feb. 2	Feb. 5	Feb. 8	Feb. 18
55 0 4 37.2 0 27.6 6.3 0.3 37.5 27.9 18.75 13.95	0 26.8 -1.6 25.2 12.60	0 30.2 4.0 34.2 17.10	4 36.0 12.2 48.2 24.10	0 39.4 14.3 53.7 26.85	0 33.1 9.9 43.0 21.50
+15.2 1.18184 1.29626 -19.78 60 13.95 59 54.17 7° 22' 54".18 -6 45.14	+13.6 1.13354 1.24796 -17.70 60 12.60 59 54.90 22 53.45 -44.81	+16.3 1.21219 1.32661 -21.21 60 17.10 59 55.89 22 52.46 -45.40	-25.1 1.39967n 1.51409n + 3267 59 24.10 59 56.77 22 51.58 -43.47	+23.1 1.36361 1.47803 -3006 60 26.85 59 56.79 22 51.56 -43.99	+16.7 1.22272 1.33714 -21.73 60 21.50 59 59.77 22 48.58 -43.01
7 22 9.0 22 48.3 δ=+7 22 54.18 +2.10	22 8.6 22 48.3 22 53.45 2.10	22 7.1 22 48.2 22 52.46 2.20	22 8.1 22 48.1 22 51.58 2.30	22 7.6 22 48.0 22 51.56 2.40	22 5.6 22 47.6 22 48.58 +2.80
53 I + 39.3 38.8	+ 39.7 39.2	+ 41.1 40.5	+ 40.0 39.5	+ 40.4 39.9	+ 42.0 41.5

$\delta = +7^{\circ}\ 22'\ 50''.4$

14.51 .51 − 4
58 .66 + 11
55 .55 + 0
50 .55 + 0
62 .62 + 7
49 .49 − 6
(+.01)
14.54 14.56
3.20
11.31

March

sin δ 9.10893

cos δ 9.99638
11804
.11442

5 1430

β Auriga sin ∫ 9,8490
cos ∫ 9,8497

5 50 0 2
50 8.45
+44 56.45 4.05

(+1,00)

+1,00

Lin 2 = -.05

Jan 21	5 50	8.93		+ 44°	55′	58″.0	58.0
26		89	.04			58.6	58.9 .7
31		84	.05			59.2 +v.4	59.3 .6
Feb. 5		78	.06			59.8	59.9 .5
10 (-03)		8.72	.06			60.4 -8	60.4 .5
15 (-07)		64	.08			60.8	60.9 .4
20		54	.10			61.2 1.6	61.3 .4
25		44	.10			61.6	61.7 .3
1		8.33	.11			62.0 -11	17.0

2.5 .5

+.45 +.473	+.50 +.573	~~+.58~~ +.505	+.5 .575 .22	~~+.44~~ +.445	+.48 +.460
Jan. 30	Jan. 31	Feb. 1	Feb. 2	Feb. 4	Feb. 5

-.022

Jan. 30

49 ~~40.5~~ 49 36.3 49
44.4 37.6
47.4 38.8
50.5 40.6
sin ∫ 9.84898 56.4 15 33
59.0 50 38.32
42.0
2.0 43.5
4.9 46.0
7.7 115
cos ∫ 9.84999 13.6 43.83
11874 16.5
9.96803 19.4 49 38.3
3218
3000
218
1.982
1.96 1.96
8.85 8.85
6.89 -6.89
+ 3
1.96 -6.86
+6.43
+ 45 1.96
-.40 +6.39
+ .47
8.44 -.40
8.42
+236 -41.9

Jan. 31

43.8 49 31.3 49
46.8 30 33.4
49.7 29 34.6
53.6 55 99.3
58.5 25
1.5 30 28
4.3
7.2 25
13.2 60
16.1 29
18.9 28
3156 49 33.1
3000
156
1.427
1.40 1.40
884 8.84
7.44 -7.44
+ 3
1.40 -7.41
+6.93
+ .50 1.40
-.39 +6.92
+ .57
8.44 -.39
8.44

Feb. 1

43.2 49 40.8 49
46.2 41.8
49.1 42.9
54.9 125.5
57.8
0.7
3.5
6.5
12.3
15.3
18.2
3077 49 41.6
306
7.7
0.700
0.68 0.68
8.83 8.83
8.15 -8.15
+ 3
0.68 -8.12
+7.53
+ .52 0.68
-.38 +7.48
+ .51
8.45 -.38
8.29

Feb. 2

50 12.3 49
13.6
15.2
54.4 41.1
57.3
60.2
63.1
66.0
3010
50 13.7
60,200
0.18 0.18
8.82 8.82
8.64 -8.64
+ 3
0.18 -8.61
+8.04
+ .55 0.18
-.37 +8.04
+ .52
8.40 -.37
8.37

Feb. 4

50 13.7 49
15.1
16.7
53.6 45.5
56.6
59.4
2.3
5.1
2950
50 15.2
59600
~~58.91~~ 59.38 59.38
~~8.79~~ 8.79 8.79
~~9.81~~ 9.41 9.41
+ 3
~~58.71~~ 59.38 -9.38
+ ~~8.73~~ 8.73
+ ~~.44~~ +44 59.38
-.34 -34 +8.96
(8.21) + 44
-.34
8.24

Feb. 5

41.5 50 17.0
44.5
47.5
53.3
56.2
59.1
2.0
5.0
10.8
13.7
16.7
350 350 17.0
300
6503
59,118
59.10 59.10
8.78 8.78
9.68 -9.68
+ 3
59.10
+9.12
+ 48 59.10
-.33 +9.17
8.37 +.46
-.33
8.40

Jan. 30	Jan. 31	Feb. 1	Feb. 2	Feb. 4	Feb. 5
25					
3 12,4 2	10.6 3 18.3	3 8.4	2 37.3	2 35.0 300	2 30.0
37.3 3	37.0 44.2	33.8	49	21 2.1	1.7
1097	1076 122.5	102.2	42.2	37.7	32.1
2 54,851	5380 61.25	51.10	21.10	18.85	16.05
+23.7	+28.3	+18.9	-13.5	-15.8	-17.9
1.37475	1.45179	1.27646	1.13033 n	1.19866 n	1.25285 n
1.34278	1.41982	1.24449	1.09833 n	1.16669 n	1.22088 n
-2202	-26.29	-17.56	+1254	+1468	+1663
27 54.85	28 1.25	27 51.10	27 21.10	27 18.85	27 16.05
27 32.83	27 34.96	27 33.54	27 33.64	27 33.53	27 32.68
+44° 55′ 15″.52	55 13.39	55 ~~15.01~~ 14.81	55 14.71	55 14.82	55 15.67
+ 0 2.34	+ 0 2.26	+ 0 2.42	+ 0 2.54	+ 0 2.40	+ 0 2.35

	Jan. 30	Jan. 31	Feb. 1	Feb. 2	Feb. 4	Feb. 5
	55 17.9	55 15.6	55 17.2	55 17.2	55 17.2	55 18.0
	55 59.2	55 59.3	55 59.4	55 59.5	55 59.8	55 59.9
δ′ = +44	55 15.52	55 13.39	55 14.81	55 14.71	55 14.82	55 15.67
	- 6.80	6.90	7.00	7.10	7.40	-7.50
+.04 I	+ 41.3 41.3	+ 43.7 43.8	+ 42.2 42.2	+ 42.3 42.3	+ 42.6 42.7	+ 41.9 41.9

$\delta = +44^\circ\ 55'\ 52''.4$

8.44 ".42 − 3
44 '.44 − 1
~~45~~ '.29 − 16
40 .37 − 8
87 (.24) .40 − 5 (−.07)
8.42 ~~8.38~~
−4.40
3.98

March 3

50 ~~21.0~~ 50 ~~19.0~~
~~22.6~~ ~~20.4~~
~~36.0~~ ~~21.4~~
~~41.3~~
~~43.8~~
~~46.4~~
~~49.0~~
~~51.7~~
~~56.8~~
~~59.3~~
~~1.8~~

1871phae.proj.1455.

θ Aurigae

5 50 53
59 5957
+37 12 55.50

(+.76)
+.76

Feb. 10	6 50	59.80		
15		72	,08
20		64	,08
25	(+.01)	55	,09
Mar 1		59.46	,09
6	(+.01)	36	,10
11		25	,11
16		15	,10
21		59.04	,11

+ 37° 12′

8″.6		8″.6		.4
8.9		9.0	7	.3
9.2	+1.2	9.3	2	.3
9.5		9.6	5	.2
9.8	-.8	9.8	2	.2
9.9		10.0	3	.1
10.0	+0.4	10.1	2	.1
10.1	-.9	10.2	1	.0
10.2		10.2		
	-.5			
9.7	.10			

ℓm z = +.09

	+.34 +.352 Feb. 8		+.37 +.400 Feb. 15		+.41 +.400 Feb. 22		+.38 +.356 March 3		+.38 +.382 March 19	
-.020 50	33.9 50	25.0 50	32.6 50	21.2 50	31.0 50	22.6 50	31.0 50	19.0 50	29.2 50	19.5
	36.5	26.0	35.2	23.1	33.6	24.0	33.6	20.4	31.7	20.7
	39.0	27.2	37.7	24.2	36.0	26.5	36.0	21.9	34.3	22.1
	44.2	78.2	43.0	68.5	41.0	73.1	41.2	61.3	39.4	62.5
S in 978147	46.7		45.5		43.8		43.8		42.0	
	49.13		48.2		46.5		46.4		44.6	
	51.8		50.7		49.0		49.0		47.2	
	54.5		53.3		51.7		51.6		49.8	
	59.7		58.4		56.7		56.8		54.9	
co 990120	2.3		61.1		59.2		59.4		57.5	
11804	4.9 50	26.1	63.5 50	22.8	61.9 50	24.4	1.8 50	20.4	02 50	20.8
.01924	542.8		529.2		5104		5106		4908	
	49.346		48.109		46.400		46.478		44.677	
	49.33	49.33	48.09	48.09	46.38	46.38	46.40	46.40	44.60	44.60
	59.83	59.83	59.72	59.72	59.61	59.60	59.42	59.42	59.09	59.09
	-10.50	-10.50	-11.63	-11.63	-13.23	-13.22	-13.02	-13.02	-14.49	14.49
	49.33	49.33	48.09	48.09	46.38	46.38	46.40	46.40	44.60	44.60
	+10.22	+10.22	+11.34	+11.31	+13.00	+13.00	+12.71	+12.73	+14.22	+14.22
	+ .26	+ .27	+ .28	+ .30	+ .31	+ .30	+ .29	+ .27	+ .29	+ .29
	- .24	- .24	- .13	- .13	- 2	- 1	+ .17	+ .17	+ .50	+ .50
	59.57	59.58	59.58	59.57	59.67	59.67	59.57	59.57	59.61	59.61

	10				
	1 55.4	1 58.0	1 35.6	1 39.0	1 35.4
	26.2	28.7	3.2	10.8	8.7
	81.6	86.7	38.8	49.8	44.1
	40.80	43.35	19.40	24.90	22.05
	+23.2	+25.3	+22.0	+26.0	+23.8
	1.26549	1.40312	1.34242	1.41497	1.37658
	1.38473	1.42236	1.36166	1.43421	1.39582
	-24.25	-26.45	-23.00	-27.18	-24.88
	11 40.80	11 43.35	11 19.40	11 24.90	11 22.05
	11 16.55	11 16.90	10 56.40	10 57.72	10 57.17
+37°	11′ 31″.80	11 31.45	11 51.95	11 50.63	11 51.18
	-0 6.06	-0 5.90	-0 5.76	-0 5.86	-0 5.72
	11 25.7	11 25.5	11 46.2	11 44.8	11 45.5
	12 8.6	12 9.0	12 9.4	12 9.9	12 10.2
δ′=+37	11 31.80	11 31.45	11 51.95	11 50.63	11 51.18
	- 5.80	6.30	6.70	7.20	-7.50
-.08 I	+ 42.8 42.7	+ 43.5 43.4	+ 23.2 23.2	+0 25.1 25.0	+ 24.7 24.6

59.57	58	− 1
58	57	− 2
67	67	+ 8
57	57	− 2
61	61	+ 2
59.60	59.60	(+.01)
	−4.09	
	55.51	

$\delta = +37^{\circ}\ 12'\ 2''.7$

γ Columbae
5 53 02
−35 18
−71

	Jan. 30		Jan. 31		Feb. 5		Feb. 22		March 3	
52	39.6 52	33.8 52	39.3 52	58.6 52	36.7 52	31.2 52	32.5 52	24.8 52	32.5 52	22.0
	42.3	35.7	41.8		39.2	31.8	35.1	25.9	35.1	24.0
	44.7	37.0	44.2		41.7	32.7	37.5	27.6	37.5	25.7
	50.0	106 5	49.1		46.9	33.7	42.5	8.3	42.6	1.7
sin √9.76182	52.3	35.50	51.6		49.2	129.4	45.0		45.1	
	54.8 53	33.8	54.3		51.8		47.6		47.7	
	57.2	35.6	57.0		54.3		50.0		50.4	
	59.8	38.1	59.5		56.8		52.4		52.9	
	5.0	39.1	4.5		2.0		57.3		57.9	
cos √9.91176	7.4	26 6	7.1		4.5		0.3		0.2	
11804	9.9	36.65	39.5		7.0		2.8		2.9	
.02980	6030 52	35.5	5979 52	58.6	5761 52	32.4	5230 52	26.1	5249 52	23.9
	54.82 x		54.355		51.827		47.548 ✓		47.727	

35

2	20.3 1	18.1	2. 0.4	2 35.3	2 10.4	2 27.7
3	54.2	51.8	33.2	12.3	45.1	5.0
6	145 1	1249	98.6	47.6	115.5	32.7
3	7.25	4.95	46.80	23.80	57.75	1635
	+19.3		−4.2	+19.4	+21.5	+22.8
	1.28556		0.62325 n	1.28780	1.33244	1.37658
	1.31536		0.65305 n	1.31760	1.36224	1.40638
	− 20.67		+ 4.50	− 20.78 ✓	−23.03	−25.49
37	7.25		36 46.80	37 23.80 ✓	36 57.75	37 16.35
36	46.58		36 51.38	37 3.02	36 34.72 ✓	36 50.86 ✓
−35°	13' 58.23"		14 3.03 ✓	14 14.67	13 46.37 ✓	14 2.51 ✓

