KG
11366
v.452

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General Catalogue
Observations & Reductions
B A9 1871–2

Charles W. Sever, University Bookstore, Cambridge.

General Catalogue
Observations and Reductions
A 9
1872

1872
15 Lyncis

6 46 10
46 11.18
+58 35 11.18 5.97

10.98
.73
.68
.69
10.45

(+.86)
1.64
1.64
sin z = -.28

Feb. 25
Mar 1 6 46 11.79 .06
6 11.73 6
11 .58 6
16 (-.47) .42 5
21 (-.03) 26 6
26 (-.08) 11.09 7
11.02 .07

Σ4.
11.32 .33 +15
11.14 12 -6
11.12 12 -6
11.00 -3 -21
11.15 11.14 -08
-5.22
5.92

+ 58° 35′

sin √ 9.93115
cos √ 9.71705
11804
9.83509

23.6	23.4 .7	20
24.0	24.1 .7	25
24.8 3.2	24.8 -.1	Mar 1
25.3 -.3	25.4 .5	6
25.8 1.9	25.9 .5	11
26.3	26.4 .3	16
26.7 -1.6	26.7 .2	21
26.8 .3	26.9 .1	26
27.0	27.0	31

+.42 +.416 +.41 +.438 +.45 +.467 ~~+12.76~~ +.31 +.306

1872 Feb. 27 Feb. 28 March 1 March 28

-.030

Feb. 27

45 34.7 45 35.4 45
38.6 36.0
42.5 36.6
50.5 108.0
54.4
58.4 45 36.0
2.3
6.2
14.2
17.9
22.0 45 36.0
3417
3007
641.7
58.336

58.31 58.31
11.77 11.76
-13.46 -13.45
+3
58.31 -13.42
+12.91
+.69 58.31
-.59 +12.92
+.68
-.58
~~10.90~~
11.32
11.33

Feb. 28

46 16.3 45
19.3
21.8
50.3 57.4
54.1
58.2 46 19.1
2.2
6.0
2908
46 19.1
58.160

58.13 58.13
11.76 11.75
-13.63 -13.62
+3
58.13 -13.59
+12.92
+.67 58.13
-.58 +12.84
+.72
-.57
~~10.73~~
11.14
11.12

March 1

34.5 45 27.6 45
38.4 29.0
42.5 30.7
50.2 87.3
54.3
58.2 45 29.1
2.1
6.0
14.0
18.1
21.9 45 29.1
3402
300
640.2
58.20

58.17 58.17
11.73 11.73
-13.56 -13.56
+3
58.17 -13.53
+12.76
+.74 58.17
-.55 +12.77
+.76
-.55
~~10.68~~
11.12
11.15

March 28

31.2 45 19.5
35.2 40 20.7
39.2 40 22.3
47.0 78 62.5
51.0 40
55.0 45 20.8
58.9 39
3.0 41
10.8 78
14.8 40
18.7 45 39 20.8
3646
34
604.8
54982

54.95 54.95
10.99 10.99
-16.64 -16.04
+3
54.95 -16.01
+15.32
+.51 54.95
+.22 +15.33
+.50
+.19
~~10.69~~
11.60
10.97

45
3 39.7
5.7
45.4
22.70
+22.3
1.34830
1.18339
+1525
48 22.70
48 07.45
+58° 34′ 40.90″
+ 0 17.82
6

34 58.5
35 24.4

45
3 10.7
36.1
46.8
23.40
-20.8
1.31806n
1.15315n
+ 14.23
48 53.40
48 7.63
34 40.72
+ 0 17.59

34 58.3
35 24.5

45
3 43.8
10.9
54.7
27.35
+29.1
1.46389
1.29898
+ 19.90
48 27.35
48 7.45
34 40.90
+ 0 17.71

34 58.6
35 24.8

3 40.2
12.7
52.9
26.45
+34.2
1.53403
1.36912
+ 23.40
48 26.45
48 ~~1.69~~ 3.05
34 45.30
+ 0 17.33

35 02.6
35 36.9

+.25 I + 25.9 ~~25.1~~ 26.1 + 26.2 ~~26.5~~ 26.5 + 26.2 ~~25.5~~ 26.4 + 24.3 24.6

+58 34 40.90 34 40.72 34 40.90 34 45.30
-12.40 12.50 12.80 -14.90

20
25
mar 1
6
11
16
21
26
31

$\delta = +58^\circ\ 35'\ 12.0''$

δ Can. Maj.
6 48 49
−24 01
— 45

		1872. Feb. 27				Feb. 28				March 1				April 4		
	48	23.5	48	28.6	48	5.7	48	4.8	48	23.6	48	18.7	48		48	9.2
		24.8		29.2		8.0		6.0		26.0		19.7				10.3
		28.1		29.8		10.2		6.8		28.2		20.8				12.6
		32.5		87.6		14.7		17.6		32.6		59.2		30.1		32.1
sin √ 9.60960		34.9				17.0				34.9				32.3		
		37.0	48	29.2		19.2	48	5.9		37.2	48	19.7		34.6	48	10.7
		39.3				21.5				39.4				36.9		
		41.6				23.7				41.7				39.2		
		46.0				28.4				46.2				23 1		
cos √ 9.96067		48.3				30.6				48.4						
11.804		50.7	48	29.2		32.8	48	5.9		50.7	48	19.7			48	10.7
.07871		4067				21 8				4089						
		—														
		36.973				19.255				37.189				34.62.		

Brown #

20		20	
2 58.0		3 6.9	3 17.2
34.9		45.8	1.8
93.9		112.7	79.0
46.95		56.35	39.50
+7.8	+13.4	+17.6	+23.9
0.89209	1.12710	1.24551	1.37840
0.97080	1.21581	1.32422	1.45711
— 9.34	— 16	−21.10	−28.65
22 46.45		22 56.35	23 9.50
22 37.11		22 35.25	22 40.85
−23° 59′ 48.76″		59 46.90	59 52.50

1872phae.proj.1456.

50 Draco Lb. NA ~~(NA)~~

6 50 28
104 50 43 2932 cor = + .28 (5 above 4)
29.32 31.22
.75 1.6

(+3.81)
3.81

29.38
68
14
29
29.28

(+.28)

			δ (N.a.)			
Feb. 20	8 15 50 26.12		+75° 16′ 34″.7	29.63	.65	33
25	46	.36	33.6	83	.44	42
Mar 1	26.83	.37	32.5	37	.46	.14
6	23	.40	31.7	54	.56	24
11	27.64	.41	31.0	29.62	29.60	(+.28)
16 (+.28)	28.64	.42	30.6		1.80	
21	28.49	.43	30.1		31.50	
26	28.92	.43	29.9			
31	29.3	.44	29.8			

+.42 +416 +.41 +438 +.38 +356 ~~+.32~~ +.31 +306

1872 Feb. 27 Feb. 28 March 3 March 28

+.060
sin 9.98548
cos 9.40538
11804 m
9.52342 m

Feb. 27

49 50 40.6
44.0
46.6
131.2
43.7
59.4
7.6
15.5 50 43.7
23.6
31.4
137.5
60
77.5
50 43.7

15.500
15.56 15.56
26.81 26.56
11.25 −11.00
−.28
16.86 11.16
+12.91 11.28
−1.60
+2.76
29.63
15.56
+12.90
−1.57
+2.76
29.60

Feb. 28

49 49 50.7
51.9
102.6
59.4
7.8
16.1 49 51.3
23.6
32.2
1391
60
79.1
49 51.3

15.820
15.88 15.88
26.88 26.63
11.00 −10.75
−.28
15.88 ~~−10.81~~
+12.92 −11.03
−1.56
+2.69
29.83
15.88
+12.84
−1.67
+2.09
29.44

March 3

49 50 34.4
59.7
7.6
15.6 50 34.4
23.5
31.9
1383
60
78.3
50 34.4

15.660
15.72 15.72
27.18 26.85
11.46 −11.23
−.28
15.72 −11.29
+12.73 −11.51
−1.45
+2.37
29.37
15.72
+12.73
−1.36
+2.37
29.46

March 28

49 26.3 49 ~~42.8~~
34.5 46.1
42.7 49.1
58.9 51.7
7.0 52.8
−15.0 199.6
23.0 49 49.9
31.5
47.5
55.7
3.7
405.8 49 49.9
140
265.8
−100.527 15.073
26.49 15.13 15.13
29.30 29.30 29.05
8.81 14.17 −13.92
−.28
15.13 ~~−13.98~~
+15.32 −14.20
−1.18
+.27
29.79
54
15.13
+15.33
−1.17
+0.27
29.56

40 2 15.6 36.4 112.0 56.00 −28.2	1 57.4 18.6 76.0 38.00 +24.5	2 8.3 32.8 101.1 50.55 −18.7	1 45.1 14.7 59.8 29.90 +25.2
1.45025 m 0.97367	1.38917 0.91259 m	1.27184 m 0.79526	1.40140 0.92482 m
+ 9.41 41 56.00 41 46.59	+ 8.18 41 38.00 41 ~~32.68~~ 46.18	+ 6.24 41 50.55 41 44.31	+ 8.41 41 29.90 −41 38.31
104° 41′ 1″.76 +1 57.15	41 2.17 +1 56.58	41 4.04 +1 55.46	41 10.04 +1 54.46
42 58.9 (8) 43 26.9 ~~17 00.1~~ 16 33.1	42 58.7 43 27.1 ~~17 01.3~~ 16 32.9	42 59.5 43 28.0 ~~17 00.5~~ 16 32.0	43 04.5 43 30.1 ~~16 55.5~~ 16 29.9
+.82 I + 28.0	+ 28.4	+ 28.5	+ 25.6
104 41 1.76 −20.10	41 2.17 20.30	41 4.04 21.20	41 10.04 −23.30

			Δ
75°	16′	34.7	−1.2
		33.5	−1.0
		32.5	−0.8
		31.7	−0.7
		31.0	−0.5
		30.5	−0.4
		30.1	−0.2
		29.9	−0.1
		29.8	

$\delta = 75^\circ\ 16'\ 53.2''$

ε Can. Maj. N.A.