5 7 20

φ Orionis

sin √ 9.2243
cos √ 9.9938

5 55 18

+9 39

+17

	~~Jan. 30~~ Jan. 30		Jan. 31		Feb. 2		Feb. 5		~~Feb. 8~~		March 14	
	56 1.8	54 54.8	55 2.3	54 53.9	55 0.2	54 50.4	54 59.0	54 51.3	54 ~~53.0~~	54 ~~52.5~~	54 54.6	54 48.9
	4.0	56.0	3.3	54.8	2.3	51.3	1.1	52.2	~~55.2~~	~~53.4~~	56.7	49.8
	6.1	57.3	5.5	55.6	4.4	52.3	3.2	53.0	~~57.2~~	~~54.6~~	58.8	50.6
	10.3	168.1	9.8	164.3	8.5	154.0	7.3	156.5	~~1.6~~		2.9	149.3
sin √ 9.22435	12.2	56.03	11.8		10.5		9.5		~~3.7~~		5.0	
	14.3 55	34.8	13.8		12.6		11.5		~~5.8~~		7.1	
	16.4	36.8	15.9		14.7		13.5		~~7.9~~		9.3	
	18.5	38.0	18.0		16.9		15.7		~~10.1~~		11.3	
	22.8	19.6	22.3		21.0		19.8		~~14.2~~		15.5	
cos √ 9.99381	24.8	36.53	24.3		23.2		22.0		~~16.4~~		17.6	
11804	26.9		26.4		25.2		24.1		~~18.5~~		19.7	
.11185	1581 54	56.0	1524 54	54.8	1395 54	51.3	1867 54	52.2			2585 54	49.8
							60				160	
							126.7				78.5	
	14.373		13.855		12.682		11.528				7.186	

+18.4 −22.1

40						
4 46.4	3 52.9	4 48.0	4 50.3	4 47.3		4 26.7
17.2	23.3	21.0	22.8	23.2		7.2
63.6	76.2	69.0	73.1	70.5		33.9
31.80	38.10	34.50	36.55	35.25		16.95
+18.4		+19.1	+21.4	+19.3		+17.3
1.26482		1.28103	1.33041	1.28556		1.23805
1.37667		1.39288	1.44226	1.39741		1.34990
−23.81		− 24.71	−27.69	−24.97		−2238
44 31.80		44 34.50	44 36.55	44 35.25		44 16.95
44 7.99		44 9.79	44 8.86	44 10.28		43 54.57
+9° 38′ 40″.36		38 38.56	38 39.49	38 38.07		38 53.78

March 19

54 53.3 54 48.1
55.4 49.0
57.5 49.8
1.7 146.9
3.7
5.9
8.0
10.0
14.2
16.2
18.4
2443 54 48.9
180
64 3
5.846

7

40
4 30.0
. 7.0
37.0
18.50

+16.9
1.22789
1.33974
— 2186
44 18.50
43 56.64

38 51.71

B.A.C. 1946

5 58 06

−26 17

.49

* sin δ −9.6462
cos δ 9.9027

jan. 30

57 46.6 57 43.0 57
49.2 44.4
51.8 46.0
55.8 834
sin δ 9.64622 58.1 44.46
0.558 18.6
2.8
5.0
9.7
cos δ 9.95261 12.1
11.804 14.3 57 44.5
.07065 3054
3001
5.4
0.49

Feb. 8

44.7 57 38.7 57
47.4 39.6
49.9 41.2
54.0 435
56.6
59.2
0.8
4.4
9.6
12.1
14.7

Feb. 22

57 39.8 57 30.2 57
42.1 31.5
44.5 33.0
49.2 94.7
51.3
53.8
56.0
58.3
2.8
5.1
7.5 57 31.6
5904
53.674

Feb. 26

39.8 57 34.1 57
42.0 35.1
44.3 36.3
49.0 105.5
51.3
53.6
55.9
58.4
2.9
5.1
7.4 57 35.2
5897
−97
53.609

March 14

39.6 57 31.1 57
41.8 32.1
44.2 33.0
48.7 96.2
51.0
53.3
55.7
57.9
2.4
4.8
7.1 57 32.1
5865
53.318

March 19

38.2
40.4
42.8
47.4 58 15.4
49.7 16.2
52.0 17.2
54.3 48.8
56.5
1.2
3.5
5.8
58 16.3
5778
52.983

+16.0 −15.1

35
3 32.82 57.7
8.9 38.2
417 879
20.85 43.95

+16.0
1.20412
1.27477
−1883
38 20.85
~~3 39.68~~
38 2.02

−26° 15′ 13.67″

3 26.5
2.6
29.1
14.55

+22.2
1.34635
1.41700
−26.12
38 14.55
37 48.43

15 0.08

3 26.5
3.8
30.3
15.15

+18.4
1.26482
1.33547
−21.65
38 15.15
37 53.50

15 5.15

3 32.8
16.0
48.8
24.40

+21.2
1.32634
1.39699
−24.94
38 24.40
37 59.46

15 11.11

2 42.2
22.9
65.1
32.55

−24.2
1.38381n
1.45446n
+28.48
37 32.55
38 1.03

15 12.68

4 58 30

ι Orionis

~~δ~~ δ 8 14 15.85 15.85 12.42

+ 14 47

(+.26)

+.36

pri z = +.46

sin δ 9.4068
cos δ 9.9854

Jan 21	6 0	16.18		+ 14° 46′	52.″5		52.″5
26		16	.02		52.4		52.4
31		13	.03		52.3	−0.3	52.3
5		09	.04		52.2		52.2
10		16.05	.04		52.2	+.2	52.2
15	(00)	15.99	.06		52.2		52.1
20		15.93	.06		52.2	−.1	52.1
25	(00)	86	.07		52.1		52.1
1		15.79	.07		52.1	+.2	52.1
6		71	.08		52.1		52.1
11		15.62	.09		52.1	+.1	52.1
16		54	.08		52.2	+.2	52.2
21		15.45	.09		52.2		52.2

2.5 +3

+.45 +.473 Jan 30

+.55 +.522 Feb. 2

+.48 +.460 Feb. 5

Feb. ~~8~~

+.34 +.352 Feb. 8

+.32 +.338 Feb. 12

−.016

sin δ 9.40682

cos δ 9.98538

11.804
.10342

Jan 30:
59 56.8 59 46.8 59
59.0 48.0
1.1 49.0
5.4 ~~1~~38
7.5 47.93
9.80 35.1
11.9 36.5
13.9 37.3
18.2 189
20.2 36.30
22.4
~~35.2~~ 59 47.9
~~36.4~~
~~37.3~~
226.2
120
106.2
9.655

9.64 9.64
16.14 16.14
−6.50 −6.50

9.64 9.64
+6.39 +6.43
+.12 + 11
−.29 −.29

15.86 15.89

+21.6 −26.8

Feb. 2:
55.1 59 48.1 59
57.4 49.3
59.5 50.6
3.7 148.0
5.8
8.0
10.1
12.2
16.4
18.6
20.8
267.6 59 49.3
180
87.6
7.964
7.95 7.95
16.12 16.12
−8.17 −8.17

7.95 7.95
+8.04 +8.04
+14 +13
−.27 −27

15.86 15.85

Feb. 5:
54.1 59 42.6
56.2 43.5
58.3 44.6
2.6 130.7 59
4.7
6.8
9.0
11.1
15.3
17.5
19.7
253.2 59 43.6
180
75.3
6.846
6.83 6.83
16.09 16.09
−9.26 −9.26

6.83 6.83
+9.12 +9.17
+.12 +.12
−.24 −.24

15.83 15.88

Feb. 8:
? 59
22.8
28.6
34.3
40.4
47.3

33.9 59
34.5

Feb. 8:
53.0 59 52.4 59
55.2 53.5
57.2 54.6
1.6 160.5
3.7
5.8
7.9
10.1
14.3
16.4
18.5 59 53.5
243.7
180
63.7
5.791
5.77 5.77
16.07 16.06
−10.30 10.29

5.77 5.77
+10.22 +10.23
+ 9 + 9
−.22 −21

15.86 15.88

Feb. 12:
52.0 59 44.0
54.1 45.0
56.2 46.0
0.5 135.0
2.7
4.7
6.9
9.0
13.3
15.3
17.5 59 45.0
232.2
180
52.2
4.746
4.73 4.73
16.03 16.03
−11.30 11.30

4.73 4.73
+11.19 +11.19
+ 8 +18
−.18 −18

15.82 15.82

35

1 45.9 0 44.8
17.8 16.7
63.7 61.5
31.85 30.75

+21.8
1.33846
1.44188
− 27.66
36 31.85
36 4.19
+14° 46′ 44.″16
− 0 33.99

1. 39.9 F ~~46.8~~ ~~23.8~~
14.0
53.9
26.95

+18.7
1.27184
1.37526
− 23.73
36 26.95
36 3.22
46 45.13
− 34.24

1. 46.8
23.8
70.6
35.30

+23.2
1.36549
1.46891
− 29.44
36 35.30
36 5.86
46 42.49
− 32.34

1

~~123~~

1 32.8
07.3
50.1
25.05

+12.3
1.08990
1.19332
− 15.61
36 25.05
36 9.44
46 38.91
− 33.04

1 41.2
20.2
61.4
30.70

+19.7
1.29447
1.39787
− 25.00
36 30.70
36 5.70
46 42.65
− 31.78

46 10.2
46 52.3
δ = +14 46 44.16
+ 0.30

46 11.0
46 52.3
46 45.13
0.30

46 10.1
46 52.2
46 42.49
0.40

46 10.9
46 52.2
46 38.91
0.40

46 10.9
46 52.2
46 42.65
0.40

−.44 I + 42.1 41.7 + 41.3 40.8 + 42.1 41.7 + 41.3 42.9 + 41.3 40.8

$\delta = +14^\circ\ 46'\ 52.6''$

15.89	.86	+ 1
.86	.85	+ 0
.83	.88	+ 3
.86	.85	− 0
.82	.82	− 3
.84	.86	+ 1
.86	.85	+ 0
84	.84	− 1
15.85	15.85	.00
	3.43	
	12.42	

+.44	+.467	+.36	+.366	+.38	+.382
March 1		March 14		March 19	
59 50.2	59 46.4	59 49.7	59 43.5	59 48.4	59 42.7
52.3	47.7	51.9	44.4	50.5	43.6
54.5	48.9	54.0	45.2	52.7	44.0
58.6	143.0	58.2	133.1	57.0	130.3
0.8		0.4		59.0	
2.9		2.5		1.2	
5.0		4.7		3.3	
7.2		6.8		5.4	
11.4		11.0		9.6	
13.5		13.2		11.8	
15.8	59 47.8	15.4	59 44.4	14.0	59 43.4
27 22		26 7.8		31 24	
24 0		24 0		30 0	
3 2.2		27.8		12.9	
2.928		2.528		1.173	
2.91	2.91	2.51	2.51	1.16	1.16
15.79	15.79	15.56	15.56	15.49	15.49
−12.88	−12.88	−13.06	−13.05	−14.33	−14.33
2.91	2.91	2.51	2.51	1.16	1.16
+12.76	+12.77	+12.97	+12.94	+14.22	+14.22
+ 11	+ 12	+ 9	+ 9	+ .10	+ .10
+ 6	+ 6	+ .29	+ .29	+ .36	+ .36
15.84	15.86	15.86	15.85	15.84	15.84

35

1 23.0	1 21.7	1 23.4
59.1	2.2	2.2
142.1	23.9	25.6
71.05	11.95	12.80
+15.1	+18.1 ✓	+17.8
1.17898	1.25768	1.25842
1.28240	1.36110	1.35384
− 1916	− 2291	− 2258
36 11.05	36 11.95	36 12.80
35 51.89	35 49.04	35 50.22
46 56.46	46 59.31	46 58.13
− 32.90	− 31.42	− 31.79
46 23.6	46 27.9	46 26.3
46 52.1	46 52.2	46 52.2
46 56.46	46 59.31	46 58.13
0.50	0.40	+ 0.40
+ 28.5 28.1	+ 24.3 23.8	+ 25.9 25.5

θ Columbae
6 3 12
−37 14
−16

	Jan. 30		Feb. 5		~~Feb. 8~~		Feb. 8		Feb. 12		March 14	
2	47.6 2	50.6 2	44.8 2	43.2 2	45.6 2	35.9 2	43.7 2	37.6 2	42.6 2	18.0 2	40.2 2	33.6
	50.3		47.4	45.3	47.8	36.2	46.4	38.6	45.1	19.6	42.7	34.4
	52.9		50.0	88.5	50.2	37.6	48.9	40.2	47.7	21.0	45.3	35.4
	58.0		55.3		54.6		54.1	42.4	53.0	58.6	50.6	103.4
sin δ 9.78180n	0.6		57.8		56.8		56.6	158.8	55.4		53.1	
	3.0 3	39.0	0.2		58.9		59.2		58.1		55.6	
	5.8	40.4	2.8		1.2		1.8		0.8		58.3	
	8.3	42.7	5.3		3.4		4.4		3.1		0.8	
	13.4	1221	10.6		7.8		9.6		8.8		6.1	
cos δ 9.90101	16.0	40.70	13.8		10.2		12.1		11.0		8.6	
11804	18.6		15.9		12.4		14.7		13.6		11.1	
.01905	2745 2	50.6	3039 2	44.2			3515 2	39.7	3369 2	19.5	3744 2	34.5
	240		300				300		300		240	
	34.5		003.9				651.5		638.9		612.4	
	3.136		0.355				59.736		58.082		55.676	

30

2	42.1 1	51.0	3 3.7		2 58.9	3 29.0	2 56.0
	14.2 2	23.5	39.9		35.0	8.6	37.5
	56.3	74.5	103.6		93.9	37.6	93.5
	28.15 1	37.25	51.80		46.95	18.80	46.75

	+12.5	+16.2	~~+19.7~~	+19.4	+38.6	−+21.4
	1.09691	1.20951		1.28780	1.58659	1.33041
	1.11596	1.22856		1.30685	1.60564	1.34946
	−1306	−1693		−2027	−4056	−2236
	32 28.15	32 51.80		32 46.95	33 18.80	32 46.75
	32 15.09	32 34.87		32 26.68	33 38.47	32 24.39
−37°	9′ 26.74″	9 46.52		9 38.33	9 50.12	9 36.04

March 18

2	38.83	15.3
	41.5	16.7
	44.0	18.5
	49.1	50.5
	51.8	
	54.3	
	57.0	
	59.5	
	4.8	
	7.3	
	9.9	
	59803	16.8

54.364

2	1.8
	39.8
	101.6
	50.80

→ 22.4
1.35020 m
1.36930 m

†	2340
31	50:80
32	14.20
9	2585

22 Camel

sin δ 9.9712
cos δ 9.5470

6 4 88
4 44.18 44.18 37.56
+69 22 2

+266
+2.65

sin z = -.45

Jan 21	6 04 45.84		+ 69° 21′	45″.6	.	45.6
26	76	.08		46.7		46.8
31	66	.10		47.8	+4.5	48.6
Febr. 5	52	.14		48.9		49.1
10 (+.02)	45.36	.16		50.1	. +1.8	50.1
15	19	.19		50.9		51.1
20 (+06)	44.95	.22		51.7	+3.1	51.9
25	73	.22		52.5		52.6
Mar. 1	44.50	.23		53.2	. +2.0	53.2
6	25	.25		53.5		53.7
11	43.99	.26		53.8	+1.1	54.0
16	72	.27		54.1	+2.2	54.2
21	43.45	.27		54.3	.	54.3

-1.1
3.4 .