6 53 36 3580

53

− 28 48 35.80

(−.55)

−55

3585 .85
99 .88
83 .84
77 .79
35.86 35.84

[+.06]
(+.04)

Feb. 20
25
Mar 1

1872	Feb. 27		Feb. 28		March 3		Apr. 3	
	+.42 +.416		+.41 +.438		+.38 +.356		+.23 +.218	
−.018 53	9.6 53	14.9 53	9.7 53	4.0 53	9.6 53	1.3		53 41.6
	11.9	15.4	12.0	5.6	11.9	2.4		42.6
a√	14.1	30.3	14.3	6.6	14.2	3.5		44.0
	18.9		19.0	16.2	19.0	7.2		128.2
9.68282	21.3		21.3		21.4			
	23.6 53	15.1	23.6 53	5.4	23.8 53	2.4		53 42.7
	26.0		26.0		26.1			
	28.3		28.6		28.4			
	33.2		33.2		33.0	53	30.4	26
a√ 9.94266	35.5		35.6		35.5		32.8	27
11804	37.8 53	15.1	37.9 53	5.4	37.8 53	2.4	35.2	2.6 53 42.7
.06070	2602		2612		2607			19
								2.63
								23.70
	23.655		23.746		23.700			21.07
	23.64	23.64	23.73	23.73	23.68	23.68		21.05
	36.27	36.26	36.25	36.25	36.17	36.17		35.52
	−12.63	−12.62	−12.52	−12.52	12.49	−12.49		−14.47
		−.6		−.6		.6		
	23.64	12.68	23.73	12.58	23.68	−12.54		21.05
	+12.91		+12.92		+12.73			+14.57
	−.23	23.64	−.21	23.73	−.21	23.68		13
	−.47	+12.80	−.45	+12.84	−.37	+12.73		+.28
		−.23		−.24		−.20		
	35.85	−.46	35.99	−.45	35.88	−.37		35.77
		35.85		35.88		35.84		

Apr. 3 (right): 21.05 / 35.52 / −14.47 / 6 / −14.53 / 21.05 / +14.58 / −.12 / +.28 / 35.79

	Feb. 27	Feb. 28	March 3	Apr. 3
	5			
	3 43.0	3 57.0	4 2.1	3 14.2
	20.0	32.2	39.8	57.2
	63.0	89.2	101.9	131.4
	31.50	44.60	50.95	65.70
	+8.6	+18.3	+21.3 ✓	−21.6
	0.93450	1.26246	1.32838	1.33445
	0.99520	1.32315	1.38908	1.39515
	−989	−2104	−2449	+2484
	8 31.50	8 44.60	8 50.95	8 5.70
	8 21.61	8 23.56	8 26.46	8 30.54
−28°	45′ 33.26″	45 35.21	45 38.11	45 42.19

ζ Geminor

6 56 29

56 30.97 30.97

27.41

+ 20 46

Mar 1	6 56 31.21		+ 20° 45′	21″.8 ·	21″.8	.2
6	13	.08		22.0	22.0	.1
11	05	.08		22.1	22.1	.2
16	97	.08		22.3	22.3	.1
21	(+.01) 30.89	.08		22.4	22.4	.2
26	81	.08		22.5	22.6	.1
31	(+.03) 72	.09		22.6	22.7	.1
Ap. 5	63	.09		22.7	22.8	.1
10	30.54	.09		22.9 ·	22.9	
				23.2 ·		

(+.38)	+5	.02	31.00
	+1	.02	30.98
	+2	−1	30.98
+.38	+2	−1	30.96
	+4	+1	31.00
	+4	+1	30.99
(+.03)	31.00		30.98

Lui z = +.37

− 3.56

27.44 +.45 +467 | +.38 +356 | +.42 +460 | +.31 +306 | +.23 +218 | +.21 +220

1872	March 1		March 3		March 21		March 28		Apr. 3		Apr. 4	
−0.16	56 5.1	56 0.0	56 5.1	55 57.0	Ind. gr.	56 20.8	56 2.2	55 57.1	56 3.0	55 54.3	56 2.9	55 55.6
	7.3	0.7	7.3	58.2		21.6	4.4	58.1	5.1	55.1	5.1	56.6
	9.6	1.7	9.6	59.0		22.3	6.5	59.0	7.2	56.2	7.3	57.6
	13.9	2.4	13.8	174.2		64.7	11.0	174.2	11.7	165.6	11.7	169.8
sin φ 9.54936	16.2		16.1				13.1		13.8		13.9	
	18.4	56 0.8	18.4	55 58.1	56 12.0	56 21.6	15.4	55 58.1	16.1	55 55.2	16.1	55 56.6
	20.5		20.6		14.2		17.5		18.2		18.3	
	22.8		22.8		16.4		19.8		20.4		20.5	
	27.0		27.1		18.7		24.1		24.8		24.8	
cos φ 9.97087	29.3		29.4		20.9		26.4		27.0		27.1	
11804	31.5	56 0.8	31.5	55 58.1	8 22	56 21.6	28.6	55 58.1	29.3	55 55.2	29.3	55 56.6
.08851	2016		2017				1690		1766		1770	

18.327		18.336		16.440		15.364		16.055		16.091	
18.31	18.31	18.32	18.32	16.42	16.42	15.35	15.35	16.04	16.04	16.08	16.08
31.21	31.21	31.18	31.18	30.89	30.89	30.79	30.78	30.67	30.66	30.65	30.64
−12.90	−12.90	12.86	−12.86	14.07	−14.47	15.44	−15.43	14.63	−14.62	14.57	−14.56
	−.1		−.1		−.1		−.1		−.1		−.1
18.31	12.91	18.32	12.87	16.42	14.48	16.35	15.44	16.04	14.63	16.08	14.57
+12.76		+12.71		+14.33		+15.32		+14.57		+14.52	
+.17		+.16		+.15		+.11		+.09		+.37	
−.24	18.31	−.21	18.32	+.08	16.42	+.18	15.35	+.30	16.04	+.32	16.08
	+12.77		+12.73		+14.32		+15.33		+14.58		+14.52
31.00	+.18	30.98	+.14	30.98	+.17	30.96	+.12	31.00	+.08	30.99	+.08
	−.24		−.21		+.08		+.19		+.31		+.33
	31.02		30.98		30.99		30.99		31.01		31.01

	35					
	3 4.3	3 6.1	2 37.0	3 0.3	3 2.8	3 2.2
	35.9	39.0	81.0	37.9	42.0	41.2
	40.2	45.1	105.0	38.2	44.8	43.9
	21.90	33.55	22.50	19.10	22.40	21.70
	+17.5	+20.2	−3.2	+17.3	+20.9	+19.5
	1.24304	1.30535	0.71600n	1.23805	1.32015	1.29003
	1.33195	1.39426	0.80491n	1.32696	1.40906	1.37894
	− 21.47	− 24.79	+ 6.38	− 21.23	− 25.65	− 23.93
	37 50.10	37 52.55	37 22.50	37 49.10	37 52.40	37 51.70
	37 28.63	37 27.76	37 28.88	37 27.87	37 26.75	37 27.77
+20°	45 19.72	45 20.59	45 19.47	45 20.48	45 21.60	45 20.58
−	0 25.21	−0 24.64	−0 24.97	−0 24.11	−0 23.78	−0 23.88
	44 54.5	44 55.9	44 54.5	44 56.4	44 57.8	44 56.7
	45 21.8	45 21.9	45 22.4	45 22.6	45 22.8	45 22.8
−33 I	+ 27.3 27.0	+ 26.0 25.7	+ 27.9 27.5	+ ~~27.2~~ 26.2 25.9	+ 25.0 24.7	+ 26.1 25.7
+20	45 19.72	45 20.59	45 19.47	45 20.48	45 21.60	45 20.58
	− 1.50	1.60	2.10	2.30	2.50	− 2.50

$\delta = +20^\circ\ 45'\ 20''.3$

γ Can Maj
6 57 57
−15 26
−.28

1872 Feb. 27 — March 1 — March 3 — March 28 — Apr. 3 — Apr. 4

sin 9.42507n
cos 9.98405
11804
.10209

Feb. 27
57 32.9 57 27.4
35.0 28.4
37.1 29.5
41.5 85.3
43.7
45.7 57 28.4
47.9
50.0
54.3
56.3
58.4 57 28.4
5028
45.709

March 1
57 32.8 58 5.2
35.0 6.6
37.3 7.8
41.5 19.6
43.7
45.8 58 6.5
47.9
50.0
54.4
56.5
58.7 58 6.5
5036
45.782

March 3
33.8
57 35.0 57 40.3
37.2
41.4
43.6
45.8
47.9 57 40.3
50.1
54.3
56.4
58.7
504.2 57 40.3
45.836

March 28
57 30.0 57 ~~29.9~~
32.0 ~~32.0~~
34.1 33.2
38.4
40.6
− 42.3 57 33.2
44.8
47.0
51.2
53.4
55.6 57 33.2
4694
43.673

Apr. 3
57 46.8
57 39.1
41.1
43.3 57 46.8
45.6
47.7
2188
57 46.8
43.360

Apr. 4
57 30.5 57 24.4
32.6 25.1
34.8 26.2
39.1 75.7
41.2
43.3 57 25.2
45.5
47.6
51.9
54.0
56.1 57 25.2
4760
43.327

45
4 4.1
40.3
2.4.4
2.2.2
+ 17.3 ✓
1.23805
1.34014
− 2239 − 21.88
48 52.20 52.20
48 29.81 48 30.32
−15° 25′ 41.97″

3 14.8
53.3
12 8.1
6 4.05
− 24.7 ✓
1.31597n
1.41816n
+ 2680 + 2619
48 4.05 4.05
48 30.85 30.24
25 41.89

3 47.6
28.8
7 4.4
3 7.20
+ 5.5 ✓
0.74036
0.84245
− 712 − 696
48 37.20 37.20
48 30.08 30.24
25 41.89

3 53.8
36.2
90.0
45.00
+ 10.4 ✓
1.01703
1.11912
− 1346 − 1316
48 45.00 45.00
48 31.54 31.84
25 43.49

3 37.8
22.0
59.8
29.90
− 2.6 ✓
0.55630n
0.65839n
+ 467 + 455
48 29.90 29.90
48 34.57 34.45
25 46.10

4 3.4
49.9
113.3
56.65
+ 18.1 ✓
1.25768
1.35977
− 2343 − 2290
48 56.65 56.65
48 33.22 33.75
25 45.40

1872phae.proj.1456.

63 Aurigae

7 2 48
7 2 50.89
+39 32 50.89 46.75

(+.83)
+.83

Lui Z = +.05

Feb. 10	7 02 51.51	.05		
15	46	.05		
20	47	.07	(.00)	
25	34	.07		
Mar 1	51.27	.09	(-.02)	
6	18	.10		
11	.08	.10		
16	98	.10		
21	50.88			

50.89 .82 -7
.91 .88 -1
.88 .89 -0
.88 .90 +1
50.89 50.87 (-.02)
-4.14
46.73

+39° 31'

40".8 ·	40".8	.6
41.3	41.4	.5
41.8	41.9	.5
42.3	42.4	.5
42.9 ·	42.9	.4
43.3	43.3	.4
43.7	43.7	.4
44.0	44.1	.3
44.4 ·	44.4	
45.1 ·		

-142 +400 | +.35 +356 | +.38 +382 | +.42 +460

1872 Feb. 24 | ~~March~~ 1 | March 3 | March 19 | March 21 | Apr. 3

-.020

Feb. 24: 2 50.2 2; 51.0; 52.2; 2 32.4; 35.0; 37.6 2 51.1; 40.3; 42.9; 1882; 153.4; 2 51.1

sin 9.80382

~~March~~ 1: 45.4 2; 47.6; 49.9; 54.7; 56.8; 59.1; 1.4; 3.8; 8.4; 10.7; 13.0 — 44.5 2; 43.6; 44.6

March 3: 22.4 2; 25.0; 27.5; 32.8; 35.6; 38.1 2; 40.8; 43.5; 48.0; 51.5 2; 54.3 — 47.0 2; 48.2; 49.3; 144.5; 48.2; 48.2 — 420.5

March 19: 20.4 2; 23.0; 25.8; 31.1; 33.7; 36.4 2; 39.1; 41.7; 47.1; 49.7 2; 52.4 — 39.4 2; 39.4; 39.4 — 399.4 400.4