Jan. 30
+.46 +.473

-.040
sin δ 9.97121
cos δ 9.54702
11804
9.66506

4	~~2.7~~ 4	44.9
	~~8.6~~	46.5
	14.6	47.6
	26.6	190
	32.2	46.33
	38.2	24.5
	43.4	28.2
	50.3	32.2
	1.7	849
	7.7	28.30
	13.2	
	239.2 3	46.3

120
419.3
38.118

38.08	38.08
45.68	45.67
-7.60	-7.59
	2
38.08	-7.61
+6.43	
+1.22	38.08
-1.50	+6.39
	+1.26
44.23	-1.49
	44.24

Jan. 31
+.50 +.513

4 2	58.1
	60.8
	63.6
25.0	182.5
31.6	
37.5	
43.7	
49.2	
1870	
3	60.8

37.400

37.36	37.36
45.65	45.65
-8.29	-8.29
	2
37.36	-8.31
+1.33	
=+6.93	37.36
-1.47	+6.92
	+1.36
44.15	-1.47
	44.17

Feb. 1
.52 +.505

2.0 3	28.8
7.5	32.0
13.4	34.7
25.6	95.5
30.9	
36.6	
42.8	
48.6	
0.5	
5.8	
12.0	
225.7 3	31.8

180
405.7
36881

37.75	37.75
45.63	45.62
-7.88	-7.87
	2
37.75	-7.89
1.40	
=+7.53	37.75
-1.45	+7.49
	+1.84
44.24	-1.44
	44.24

Feb. 2
+.51 +.522

4	1.3 3	44.4
	7.2 59	46.0
	12.8 56	50.0
	24.7 119	140.4
	30.5 58	
	36.2 57	
	42.6 64	
	48.0 54	
	59.8 118	
	5.5 57	
	11.6 61	
	4002 3	46.8

~~36.928~~ 36.382

36.89	36.34
45.60	45.60
-8.79	-9.26
	2
~~36.89~~	-9.28
+8.04	
+1.46	36.34
-1.42	+8.04
	+1.38
43.97	-1.42
	44.34

Feb. 8
~~+.54~~

3 52.8 3
54.9
57.0
1.1
2.1
5.2
7.4
9.7
13.8
15.8
18.0

42.3
43.2
43.9

Feb. 8
+.34 +.352

4	33.3
4	22.7
	28.6
	34.3
	40.3
	46.3
	1722
4	33.3

34.440

34.40	34.40
45.42	45.42
-11.02	-11.02
2	
-11.04	34.40
	+10.25
34.40	+ 90
+10.23	-1.24
+.93	
-1.26	44.31
34.30	

0							
2	29.5	2	10.9	2	23.8		
6	51.8		33.0		46.0		
6	213		10.39		69.8		
2	10.65	1	51.95		34.90		
	-82						
	+51.8		+88		+96.6		
1.91381n	~~1.71483~~		0.99123		1.98498		
0.57887	1.37939		0.65625		1.65004		
	+1.379		-453		-4467		
2	10.65	1	51.95	2	4.90		
2	1444	1	47.42	1	2023		
+69°	20	3395		21	28.12		
+	0	32.11					

3	3.2		
	25.0		
	98.2		
	44.10		
	+66.0	465.1 (3031)	
	1.81954		
	1.48460		
	- ~~3052~~	-30.31	
2	~~44.10~~	44.10	
2	~~13.68~~	13.79	
20	34.56		
+0	31.95 . . .		

2	56.0		
	18.5		
	74.5		
	37.25		
	+50.8	449.6 (22.95)	
	1.69984		
	1.36490		
	- ~~23.17~~	-22.95	
2	~~37.25~~	37.25	
2	~~14.08~~	14.30	
20	34.05		
+0	32.28		

2 ~~31.2~~
~~55.4~~

2	31.2
	55.4
	86.6
	43.30
	+1.1
	0.04139
	9.70645
	-0.518
2	13.30
2	12.79
20	35.56
+	31.45

	21	36.0		21	06.5		21	06.3		21	07.0
δ′ = +69	21	47.8		21	48.3		21	48.7		21	49.9
	21	1.65		20	34.56		20	34.05		20	35.56
		-11.00			11.50			11.70			13.10
+42 I	+	41.8 422		+	41.8 422		+	42.2 42.7		+	42.9 433

1.2
1.2
1.1
1.0
1.0
0.8
.7
.6
.5
.3
.2
.1

$\delta = +69^\circ\ 21'\ 36''.8$

+.32 +.338	+.28 ~~+.366~~ .280	+.45 +.467	+.36 +.366	+.38 +.382
Feb. 12	Feb. 14	March. 1	March 14	March 19
4 57.0 3 53.6 56.2 1608	58.1 3 4.0 9.8 21.6 27.5 – 33.3 39.0 45.0 56.9 2.6 8.5	55.3 3 1.4 7.3 18.9 24.8 30.5 36.6 42.2 54.0 59.8 5.6	4 ~~40~~ 24.0 30.1 36.1 41.5 1500	53.4 3 59.3 05.1 16.5 22.6 28.4 34.3 40.3 51.9 57.6 62.4
4 21.5 27.5 33.0 39.5 45.1 1666	39.43 40.7 43.5 123.9	41.9 44.0 46.5 132.74	44.83 47.1 50.3 142.2	41.8 45.4 47.5 134.7
4 53.6	3063 3 60 3663 41.3	3964 3 60 336.4 30.582 –44.2	4 47.4 30000	4321 3 44.9 2887.3
33.320 ~~67~~	33.300 33.30 45.13 3326 11.80 45.20 11.76 1194			
33.28 33.28 45.29 45.28 –12.01 1200 2	45.20 –33.44	33.26 30.54 30.54 45.20 44.49 44.49 –11.94 –13.95 –13.95 2 2	29.96 29.96 44.40 43.82 –14.44 –13.86 2	28.33 28.33 43.55 43.55 –15.22 –15.22 2
33.28 12.02 +11.20 +.85 33.28 –1.11 +11.19 +.90 44.22 –1.10 44.27	33.26 +11.33 +.74 –1.02 44.31	–11.96 30.54 –13.97 +12.76 33.26 + 1.20 30.54 +11.32 –1.31 +12.77 +0.97 +1.28 –1.02 44.19 –0.31 44.32 44.23	29.96 –13.88 +12.97 + .96 29.96 – 1.22 +12.94 +.97 +.36 44.23	28.33 –15.24 +14.22 1.01 28.33 +0.63 +14.22 +1.01 44.19 +.63 44.19
2 15.1 45.6 120.7 60.35	2 52.0 17.0 69.0 34.50	2 31.7 58.0 149.7 74.60	1 55.7 28.6 84.3 42.15	2 25.3 55.4 140.7 70.35
–20.3 1.30750 n 0.97256 n + 9.39 2 0.35 2 9.74 20 38.61 + 30.39	+52.0 1.71600 1.38106 – 24.05 2 34.50 2 10.45 20 37.90 + 30.49	+46.4 1.66652 1.33158 – 21.46 2 14.85 1 53.39 20 54.96 + 31.24 32	–17.4 1.24055 n 0.90561 n + 8.06 1 42.15 1 50.21 20 58.14 + 30.38	+43.5 1.63849 1.30355 – 20.12 2 10.35 1 50.23 20 58.12 +30.45 3
21 09.0 21 50.6 20 38.61 13.70	21 8.4 21 50.9 20 37.90 14.10	21 26.3 21 53.2 20 54.96 16.40	21 28.5 21 54.1 20 58.14 17.30	21 28.6 20 54.3 20 58.12 – 17.50
+ 41.5 41.9	+ 42.5 43.0	+ 26.9 ~~27.0~~ 27.3	+ 25.6 26.0	+ 25.7 26.2

+6	44.24	44.23	3	9
–1	17	44.15	5	25
–4	14	44.24	04	16
+16	34	43.97	23	469
+12	30	44.31	11	121
+9	27	44.22	2	4
+14	32	44.31	11	121
+5	23	44.19	1	1
+5	23	44.19	1	1
+1	19			
+06	44.24	44.20		√.096
	–6.62			=±.07
	37.62			

$\frac{.07}{2.66} = \pm .025$

4 49 30

Sin √ 9.5837
cos √ 9.9655

η Geminor

6 7 06
9.07 9.07 5.45
+22 33

(+.38)
+.41 Cui z = +.34

Jan 21	6 07	9.43		+22° 32'	30".1	.	30".1	.2
26		41	.02		30.3		30.3	.1
31		39	.02		30.4	.5	30.4	.1
Feb. 5		35	.04		30 5		30.5	.1
10		9.31	.04		30.6	.	30.6	.1
15		25	.06		30.7	.1	30.7	.1
20	(00)	19	.06		30.8		30.8	.1
25		12	.07		30.9	.4	30.9	.1
Mar ~~30~~ 1	(+.01)	9.04	.08		31.0	.	31.0	.1
6		95	.09		31.1	.1	31.1	.1
11		.86	.09		31.2	.3	31.2	.1
16		77	.09		31.3		31.3	0
21		8.68	.09		31.3	.2	31.3	
					1.4	.1		

	Jan. 30 +.46 +.473		Feb. 2 +.55 +.522		Feb. 5 +.48 +.460		Feb. 8 +.34 +.352		Feb. 12 +.32 +.338		Feb. 14 +.28 +.280	
-.017 6	49.5 6	42.76	47.86	37.56	46.6 6	40.06	45.6 6	35.0 6	44.6 6	36.8 6	44.5 6	33.0
	51.7	43.8	50.0	40.8	48.9	41.0	47.9	36.2	47.0	38.1	46.8	34.3
	54.1	45.2	52.3	41.8	51.1	42.6	50.2	37.5	49.0	39.5	49.1	35.7
	58.5	117	56.8	122.1	55.5	123.6	54.6	108.7	53.5	114.4	53.4	103.0
	0.6	4390	58.9		57.9		56.8		55.7		55.6	
	2.8 1	21.0	1.2		0.0		58.9		57.9		57.9	
	5.0	22.2	3.5		2.2		1.2		0.2		0.1	
	7.2	23.6	5.7		4.4		3.4		2.4		2.3	
	11.7	68	10.1		8.9		7.8		6.8		6.8	
Sin √9.58345	14.0	22.26	12.3		11.1		10.1		9.1		9.0	
	16.2		14.7		13.4		12.4		11.2		11.2	
	2713 6	43.9	3133 6	40.7	3000 6	41.2	3489 6	36.2	3374 6	38.1	3367 6	34.3
	240		300		300		300		300		300	
	31.3		13.3		000.0		648.9	638	6374		6367	
cos √9.96551	2846		1209		0.000		58.991		57.946		57.882	
11804	2.83	2.83	1.19	1.19	59.98	59.98	58.97	58.97	57.93	57.93	57.87	57.87
.08355	9.39	9.39	9.38	9.38	9.35	9.35	9.32	9.32	9.29	9.29	9.26	9.26
	-6.56	-6.56	-8.19	-8.19	-9.37	-9.37	-10.35	-10.35	-11.36	-11.36	-11.39	11.39
	2.83	2.83	1.19	1.19	59.98	59.98	58.97	58.97	57.93	57.93	57.87	57.87
	+6.43	+6.39	+8.04	+8.04	+9.14	+9.17	+10.25	+10.28	+11.20	+11.19	+11.33	+11.32
	+.17	+.19	+.21	+.21	+.18	+.19	+.13	+.14	+.12	+.14	+.11	+.12
	-.32	-.32	-.31	-.31	-.25	-.28	-.25	-.25	-.22	-.22	-.19	-.19
	9.11	9.09	9.13	9.13	9.02	9.06	9.10	9.09	9.03	9.04	9.12	9.12

+189 -195

50		50						
1	13.9 0	28.8	1 17.2	1 13.2	1 18.3	1 13.2	20.2
2	40.6 1	55.8	45.3	44.6	49.0	48.8	51.0
	1145 2	246	122.5	117.8	127.3	122.0	131.2
0	57.27 1	12.30	61.25	58.90	63.65	61.00	65.60
	+18.9		+20.5	+18.8 ✓	+22.8	+19.8	+23.6
	1.27646		1.31175	1.27416	1.35793	1.29666	1.37291
	1.36601		1.39530	1.35771	1.44148	1.38021	1.45646
	-2291		-2485	-2388	-2764	-2400	-2861
	50 57.25		51 1.25	50 58.90	51 3.65	51 1.00	51 5.60
	50 34.34		50 36.40	50 36.52	50 36.01	51 37.00	50 36.99
+22°	32 14.01		32 11.95	32 12.23	32 12.34	32 11.35	32 11.36
	- 23.49		- 23.63	- 22.35		-21.99	-22.43

	31 50.5	31 48.3	31 49.9		31 49.4	31 48.9
	32 30.4	32 30.4	32 30.5		32 30.6	32 30.7
δ' = +22	32 14.01	32 11.95	32 12.23	32 12.34	32 11.35	32 11.36
	- 1.60	1.60	1.70		1.80	1.90
-.32 I	+ 39.9 39.6	+ 42.1 41.8	+ 40.6 40.2		+ 41.2 40.9	+ 41.8 41.5

9.11 .09 +2
13 .13 +6
02 .06 −1
10 .09 +2
03 .04 −3
12 .12 +5
04 .07 +0
03 .02 −5
.05 .08 +1
9.07 9.08 (+.01)
−3.62
5.46

$\delta = +22^\circ\ 32'\ 28''.8$

+.457	+.467	+.36	+.366	+.387	+.382
March 1		March 14		March 19	
7	8.4	6 42.36	34.6	6 41.0	6 33.9
	9.6	44.5	35.8	43.2	34.6
	10.7	46.7	37.0	45.5	35.4
6 57.7	28.7	51.2	107.4	49.8	103.9
53.9		53.4		52.1	
56.1		55.7		54.3	
58.3		58.6		56.6	
0.5		0.1		58.8	
2205		4.6		63.3	
6		6.9		65.5	
280.5		9.1		67.8	
7	9.6	6 3395	35.8	5979 6	34.6
		340			
		5125			
56.100		55.682		54.354	
56.08	56.08	55.66	55.66	54.34	54.84
9.04	9.04	8.81	8.80	8.72	8.71
−12.96	−12.96	−13.15	−13.14	−14.38	−14.37
56.08	56.08	55.66	55.66	54.34	54.84
+12.76	+12.77	+12.97	+12.94	+14.22	+14.22
+ .17	+ .19	+ .14	+ .15	+ .14	+ .16
+ .03	+ .3	+ .26	+ .27	+ .35	+ .36
9.04	9.07	9.03	9.02	9.05	9.08