March 21: 20.2 2; 22.8; 25.6; 30.9; 33.6; 36.2 2; 38.9; 41.6; 46.8; 49.6 2; 52.2 — 13.2 2; 14.3; 15.8; 43.3; 14.4; 14.4 — 398.4

Apr. 3: 42.9 2; 45.1; 47.4; 52.0; 54.4; 56.7; 58.9; 1.2; 5.9; 8.1; 10.4 — 39.8; 40.7; 41.6

cos 9.88720
11104
0.0524

Feb. 24		March 3		March 19		March 21	
37.64		38.226		36.400		36.318	
37.62	37.62	38.21	38.21	36.38	36.38	36.19	36.19
51.35	51.35	51.24	51.24	50.92	50.92	50.88	50.88
-13.73	-13.73	-13.03	-13.03	-14.63	-14.54	-14.69	-14.69

Feb. 24		March 3		March 19		March 21	
37.62	37.62	38.21	38.21	36.38	36.38	36.19	36.19
+13.38	+13.33	+12.73	+12.73	+14.21	+14.22	+14.33	+14.32
+.35	+.33	+.32	+.29	+.32	+.32	+.35	+.38
-.46	-.46	-.35	-.35	-.03	-.03	+.01	+.01
50.89	50.82	50.91	50.88	50.88	50.89	50.88	50.91

Feb. 24		March 3		March 19		March 21	
50							
1	25.6	1	33.4	1	37.0	2	7.0
	0.0		5.8		5.9		37.0
	25.6		39.2		45.9		104.0
	13.80		19.60		22.95		52.00
	-13.5		-10.0		-3.0		+21.8
	1.13033 n		1.00000 n		0.47712 n		1.33846
	1.13557 n		1.00524 n		0.48236 n		1.34370
	+1366		+1013		+304		-2206
51	12.80	51	19.60	51	22.95	51	52.00
51	26.46	51	29.73	51	25.99	51	29.94
+39° 31'	21".89	31	18.62	31	22.36	31	18.41
0	3.05	-0	3.22	-0	3.11	-0	3.34
31	18.8	31	15.4	31	19.2	31	15.1
31	42.3	31	48.1	31	44.3	31	44.4

-.05 I + 23.5 23.5 | + 27.7 27.6 | + 25.1 25.1 | + 29.3 29.2

+39 31 21.89 | 31 18.62 | 31 22.36 | 31 18.41
- 6.40 | 7.20 | 8.40 | - 8.50

$\delta = +39^{\circ}\ 31'\ 35''.9$

apr. 4

2 44.0

δ Can Maj: N.A.

7 8 12
3 11.27
−26 11 11.27

(−.49)

11.18	18
33	27
17	18
25	27
24	30
30	29
11.25	11.25

[−.02]

(−.02)

[illegible] 2	Feb. 19 +.43 +.43		Feb. 28 +.41 +.438		March 1 +.45 +.467		March 28 +.31 +.306		Apr 3 +.23 .218		Apr 4 +.21 +.220	
−.017 2	45.6 2	41.6 2	45.4 2	39.1 2	45.4 2	42.5 2	42.2 2	32.8 2	42.8 2	39.8 2	42.9 2	44.0
	48.0	42.8	47.7	40.5	47.7	43.7	44.5	34.1	45.1	40.7	45.2	
	50.3	43.7	49.9	41.6	49.9	44.6	46.8	35.2	47.4	41.6	47.5	
	54.9	128.1	54.5	121.2	54.7	130.8	51.5	102.1	52.0	122.1	52.0	
	57.2		56.9		56.8		53.7		54.4		54.4	
	59.6 2	42.7	59.1 2	40.4	59.2 2	43.6	56.0 2	34.0	56.7 2	40.7	56.6 2	44.0
	1.7		1.4		1.5		58.4		58.9		58.9	
	4.2		3.6		3.8		0.6		1.2		1.8	
	8.8		8.3		8.4		5.1		5.9		5.9	
sin 9.64468	11.0		10.7		10.7		7.4		8.1		8.1	
	13.4 2	42.7	12.9 2	40.4	13.0 2	43.6	9.8 2	34.0	10.5 2	40.7	10.4 2	44.0
	3547		3504		3511		6160		3830		3832	
	300		300		300				240		240	
	654.7		650.4		651.1				623.0		623.2	
cos 9.98298	59.517		59.127		59.191		56.000		56.636		56.655	
11804	59.50	59.50	59.11	59.11	59.07	59.17	55.99	55.99	56.61	56.61	56.64	56.64
.07102	11.87	11.87	11.73	11.73	11.70	11.70	11.17	11.17	11.05	11.05	11.03	11.03
	−12.37	−12.37	~~12.07~~	−12.62	12.63	−12.63	15.18	−15.18	14.94	−14.44	14.39	−14.39
		+ 2		+ 2		+ 2		+ 2		+ 2		+ 2
	59.50	−12.35	59.11	−12.60	59.07	−12.61	59.99	−15.16	56.61	−14.42	56.64	−14.37
	+12.49		+12.88		+12.76		+15.82		+14.57		+14.52	
	− 21		− 20		− 23		− 16		− 16		− .10	
	− .60	59.50	− .46	59.11	− .43	59.07	+ .10	55.99	+ 22	56.61	+ .24	56.64
		+12.49		+12.84		+12.77		+15.83		+14.58		+14.52
	11.18	− .21	11.33	− .22	11.17	− .23	11.25	− .15	11.24	− .11	11.30	− .11
		+ .60		+ .46		− .43		+ .10		+ .22		+ .24
		11.18		11.27		11.28		11.27		11.30		11.29

	30	2 52.9	2 48.0	2 57.8	2 51.4	2 47.1
	3 6.9	30.0	26.3	42.2	36.5	32.4
	48.8	82.9	74.3	100.0	87.9	79.5
	15.7					
	57.85	41.45	37.15	50.00	43.95	39.75
	+16.8 2+	+15.7 2+	+15.6 2+	+22.0 2+	+15.9 2+	+12.7 2+
	1.22531	1.27184	1.19312	1.34242	1.20140	1.10380
	1.29633	1.34286	1.26414	1.41344	1.27242	1.17482
	−1978	−2202	−1837	−2591	−1872	−1496
	32 57.85	32 41.45	32 37.15	32 50.00	32 43.95	32 39.75
	(32 38.07)	32 19.43	32 18.78	32 24.09	32 25.23	32 24.79
−26°	9′ 49.72″	9 31.08	9 30.43	9 35.74	9 36.88	9 36.44

22 Monocer.

7 5 17
− 0 17
−.01

1872	Feb. 24		Feb. 27		March 1		March 3		March 11	
	4 54.3	4 45.2		4 44.7	4 54.9	4 51.0	4 54.8	4 49.2	4 53.8	4 48.5
	56.4	46.6		45.3	56.9	52.0	56.8	50.0	55.8	49.2
	58.4	47.8		46.2	59.0	53.0	59.0	51.1	57.9	49.9
	2.5	139.6		136.2	3.0	156.0	3.1	150.3	2.0	147.6
Sin 7.694.7	4.6				5.1		5.1		4.0	
	6.7 4	46.5		4 45.4	7.2 4	52.0	7.1 4	50.1	6.1 4	49.2
	8.7				9.3		9.8		8.1	
	10.8				11.4		11.3		10.2	
	14.9		5 15.3	4	15.5		15.4		14.3	
cos 9.99559	16.9		17.5	6	17.5		17.4		16.4	
11804	19.0 4	46.5	19.5 4	5 45.4	19.7 4	52.0	19.6 4	50.1	18.4 4	49.2
.11803	2532			15	2595		2589		2470	
	180			0.50	180		180		180	
	732			6.65	79.5		78.9		67.0	
	6.654		5 7.15		7.227		7.173		6.091	

	35	1			
	4 55.2	4 60.8	4 51.7	4 54.7	4 52.8
	35.3	36.2	28.5	32.0	32.0
	90.5	97.0	80.2	86.7	84.8
	45.25	48.50	40.10	43.35	42.40
	+20.2	+21.7	+15.2	+17.1	+16.9
	1.30535	1.33646	1.18184	1.23300	1.22789
	1.42338	1.45449	1.29987	1.35103	1.34592
	−2651	−2848	−1994	−2244	−2218
	39 45.25	39 48.50	39 40.10	39 43.35	39 42.40
	39 18.74	39 20.02	39 20.16	39 20.91	39 20.22
−0°	16′ 30.39″	16 31.67	16 31.81	16 32.56	16 31.87

March 19				March 21				apr. 3				apr. 4			
4	53.1	4	46.7	4	53.0	4	44.85			5	16.5	4	52.6	4	44.4
	55.2		47.7		55.1		45.7				17.8		54.6		45.3
	57.2		48.7		57.2		46.7				19.0		56.6		46.0
	1.3		143.1		1.3		47.8		0.8		53.3		0.8		135.7
	3.4				3.3		185.0		2.8				2.8		
	5.4	4	47.7		5.4	4	46.2		4.9	5	17.8		4.8	4	45.2
	7.5				7.5				7.0				6.9		
	9.6				9.5				9.0				9.1		
	13.7				13.7				245				13.1		
	15.7				15.7								15.2		
	17.8	4	47.7		17.8	4	462			5	17.8		17.3	4	45.2
	2399				2395								2338		
	180				180								180		
	59.9				59.5								53.8		
	5.456				5.409				4.900				4.891		

4	55.5	4	58.3		4	13.8	4	56.8
	34.0		34.0			56.9		39.7
	89.5		92.3			130.7		96.5
	44.75		46.15			65.35		48.25
	+17.7		+21.7	19.2		−12.9		+19.7
	1.24797		1.33646			1.11059 n		1.29447
	1.36600		1.45449			1.22862 n		1.41250
	−2323		−2848	−2530		+1693		−2585
39	44.75	39	51.15	46.15	39	5.35	39	48.25
39	21.52	39	22.67	20.85	39	22.28	39	22.40
16	33.17	16	29.32 ✓	32.50	16	33.93 ✓	16	34.05

64 Aurigae

7 9 04

8.01

+41 07 6

(+.87)

+.87

sin z = +.02

Feb.10	7 09 8.69			+41° 6'	33".7	33.7	.6
15	.64	.05			34.3	34.3	.6
20	59	.05			34.9	34.9	.6
25 ~~20~~	52	.07			35.5	35.5	.5
Mar 1	8.45	.07			36.0	36.0	.5
6	35	.10	{.00}		36.4	36.5	.4
11	25	.10	{.00}		36.8	36.9	.4
16	15	.10			37.2	37.3	.4
21	8.05	.10			37.7	37.7	
26					38.5		

8.01	3.83	
8.00	8.00	−1
8.09	8.02	+1
7.91	7.90	−11
8.09	8.12	+11
7.99	8.00	+1
8.00	8.02	+1
7.97	7.99	−2
8.01	8.01	(00)

+.43 +.43 4.18 3.83 +.4 +.467 +.38 +.356 +.41 +.398 +.38 +.382 +.42 +.460

1872	Feb. 19		March 1		March 3		March 11		March 19		March 21	
									37.1			
−.020	8 39.4 8	31.6 8	38.9 8	32.3	8	54.3	8	49.7 8	39.9 8	54.8 8	37.1 8	29.7
	42.0	32.7	41.5	33.7					42.6		39.6	31.1
	44.9	33.6	44.4	34.8					48.1		42.4	32.1
	50.4	97.9	49.8	100.8 8	49.8		8 48.7		50.7		48.0	92.9
sec δ 9.81781	53.0		52.5		52.6		51.5		53.6		50.6	
	55.7 8	32.6	55.4 8	33.6	55.2 8	54.3	54.2 8	49.7	56.3 8	54.8	53.3 8	30.9
	58.6		58.0		58.0		57.0		59.0		56.2	
	1.3		0.8		60.8		59.7		4.5		58.8	
	6.7		6.3		2764		2711		7.2		4.3	
cos δ 9.87712	9.3		9.0						10.0		7.0	
11804	12.0 8	32.6	11.7 8	33.6	8	54.3	8	49.7	4090 8	54.8	9.7 8	30.9
9.99516	3733		3683						180		3890	
	240		240						589.0			
	613.3		608.3									
	55.755		55.300		551280		54.220		53.545		53.364	
	55.73	55.73	55.28	55.28	55.26	55.26	54.20	54.20	53.53	53.53	53.39	53.34
	8.60	8.60	8.45	8.45	8.42	8.42	8.25	8.25	8.09	8.09	8.05	8.05
	−12.87	−12.87	13.17	−13.17	−13.16	−13.16	−14.05	−14.05	−14.56	−14.56	−14.71	−14.71
	55.73		55.28		55.26		54.20		53.53		53.34	
	+12.49	55.73	+12.76	55.28	+12.73	55.26	+13.74	54.20	+14.21	53.53	+14.33	53.34
	+.37	+12.49	+ 39	+12.77	+ .33	+12.74	+ .36	+13.71	+ .33	+14.22	+ .37	+14.32
	−.59	+ .37	− 44	+ .41	− .41	+ .31	− .21	+ .30	− .08	+ .33	− .04	+.40
		−.59		− .44		− .41		− .24		− 8		− 4
	8.00	8.00	8.09	8.02	7.91	7.90	8.09	8.02	7.99	8.00	8.00	8.02

	15					
	2 33.4	2 14.3	1 52.4	1 55.0	1 48.6	2 15.0
	10.2	46.2	24.8	27.0	20.2	46.2
	43.6	120.5	77.2	82.8	68.8	121.2
	23.8	60.25	38.60	41.40	34.40	60.60
	+23.2	+21.7	+1.0	+4.5	−1.3	+22.5
	1.36549	1.33646	0.00010	0.65321	0.11894n	1.35218
	1.36065	1.33162	9.99516	0.64837	0.10910n	1.34734
	−2294	−2146	−589 0.99 (0.E)	−445	+ ~~1286~~ 1.29	−2225
	17 21.80	17 0.25	16 38.60 38.60	16 41.00	16 34.40	17 0.60
					726	
	16 58.86	16 38.79	16 ~~28~~ 38.61	16 36.55	16 35.69	16 38.35
+41°	5' 49".49	6 9.56	6 10.74	6 11.80	6 12.66	6 10.00
	0 1.67	−0 1.73	−0 1.52	−0 1.54	−0 1.43	−0 1.602
	5 47.8	6 7.8	6 9.2	6 10.3	6 11.2	5 8.4
	6 34.8	6 36.0	6 36.2	6 36.9	6 37.5	6 37.7
−.02	+ 47.0 47.0	+ ~~29.2~~ 28.2 28.2	+ 27.0 27.0	+ 26.6 26.5	+ 26.3 26.3	+ 29.3 29.3
+41	5 49.49	6 9.56	6 10.74	6 11.80	6 12.66	6 10.00
	−6.10	4.30	7.50	8.20	8.80	9.00

$\delta = +41^\circ\ 6'\ 28.''7$

+.44 +.420

March 24

8 36.5 8 39.6
39.2
41.8
47.4
50.1
52.8 8 39.6
55.6
58.4
3.7
6.6
9.1 8 39.6
58 12

52.836 52.81 52.81
7.99 7.99 7.99
−15.18 −15.18

52.81
+14.76 52.81
+ .88 +14.79
+ .02 + .87
+ 2
7.97 7.99

2 1.3
34.0
95.3
+13.25
1.12057
1.11573
− 13.05
16 47.65
16 34.60

6 13.75
− 0 1.43
62

6 12.2
6 37.9

+ 25.7 25.7
6 13.75
− 7.20

λ Geminor Mar 1 7 10 44.47 (54) + 16° 46′ 8.″5.

Mar 1	44.47	
6	40	.07
11	32	.08
16	24	.08
21	44.16	.08
26 (.00)	08	.08
31 (.00)	43.99	.09
Apr. 5	.91	.08
10	43.82	.09

8.″5.	8.5	.1
8.6	8.6	.1
8.7	8.7	.2
8.8	8.9	.1
9.0 .	9.0	.1
9.1	9.2	.2
9.2	9.3	.1
9.4	9.5	.2
9.6 .	9.6	.1
10.1 .		

7 10 40
10 44.16 44.16
+ 16 47 6 40.71
(+.30)
+.30

+2	44.21	.18
+0	14	.16
+0	19	.16
+1	16	.17
−3	13	.13
−4	12	.12
+0	14	.16
(00)		44.16

44.16
−3.45
40.71

Diiz
= + .43

1872	Feb. 28		March 3		March 11		March 19		March 21		Apr. 3	
	+.41	+438	+.38	+356	+.41	+398	+.38	+382	+.42	+460	+.23	+218
−.017 10	18.7 10	18.2 10	18.7 10	10.9 10	17.5 10	12.8 10	17.0 10	9.9 10	16.8 10	36.8 10	18.4 10	10.4
	20.8		20.9	11.7	19.7	13.7	19.1	10.6	19.0		18.6	11.3
	23.0		23.0	12.6	21.9	14.5	21.3	11.7	21.1		20.7	12.5
	27.3		27.3	35.2	26.1	41.0	25.6	32.2	25.3		24.9	34.2
sin √ 9.46011	29.3		29.5		28.3		27.7		27.6		27.1	
	31.6 10	18.2	31.6 10	11.7	30.0 10	13.7	29.9 10	10.7	29.7 10	36.8	29.2 10	11.4
	33.7		33.8		32.7		32.0		31.9		31.5	
	35.8		35.8		35.0		34.2		34.0		33.6	
	40.1		40.2		39.1		38.5		38.2		37.9	
cos √ 9.98113	42.2		42.3		41.3		40.7		40.4		40.0	
11804	44.5 10	18.2	44.5 10	11.7	43.5 10	13.7	42.8 10	10.7	42.6 10	36.8	42.2 10	11.4
.09917	3470		3476		3356		3288		3266		3221	
	31.546		31.600		30.509		29.891		29.691		29.282	
	31.58	31.53	31.58	31.58	30.49	30.49	29.87	29.87	29.67	29.67	29.26	29.26
	44.48	44.48	44.44	44.43	44.32	44.32	44.19	44.19	44.16	44.16	43.94	43.94
	−12.95	−12.93	−12.86	−12.85	−13.83	−13.83	−14.32	−14.32	−14.49	−14.49	−14.68	−14.68
	31.53		31.58		30.49		29.87		29.67		29.26	
	+12.88	31.58	+12.73	31.58	+13.74	30.49	+14.21	29.87	+14.33	29.67	+14.57	29.26
	+12	+12.84	+.11	+12.74	+12	+13.71	+.11	+14.22	+.13	+14.32	+.07	+14.58
	−.32	+.13	−.28	+.11	−.16	+.12	−.03	+.11	+.00	+.14	+.22	+.06
		−.32		−.27		−.16		−3		+0		+.22
	44.21		44.14		44.19		44.16		44.13		44.12	
		44.18		44.16		44.16		44.17		44.13		44.12

35

	2 6.2	2 13.8	2 7.8	2 11.0	1 43.1	2 7.9
	41.2	49.0	45.8	47.3	17.1	49.5
	117.4	122.8	113.6	118.3	60.2	117.4
	53.70	61.40	56.80	59.15	30.10	58.70
	+18.3	+19.9	+16.8	+19.2	−7.1	+17.9
	1.12385	1.29885	1.22531	1.28330	0.85126 n	1.25285
	1.22302	1.39802	1.32448	1.38247	0.95043 n	1.35202
	− 16.71	− 25.01	− 21.11	− 24.12	+ 8.92	− 22.49
	36 53.70	37 1.40	36 56.80	36 59.15	36 30.10	36 58.70
	36 36.99	36 36.39	36 35.69	36 35.03	36 39.02	36 36.21
+16°	46′ 11.″36	46 11.96	46 12.66	46 13.32	46 9.33	46 12.14
	0 29.87	− 0 29.64	− 0 29.40	− 0 29.34	− 0 30.15	− 0 28.74
	45 41.5	45 42.3	45 43.3	45 44.0	45 39.2	45 43.4
	46 8.4	46 8.5	46 8.7	46 9.0	46 9.0	46 9.4
−.40 I	+ 26.9 26.5	+ 26.2 25.8	+ 25.4 25.0	+ 25.0 24.6	+ 29.8 29.4	+ 26.0 25.6
+16	46 11.36	46 11.96	46 12.66	46 13.32	46 9.33	46 12.14
	− 0.10	0.20	0.40	0.70	0.70	1.10

$\delta = +16^\circ\ 46'\ 8.3''$

+.21 +.220

Apr. 4

10.4 10 16.4 10 30.0
11.3 18.6
12.5 20.7
.42 25.1
27.2
11.4 29.4 10 30.0
31.5
33.6
37.9
40.1
11.4 42.3 10 30.0
32.28

29.345

.26 29.33 29.33
.54 48.83 43.52
.965 -14.60 +14.59

29.33
9.26 +14.52 29.33
4.58 +.06 +14.52
.06 +.23 + .07
.22 + .24
44.14
/2 44.16

1 43.8
25.1
68.9
34.45 —
— 0.7
9.84510 n
9.94427 n
+ ~~.880~~
.88
36 34.45 —
36 ~~43.23~~
35.33

46 13.02
— 28.81

45 45.2
46 9.5

.6 + 25.3 24.9

46 13.02
— 1.20

δ Geminor

7 12 24
12 28.62
+22 13' 28.62
25.03

(+.41)
(+.41)

−2	28.60	60	
+4	.64	66	
−1	.62	61	
+2	.64	64	
+6	.67	68	
+.02			

28.66 28.64
23.59
25.05

Cui z = +.34

				N.A	
Feb. 10	7 12	29.13		29.17	
15		10	03	14	3
20		06	04	29.10	4
25		01	05	05	5
Mar 1		28.95	06	28.99	6
6	(+.07)	89 88	07	92	7
11	(+.02)	83 80	06	28.84	8
16		28.72	05	76	8
21		28.63	04	28.67	9
26		55	08	59	8
31		.46	09	28.50	9
Ap. 5		.38	08	41	9
10		28.29	09	28.32	.9

δ			R.A.	
22°	12'	58".3	58.3	
		58.5	58.5	.2
		58.6	58.6	.1
		58.9	58.9	.3
		59.1	59.1	.2
		59.3	59.3	.2
		59.5	59.5	.2
		59.7	59.7	.2
		59.9	59.9	.2
		60.0	60.1	.1
		60.2	60.2	.1
		60.3	60.3	.2
		60.5	60.5	
		60.7		