50

0 19.7	0 54.4	0 56.2
51.0	30.4	29.7
130.7	84.8	85.9
65.35	42.40	42.95
−13.5	+19.9	+19.7
1.13033n	1.29885	1.29447
1.21388n	1.38240	1.37802
+1636	−2412	−2388
50 5.35	50 42.40	50 42.95
50 21.71	50 18.28	50 19.07
32 26.64	32 30.07	32 29.28
−22.67	−21.75	−22.00

32 04.0	32 8.3	32 7.3
32 31.0	32 31.3	32 31.3
32 26.64	32 30.07	32 29.28
2.20	2.50	− 2.50
+ 27.0 26.6	+ 23.0 22.7	+ 24.0 23.7

5 04 00

κ_2 Orionis

sin δ 9.32844
cos δ 9.98991

6 9 14
+12 18

+22

Jan. 30

8 56.68 48.8
58.8 50.0
1.0 57.4
57.1 1502
sin δ 9.32844 7.1 50.06
9.2 9 20.2
11.3
13.4
17.5
cos δ 9.98991 19.6
11.504 21.9 8 50.1
.10795 2215
120
101.5
9.228

Feb. 2

5 9

Feb. 5

~~53.8~~
~~18.44~~ 8 55.9 9 20.68
~~...~~ 58.0 21.8
~~22.3~~ 2.2 23.0
4.3 65.4
-6.3
8.4
10.5
14.8
16.9
19.0
9 21.8
25.01
15
70.1
6.378

Feb. 8

52.8 8 43.4 8
54.9 44.1
57.0 44.8
1.1 132.3
3.1
5.2
7.4
9.6
13.8
15.8
18.0 8 44.1
2367
1801
56.7
5.386

Feb. 12

51.7 8 42.3 8
53.8 43.4
56.0 44.4
0.2 130.1
2.3
4.3
6.4
8.6
12.7
14.9
17.1 8 43.4
2280
180
48.0
4.364

Feb. 14

51.7 8 42.3
53.7 43.6
55.9 45.0
0.2 130.9
2.1
4.3
6.5
8.5
12.7
14.8
16.9 8 43.6
2273
180
473
4.300

+19.1 −11.0

5
0 12.7 0 4 34.4
44.2 4.2
1169 386
0 58.45 1930

+19.1 ✓
1.28780 1.28100
1.39575 1.38895
2488 12449
4 58.45 58.45
4 33.57 4 ~~22.94~~
33.96
+12° 18′ 14.39″

4 27.5
3.6
31.1
15.55

−15.4
1.18752 n
1.29547 n
+ 19.75
4 15.55
4 35.30
18 13.05

0 16.8
−8.0
~~8.8~~
+4.40
+21.2
1.32634
1.43429
− 27.18
5 4.40
4 37.22
18 11.13

0 15.0
−6.8
8.2
4.10
+21.0
1.32222
1.43017
− 26.93
5 4.10
4 37.17
18 11.18

0 16.0
−9.8
6.2
3.10
+20.7
1.31597
1.42392
−26.54
5 3.10
4 36.56
18 11.79

	March 1			March 14		March ~~17~~
8	50.0 9	20.8	8	49.5 8	43.8	
	52.0	22.3		51.6	44.6	
	54.2	23.5		53.7	45.6	
	58.3	66.6		58.0	134.0	
	0.4			0.0		
	2.6			2.1		
	4.7			4.1		
	6.8			6.4		
	10.9			10.5		
	13.0			12.0		
	15.2 9	22.2		14.8 8	44.7	
	2681			263.3		
	240			240		
	28.1			23.3		
	2,554			2,118		

0

4	5.3	4	51.2
	44.1		31.9
	109.4		83.1
	54.70		41.55
	−19.6		+17.4
	1.29226 m		1.24655
	1.40021 m		1.34850
+	25.13	−	2230
3	54.70	4	41.55
4	19.83	4	19.25
18	28.52	18	29.10

κ Columbae
6 12 03
−35 06

Jan. 30

1813 56.96 = N # 1871.0

Ursæ Min

6 14 ~~45.5~~
14 ~~41.14~~ ~~37.56~~ = ~~44.4~~ (+.06)
+ 93 24 (.35)
16.88
6
13 ~~56.84~~ = P 1871
6 14 ~~41.19~~ = P
37.54 1872

υ = 86° 36′ 23.83″ = N.A.
23.42 = P.

(+.04) fu N.A.
(+.09) = fu P

Sin z = −.87

16.88 . n = ~~.48~~ .49 +.443

+.26

Jan. 30
6 9 56.4 11 19.7
10 30.4 340
11 49 345
12 16.2 11.3 16 88.17
12 50.6 344 29.4
13 24.8 342
13 57.8 330
14 34.4 36.6
15 44.2 9.8
16 17.6 334
16 54.2 341 19.7
39.15
120
27.15
24.682
23.06
1.62

Sin √ 8.99923
cos √ 8.77310
11.804
8.89114

24.94
23.63
+ 1.31
24.94
23.63
+ 1.31

24.94
+ 6.45
− 7.60
+ 17.52
41.31

24.94
+ 6.39
− 7.98
+ ~~17.52~~ 23.93
40.87
− 3.10 3728
37.77
+ 17.40
1871.0 13 57.17

n = .~~58~~ .50 +.513
Jan 31
9 56.8 11 32.8
10 30.6 33.8
11 7.0 36.4
12 16.7 9.7
12 52.3 35.6
13 25.0 32.7
14 1.0 36.0
14 36.0 35.0
15 42.0 6.0
16 19.6 37.6
16 54.5 34.11 32.8
34.15
6
28.15
25.59
23.49
2.10

25.85
23.85
+ 2.00
25.85
23.85
+ 2.00

25.85
+ 6.96
− 8.44
+ 17.30
41.67

25.85
+ 6.92
− 8.66
+ 17.30
41.41
− 3.59
37.82
17.49
58.21

+.52 +.505
Feb 1
9 56.7
10 30.6 17 8.8
6.0
14.9
49.1
13 − 24.4
54.3
33.0
43.7
18.4
52.7 17 8.8
38.88
6
26.88
24.486

24.76
24.05
+ 0.71
24.76
24.05
+ 0.71

24.76
+ 7.05
− 8.78
+ 17.10
40.63

24.76
+ 7.49
− 8.51
+ 17.10
40.84
− 3.59
37.25

+.58 +.522
Feb. 2
4 57.5 17 34.7
32.7
5.4
16.1
49.7
− 25.0
12
34.8
42.6
18.4
53.9 17 34.7
28.67
33
27.67
~~26.064~~
25.155

25.42
24.25
+ 2.07
+ 1.16
25.41
24.25
+ 1.16

25.41
+ 8.06
− 9.28
+ 16.90
41.09

25.41
+ 8.04
− 8.81
+ 16.90
41.54
− 3.59
37.95

+.48 +.460
Feb. 5
9 56.0 13 36.3
10 29.3
4.4
13.7
44.7
13 − 23.0
58.0
32.5
42.6
16.5
51.7 13 36.8
37.54
11.5
25.4
~~24.127~~
2465
− 0.52

23.21
29.39
24.80
− 0.41
1.33
23.37
24.80
− 1.43

23.21
+ 9.14
− 8.10
+ 16.35
40.60

23.37
+ 9.17
− 7.76
+ 16.35
41.13
− 3.59
37.54

+ 125.1 + 112.8 − 224.4 − 249.6 − 131

0
1 11.8 1 35.3 1 12.6
31.3 56.2 32.5
103.1 105.1
51.55 52.55
1.72223 2.09726 1.72057 2.05231
9.60337 .98840 0.61191 0.94345
+ 4.01 + 9.74 + 4.09 + 8.77
0 51.55 0 51.55 0 52.55 0 52.55
0 55.56 1 1.29 0 56.64 1 1.32

✓

~~Omit~~ + 93° 21′ 47.06″ 47.06 21 ~~47.03~~ 47.03
+ 1 ~~55.667~~ 19.78 1 ~~54.93~~ 19.24
~~23 42.7~~ 6.84 23 ~~42.0~~ 16.3

(.04) 86 36 10.1 36 9.9
9.7 9.5
93 23 50.3 50.3 50.5 50.5

I + .81 ~~7.6~~ + 43.5 44.3 ~~8.5~~ + 44.2 45.0

− 13.70 − 13.90

1 41.2 1 2.7 1 42.3 1 13.3
4.3 24.2 3.2 38.8
244.5 86.9 45.5 112.1
21.25 43.45 22.75 56.05
1.32736 2.35102 1.63799 2.35224 1.74958 1.11727
0.21850 1.24216 0.52913 1.28838 0.63972 0.00841
+ 16.5 − 17.46 + 33.9 − 19.43 + 43.7 + 1.00
1 21.25 1 21.25 0 43.45 1 22.75 0 56.05 56.05
5 1 3.79 0 46.84 1 3.32 1 0.42 0 57.05

21 ~~44.56~~ 44.56 21 ~~45.03~~ 45.03 21 51.30 51.30
1 ~~56.57~~ 21.43 1 ~~57.74~~ 21.66 1 ~~49.51~~ 15.42
23 41.1 6.0 23 42.8 6.7 23 40.8 6.7

9.7 9.5 8.7
9.3 9.6 8.3
23 50.7 50.7 23 50.9 50.9 23 51.7 51.7

9.6 44.7 45.5 ~~8.1~~ + 44.2 45.0 + 45.0 45.9

− 14.10 − 14.3 − 14.3 − 10.7

n=.34+.352   +.32+.338   +.28+.280   +.35+.372   +.42+.416   +.45+.464

Feb. 8   Feb. 12   Feb. 14   Feb. 26   Feb. 27   March 1

~~10 22.5~~   10 16.6   10 38.8   14 43.0   12 15.8 ~~14~~ 47.0   10 59.2
208 38 1.6   —   18.5   —   30.6
19.5 32 10.5   —   35.1   —   13 35.2   13 25.8   ~~12~~ 16.9
— 08 ~~49.1~~   12 — 11.4   12 — 107 ~~221~~   14 0.2   12 51.3 344
21.2 31 21.2   12 46.4 350 21.1   12 45.7   34.8   13 27.4 261
20.2 27 54.9   13 21.3 349 21.3   13 20.8   Md. group   127.2   14 2.1 247
20.8 136 29.8   13 55.0 338 20.3   13 55.8   36.1 240
21.1 272 ~~46.0~~   14 28.8 338 19.8   14 29.8   12 13.9   1338
— 24.13   1629   1625   48.5
60 10 17.5   60 10 38.8   22.3 14 43.0   14 47.0   10 59.2
1029   1025   57.5
33.2
1754

13 2140   2058 2062   20.500   23.080   25.440   26760
20.67 2583   20.84 20.88   20.76   23.34   2570   2702
2093 423   2658 2653   27.17   30.65   31.00   31.98
25.43 21.40   -5.69 -5.65   -6.41   -7.31   -5.30   -4.96
-4.50 25.43   20.68   20.76   23.34   25.70   27.02
-4.03   26.53   27.11   30.65   31.98   31.98
20.93   2088 -5.65   20.76 -6.35   23.84 -7.31   2570 -5.28   27.02 -4.96
+10.34 ~~21.40~~   +11.20   +11.34   +13.03   +12.91   +12.76
-5.74 21.40   -5.40 20.88   -4.73 20.76   -5.91 23.34   -7.09 25.70   -7.60 27.02
+15.72 +10.23   +4.62 +11.19   +13.98 +11.32   +10.50 +13.03   +10.14 +12.92   +9.17 +12.77
-5.94   -5.70   -4.89   -6.28   -7.02   -7.88
41.25 +15.72   41.30 +14.62   41.35 +14.04   40.96 +10.50   41.67 +10.17   41.35 +9.17

41.41   40.99   41.23   40.59   41.77   41.08
-3.59   -3.59   -3.59   -3.59   -3.59   -3.59
37.82   37.40   37.64   37.00   38.18   37.49

corrd

-26 37.28
+28 37.82
-29 37.25
+41 37.85
+0 37.54
+28 37.82
-14 37.40
+10 37.64
-54 37.00
+64 38.18
-5 37.49
-47 37.07
+18 37.72
+11 37.65
-15 37.39
+93 38.47
+.07 37.60

?   ?
Feb. 8th   12th   +161.7   -119.9   -81.6   -147.5

1 0.70 0 53.1   1 0.8 1 13.5   1. 1.6   0 59.8   0 47.2
23.0 22.2   23.6 36.0   22.8   20.9   11.9
Doubt 83.7   84.4   84.4   80.7   59.1
41.85   42.20   42.20   40.35   29.55
1,62170   1,62531 2,20871   1,62531 2,07809   1,60584 1,91169   1,47016
,51284   ,57645 1,09985   ,57645 ,96923   ,45658 ,80283   ,36170
+3.26   +3.29 +12.58   +3.29 -9.33   +3.14 -6.35   +2.30
0 42.200 42.20   0 42.200 42.20   0 40.35 0 40.35   0 29.50
0 45.49 0 54.78   0 45.49 0 32.87   0 43.49 0 34.00   0 31.80

2,16879
21 ~~53.57~~ 53.57   22 ~~15.48~~ 15.48   22 ~~14.35~~ 14.35   1,05993   22 18.80
+1 ~~50.56~~ 16.39   1 ~~51.64~~ 16.69   1 ~~52.44~~ 17.58   -11.48   1 5.96
23 44.1 10.0   23 6.12 3.22   3.19   0 29.55   11.24
30.0

6.3   3.8   3.7   3.3
5.9   3.4   3.3   2.9
23 54.1 54.1   23 56.6   56.6 23 56.7   56.7 57.1   54.1
22.2 +44.1 44.9   +24.4 25.2   + 24.8 25.6   27.9
-17.5   -20.0   -20.1   -20.5

S Urs Min

6 14 55
+93 24 -35

1688
(+26)

+.44 +.366

March 11

6 16 29.5

16 29.5

16 20.3 26.5
16 54.5 25.8

26.15
26.41
~~23.63~~ 35.39
-8.98

26.41 26.41
+13.75 35.39
-6.92 8.98
+5.76

[39.00]

26.41
+13.73
-6.18
+5.76

(39.72)

-183.4

0
1 1.7
28.9
90.6
45.30
2.26340
1.15454
-1427
0 45.30
0 31.03

+93° 22 ~~1732~~ 1732
+1 ~~5265~~ 1780
3512

36 22
1.8
48.2 48.2 ~~49.1~~
+13.1 13.9
-2160

n=42

Jan 30
6 9 56.4 11 19.7
10 30.4
11 4.9
12 16.2 16 8.8?
12 50.6 29.4!
13 24.8
13 54.8
14 34.4 11 19.7
15 44.2
16 17.6
16 54.2
39.15
120
27.15
24.682
23.06 24.94
+ 0.71 23.63
+1.31