+43 +.43 | +.45 +.467 | +.41 +.398 | +.38 +.382 | +.42 +.460 | .218

(δ ? Feb 19 | ~~Feb 28~~ March 1 | March 11 | March 19 | March 21 | Apr. 3

−.018

Feb 19: 12 3.1, 5.3, 7.5, 11.9, 14.2, 16.4, 18.6, 20.8, 25.3, 27.5, 29.8 — 1604 — 11 57.2, 58.5, 59.6 — 175.3 — 11 58.4 — 11 58.4

sin δ 9.57762
cos δ 9.96650
11.804
.08454

March 1: 12 2.7, 4.9, 7.2, 11.6, 13.8, 16.0, 18.3, 20.5, 24.9, 27.2, 29.4 — 1765 — 11 54.8, 56.0, 57.3 — 168.1 — 11 56.0 — 23.8, 26.1, 28.2 — 11 56.0

March 11: 12 35.8, 36.6, 37.5 — 109.9 — 12 36.6 — 12 23.8, 26.1, 28.2 — 1.1, 1.1, 1.2 — 3 — 12 36.6 — 16.05

March 19: 12 1.0, 3.2, 5.4, 9.9, 12.1, 14.3, 16.5, 18.8, 23.2, 25.4, 27.7 — 1575 — 11 57.7, 58.6, 59.6 — 175.9 — 11 58.6 — 11 58.6

March 21: 12 0.9, 3.1, 5.3, 9.8, 12.0, 14.3, 16.4, 18.6, 23.0, 25.3, 27.5 — 1562 — 11 50.9, 51.8, 53.0, 54.0 — 209.7 — 11 52.4 — 11 52.4

Apr. 3: 11 44.7, 50.0, 56.5, 6.3, 11.7, 17.0, 22.3, 27.9, 38.5, 43.9, 49.3 — 12 32.5, 36.0, 38.9

Feb 19		March 1		March 11		March 19		March 21	
16.400		16.046		14.54		14.317		14.200	
16.38	16.38	16.03	16.03	14.92	14.92	14.30	14.30	14.18	14.18
29.07	29.07	28.95	28.95	28.83	28.80	28.65	28.66	28.63	28.63
12.69	−12.69	12.92	−12.92	13.91	−13.88	14.35	−14.36	14.45	−14.45
	− 1		− 1		− 1		− 1		− 1
16.38	−12.70	16.03	−12.93	14.92	−13.89	14.30	−14.37	14.18	−14.46
+12.49		+12.76		+13.74		+14.21		+14.33	
+ .18	16.38	+ .18	16.08	+ .17	14.92	+ .16	14.30	+ .17	14.18
− .45	+12.49	− .33	+12.77	− .21	+13.71	− .03	+14.22	− .01	+14.32
	+ .18		+ .19		+ .16		+ .16		+ .19
28.60	− .45	28.64	− .33	28.62	− .18	28.64	− 4.	28.67	− 1
	28.60		28.66		28.61		28.64		28.68

				21.7
10		5		
0 46.1	0 33.3	4 39.8	0 24.5	0 35.8
20.8	4.7	12.6	− 2.8	4.9
96.9	38.6	52.4	10.85	40.7
93.46	19.00	26.20		20.85
+18.8	+20.0	−21.7	+15.7	+21.8
1.25527	1.30103	1.33646 n	1.19590	1.33846
1.33981	1.38557	1.42100 n	1.28044	1.42300
− 21.87	− 24.30	+ 26.36	− 19.17	− 26.49
10 33.45	10 19.00	9 26.20	10 10.85	10 20.35
10 11.58	9 54.70	9 52.56	9 51.68	9 53.86
+22° 12 36.77	12 53.65	12 55.79	12 56.67	12 54.49
− 0 22.77	− 0 23.18	− 0 22.98	− 0 22.44	− 0 23.17
12 14.0	12 30.5	12 32.8	12 34.2	12 31.3
12 58.6	12 59.1	12 59.5	12 59.8	12 59.9

−.32 I + 44.6 44.3 | + 28.6 28.3 | + 26.7 26.3 | + 25.6 25.3 | + 28.6 28.3

+22 12 36.77	12 53.65	12 55.79	12 56.67	12 54.49
− 2.30	2.80	3.20	3.50	− 3.60

$\delta = +22^\circ\ 12'\ 56''.3$

δ Draco 46. N.A.

7 12 30
12 31.17 31.17
112 34
67 26
(−2.40)

7 12 31.11 = P 1871
31.15 = P 1872

31.43 .31 +16
.17 .17 +2
.21 .23 +8
.41 .39 +24
+.13
31.31 31.28
−4
31.24
(+.14)
(+.13) for P

Feb.20 19 12 28.59
.81 .22
Mar 1 29.05 .24
.31 .26
Mar 11 (+.11) 29.58 .27
.86 .28
21 (+13=P) 30.15 .29
.45 .30
31 30.35 .30

+67° 25' 52".6 20
51.4 25
50.3 1
49.4 6
48.5 11
47.9 16
47.3 21
47.2 26
47.0 31
47.8

Cri z = −.94

1872

+.44 +.438 Feb.28

+.038 17
45.4 12 32.6
50.4
55.7
6.3
sin √9.96541 11.9
17.3 12 32.6
22.6
28.1
38.6
cos √9.58406 44.1
11.804 49.3 12 32.6
9.40210 3697
180
189.7
17.2546
17.28 17.28
28.92 28.93
−11.64 −11.65
−.14
17.28 −11.79
+12.88
−.98
+2.25 17.28
+12.84
31.43 −1.05
+2.24
31.31

+.38 +.356 March 3

12 4.2
12 6.3
11.9
17.4 12 4.2
22.5
27.9
860
12 4.2
17.200
17.24 17.24
29.06 29.13
−11.82 −11.88
−.14
17.24 −13.02
+12.73
−.91
+2.11 17.24
+12.74
31.17 −.86
+2.05
31.17

+.44 +.420 March 24

11 44.7 12 258 11
49.8
55.0
6.0
11.0
16.5 12 25.8
21.9
27.1
38.1
43.3
48.6 12 25.8
3620
180
182.0
16.5676
16.58 16.58
30.24 30.30
−13.66 −13.72
−.14
16.58 −13.86
+14.76
−1.06
+0.93 16.58
+14.79
31.21 −1.61
+0.87
31.23

+.23 +.218 Apr.3

44.8 12 32.5
50.0 36.0
55.5 38.9
6.3 107.4
11.7 12 35.8
17.0 12 50.1
22.3 51.6
27.9 53.5
38.6
43.9
49.3 12 35.8
3673
186
187.3
17.027
17.06 17.06
30.84 30.90
−13.78 −13.84
−.14
17.06 −13.98
+14.57
−0.85
+0.83 17.06
+14.58
31.41 −.52
+0.27
31.39

50
2 25.0
45.3
70.7
35.35
−15.4
1.18752 n
0.88962
−7.75
52 5.15
51 57.40
112° 30' 50.95
+ 2 48.46
55
33 39.5
34 9.2
~~26 20.6~~
25 50.8
+.87 I + 29.7 30.6
112 30 50.95
−19.40

2 5.7
28.2
93.9
46.95
+43.0
1.11394
0.81604 n
+6.55
51 46.95
51 53.50
30 54.85
+ 2 46.979
33 41.8
34 10.1
~~26 18.2~~
25 49.9
+ 28.3 29.1
30 54.85
20.38

2 13.0
37.4
50.4
25.20
−7.3
0.96848 n
0.67058
−4.69
51 58.20
51 50.51
30 57.84
+ 2 ~~48.45~~
49.02
33 46.9
34 12.8
~~26 13.2~~
25 47.2
+ 25.9 ~~26.0~~ 26.8
30 57.84
23.08

2 10.9 2 17.4
39.9 46.6
50.8 ~~64.3~~
25.40 ~~32.~~
−18.8
1.27416 n
0.97626
−9.46
51 55.40
51 45.94
31 2.41
+ 2 42.958
33 45.4
34 13.0
~~26 14.6~~
25 47.0
+ 27.6 28.5
31 2.41
−23.20

.6	20	52.6	− 1.2	20
.4	25	51.4	1.1	25
.3	1	50.3	1.0	1
.4	6	49.3	0.8	6
.5	11	48.5	0.7	11
.9	16	47.8	0.5	16
.3	21	47.3	0.2	21
.2	26	47.1	− 0.1	26
.0	31	47.0		31
.8				

$\delta = + 67^\circ\ 26'\ 10''.2$

66 Aurigae
7 15 12
+40 55
+.87

	1872 Feb. 19		March 3		March 19		March 21		March 24		March 27	
14	48.0 14	39.7 14	47.4 14	38.0 14	45.7 14	37.3 14	45.4 14	38.2 14	44.9 14	55.3 14	44.5 14	38.2
	50.6	40.6	50.1	39.6	48.4	38.3	48.2	39.4	47.6		47.2	39.5
	53.3	41.5	52.8	40.7	51.2	39.4	50.9	40.7	50.4		49.8	40.7
	58.8	121.8	58.3	118.3	56.6	115.0	56.4	118.3	55.9		55.3	118.4
Sin 9.81622	1.6		1.0		59.2		59.2		58.6		58.1	
	4.3 14	40.6	3.7 14	37.4	2.0 14	38.3	1.8 14	39.4	1.2 14	55.3	0.9 14	39.5
	7.0		6.4		4.8		4.5		4.0		3.5	
	9.7		9.2		7.4		7.2		6.8		6.3	
	15.0		14.6		13.0		12.6		12.1		11.8	
Co 9.87833	17.9		17.3		15.7		15.3		15.0		14.5	
11804	20.6 14	40.6	20.0 14	39.4	18.3 14	38.3	18.1 14	39.4	17.7 14	55.3	17.1 14	39.5
9.99637	2868		2808		3223		3196		3142		3090	
	240		240		300		306		300		300	
	46 8		40.8		22.3		19.6		14.2		9.0	
	4.254		3.709		2.097		1.782		1.291		0.816	

	25					
	4 47	3 46.0	3 43.0	3 46.0	3 25.2	6 39.5
	39.1	17.6	15.3	16.3	58.1	13.6
	103.8	63.6	58.3	62.3	83.3	53.1
	51.90	31.80	29.15	31.15	41.65	26.55
	+23.7	+24.3	+25.1	+22.4	+6.0	+21.3
	1.37475	1.38561	1.37475	1.35025	0.77816	1.32838
	1.37112	1.38198	1.37112	1.34662	0.77452	1.32475
	−23.50	−24.09	−23.50	−22.21	−5.95	−21.12
	28 51.80	28 31.80	28 29.15	28 31.15	28 41.65	28 26.55
	28 28.40	28 7.71	28 5.65	28 8.94	28 4.70	28 5.43
+40°	54′ 19.95″	54 40.64	54 42.70	54 39.41	54 42.65	54 42.92