24.94 24.94

+125.1

0
1 11.8 0 1 35.3
31.3 0 56.2
10.31 2 8.15
0 51.55 1 15.75
2.09726
0.98840
+9.73
0 51.55 ✓

21 ~~5680~~ 56.80
1 ~~5008~~ 1617
1257

101
9.7
50.3 50.3 ~~51.1~~
+37.4 38.2
-2370

+.41 +.400

Feb. 22
17 0.4

17 0.4
15 39.5 -.47 23.0
16 17.0 -0.6 23.2
16 51.7 -2.5 20.6
20.00 -2.60
22.168

15 22.280 22.28
27.64 22.54
29.29 29.29
-2.65 -6.75

22.54 22.54
+13.00 29.29
-6.92 6.75
+11.86

22.54
40.48 +13.01
-6.75
+11.86

40.66
-3.59
37.07

-218.1

0
1 17.1
36.3
18.34
56.70
2.33866
1.22980
-1698
0 56.70
0 39.72

22 ~~8.63~~ 8.63
1 ~~4724~~ 1395
2258

4.6
4.2
50.8 55.8 ~~56.6~~
+33.2 34.0
-1920

+.36 +.366

March 14
12 19.9
12 54.6
13 29.9
14 4.7
14 39.0

13 45.4 ~~16~~
13
13 45.4
1481 15 ~~51.0~~

29.620
29.88
36.48
-6.60

29.88 29.88
+12.96 36.48
-6.10 6.60
+4.67

29.88
41.41 +12.94
-6.18
+4.67

41.31
-3.59
37.72

~~175~~
~~1758~~
1758 15.8

0 48.8
19.1
67.9 ~~1.8796~~
33.95 ~~.77081~~
~~2.06371~~ 1.8796
0.95485 .77081
-581 -122
0 33.95 33.95 0
0 34.94 0 32.73

22 ~~2030~~ 1562
1 ~~5702~~ 1673
3235

2.0
1.6
58.4 58.4 ~~59.2~~
+26.0 26.8
-2180

+.42 +.424

March 18
16 10.2 10

16 10.2
15 51.0
16 23.2
16 58.0
+0.27
29.97
30.24
30.84
30.84
37.78
-~~6.68~~
6.94

30.84 30.84
+14.20 37.78
-7.09 6.94
+3.37

30.84
41.32 +14.19
-7.16
+3.37

41.24
-3.59
37.65

-1600

0
1 3.3
28.7
92.0
46.00
2.20412
1.09526
+1245
0 46.00
0 33.55

22 ~~1480~~ 1480
1 ~~5136~~ 1976
3256

1.9
1.5
58.5 58.5 ~~59.3~~
+25.9 26.7
-2190

+.38 +.382

March 19
1.9 8 24.0
36.3 34.4
11.3 35.0
35.3
20.6 14 51.1
54.7 34.1
-29.7 35.0
4.0 34.3
14 39.8 35.8 24.0
49.0 9.2
23.8 34.8
58.6 34.8
33.97
6.81
~~27.16~~
29.973
30.23
38.12
-7.89

30.23 30.23
+14.22 38.12
-6.44 7.89
+3.03

30.23
41.04 +14.22
-6.45
+2.98

40.98
-3.59
37.39

+306.0

0 26.5 0 54.0
51.0 19.2
137.5
68.75
2.48572
1.37686
+2380
0 .8040 3155

18 58.6 ~~59.4~~
1.4

-32	40.87
+22	41.41
-35	40.84
+35	41.54
-6	41.13
+22	41.41
-20	40.99
+4	41.23
-60	40.59
-58	41.77
-11	41.08
-53	40.66
+12	41.31
+5	41.24
-21	40.86
+.67	40.06
+.00	41.19

-3.30
38.89

41.19
3.59
37.60
+19.41
57.01

16.47 –

n = ~~33~~ 31 + 306

Mar 28

10 3.9
38.2
13.0
22.1
56.0
– 32.1
6.0
41.4
50.7
25.3
0.0
288.7
6.0
348.7
31.70
+ 26
31.96
41.70 –
9.74

32.22
41.47
9.25

32.22 82.22
+15.32 41.47
– 5.23 – 9.25
– 0.32 ~~+1.11~~

41.99

82.22
+15.38
– 5.17
– 0.82

42.06
– 3.59
38.47

0 29.7 0 4.4
0.3 33.1
30.0
15.00

Wire intervals of δ Urs. Min.

	6–1	6–2	6–3	6–4	6–5	6–6	6–7	6–8	6–9	6–10	6–11
Jan 30	+ 3 28.3	+ 2 54.3	+ 2 19.8	+ 4 8.5	+ 0 34.1	– 0.1	– 0 33.1	– 1 9.7	– 2 19.5	– 2 52.9	– 3 29.5
31	28.8	55.0	18.6	8.9	33.0	+ 0.6	35.4	10.4	16.4	54.0	28.9
Feb. 1	27.7	53.8	18.4	9.5	35.3	+ 0.0	34.9	8.6	19.3	54.0	28.3
2	28.6	54.0	20.7	10.0	36.4	+ 1.1	35.7	8.7	16.5	52.3	27.8
5	28.1	54.8	19.7	10.4	36.4	+ 1.1	33.9	8.4	18.5	52.4	27.6
Mar 19	28.1	53.7	18.7	9.4	35.3	+ 0.3	34.0	9.8	19.0	53.8	28.6
28	27.8	53.5	18.7	9.6	35.7	– 0.4	34.3	9.7	19.0	53.6	28.3
	3 28.20	54.16	19.23	9.47	35.33 17	+ 0.28 37	34.39	9.47 83	18.31	53.29	28.43

Wrong { Feb. 1, 2, 5

~~Order of wires = regular for L.C.~~
wires = regular order for L.C.

Adopted reduction to the mean of threads for S.P.

	m	s
6 – 1	+ 3	28.6
2	2	53.8
3	2	19.2
4	1	9.4
5	0	34.8
6		0.0
7		34.7
8	1	9.0
9	2	18.9
10	2	53.8
11	3	28.7

δ Urs. Min.

6 14	41.31	.10	0010
	41.67	.46	2116
	40.63	.58	3364
	41.09	.12	144
	40.60	.61	3721
	41.25	.04	16
	41.30	.09	81
	41.35	.14	196
	~~40.96~~	.25	625
	41.67	.46	2116
	41.35	.14	196
	40.48	.73	5329
	41.41	.20	400
	41.32	.11	121
	41.04	.17	289
	41.99	.22	484
			1.9211

1.8
1.4
38.6

w. fer = 16

Jan 30	28.28	54.28	19.78	8.48	34.08 – 0.12	33.12	9.72	19.52	52.92	29.52
~~31~~	~~28.79~~	~~54.99~~	~~18.59~~	~~8.59~~	~~33.29 .59~~	~~35.41~~	~~10.41~~	~~16.41~~	~~54.01~~	~~28.71~~
Feb 1	27.74	53.64	18.44	9.34	35.34 + 0.41	34.86	8.56	19.26	53.96	28.26
2	28.66	53.06	19.75	9.06	35.45 + 0.15	36.08	9.65	17.45	53.25	28.75
5	27.21	53.91	18.81	9.51	35.51 + 0.21	34.99	9.29	19.99	53.29	28.49
Mar 19	28.07	53.67	18.67	9.37	35.27 + 27	34.03	9.83	19.03	53.83	28.63
28	27.80	53.50	18.70	9.60	35.70 – 0.40	34.30	9.70	19.00	53.60	28.30
	~~+ 28.19~~	~~54.15~~	~~19.22~~	~~9.47~~	~~35.21 + 0.37~~	~~34.39~~	~~9.83~~	~~18.32~~	~~53.29~~	~~28.43~~
	27.94	53.86	19.18	9.41	35.38 + .18	34.37	9.30	18.79	53.32	28.50
	27.79	53.71	19.03	9.26	35.23 + .03	– 34.53	9.46	18.94	53.48	28.66

6 14 41.21

$\sqrt{12807} = 3.58$
1.19
± .238

Prob. error of single observation = ± .24
" " " " reduced to Equator " = ± .014

β Can. Maj.

6 17 23
−17 54
−32

	Feb. 8		Feb. 12		Feb. 14		Feb. 26		March 14	
16	41.3	16 34.0	16 40.1	16 35.5	16 40.1	16 30.0	16 38.2	16 30.8	16 37.9	16 30.8
	43.5	35.1	42.3	36.5	42.3	30.8	40.4	31.7	40.1	31.7
	45.7	36.2	44.4	37.6	44.5	33.0	42.6	32.6	42.2	32.6
	50.0	105.3	48.8	109.6	48.8	93.8	47.0	95.1	46.6	95.1
Sin √9.45764	52.1		50.9		51.0		49.0		48.8	
	54.2		53.1		53.1		51.1		51.0	
	56.5		55.3		55.3		53.3		53.1	
	58.6		57.6		57.4		55.6		55.3	
	2.9		1.8		1.7		59.8		59.6	
co √9.99845	5.0		4.0		3.8		2.0		1.7	
11804	7.2	16 35.1	6.0	16 36.5	6.0	16 31.8	− 4.2	16 31.7	3.9	16 31.7
.09649	5970		5843		4040		5632		5602	
	1				18					
					5840					
	54.2783		53.117		53.091		51.200		50.927	

15				
1 3.3	1 2.4	1 5.5	0 48.0	0 48.6
41.0	45.3	43.2	24.6	32.9
104.3	107.7	108.7	72.6	81.5
+19.2	+16.6	+21.8	+19.5	+19.2
52.15	53.85	54.35	36.35	40.75
1.28330	1.22011	1.33846	1.29003	1.28330
1.37979	1.31660	1.43495	1.38652	1.37979
−23.98	−20.78	−27.22	−24.35	−23.98
15 52.15	15 53.85	15 54.35	15 36.30	15 40.75
15 28.17	15 ~~33.00~~ 33.12	15 27.13	15 11.95	15 16.77
−17° 52′ 39.82″	52 44.77	52 38.78	52 23.60	52 28.42 ✓

B.A.C. 2079
6 19 38
−36 38
−74

Sin √9.775-75
cos √9.90443
11.804
.02247

Jan. 30		Feb. 8		Feb. 12		Feb. 14		March 1		March 14	
19 14.2	19 18.6	19 10.1	19 1.9	19 9.1	19 12.2	19 9.0	18 58.8	19 7.1	18 57.6	19 6.5	19 3.0
16.8		12.9	4.6	11.7		11.6	59.2	9.8	59.1	9.1	4.0
19.3		15.3	6.1	14.2		14.1	0.1	12.2	60.7	11.6	4.9
24.2		20.5	126	19.2		19.3	2.0	17.4	177.4	16.8	11.9
27.2		23.1		21.9		22.0	240.1	20.1		19.5	
29.5	19 52.8	25.7		24.4		24.5		22.7		22.0	
32.3	53.1	28.3		27.0		26.9		25.1		24.6	
34.8	~~55~~	30.8		29.6		29.5		27.8		27.3	
39.8	56	36.0		34.7		34.7		33.0		32.3	
42.5	5280	38.5		37.3		37.2		35.5		34.8	
45.0		40.9		39.8		39.8		38.3		37.5	
3256 19	18.6	2824 19	4.2	2689 19	12.2	2686 19	60.0	2490 18	59.1	2420 19	3.9
29.600		25.646		24.445		24.418		22.636		22.000.	

55

2 14.8	1 35.9	2 38.8	2 36.0	2 42.8	2 26.8	2 28.7
48.8	10.1	15.2	17.6	19.7	2.8	11.7
123.6	46.0	54.0	53.6	62.5	29.6	40.4
2 1.80	23.00	27.00	26.80	31.25	14.80	20.20
+11.0		+21.4	+12.2	+24.4	+23.5	+18.1
1.04139		1.33041	1.08636	1.38739	1.37107	1.25768
1.06386		1.35288	1.10883	1.40986	1.39354	1.28015
−11.58		−22.53	−12.85	−26.70	−24.75	−19.06
57 1.80		57 27.00	57 26.80	57 31.25	57 14.80	57 20.20
56 50.22		57 4.48	57 13.95	57 5.55	56 50.05	57 1.14
−36 34′ 1.87″		34 16.12	34 25.60	34 17.20	34 1.70	34 12.79

March 18

19	5.3	19	0.0
	7.8		1.2
	10.4		3.2
	15.6		4.4
	18.1		
	20.7		
	23.3		
	25.8		
	30.8		
	33.5		
	35.9		
	2272	19	1.5

20.6555

2 22.6
0.7
23.3
11.65

+19.2
1.28330
1.30577
— 20.19
57 11.65
56 51.46
34 3.11

4 59 00

δ Geminor

6 21 17

+20 18

+37

Sin δ 9.5402
cos δ 9.9721

Jan. 30			Feb. 8		Feb. 12		Feb. 14		March 14		March 28	
21 24.4 20 4.5 6.8 11.2 13.4 15.6 21 17.8 20.0 24.4 26.6 28.7 171/4 20 15.562	58.7 21 59.8 0.6 179 1 59.70 40.6 41.7 42.8 51 41.70 59.7	7.3 9.6 11.8 13.9 16.1 587	20 58.0 58.8 0.7 177.5 20 59.2 11.740		20 57.6 59.8 2.0 6.4 8.6 10.6 12.8 15. 19.6 21.7 23.9 238.1 120 118.1 10.736	20 44.6 45.6 46.7 136.9 20 45.6	20 57.5 59.7 1.9 6.3 8.5 10.6 12.8 15.0 19.4 21.5 23.8 237.0 120 117.0 10.636	20 51.9 52.8 54.0 158.7 20 52.9	20 55.4 57.6 59.8 4.1 6.3 8.5 10.7 12.9 17.3 19.5 21.7 273.8 150 93.8 8.527	20 46.9 47.7 48.7 143.3 20 47.8	20 52.8 55.0 57.1 1.5 3.7 6.0 8.2 10.4 14.7 16.9 19.1 215.4 18 65.4 5.945	20 46.1 46.9 47.6 140.6 20 46.9

+159 −261

5

1 10.4 0 40.2 1106 0 55.30 0	18.7 1 49.0 1277 3.85	1 7.4 40.8 108.2 54.10	1 21.1 − 1.0 20.1 10.05	1 13.0 46.0 119.0 59.50	0 56.9 36.4 93.3 46.65	0 56.2 33.2 89.2 44.60
+15.9 1.20140 1.29159 −19.57 5 55.30 5 35.73 +20° 17′ 12.62″		+12.5 1.09691 1.18710 −15.39 5 54.10 5 38.71 17 9.64	+25.1 1.39967 1.48986 −20.89 6 10.05 5 39.16 17 9.19	+17.7 1.24797 1.33816 −21.78 5 59.50 5 37.72 17 10.63	+20.7 1.31597 1.40616 −25.48 5 46.65 5 21.17 17 27.18	+19.0 1.27875 1.36894 −23.38 5 44.60 5 21.22 17 27.13

sin √ 9.54025

cos √ 9.97215
11504
-09019

BAC 2109   23 hmel 6 24
6 23 39
−32 30 −64

	Jan. 30		Feb. 2		Feb. 8		Feb. 14		March 1		March 14	
	23 5.4	22 53.0	23 4.0	23 41.8	23 1.6	22 52.7	23 0.6	23 0.6	23 26.9	23 24.2	22 58.1	23 6.4
	8.1	54.3	6.5	43.7	4.1	54.7	2.8		29.2	25.2	0.5	7.3
	10.4	55.6	8.9	45.0	6.5	56.4	5.4		31.5	26.2	3.0	8.4
	15.4	162.9	13.8	130.5	9.6	163.8	10.3		36.3	75.6	7.9 10.3	22.1
sin √9.73022	17.8	54.30	16.3		14.1		12.7		39.0		12.7	
	20.2 23	45.7	18.7		16.4		15.0		41.5		15.1	
	22.6	47.2	21.1		18.8		17.6		43.9		17.7	
	25.1	48.5	23.6		21.2		20.0		48.5 51.2		22.6	
	30.0	21.4	28.4		26.0		24.9		53.6		25.0	
cos √9.92603	32.4	47.13	30.8		28.6		27.3		56.1		27.5	
11804	34.9		33.4		31.0		29.8		4557			
.04407	22 213	22 54.3	2055	23 43.5	1779	22 54.6	1664	23 0.6		23 25.2	2004	23 7.3
											60	
											140.4	
	20.209		16.682		16.173		15.127		41.427 425		12.764	

	Jan. 30		Feb. 2	Feb. 8	Feb. 14	March 1	March 14
	50		45	50	50		
	0 31.0	4 31.3	4 30.7	0 32.0	0 27.0	2 39.2	1 7.4
	43	4.2	4.1	7.2	2.8	17.3	−10.8
	35.3	35.5	34.8	39.2	29.8	56.5	−18.4
	17.65	17.75	17.40	19.60	14.90	28.25	−1.70
	+25.9		−24.8	+21.6	+14.5	+16.2	+5.5
	1.41330		1.39445 n	1.33445	1.16137	1.20951	0.74036
	1.45737		1.43852 n	1.37852	1.20544	1.25358	0.78443
	−28.67		+27.45	−23.91	−16.05	−17.93	−6.09
	50 17.65		49 17.40	50 19.60	50 14.90	52 28.25	49 58.30
	49 48.98		49 44.85	49 55.69	49 58.85	52 10.32	49 52.21
−32°	27′ 0.63″		26 56.50	27 7.34	27 10.50	29 21.97	27 3.86

March 18

Md.gr. 23 20.0
20.8
23 6.5 21.9
8.9 62.7
11.4
14.0
16.4
57.2

23 21.9

11.440

45
4 44.9
22.8
67.7
33.88

−9.5
0.97772 n
1.02179 n
+ 1013
49 3385
49 4438

26 5603

5 05 20

13 Monocer. sin ∫ 9.1118
cos ∫ 9.9963

6 25 58

+7 26

t.1.3

	Jan. 30		Feb. 5		Feb. 8		Feb. 12		Feb. 14		March 14	
	25 40.4 25	31.2 25	45.9 26	2.7 25	36.7 25	27.7 25	35.6 25	22.7 25	35.5 25	24.7 25	33.4 25	26.1
	42.5	32.0	48.0	8.7	38.8 21	28.6	37.7	23.7	37.5	26.0	35.5	26.8
	44.5	33.3 Mdgr.	50.1	4.6	40.8 20	29.6	39.8	24.7	39.6	27.1	37.6	27.7
	48.8	765	52.2	11.0	44.9 41	85.9	44.0	71.1	43.9	77.8	41.8	80.6
sin √ 9.11184	50.9	32.16	54.3		47.0		46.0		45.9		43.8	
	52.9 26	10.8	2505		49.1		48.1		48.0		45.9	
	55.0	12.0			51.1		50.1		50.0		48.0	
	57.1	13.3			53.2		52.2		52.1		50.1	
	1.3	61			57.3		56.4		56.3		54.2	
cos √ 9.99633	3.3	12.03			59.4		58.5		58.4		56.2	
9804	5.5				1.6		60.5		0.4		58.3	
.11437	5622 25	32.2	26	3.7	5394 25	28.6	5284 25	23.7	5276 25	25.9	5048 25	26.9
	5293		50.10		49.082		48.082		47.964		45.891	

+207 -19.1
1,3160

55

	3 0.8	2 7.4	2 16.0	3 0.4	3 7.4	3 3.9	2 39.7
	31.2	37.9	51.1	29.8	44.6	38.1	21.6
	920	1053	127.1	90.2	112.0	102.0	61.3
	2 46.001	52.65	63.55	45.10	56.00	51.00	30.65
	+20.7		-13.6	+20.5	+24.4	+22.1	+19.0
	1.21597		1.13354n	1.21175	1.38739	1.34439	1.27875
	1.43034		1.24791n	1.42612	1.50176	1.45876	1.39312
	-2694		+17.70	-2667	-31.75	-28.76	-2472
	57 46.00		57 3.55	57 45.10	57 56.00	57 51.00	57 30.65
	57 19.06		57 21.25	57 18.43	57 24.25	57 22.24	57 5.53
+7°	25 29.29		25 27.10	25 29.92	25 24.10	25 26.11	25 42.42

March 18 March 28
8

261	25	32.0	25	23.3	25	54.7	25	30.8
26.8		34.2		24.3				32.9
27.7		36.3		25.3				35.0
80.6		40.3		(2.9				39.1
		42.5						41.2
		44.5						43.3
		46.6						45.4
		48.6						47.4
		52.8						51.7
		54.8						53.7
		57.0						55.8
26.9		4896	25	24.3	25	54.7		4763
		44.509						43300

2	44.0	2	1.7
	19.3		40.6
	63.3		102.3
	31.65		51.15

+20.2
1.30535
1.41972
− 2629
57 31.65
57 5.36

25 42.99

− 11.4
1.05690 w
1.17127 n
+ 1474
56 51.15
57 5.99

25 42.36

B.A.C. 2147
6 27 54
−31 56
−.62

	Feb. 5		Feb. 12		Feb. 14		March 18	
27	28.9	27 23.4	27 26.8	27 45.6	27 26.7	27 11.8	27 22.9	27 13.8
	31.3	24.7	29.1		29.0	13.5	25.5	14.9
	33.7	25.7	31.7		31.4	14.7	27.9	16.0
	38.7	23.8	36.5		36.5	40.0	32.7	44.7
sin δ 9.72340	41.0		38.9		38.9		35.1	
	43.4		41.3		41.3		37.6	
	46.0		43.7		43.6		40.0	
	48.3		46.2		46.0		42.5	
	53.1		51.0		51.0		47.3	
cos δ 9.92879	55.6		53.5		53.4		49.7	
11804	58.1 27	24.6	55.9 27	45.6	55.8 27	13.3	52.3 27	14.9
.04678	4761		4546		4536		4135	
	=		−		=			
	4346		41.33		41.24		37.59 ~~37.79~~	

15			
1 50.7	1 27.4	2 1.0	1 39.1
27.0	7.3	35.7	16.6
77.7	34.7	96.7	55.7
+18.9	−4.3	+27.9	+22.7
38.85	17.35	48.35	27.85
1.27646	0.63347 n	1.44560	1.35603
1.32324	0.68025 n	1.49238	1.40281
−21.05	+4.79	−31.07	−25.28
16 38.85	16 17.35	16 48.35	16 27.85
16 17.80	16 22.14	16 17.28	16 2.57
−31° 53′ 29.55″ ✓	53 33.79	53 28.93 ✓	53 14.22

γ Geminor

March 28

29 ~~48.7~~ 30 9.3
50.6 10.1
52.6 11.0
54.8 30.4
59.0
1.2
3.4
5.5
7.6
11.8
14.0
16.1
27 6.8
24.0
36.6
3.327 30 10.1
16
3.31
18.69 18.68
15.38

Sin δ 9.45334

Cos δ 9.98174
11804
.09978

50
2 24.2
4.8
27.0
−6.7
14.50
0.83251n
0.93229n
+ 8.55
52 14.50
52 22.05
+16° 30′ 25.30″

γ Geminor.

6 30 05
30 19.02
+16 31 1902 15.55

+30
(+30)

rui z = +.44

Feb. 5	6 30	19.39		
10		35	04	
15		30	.05	
20		25	05	
25		19	06	(+05)
Mar. 1		19.12	07	(+.04)
6		.04	08	
11		18.96	08	
16		88	08	
21		18.79	.09	
26		.71	.08	
31		18.62	.09	
5		.54	.08	
Apr. 10		18.45	.09	

+16° 30'

δ = +16 30 21.6

21.8					
21.7	−.1	21.7 .0		18.98	19.01 −1
21.7	+.3	21.7 .0		19.06	09 +7
21.8		21.75 .1		08	06 +4
21.8	+.2	21.8 0		14	12 +10
21.9		21.85 .1		05	08 +6
21.9	+.1	21.9 .0		02	00 −2
21.9	+.3	21.9 .1			+.04
22.0		22.05 .1		19.07	19.06
22.1	+.0	22.1 .1			−3.47
22.2		22.2			15.59
22.5	+.3				
22.5					

	+.48 +.460		+.34 +.352		+.32 +.338		+.28 +.290		+.45 +.467		+.36 +.366	
	Feb. 5		Feb. 8		Feb. 12		Feb. 14		March 1		March 14	
−.016	29 57.2	29 49.4	29 56.2	29 50.2	29 55.3	29 45.5	29 55.1	29 46.8	29 53.3	29 47.6	29 53.0	29 47.1
	59.4	50.3	58.4	51.2	57.3	46.6	57.2	47.2	55.6	49.0	55.1	48.2
	1.4	51.7	0.4	52.1	59.4	48.0	59.5	48.2	57.7	50.3	57.2	49.4
	5.8	151.4	4.8	153.5	3.8	140.1	3.7	141.7	2.0	146.9	1.5	144.7
L ∫ 9.45334	7.9		7.0		5.9		5.8		4.2		3.7	
	10.1		9.2		8.1		8.0		6.3		5.9	
	12.2		11.3		10.3		10.2		8.4		8.0	
	14.3		13.4		12.4		12.3		10.6		10.1	
	18.7		17.7		16.7		16.6		14.9		14.6	
cos ∫ 9.98174	20.8		19.8		18.9		18.8		17.0		16.6	
11804	23.0	29 50.5	22.0	29 51.2	21.0	29 46.7	20.9	29 47.2	19.0	29 48.9	18.7	29 45.2
+09978	230.8		220.2		269.1		268.1		249.0		244.4	
	120		120		180		180		180		180	
	110.8		100.2		89.1		88.1		69.0		64.4	
	10.073		9.109		8.100		8.009		6.273		5.855	
	19.06	10.06	19.37 10.30	9.09	8.08		19.36 11.35	7.99	6.26		5.84	
	19.39			19.36	19.33		19.31	19.31	19.12		18.91	
	−9.33			−10.27	−11.25			−11.32	−12.86		−13.07	
		10.06		9.09		8.08		7.99		6.26		5.84
	10.06	19.39	9.09	19.36	8.08	19.33	7.99	19.31	6.26	19.12	5.84	18.91
	+9.14	−9.33	+10.22	10.27	+11.20	−11.25	+11.34	−11.32	+12.76	−12.86	+12.96	−13.07
	+.15	−5	+.10	−5	+.10	−5	+9	−5	+13	−5	+11	−5
	−.37	−9.38	−.35	−10.32	−.30	−11.30	−28	−11.37	−10	12.91	+11	13.12
	18.98	10.06	19.06	9.09	19.08	8.08	19.14	7.99	19.05	6.26	19.02	5.84
		+9.18		+10.23		+11.19		+11.32		+12.77		+12.94
		+14		+11		+10		+.09		+.14		+11
		−.37		−.34		−31		−.29		−09		+.11
		19.01		19.09		19.06		19.12		19.08		19.00

50						
	3 15.6	3 14.8	3 16.3	3 22.5	2 58.2	2 53.8
	51.8	49.0	56.1	51.8	33.0	35.6
	127.4	123.8	132.4	134.3	91.2	89.4
	+17.6	+17.9	+21.4	+20.8	+17.4	+17.7
	63.70	61.90	66.20	67.15	45.60	44.70
	1.29226	1.25285	1.33041	1.31806	1.24055	1.24797
	1.39204	1.35263	1.43019	1.41784	1.34033	1.34775
	−2466	−2252	−2653	−2617	−2190	−2227
	53 3.70	53 1.90	53 6.20	53 7.15	52 45.60	52. 44.70
	52 39.04	52 39.38	52 39.27	52 40.98	52 23.70	52 22.43
+16°	30' 9.31"	30 8.97	30 9.08	30 7.37	30 24.65	30 25.92
−	0 30.25	−0 30.94	−0 29.76	−0 30.32	−30.75	−29.33
	29 39.1	29 38.0	29 39.3	29 37.0	29 53.9	29 56.6
	30 21.7	30 21.7	30 21.7	30 21.8	30 21.9	30 22.1
δ' = +16	30 9.31	30 8.97	30 9.08	30 7.37	30 24.65	30 25.92
	−0.10	−0.16	−0.10	−0.20	−0.30	−0.50
−.40 I	+ 42.6 42.2	+ 43.7 43.3	+ 42.4 42.0	+ 44.8 44.4	+ 28.0 27.6	+ 25.5 25.1

Mar 28?