Apr. 3 Apr. 4

		15	8.3	14	45.1	14	37.0
Indgo.			9.2		47.9		38.2
	55.9		10.4		50.6		39.2
14	58.7		27.9		56.0		114.4
	1.4				58.8		
	4.1	15	9.3		1.6	14	38.4
	7.0				4.2		
	3071				6.9		
					12.4		
					15.1		
		15	9.3		17.9	14	38.1
					3165		
					300		
					16.5		
	61,420				1,500		

3	8.8	3	40.5
	45.7		17.4
	11.45		11.79
	57.25		58.95
	−1.9		+23.4
	0.89763m		1.36922
	0.89400m		1.36559
	+ 784		— 2320
28	57.25	28	28.95
28	5.09	28	00.95
54	43.26	54	42.60

ι Geminor

7 17 41
17 46.50
+~~25~~ 04 46.50 4276
03

(+.53)

+.53

emi z = +.25

46.52 52 +2
46 46 −4
43 39 −11
45 46 −4
52 54 +4
49 48 ~~Am~~
47 48 −2 (−.02)
46.48 48

Feb. 10	7 17 47.07		
15	.03	.04	
20	46.99	.04	
25	.94	.05	
Mar 1	46.88	106	
6	.81	.07	
11 (−.02)	.73	.08	
16	.65	.08	
21 (−.02)	46.56	.09	
26	.47	.09	
31	.37	.10	
Apr 5	.28	.09	
10	46.19	.09	

R 67 7 17 + 28° 2' 10 62".5 62.5 +.4
15 62.8 62.9 3
20 63.1 63.2 3
25 63.5 63.5 3
63.8 63.8 3
64.1 64.1 3
64.4 64.4 3
64.7 64.7 2
64.9 64.9 3
65.1 65.2 2
65.3 65.4 2
65.5 65.6 +.1
65.7 65.7
66.0

.43 +.43 −3.74 42.74 +.38 +3.56 +.41 +3.98 +.38 +3.82 +.44 +4.20 +.30 +3.30

1872 Feb. 19 March 3 March 11 March 19 March 24 March 27

−.018 17

sin 9.67256

cos 9.94567
11804
.06371

Feb. 19

20.3 17 11.3 17
22.6 12.0
25.0 13.2
29.7 14.8
32.0 51.3
34.3 17 12.8
36.7
39.0
43.5
46.0
48.4 17 12.8
3775

34.3~~1~~8
34.30 34.30
47.00 47.00
12.70 −12.70
+2
34.30 −12.68
+12.49
+.23 34.30
−.50 +12.49
+.23
46.52 −.50
46.52

March 3

17 30.7 17
29.3
31.5
33.8 17 30.7
36.2
38.6
1695
17 30.7

33.910
33.88 33.88
46.85 46.85
12.97 −12.97
+2
33.88 −12.95
+12.73
+.20 33.88
−.35 +12.74
+.19
46.46 −.35
46.46

March 11

18.7 17 31.1 17
21.0
23.4
28.1
30.4
32.7 17 31.1
35.0
37.4
42.1
44.4
46.7 17 31.1
3599

32.7~~1~~8
32.70 32.70
46.73 46.73
14.03 −14.03
+2
32.70 −14.01
+13.74
+22 32.70
−23 +13.71
+21
46.43 −23
46.39

March 19

18.1 17 38.2 17
20.5
22.8
27.5
29.8
32.2 17 38.2
34.6
36.8
41.4
43.8
46.2 17 38.2
3537

32.1~~54~~
32.14 32.14
46.60 46.60
14.46 −14.46
+2
32.14 −14.44
+14.21
+.20 32.14
−10 +14.22
+.20
46.45 −10
46.46

March 24

17.6 17 11.2 17
20.0 12.0
22.2 13.3
26.9 36.5
29.1
31.6 17 12.2
33.8
36.1
40.9
43.7
45.6 17 12.2
3470

31.546
31.53 31.53
46.50 46.50
−14.97 −14.97
+2
31.53 −14.95
+14.76
+.23 31.58
−02 +14.79
+.22
46.52 .00
46.54

March 27

17.0 17 9.2 17
19.3 10.6
21.6 11.6
26.3 31.4
28.6
31.0 17 10.5
33.3
35.6
40.4
42.7
45.0 17 10.5
3408

30.982
30.96 30.96
46.45 46.45
−15.49 −15.49
+2
30.96 −15.47
+15.32
+16 30.96
+.05 +15.30
+.17
46.49 +.05
46.48

Feb. 19

20
0 53.2
27.2
8.04
4.020
+21.5
1.33244
1.39615
−24.90
20 40.20
20 15.30
+28° 2 33.05
− 0 15.92

2 17.1
3 3.2

−.22 I + 46.2 46.0

+28 2 33.05
2.90

March 3

0 12.5
42.7
15.2
3.7.60
+3.2
0.50515
0.56886
−3.70
18 57.60
19 53.90
2 34.45
−0 16.18

2 38.3
3 3.9

+ 25.6 25.4

2 54.45
3.50

March 11

20
0 58.7
41.9
11.6
55.80
+1.6
0.20412
0.26783
−1.85
19 55.30
19 53.45
2 54.90
−0 16.10

2 38.8
3 4.4

+ 25.6 25.3

2 54.90
4.00

March 19

20
0 8.2
31.9
91.5
45.75
−6.0
0.77815n
0.84186n
+6.95
19 45.75
19 52.50
2 55.65
−0 15.82

2 39.8
3 4.8

+ 25.0 24.8

2 55.65
4.40

March 24

20
0 28.1
1.1
2.9.2
1.4.60
+17.3
1.28556
1.34927
−22.35
20 14.60
19 52.25
2 56.10
−0 15.46

2 40.1
3 5.1

+ 25.0 24.8

2 56.10
4.70

March 27

0 29.9
4.4
84.3
17.15
+20.5
1.31175
1.37546
−23.74
20 17.15
19 53.41
2 54.94
−0 15.66

2 38.3
3 05.2

+ 25.9 25.7

2 54.94
4.80

17
0
1.3
1.4
20
19
2
−0
2
3
+
2

+.4
3
3
3
3
3
3
2
3
2
2
+.1

δ = + 28° 3′ 0.4″

+ 23 + 21 8

apr, 3

17 17.7 17 6.3
20.0 7.3
22.3 8.3
26.8 21.9
29.3
31.7 17 7.3
34.0
36.2
40.8
43.3
45.6 17 7.3
3477

31.609

31.59 31.59
46.31 46.31
−14.72 −14.72
+.2
−14.70

31.59
+14.54
+.12
+.19
46.47

81.59
+14.58
+.12
+.19
46.48

0 32.8
8.8
41 6
20.80
+24.3

1.38561
1.44932
— 2814
20 20.10
19 52.66

2 55.69
− 0 15.43

2 40.3
3 05.5

+ 25.2 24.9

2 55.69
− 5.10

λ Can Maj
7 19 00
−29 03
.5 5

1872 Feb. 28 March 3 March 11 March 19 March 21 Apr. 3

	Feb. 28		March 3		March 11		March 19		March 21		Apr. 3	
18	36.0	18 24.0	18 35.9	18 29.4	19 46.4	19 39.9	18 34.1	18 32.5	18 39.0	18 58.4	18 33.4	18 20.5
	38.2	24.6	38.2	30.6	48.5	40.7	36.3	33.4	36.3		35.7	21.4
	40.5	25.2	40.5	31.6	50.7	41.7	38.7	34.5	38.6		37.9	22.7
	45.2	73.8	45.3	91.6	54.8	122.3	43.4	100.4	43.4		42.7	64.6
sin 9.68625	47.5		47.6		56.8		45.8		45.8		45.1	
n	49.9	18 24.6	49.9	18 30.5	58.9	19 40.8	48.1	18 33.5	48.2	18 58.4	47.4	18 21.5
	52.3		52.3		1.0		50.6		50.6		49.8	
	54.7		54.6		3.0		52.9		52.0		52.2	
	59.4		59.4		7.2		57.6		57.7		56.8	
cos 9.94161	1.7		1.7		9.4		0.1		0.0		59.1	
11804	4.0	18 24.6	4.2	18 30.5	11.5	19 40.8	2.4	18 33.5	2.2	18 58.4	1.6	18 21.5
.05565	5494		5496		3482		5300		5298		5217	
					300							
					648.2							
	49.976		49.964		58.927		48.182		48.164		47.427	

	Feb. 28	March 3	March 11	March 19	March 21	Apr. 3
	20					
	4 19.9	4 16.3	4 → 11.16	4 11.8	3 40.2	4 27.0
	57.2	53.1	50.12	50.7	16.7	10.0
	77.1	69.4		62.0	116.9	37.0
	38.55	34.70		31.00	58.45	18.50
	+25.3	+19.5	+18.1	+14.7	−10.2	+25.9
	1.40312	1.29003	1.25768	1.16732	1.00860 n	1.41330
	1.46277	1.34968	1.31733	1.22697	1.06825 n	1.47295
	−29.02	−22.37	−20.77	−16.86	+11.70	−29.71
	24 38.55	24 34.70	7	24 1.00	23 28.45 ✓	24 18.50
	23 39.53	2[illegible] [illegible]2.33		23 44.14	23 40.15 29.	23 48.79
−29°	0′ 51.18″	0 53.98		0 55.79	0 51.80	1 0.44

apr. 4

18	33.4	18	26.1
	35.7		27.0
	38.0		28.0
	42.7		81.1
	45.1		
	47.5	18	27.0
	49.8		
	52.2		
	56.9		
	59.2		
	1.6	18	27.0
	5221		

47.464

4 20.2
2.8
28.0
1.1.50

+20.5
1.31175
1.37140
—23.52
24 11.50
23 47.98

0 59.63

β Cam. Min. 7 20 10 + 8° 33

20 12.50

12.50

9.24

(+.15)

(+.15)

em z = +.56

Feb. 10	7 20 13.02		+ 8° 32′	40″.7 ·	40.7	
15	99	·03		40.5	40.5	−.2
20	12.95	·04		40.4	40.4	−.1
25	90	·05		40.3	40.3	−.1
Mar 1	12.85	·05		40.2 ·	40.2	−.1
6 (+.04)	78	·07		40.2	40.2	·0
11	71	·07		40.2	40.2	0
16 (+.04)	64	·07		40.3	40.2	0
21	12.56	·08		40.3 ·	40.3	+.1
26	48	·08		40.4	40.4	+.1
31	39	·09		40.5	40.5	+.1
				40.7 ·		

12.55 55 +5

.53 53 +2

.56 57 +7

.50 49 +1

12.524 54 (+.04)

3.26

9.28

+.43 +.43 | +.45 +.467 | +.38 +.382 | +.30 +.330

1872 Feb. 19 March 1 March 19 March 27

−0.16 19 — 20 10.4 19
11.5
— 12.7
36.4 34.6
sin 9.17223 38.4
0.3 20 11.5
2.6
4.7
cos 9.99515 3024
300 20 11.5
11804 24
.11319

47.5 19 40.6
49.6 41.7
51.7 43.0
55.9 12.53
58.0
0.1 19 41.8
2.1
4.2
8.4
10.6 19 41.8
12.6
30.07
300
00.7
0.064

20 10.1 19
~~11.5~~
~~11.8~~
20 10.1
20 0.4 17
2.6 16
6.8 16
8.9 20.7 10.1
10.9 17
266 .30
1.66
0.06
352
~~6.12~~ 5840