55 Aurigae

6 33 38

+44 39

+.99

sin S9.84682

cos S9.85212
11804
9.97016

Feb. 8		Feb. 12		Feb. 14		March 14		March 18		March 28	
33 18.6	33 6.6	33 17.6	33 12.7	33 17.5	33 1.0	33 15.2	33 7.0	33 13.9	33 7.0	33 12.5	33 5.8
21.5	8.0	20.5	14.1	20.4	2.0	18.0	8.0	16.6	8.7	15.4	6.7
24.4	10.2	23.5	15.8	23.3	3.0	20.9	9.3	19.7	9.9	18.3	8.0
30.3	24.8	29.3	42.6	29.1	6.0	26.8	24.3	25.3	25.6	24.1	20.5
33.1		32.0		31.9		29.7		28.3		27.0	
35.9		35.0	33 48.1	34.9		32.5		31.1		30.0	
38.8		37.8		37.8		35.4		34.0		32.8	
41.8		40.8		40.7		38.4		37.0		35.7	
47.5		46.6		46.5		44.1		42.7		41.4	
50.4		49.3		49.3		47.0		45.6		44.4	
52.4	33 8.3	52.3	33 14.2	52.2	33 2.0	49.8	33 8.1	48.5	33 8.5	47.3	33 6.8
3957		3847		3836		3578		3427		3389	
35.973		34.973		34.873		32.527		31.176		29.900	

The second microscope less [illegible] 2 > 3

45

0 28.6	0 18.8	0 −6.7	0 33.5	0 0.4	0 4.2	0 2.5	05
−2.7	4 52.9	4 22.6	1.8	4 37.2	4 34.9	−24.7	35.3
25.9	131.7		35.3	97.6	99.1	−22.2	35.8
+27.7	+20.8		+32.9	+24.4	+22.6	+23.1	17.90
12.95	65.85		17.65	48.80	49.55	−12.10	
1.44248	1.31806		1.51720	1.38739	1.35411	1.36361	
1.41264	1.28816		1.48736	1.35755	1.32427	1.33377	
− 2586	−1942		−3072	−2278	−2110	−2156	
45 12.95	45 5.85		45 17.65	44 48.80	44 49.55	44 47.50	
44 47.05	44 46.43		44 46.93	44 26.02	44 28.45	44 26.34	
+44° 38′ 1″.26	38 1.92		38 1.42	38 22.33	38 19.90	38 22.41	

51 Ceph. N6

6 39 42
38 43.63 43.63
+ 87 14 + .43
20.78

{+.62} Repeat

I seem to have taken out 51 Ceph. for the most part one day wrong in the first computation! /20

(+.46) to Wash.
(−.65) to Pulcova

6 39 14.41 = P
~~53.38~~ = P
44.74
Cui Z = −.70

−.32

20.77

51 Ceph.

42.65	43.08	+66
44.21	44.15	−59
43.34	42.98	+76
44.86	44.36	−38
44.91	44.54	−20
43.94	44.08	−66
44.22	44.26	−48
43.98	43.86	−88
45.04	45.49	+75
44.43	44.24	−50
43.51	43.97	−77
44.11	44.04	−70
44.19	44.73	−1
43.68	44.04	−70
44.73	44.25	−49
43.51	43.28	+51
44.23	44.33	−47
44.26	44.32	−42
48.91	43.84	−90
44.25	~~45.09~~ 44.09	(−.65)
	30.33	
	13.76	

Jan 30	Jan. 31	Feb. 1	Feb. 2	Feb 5
n = 48 +473	n = 50 +473	+5.2 +5.05	+5.57 5.22	+48 +460
6 35 26.8 43 29.3	6 35 25.8 32 1.8	35 24.9 32 38.0	35 24.2 35 5.2	35 25.0
36 11.3 44.5	36 11.0 44.2	8.4	8.8	9.5
36 53.9 42.6	36 53.2 42.2	50.8	50.6	51.3
38 20.3 26.4	38 19.8 26.6	16.3	16.2 44 13.6	17.1
39 1.9 41.6	39 2.3 42.5	1.5	0.3	0.4
−39 46.2 44.3	39 44.5 42.2	43.8	−41.6	−41.9
40 27.2 41.0	40 26.1 41.6	24.7	25.3	26.2
41 10.6 43.4	41 11.2 45.4	7.1	9.2	8.3
42 34.8 24.2	42 35.4 24.2	35.1	35.1	33.6
43 17.6 42.8	43 18.7 43.3	15.0	17.6	16.3
44 1.5 43.5	44 1.0 42.3	47 59.6	46 00.5	59.5
252 43 29.3	250 00 32 1.8	2872 32 38.0	2294 35 5.2	2891
240	240	180	240	18
4921	49000	4672	469.4	4691
39 44.736 44.42	44.546 44.87 22	42.473 42.79 15	42.673 42.79 45	42.645 42.96 32
40 1.63 1.20	1.42 0.99	0.79	0.61	0.40 0.14
16.88 −16.78	16.87 −16.79	−18.84	−17.16	17.76 −16.82

Jan 30		Jan. 31		Feb. 1		Feb. 2		Feb 5	
39 44.42	44.42	44.22	44.22	42.15	42.15	42.45	42.45	42.32	42.32
+6.45	1.20	+6.96	0.99	+7.55	0.61	+8.06	0.45	+9.14	59.97
+9.35	−16.78	+10.35	−16.77	10.80	−18.46	11.43	−18.00		−17.65
~~+42.43~~	−.62	~~+42.64~~	.63	~~+42.84~~	−.62	~~43.02~~	−.63	43.49	.62
−17.57	−17.40	−17.36	17.89	−17.16	−19.08	−16.58		16.51	
~~42.65~~		~~44.21~~		~~43.34~~		~~44.96~~	18.63	44.91	~~18.27~~
42.65	44.42	44.21	44.22	43.34	42.15	44.96	42.45		42.32
	1.20		0.99		0.79		0.61		0.14
44.42	−16.78	44.22	−16.77	42.15	−18.64	42.45	−18.16	42.32	−17.82
+6.41	−.62	+6.93	−.62	+7.49	−.62	+8.05	−.62	+9.18	−.62
+9.82	−17.40	+10.66	−17.39	+10.50	−19.26	+10.84	−18.78	+9.55	−18.44
+17.57		+17.36	✱	+17.16		+16.98	+	+16.51	
43.08		44.15		42.98		44.36		44.54	

sin √ 9.99949

Jan 30		Jan. 31	Feb. 1		Feb. 2		Feb 5	
−22.46	~~−46.2~~	+46.27	+86.45	√ 424.5	+277.5			
10 0 50.6	10 0 13.2	0 52.0	0 48.5		0 43.8	0 11.1	0 ~~35.5~~	0 ~~13.8~~
10.0	33.2	11.4	7.7		3.4	28.3	~~1.0~~	38.0
60.6	10 64	63.4	56.2		47.2		36.5	
30.30	5 320	31.70	28.10		23.60		18.25	

cos √ 8.68366
11802 4
880170

Jan 30		Jan. 31	Feb. 1	Feb. 2
2.35741		2.66530	2.54176 ~~2.62788~~	2.44326
1.15311		1.46700	~~1.42958~~	1.24496
+14.23	+14.23	−29.31	−28.89	−17.58
10 30.30	9 53.20	10 31.70	10 28.10	10 23.60
10 44.53	10 7.43	10 2.39	10 ~~6.00~~ 5.01 Ce.	10 6.02
+87° 12 40.92		12 45.96	12 43.34	12 42.33
+ 1 2.58		0 58.02	0 59.73	1 2.25
13 43.5		13 44.0	13 43.1	13 44.6
14 26.8		27.0	27.3	27.5
25.9		26.1	26.4	26.6
I +.65 42.4 43.1		+ 42.1 42.7	+ 43.3 44.0	+ 42.0 42.6
δ′ = + 87 12 40.92		12 45.96	12 43.34	12 42.33
− ~~12.60~~		~~12.80~~	~~13.10~~	~~13.30~~
− 11.7		−11.9	−12.2	−12.4

δ

δ = + 87° 14′ 14″.2

ln. 1866 43.43
68 43.65
69 44.10
70 43.83

1872
43.78
~~30.83~~

87° 14′ 15″.13 = N.A.
14.24 = P.

Feb. 8

n = 35 +352

264 6.36591
85 40 59.3
51.6
17.0
55.8
41.8
26.2
9.1
34.9
16.0
54.6
350936 57.1
820
470.9
42.809 42.47
59.77 57.58
16.96 − 17.09

42.49 42.49
+10.34 59.34
7.06 +16.85
~~44.05~~ − .62
−15.55 −17.47
43.94

42.49
59.58
42.49 −17.09
+10.23 − .62
+7.31 −17.71
−15.90

44.08

~~−22.46~~
+16.37
0 32.6 0 19.1
55.4
148.0
74.00

2.21405n
1.01575n

+ 10.37
10 14.00
10 3.63

12 44.72
1 1.58
13 46.3

29.2
28.3
+ 42.0 42.7

12 44.72
~~15.00~~
−14.1

Feb. 12

+ 3 2 +338

—
—
—
—
—
~~41 32.8~~
42 8.4)
18.3)
24.7
13.3
39 40.2 40.2
40 24.0 41.3
41 7.5 42.0
42 32.4 40.9
43 15.8 41.6
43 58.1 41.1
1.6042 13.3
42.81
41.18
40.210 40.86
57.42
−17.56

40.86 40.86
+11.20 58.12
6.65 −17.26
~~45.51~~ − .62
14.49 −17.88
44.22

40.86
58.44
40.86 −17.58
+11.19 − .62
+7.02 −18.20
−14.81

44.26

~~−46.72~~ 153!
−153.4
0 5.3
4 33.3
98.6
49.30

2.27174n 2.18498
0.88224n .98668

+ 7.13
9 48 30
9 56 43

12 51.92
0 58.57
13 5.03

30.4
25.8
14 + 39.0

12 51.92
16.20
−

Feb. 14

+ 2 8 +290

6 35 24.5 42 57.2
36 8.2
36 50.0
38 15.8
38 58.2
39 40.0
40 22.7
41 6.9
42 33.0
43 13.8
43 58.0
331.142 57.2
1.2
45.1!
41.009 40.68
57.50
−16.81

40.69 40.69
+11.34 57.50
+5.82 −16.81
~~46.13~~ − .62
−13.87 −17.43
43.98

40.69
57.80
40.69 −17.11
+11.32 − .62
+6.02 −17.73
−14.17

43.86

~~−42.45~~
+19.61
0 9.7
4 30.0
99.7
49.85

2.29248n
1.09418n

+ 12.42
9 49.85
10 2.27

12 46.08
0 59.39
13 45.4

30.8
29.9
+ 44.6 45.1

12 46.08
~~16.60~~
−16.7

Feb. 19

+ .43 + .430

36 30
38 11.7
38 55.4
39 39.1
40 17.6
41 3.1

34 41.3
2.1374
3.2373
4.3351
5.0851
0.8349
2.1066
18.5
2.912
35.21
37 41.3
38133 37.23
36.91
−18.39 56.20
19.31

36.91 36.91
+12.48 56.20
8.93 −19.29
~~46.72~~ − .62
−13.28 −19.91
45.04

36.91
56.46
36.91 −19.53
+12.48 − .62
+8.93 −20.17
−12.83

45.49

~~−27.75~~
+11.61
0 23.8
51.9
135.7
67.85

+2.06483
0.86653

−7.33
10 7.85
10 0.50

12 47.85
0 60.67
13 48.5

31.9
31.0
+ 42.5 43.2

12 47.85
~~17.70~~
−16.8

Feb. 22

+ .41 + .400

35 21.4 34 28.5
36 1.4
36 44.1
38 8.5
38 51.1 44 1.2
−34.1
16.8
1.0
28.0
8.4
52.5
267.34 28.5
120
387.3
35.21 34.89
55.61
20.72

34.89 34.89
+13.00 55.26
8.52 20.37
~~44.02~~ − .62
−11.98 20.99
44.43

34.89
55.61
34.89 − 20.72
+13.01 − .62
+8.32 − 21.34
−11.88

44.24

~~−10.34~~
.43067
0 22.04 46.6
− 19.2 6.5
2.8
1.40

+2.48671
+1.28841

− 19.43
10 1.40
9 41.97

13 6.38
0 58.17
14 4.5

32.9
32.0
+ 27.5 28.1

13 6.38
~~18.70~~
−17.8

Feb. 26

20.75
+ 3 5 +372

35 17.3 36 52.8
35 57.6
41.9
43 6.2
50.3 36 52.8
55.22
8284 −2.90
82.52 82.82
82.52 32.00
52.94 52.94
20.42 20.94

32.52 32.52
+ 13.03 53.64
+7.27 −21.15
~~52.69~~ .62
− 9.31 21.77
43.51

32.52
52.94
32.52 −20.42
+13.03 − .62
+7.73 21.04
−9.31

43.97

~~10~~ +15.97
0 12.2
−27.0
−14.8
−7.40

+2.20330
1.00500

−10.22
9 52.50
9 42.28

13 6.07
0 61.14
14 7.2

34.0
33.1
+ 25.9 26.6

13 6.07
19.80
−18.9

a Can Maj' N A.

6 39 30
39 30.42
−16 32

(+.06)

−30

Feb. 20.4 6 39 30.72
25 .65
Mar 1 30.17
6 .48
11 30.39
16 .30
21 30.21
26 .10
31 30.01

(+.04)

N. a.
−16° 32'

41".6.		41.6	.5
42.1	1.0	42.15	.5
42.6	.4	42.6	.3
42.9	0.6	42.9	.2
43.2	.3	43.2	.2
43.4	0.3	43.4	.1
43.5	.3	43.5	.11
43.5	0.0	43.5	.11
43.5	.3	43.5	

3.2.

	+.35 +.372		+.42 +.416		+.41 +.438		+.38 +.356		+.36 +.366		+.42 +.424	
	Feb. 26		Feb. 27		Feb. 28		March 3		March 14		March 18	
−.016	39 4.0	38 57.2	39 5.1	38 59.4	39 5.3	38 56.3	39 5.0	39 2.0	39 4.7	38 59.4	39 3.3	38 55.5
	6.0	58.0	7.0	60.3	7.2		7.2	3.0	6.9	0.3	5.5	56.7
	8.2	60.0	9.2	119.7	9.3		9.4	4.4	9.0	1.4	7.7	57.6
	12.6	175.2	13.6		13.6		13.6	9.4	13.3	181.1	11.9	169.8
sin δ 9.45419 m	14.7		15.8		15.8		15.9		15.5		14.0	
	16.8		17.8		17.9		17.9		17.6		16.2	
	18.9		19.9		20.1		20.1		19.7		18.4	
	21.1		22.0		22.2		22.3		21.8		20.7	
	25.3		26.4		26.5		26.6		26.0		24.9	
cos δ 9.98166	27.5		28.5		28.7		28.8		28.2		27.0	
11804	29.7 38	58.4	30.9 38	59.8	30.8 38	56.3	30.9 39	2.1	30.5 39	60.4	29.2 38	56.6
.09970	1848		1962		1974		1977		1932		1768	
	16.800		17.896		17.956		39 17.973		17.564		16.255	
	16.78	16.78	17.82	17.82	17.93	17.93	17.96	17.86	17.55	17.55	16.24	16.24
	30.63	30.63	30.61	30.61	30.60	30.60	30.54	30.54	30.34	30.33	30.27	30.26
	−13.85	−13.85	−12.79	−12.79	−12.67	−12.67	−12.58	−12.58	−12.79	−12.78	−14.03	−14.02
		−.6		−.6		.6		−.6		6		−6
	16.78	−13.91	17.82	−12.85	17.98	−12.73	17.96	−12.64	17.55	−12.84	16.24	−14.0
	+13.03		+12.91		+12.88		+12.72		+12.96		+14.20	
	−10	16.78	−13	17.82	.12	17.93	−11	17.86	−11	17.55	−13	16.24
	−21	+13.03	−.19	+12.92	−18	+12.84	−.12	+12.74	+08	+12.94	+.15	+14.19
		−.11		−.12		−.13		−.11		−.11		−13
	29.50	−.21	30.51	−.19	30.51	−.18	30.45	−.12	30.48	+9	30.46	+16
		30.49		30.43		30.46		30.47		30.47		30.46

50

	4 47.9	4 48.9	4 54.5	A.R. only.	4 45.7	4 49.7
	23.8	25.6	31.2		30.7	29.3
	71.7	74.5	85.7		76.4	79.0
	+18.4	+18.0	+21.6	+14.9	+17.2	+19.7
	35.85	37.25	42.85		38.36	39.50
	1.26482	1.25527	1.33445	1.17319	1.23553	1.29447
	1.36452	1.35497	1.43415	1.27289	1.33523	1.39417
	−23.15	−22.64	−27.17	−14.75	−21.64	−24.79
	54 35.85	54 37.25	54 42.85	54	54 38.20	54 39.50
	54 12.70	54 14.61	54 15.68		54 16.56	54 14.71
−16°	31' 24.35"	31 26.26	31 27.33		31 28.21	31 26.36
−	1 43.24	−1 42.48	−1 41.94		−1 38.93	−.1 41.77
	33 07.6	33 08.7	33 09.3		33 07.1	33 08.1
	32 42.3	32 42.4	32 42.4		32 43.3	32 43.4
δ' = −16	31 24.35	31 26.26	31 27.33		31 28.21	31 26.36
	+10.60	+10.70	10.70		11.60	11.70
−80	+ 25.3	+ 26.3	+ 26.9		+ 23.8	+ 24.7

8 — 86° 32′ 31.″7

30.50	49
51	.43
51	.46
45	.47
45	.47
46	.46
41	44
30.48	30.46

+.31 +306

March 28

39	2.0	39	9.0
	4.1		9.9
	6.3		10.8
	10.6		29.7
	12.7		
	14.9		
	17.0		
	19.1		
	23.4		
	25.6		
	27.7	39	9.9
163	4		

14,855

14.84	14.84
30.07	30.06
−15.23	−15.22
	6
14.84	−15.28
+15.82	14.84
−.09	+15.83
+.36	−.09
30.42	+.36
	30.44

4 32.1
15.2
41.3
+5.0
23.65
0.69897
0.79867
— 6.29
54 23.65
54 17.36

31 29.01
− 1 39.67

33 08.7
32 43.5
31 29.01
+ 11.80

+ 25.2

58 Aurigae
6 41 28 　 24 Camel 641
+ 41 56
+ 90

Sept 15

	Feb. 26 add 15		Feb 28		March 14		March 28	
	41 12.2	41 2.6	41 13.3	41 18.4	41 12.8	41 19.8	41 7.4	41 27.3
	14.9	3.8	16.0		15.5	21.3	14.2	
	17.7	5.0	18.8		18.3	22.6	17.0	
	23.2	11.4	24.4		23.9	63.7	22.6	
li √9.82495	25.9		27.0		26.6		25.3	
	28.6		29.9		29.5		28.1	
	31.4		32.6		32.3		30.8	
	34.1		35.4		35.1		33.6	
	39.7		40.9		40.6		39.1	
cos √9.87153	42.6		43.7		43.3		42.0	
11804	45.4	41 2.8	46.4	41 18.4	46.0	41 21.2	44.7	41 27.3
9.98957	3157		3284		3239		3088	
	28.700		29.855		29.455		27.073	

Prony II

#6

25

3 　 2.0	2 　 48.5	2 　 39.9	2 　 53.6
30.0	17.6	17.1	29.7
92.0	66.1	57.0	83.3
+ 24.9	+ 11.5	+ 8.2	+ 0.8
46.00	33.05	28.50	41.65
1.39620	1.06070	0.91381	9.96309
1.38577	1.05027	0.90338	9.89266
− 2431	− 11.23	− 801	− 079
27 46.00	27 33.05	27 28.50	27 41.65
27 21.69	27 21.82	27 20.49	40.86
′ ″			
+41° 55 26.66	55 26.53	55 27.86	7.49

θ Geminor
6 44 17
+34 07
(7.68)

Feb. 28 March 28

-.017

	44	33.3	43	50.3	43	46.1
		34.5		52.8		47.2
		35.4		55.3		48.0
		36.1		0.2		141.3
44	8.2	139.3		2.7		
	10.6			-5.2		
	13.2			7.7		
	18.2			10.1		
	20.6			15.2		
	23.1			17.7		
	~~4.39~~ 44	34.8		20.1	43	47.1

2.98 2373
5.21 18
5.73
8.190 5.209
8.17 5.19
21.24 20.72
-13.07 -15.53

sin δ 9.74887

cos δ 9.91796
11804
.03600

15
1 0.0 1 44.4
3 0.0 20.1
9 0.0 64.9
-26.6 -18.1
45.00 32.45
1.42488 m 1.25768
1.46088 m 1.29368

S 87 14 15.1

51 Cephei

6 39 42
+ 87 14
ém z = -.70

-32

Feb. 27

+.4 ~~2~~ 7416

314 36 40.3 36 52.0 35
316 38 8.0
41 10.0 36
38

33.5 40 39.4
34.0 42 25.5
33.1 43 17.3 36 3.9 52.0
330 43 50.0

1.7
4.4
3.3
12.8
42.7
33.36

32.83 33.63
32.51 37.34
53.67 53.67
-21.16 -16.06

32.51
+12.91
+8.73
-10.04
44.11

~~32.51~~
~~53.30~~
~~-20.79~~
~~.62~~
~~-21.41~~

32.51
+12.92
+8.65
-10.04
44.04

32.57
53.67
-21.16
.62
-21.78

10
0 12.0
-27.0
-15.0
-7.50

+1608
2.20629
1.00799
- 10.18
9 52.50
9 42.32
+87° 13 6.03
+ 0 60.38
14 6.4

14 337
338
+.65 I + 26.4 27.1
δ = +87 13 6.03
~~17.40~~
~~18.60~~
-18.6

Feb. 28

+.41 4438

16.5 32 33.6 29.6 35
59.3 18.33.2
41.3 27.32.4
6.3 23.31.9
6.12
1.55
33.30

32 29.6

33.51 32.78
34.59 32.46
53.30 53.30
-18.71 20.84

32.46
+12.58
+8.51
-9.67
44.19

~~32.46~~
~~52.84~~
~~20.98~~
~~.62~~
~~21.10~~

32.46
+12.84
+9.10
-9.67
44.73

32.46
53.30
-20.84
.60
21.46

0 22.9 4 56.3
14.6 17.4
8.3
4.15

+4231
2.62644
1.42814
- 2680
10 4.15
9 37.35
13 11.00
0 56.52
14 7.5

339
33.0
+ 25.5 26.1
13 11.00
~~17.00~~
~~17.80~~
-18.8

March 1

+.45 7467

35 15.1 33 32.2 54.7
35 57.5 31.4
36 38.6 24.7
38 6.0 31.6
38 48.0 30.7
39 31.7 31.7
40 (40.7)
40 57.7 32.2
42 21.1 29.6
43 3.9 33.29.7 54.
43 46.7 29.7
36.70

33.364 30.85
33.04 30.53
52.59 52.59
-19.55 22.06

30.53
+12.76
+9.35
-8.96
43.68

~~30.53~~
~~52.59~~
~~22.06~~
~~.62~~
~~22.68~~

30.53
+12.77
+9.70
-8.96
44.04

30.53
52.59
-20.06
.60
22.66

0 18.8
42.7
121.5
60.75

+3361
2.52647
1.32818
- 21.29
10 0.75
9 39.46
13 8.89
0 59.21
14 8.1

341
33.2
+ 25.1 25.8
13 8.89
~~18.10~~
~~19.00~~
-19.0

March 3

+.38 + 356

35 33.4 16.3 34 3.9
35 32.5 58.6 42 0.8
36 31.5 40.8
38 32.5 6.9

40 33.3 58.8
42 32.4 23.9
43 33.6 7.8 34 3.9
43 32.8 49.8
26.29
12
38.25

32.75 34.80
32.43 34.49
51.94 51.94
-19.51 17.45

32.43
+12.72
+7.89
-8.31
44.73

~~32.43~~
~~51.62~~
~~19.19~~
~~.62~~
~~19.81~~

32.43
+12.74
+7.39
-8.31
44.25

32.43
51.84
-19.51
.60
20.13

0 16.0 4 48.5
-18.2 13.2
-2.2
-1.10
58.90

+3288
2.57693
1.31863
- 20.83
9 58.90
9 38.07
13 10.28
0 57.84
14 8.1

344
33.5
+ 25.4 26.0
13 10.28
~~18.40~~
~~17.30~~
-19.3

March 11

+.41 +.398

~~40 53~~ 41 10.0

40 53.4 27.8 34
42 19.7 27.7 4.2
43 1.9 28.4 10.0
43 44.8 27.9 5.0
20.5
5.02
34.81

27.90
26.37
48.76
-21.39

27.37
+12.75
+8.52
-5.13
43.51

~~27.37~~
~~48.31~~
~~20.94~~
~~.62~~
~~21.56~~

27.37
+12.72
+8.27
-5.13
43.23

27.37
48.76
-21.39
.60
22.01

4 46.7
12.2
118.9
29.45

-1021
2.00903
0.81073
+ 64.6
9 29.45
9 35.91
13 12.44
0 60.24
14 12.7

357
34.8
+ 22.1 22.8
13 12.44
~~19.40~~
~~20.60~~
-20.6

March 14

+.36 +.366

35 29.7 12.6 34 50.8
35 27.1 53.2 37
36 26.6 35.5 5.4
38 28.5 2.9 5.3
4.0
18.4
46.0
34.89

34 58.8

27.95 39.29
27.63 29.97
47.47 47.47
19.84 17.50

27.63
+12.96
+7.48
-3.84
44.23

~~27.63~~
~~47.09~~
~~19.46~~
~~.62~~
~~20.08~~

27.63
12.94
+7.60
-3.84
44.33

27.63
47.47
19.84
.62
20.46

0 8.3
4 38.8
107.2
53.60

+2771
2.44264
1.24434
- 17.15
9 53.60
9 36.05
13 12.30
0 57.53
14 9.8

358
35.0
+ 25.2 25.8
13 12.30
~~19.90~~
~~20.80~~
-20.8

51 Cephei

(−32)

Wire intervals for 51 Ceph.

		6-1	6-2	6-3	6-4	6-5	6-6	6-7	6-8	6-9	6-10	6-11
Jan	30	+4 17.9	+3 33.4	+2 50.8	+1 24.4	+0 42.8	−0.5	−0 42.5	−1 25.9	−2 50.1	−3 32.9	−4 16.8
	31	17.7	33.5	~~50.0~~	24.4	42.2	−0.0	41.6	26.7	50.9	32.5	16.4
Feb.	1	17.6	34.1	51.3	26.2	41.0	−1.3	42.2	24.6	52.6	34.9	17.8
	2	18.5	33.9	51.7	26.5	42.4	+1.1	42.6	26.5	52.4	33.7	16.9
	5	17.6	33.1	52.1	25.5	42.2	+0.7	43.6	25.7	53.7	33.2	16.8
	8	16.4	34.3	51.3	25.8	43.0	+1.0	43.4	26.3	53.2	32.8	17.0
	14	16.5	32.8	51.2	25.2	42.8	+1.0	41.7	25.9	52.0	33.2	17.3
	22	19.8	33.8	51.0 51.1	26.7	44.1	+1.1	41.6	24.8	52.8	34.2	16.1
		17.75	33.61	51.31	25.62	42.56	+0.26	42.40	25.92	52.21	33.92	17.03

20.79

+.42 +424

n = 31 +306

March 18

28

3.6 20.0 35 7.9
4.1 24.0 35 50.1 34 55.8
3.2 23.4 36 32.3
3.6 23.6 37 58.0
14.5 24.00
362
2266

35 43 17.1 35 22.0
35 46.0 33.9
36 29.1 51.1
37 54.1 25.6
38 37.9 42.7

21.4
19.9
20.2
20.0
20.6
102.1
20.42

34 55.8 35 22.0

~~26.28~~ 24.00
23.68
25.96
45.98 45.98
−20.02 −22.30

22.66 20.42
−3.2
19.73 20.10
41.19 41.58
21.46 −21.48

23.68 23.68
+14.20 45.61
+8.73 21.53
−2.35 .62
−21.53
45.26 23.68 2368
41.58 14.19
−22.30 +8.80
.62 −2.35
−22.92

44.32

20.10 21.10
+15.32 41.19
+6.44 −21.09
+2.05 .62
21.71
44.91 20.10 20.10
41.58
20.10 −21.48
15.33 .62
6.36 −22.10
+2.05

43.84

Adopted reduction to mean of threads

		m	s
6−	1	+ 4	17.1
	2	3	33.9
	3	2	51.1
	4	1	25.6
	5	0	42.7
	6		
	7		42.7
	8	1	25.5
	9	2	51.5
	10	3	34.2
	11	4	17.0

Jan	30	17.94	33.44	50.84	24.44	42.84	−1.46	42.46	25.86	50.06	32.86	16.76
	31	17.75	33.55	51.35	24.75	42.25	.05	41.55	26.65	52.85	34.15	16.45
Feb	1	17.57	34.07	51.67	26.17	40.57	−1.33	42.23	24.63	52.63	32.53	17.13
	2	18.47	33.87	52.07	26.47	42.87	+1.07	42.63	26.53	52.43	34.23	17.83
	5	17.64	33.14	51.84	25.54	42.24	+.74	43.56	25.66	52.96	33.66	16.86
	8	16.41	34.31	51.21	25.81	43.01	+1.01	43.39	26.29	52.09	33.19	16.79
	14	16.51	32.81	51.01	25.21	42.81	+1.01	41.69	25.89	51.99	32.79	16.99
		17.47	33.60	51.36	25.49	42.36	+0.16	42.50	25.93	51.57	33.44	16.97

10
0 12.8
4 39.1
11.9
55.95

0 5.7
− 24.5
−18.8
−9.40

+26.79
2.42797
1.22967
−16.97
9 55.95
9 38.98
+87° 13 9.37
0 59.37
14 8.7
14 36.1
35.2
I + 26.5 27.2

+23.84
2.37731
1.17901
−15.10
9 50.60
9 35.50
13 12.85
0 58.59
14 11.4
36.6
35.7
+ 24.3 24.9

δ′ = +87 13 9.37
− 21.00

13 12.85
− 21.50

Whole number of stars in this book = 48
" " " Obs. " " " " 336