44.6 19 36.8
46.8 37.6
48.8 38.2
53.0 112.6
55.0
57.1 19 37.5
59.2
1.3
5.5
7.4 19 37.5
9.6
6283
57.118

0.48
0.46 0.46
12.96 12.96
−12.50 −12.50
−4
0.46 −12.54
+12.49
+ 6 0.46
− .46 +12.49
+16
12.55 −46
12.55

0.05 0.05 19
12.85 12.85
−12.80 −12.80
−4
0.05 −12.84
+12.76
+ 7 0.05
− .35 +12.46
+ 7
12.53 −35
12.53

58.38 18.38
12.59 12.57
−14.21 −14.21
−4
58.38 −14.25
+14.21
+ 6 58.384
− .09 +14.22
+ 6
12.56 −9
12.57

57.10 57.10
12.46 12.46
−16.36 −15.36
−4
57.10 −15.40
+15.32
+ 4 57.10
.04 +15.30
+5
12.50 +4
12.49

	50							
	0	7.6	0	30.2	4	49.7	0	27.8
		45.8		6.0		24.8		6.9
		113.4		36.2		74.5		34.7
		56.70		18.10		37.25		17.35
		−11.0 ✓		+18.3		−11.7		+17.6
		1.04139n		1.26245		1.06819n		1.29226
		1.15458n		1.37564		1.18138n		1.40545
		+14.27		−23.75		+15.18		−25.43
	49	56.70	50	18.10	49	37.25	50	17.35
	50	10.89	49	54.35	49	52.43	49	51.92
+8°	32	37.38	32	54.00	32	55.92	32	56.43
	−0	41.66	−0	42.12	−0	41.03	−0	40.82
		32						
		551						
	31	55.7	32	11.9	32	14.9	32	15.6
	32	40.4	32	40.2	32	40.3	32	40.4

−.52 I + 45.3 ~~44.7~~ 44.8 + 28.3 27.8 + 25.4 24.8 + 24.8 24.3

+8 32 37.38 32 54.00 32 55.92 32 56.43

+ 1.90 2.10 2.00 + 1.90

$\delta = + 8^{\circ}\ 32'\ 42''.3$

Q Geminor

7 20 49
20 8.1251
+32 0 2 52.57
48.64

(+.62)

(+.62)

em z = +.18

					δ.				″	
Feb. 10	7 20 13.02		7 20 53.13		+32° 2′ 13.″7	52.63	57	+6	13.7	+.5
15	99		09	.04	14.1	.55	54	+3	14.1	+.4
20	95		05	.05	14.5	.55	57	+6	14.6	+.4
25	90		00	.05	14.9	.55	58	+7	15.0	+.4
Mar 1	12.85		52.94	.06	15.4	.48	49	−2	15.4	+.4
6		(+.05) +.05	87	.07	15.8	.58	59	+8	15.8	+.3
11	71		78	.09	16.1	52.56	56 (+.05)		16.1	+.4
16			70	.08	16.5	−3.87			16.5	+.3
21	12.56		52.61	.09	16.8	48.69			16.8	+.2
26			51	.10	17.0				17.0	+.2
31	39		41	.10	17.2				17.2	+.2
Apr. 5			31	.10	17.4				17.4	+.2
10	12.23		52.22	.09	17.6				17.6	
					17.8					

δ =

	+.42 +400		+.38 +356		+.42 +460		+.44 +420		+.23 +218		+.21 +220	
1872	Feb. 24		March 3		March 21		March 24		Apr. 3		Apr. 4	
−018	20 25.0	20 16.0	20 25.4	20 14.4	20 23.5	20 21.2	20 22.9	20 18.1	20 23.1	20 21.5	20 23.2	20 17.1
	27.3	17.7	27.9	15.7	25.9	22.2	25.3	19.0	25.5	22.7	25.6	18.1
	29.8	19.6	30.3	16.6	28.4	23.7	27.9	20.0	27.9	23.9	28.0	19.1
	34.8	52.7	35.2	46.7	33.1	67.1	32.8	57.1	32.7	68.1	32.9	54.3
sin 9.72462	37.1		37.6		35.7		35.3		35.3 20	22.7	35.3	
	39.4 20	17.6	40.0 20	15.6	38.0 20	22.4	37.6 20	19.0	37.8 20	54.5	37.8 20	18.1
	41.9		42.4		40.5		40.1		40.1	55.4	40.2	
	44.4		44.9		42.4		42.4		42.5	56.2	42.6	
	49.2		49.7		47.8		47.3		47.3		47.6	
cos 9.92825	51.6		52.1		50.3		49.8		49.8		49.9	
11804	54.1 20	17.6	54.5 20	15.6	52.7 20	22.4	52.1 20	19.0	52.1 20	22.7	52.4 20	18.1
.04629	4346		4400		4188		4135		4139		4155	
	39.509		40.000		38.073		37.591		37.627		37.773	
	39.49	39.49	39.98	39.98	38.06	38.06	37.57	37.57	37.61	37.61	37.75	37.75
	53.01	53.01	52.91	52.91	52.61	52.61	52.56	52.55	52.35	52.35	52.33	52.33
	−13.52	−13.52	−12.93	−12.93	−14.55	−14.55	−14.99	−14.98	−14.74	−14.74	−14.58	−14.58
		− 5		− 5		− 5		− 5		− 5		− 5
	39.49	−13.57	39.98	−12.98	38.06	−14.60	37.57	−15.03	37.61	14.79	37.71	−14.63
	+13.38		+12.73		+14.33		+14.76		+14.57		+14.52	
	+ .26		+ .24		+ .26		+ .27		+ .14		+ .13	
	− .50	39.49	− .40	39.98	− .10	38.06	− .05	37.57	+ .16	37.61	+ .18	37.75
		+13.83		+12.74		+14.32		+14.79		+14.58		+14.52
	52.63	+ .25	52.55	+ .22	52.55	+ .29	52.55	+ .26	52.48	+ .14	52.58	+ .14
		− .50		− .40		− .10		− .4		+ .16		+ .18
		52.57		52.54		52.57		52.58		52.49		52.59

	20						
	1 22.0	1 28.1	1 19.8	1 19.0	1 11.4	0 35.0	1 17.9
	58.6	0.3	50.4	51.2	50.1	12.8	56.2
	80.6	88.4	70.2	70.2	61.5		74.1
	40.30	44.20	35.10	35.10	30.75		37.05
	+21.9	+24.4	+15.7	+18.6	+14.9		+17.7
	1.34044	1.38739	1.19590	1.26951	1.17319		1.29447
	1.38673	1.43368	1.24219	1.31580	1.21948		1.34076
	− 24.36	− 27.14	− 17.47	− 20.69	− 16.58		− 21.92
	21 10.30	21 14.20	21 5.10	21 05.10	21 0.75		21 7.05
	20 45.94	20 47.06	20 47.63	20 44.41	20 44.17		20 45.13
+32°	02 2.41	02 1.29	2 0.72	2 3.94	2 4.18		2 3.22
−	0 10.41	− 0 11.47	− 0 11.56	− 0 11.46	− 0 10.99		− 0 11.07
	01 51.5	1 49.8	1 49.2	1 52.5	1 53.2		1 52.2
	2 14.9	2 15.6	2 16.8	2 17.9	2 17.3		2 17.4
−.16 I	+ 23.4 23.2	+ 25.8 25.7	+ 27.6 27.4	+ 24.4 24.2	+ 24.1 24.0		+ 25.2 25.0
+32	2 2.41	2 1.29	2 0.72	2 3.94	2 4.18		2 3.22
	− 4.10	4.80	6.00	6.10	6.50		− 6.60

$\delta = + 32^\circ\ 2'\ 10.8''$

6 Can. Min.
7 22 37
+12 17
+.22

	1872 Feb. 19		Feb. 24		March 1		March 3		March ~~4~~ 11		March 19	
	22 15.4	22 8.2	22 14.7	22 6.4	22 15.1	22 8.6	22 15.1	22 9.3	22 14.1	22 8.0	22 13.4	22 5.8
	17.7	9.0	16.7	7.4	17.2	9.7	17.2	10.2	16.1	8.9	15.6	6.8
	19.8	10.0	18.8	8.4	19.3	10.7	19.3	11.1	18.3	9.9	17.6	7.6
	24.0	27.2	22.9	22.2	23.6	29.0	23.6	30.6	22.5	26.8	21.8	20.2
sin 9.32786	26.1		25.1		25.7		25.6		24.5		24.0	
	28.2 22	9.1	27.2 22	7.4	27.8 22	9.7	27.8 22	10.2	26.8 22	8.9	26.0 22	6.7
	30.3		29.3		29.9		29.9		28.8		28.2	
	32.3		31.5		32.0		32.0		31.0		30.4	
	36.5		35.7		36.2		36.2		35.2		34.5	
cos 9.98999	38.7		37.8		38.3		38.3		37.2		36.6	
11804	40.9 22	9.1	40.0 22	7.4	40.5 22	9.7	40.4 22	10.2	39.3 22	8.9	38.7 22	6.7
10798	3099		2997		3056		3054		2938		2868	
	28.173		27.246		27.782		27.764		26.709		26.073	

March 11

	5					
	2 25.9	2 5.7	2 8.9	2 5.9	2 5.1	2 9.0
	34.1	45.6	44.0	41.6	41.6	44.8
	30.0	51.3	52.9	47.5	46.7	53.8
	15.00	25.65	26.45	23.75	23.35	26.90
	+19.1	+19.8	+18.1	+17.6	+17.8	+19.4
	1.28103	1.29666	1.25768	1.24551	1.25042	1.28780
	1.38901	1.40464	1.36566	1.35349	1.35840	1.39578
	− 2449	− 2539	− 23.21	− 22.57	− 2283	− 2484
	7 15.00	6 55.65	6 56.45	6 53.75	6 53.35	6 56.90
	6 50.57	6 30.26	6 33.24	6 31.18	6 30.52	6 32.03
+12°	15 57.84	16 18.09	16 15.11	16 17.17	16 17.83	16 16.32

5.8
6.8
7.6
0.2
6.7
6.7

	March 21				March 24				March 27				Apr. 3		
22	13.3	22	16.3	22	12.8	22	2.1	22	12.2	22	4.4	22	12.8	22	5.7
	15.4				15.0		3.0		14.3		5.4		14.9		6.5
	17.5				17.0		4.0		16.4		6.6		16.9		7.4
	21.6				21.2		9.1		20.7		16.4		21.2		19.6
	23.8				23.3				22.7				23.3	22	6.5
	25.9	22	16.3		25.3	22	3.0		24.9	22	5.5		25.5	22	46.0
	28.0				27.5				26.9				27.5		46.6
	30.2				29.6				29.1				29.6		
	34.3				33.8				33.3				33.8		
	36.5				36.0				35.4				36.0		
	38.5	22	16.3		38.0	22	3.0		37.5	22	5.5		38.1	22	6.5
	2850				2795				2734				2796		
	25,909				25,409				24,855				25,418		

1	58.1		2	11.1	2	5.7	2	5.8	1	13.8
	31.6			45.8		44.4		46.3		54.4
	149.7			59.9		50.1		52.1		
	74.85	kxt		29.95		25.05		26.05		
	+9.6			+22.4		+19.4		+18.9		
	0.98227			1.35025		1.28780		1.27646		
	1.09025			1.45823		1.39578		1.38444		
	−12.31			−28.72		−24.87		−24.23		
6	44.85		6	57.95	6	55.05	6	56.05		
6	32.54		6	31.23	6	30.18	6	31.82		
16	15.81		16	17.12	16	18.17	16	16.53		

1872phae.proj.1456.

a Geminor

7 26 22
26. 25.56 25.56
+32 10 21.73

(+.63)

(+.63)

min z = +.18

Feb. 10	7 26	26.20		"	+32° 9'	62".7	62".7	.5
15		17	03			63.1	63.2	.4
20		13	04			63.5	63.6	.4
25		08	05			63.9	64.0	.4
Mar 1		26.02	06			64.4	64.4	.4
6	+.21	95	07			64.5	64.8	.4
11		87	08			64.7	65.2	4 3
16		79	08			64.8	65.6	3
21	00	25.70	09			65.9	65.9	3
26		61	09			65.1	66.2	2
31		51	10			66.3	66.4	2
Apr. 5		41	10			66.6	66.6	2
10		25.32	09			66.8	66.8	
						67.1		

+.43 +.43 | +.42 +.406 | +.45 +.467 | +.41 +.398 | +.38 +.382

1872 Feb. 19 | Feb. 24 | March 1 | March 11 | March 19

-.018

sin δ 9.72623

cos δ 9.92763

11804

.04568

Feb. 19:
25 58.8 25 47.8
1.5 48.6
3.8 49.6
8.7 146.0
11.2
13.6 25 48.7
16.0
18.5
23.4
25.7
28.3 25 48.7
2095
60
149.5
13.59
13.57 13.57
26.14 26.14
-12.57 -12.57
-.21
13.57 -12.78
+12.49
+.27 13.57
-.58 +12.49
25.85 +.27
-.58
25.75

Feb. 24:
25 58.3 25 52.9
0.6 53.8
3.0 54.7
8.0 161.4
10.4
12.7 25 53.8
15.1
17.7
22.4
24.9
27.4 25 53.8
2005
60
140.5
12.77
12.75 12.75
26.09 26.09
-13.34 -13.34
-.21
12.75 -13.55
+13.38
+.26 12.75
-.53 +13.33
25.86 +.25
-.53
25.80

March 1:
25 58.7 25 53.0
1.0 54.2
3.4 55.3
8.4 162.5
10.8
13.1 25 54.2
15.6
18.0
22.8
25.6
28.0 25 54.2
2054
60
145.4
13.22
13.20 13.20
26.02 26.02
-12.82 12.82
-.21
13.20 -13.03
+12.76
+.28 13.20
-.46 +12.76
25.78 +.29
-.46
25.79

March 11:
25 57.5 25 52.7
0.0 53.5
2.4 54.2
7.3 160.4
9.8
12.3 25 53.5
14.6
17.0
21.9
24.3
26.7 25 53.5
1938
60
133.8
12.16
12.14 12.14
25.87 25.87
-13.73 -13.73
.21
12.14 13.94
+13.74
+.26 12.14
-.31 +13.71
25.83 +.25
-.31
25.79

March 19:
25 56.6 57.0 25 48.4 1st 50.9 2nd
59.0 59.4
1.3 1.7
6.3 6.6
8.7 9.0
11.1 11.5 25 48.4 1st
13.4 13.8
15.9 16.4 25 50.9 2nd
20.9 21.3
23.3 23.7 1st 2nd
25.7 26.2 25 48.4 25 50.9
242.2 246.6
120. 120
122.2 126.6
11.11 11.51
11.09 11.49
25.74 25.74
14.65 14.25
11.09 11.49
+14.21 +14.21
+.24 +.24
-.18 -.18
25.86 25.76

a₁ a₂
11.09 11.49
25.74 25.74
14.65 14.25
-.21 -.21
14.86 14.46
11.09 11.49
+14.22 14.22
+.24 +.24
-.18 -.18
25.37 25.77

10

Feb. 19:
3 59.4
35.0
94.4
47.20
+24.9
1.39620
1.44187
-27.66
13 47.20
13 19.54
+32° 9' 28".81
-0 11.55
9 17.3
9 63.5

Feb. 24:
3 30.2
7.3
37.5
18.75
+19.8
1.27875
1.32442
-21.11
13 18.75
12 57.64
9 50.71
-0 10.90
9 39.8
9 63.9

March 1:
3 35.5
6.8
42.3
21.15
+19.0
1.27875
1.32442
-21.11
13 21.15
13 0.04
9 48.31
-0 11.74
9 36.6
9 64.4

March 11:
3 31.2
5.9
37.1
18.55
+18.7
1.27184
1.31751
-20.77
13 18.55
12 57.78
9 50.57
-0 11.42
9 39.1
9 65.4

March 19:
3 36.6
9.7
1st 46.3 2nd 23.15
+22.7 +20.6
1.35603, 1.31387
1.40170, 1.35954
-25.22 -22.88
13 23.15 23.15
12 57.93 13 0.27
9 50.42 9 48.08
-0 11.29 -0 11.26
9 39.1 9 36.8
9 65.8 9 65.8

-.16 I + 46.2 46.0 | + 24.1 24.0 | + 27.8 27.6 | + 26.3 26.2 | + 26.5 26.7 + 28.9 29.0

+32 9 28.81 -3.50 | 9 50.71 3.90 | 9 48.31 -4.40 | 9 50.57 5.40 | 9 50.42 5.80 9 48.08 5.80

12
9
-0
9
9
+
9

-20

25.36 37 25.85 75 .65 −1 δ = +32° 10′ 0.0″
.83 35 .86 80 .60 +4
84 35 78 79 59 +3
25 34 83 79 59 +3
40 41 76 77 57 +1
36 72 74 54 −2
70 77 51 −5
64 73 53 −2
80 81 61 ±5
57+ +01

25.34 25.44 25.77
3.84 3.84
21.93 21.73

−1^s

+4.2 +.460 +.44 +.420 +.30 .330 +.23 +.218

March 21			March 24			March 27			April 3		
		1st			1st			1st			1st
25 56.4	56.8	25 42.51	25 56.0	56.4	25 46.5	25 55.4	55.7	25 48.1			25 56.3
58.8	59.2	2nd	58.3	58.6	2nd	57.8	58.1	2nd			
1.3	1.7	25 45.3	0.8	1.0	25 48.8	0.1	0.5	25 46.0			25 54.2
6.1	6.5		4.6	4.9		5.0	5.4		26 5.7	6.1	
8.6	9.0	1st	8.0	8.4	1st	7.4	7.8	1st	8.1	8.6	1st
11.0	11.5	25 42.5	10.5	10.9	25 46.5	9.9	10.3	25 48.1	10.7	11.1	25 56.3
13.5	13.9	2nd	12.9	13.3	2nd	12.3	12.7	2nd	13.0	13.4	2nd
15.8	16.2	25 45.3	15.3	15.7	25 48.8	14.7	15.1	25 46.0	15.5	15.8	25 54.2
20.8	21.1		20.3	20.7		19.6	20.0		530	550	
22.1	22.4		22.7	23.0		22.1	22.5				
25.5	25.9		25.1	25.5		24.4	24.8				
2399	2442		2345	2384		2287	2329				
120	120		120	120		1087	1129				
119.9	124.2	a₁ a₂	2144	1184	a₁ a₂	9882	10.264	a₁ a₂			a₁ a₂
10.90	11.29		10.40	10.76		20.791	21.473		10.60	11.00	10.58 10.98
10.88	11.27	10.88 11.27	10.38	10.74	10.38 10.74	10.77	11.18	9.86 10.25	10.58	10.98	25.45 25.45
25.70		25.70 25.70	25.64		25.64 25.64	25.59		25.53 25.53	25.45		
−14.82		14.82 14.43	−15.26		15.26 14.90	−14.82		15.73 15.34	−14.87		14.87 14.47
		−21 −21			−21 −21						−21 −21
10.88	11.27	14.43 14.64	10.38	10.74	14.47 15.18	10.77	11.16	−21 −21	10.58	10.98	−15.08 −14.68
+14.33	+14.33	10.88 11.27	14.76	+14.76	10.38 10.74	+15.32	+15.32	11.55	14.57	+15.57	
+ .26	+ .26	14.32 14.32	.28 +	.28	14.75 14.75	+ .19	+ .19	9.86 10.25	.14	+ .14	10.58 10.98
− .14	− .14	.29 .29	− 8	− 8	.26 .26	− 3	− 3	15.30 +15.30	+ .11	+ .11	14.58 14.58
		−14 −14			−8 −8			+21 21			+14 +14
								−3 −3			+11 +.11
25.33	25.72		25.34	25.70		25.25	25.64		25.40	25.80	
		25.35 25.74			25.35 25.71			25.34 25.73			25.41 25.81

626
3130

3	46.3		3	37.1		3	34.9		3	25.3
	16.3			11.3		(24.20)	10.4			4.3
15	26.30			98.7 24.20			45.8 22.9			29.6
+28.4	+26.3	26.0	+23.9	+22.0		+21.8	+24.3	(27.00)	+14.3	+16.8
1.45332	1.41996	(28.88)	1.37840	1.34242		1.35668	1.40993		1.15534	1.22531
1.49899	1.46563		1.42407	1.38809		1.40170	1.45561		1.24101	1.27098
−31.55	−28.88		−26.50	−24.47		−24.20	−27.00		−17.42	−18.66
13 31.30	26.20		13 24.20	24.20		13 22.90	22.90		13. 14.80	13 14.80
12 59.75	13 2.42		12 57.65	12 59.78		12 58.70	55.90		12 57.38	12 56.14

Cp. slates for δ₁ δ₂
TV

9 4860	9 4593	9 5070	9 48.62	9 4965	9 5245	9 50.97	9 5221
−0 11.69	−0 11.66	−0 11.50	−0 11.47	−0 11.13	−0 11.16	−0 11.88	−0 10.90

{ q. this is 2d obs. on April 3. }

This whole δ_0 + $4\delta_0$ should be moved 1 space to the right & have the date come over the proper δ_0.
S. W.

9 36.9	9 34.3	9 39.2	9 37.2	9 38.5	9 41.3	9 39.1 (40)	9 41.3
9 65.9	9 65.9	9 66.1	9 66.1	9 66.2	9 66.2	9 66.5	9 66.5

28.8	31.5	26.7	28.8	27.5	24.8	26.2	25.1
+ 29.0	+ 31.6	+ 26.9	+ 28.9	+ 27.7	+ 24.9	+ 26.4	+ 25.2
9 4860	9 45.93	9 5070	9 4862	9 4965	9 5245	9 5097	9 5221
5.90	5.90	6.1	6.1	6.2	6.2	6.5	6.5

~~Lal 14810~~

~~7 28 21~~

~~21 01~~

η Puppis
1.2

7 28 44

−23 11

o Geminor
7 30 42
+34 56

+.70

	187 Feb. 19		Feb. 24		March 11		March 19		April 3 ~~March 20~~		Apr. 4	
	30 21.2	30 13.0	30 20.4	30 11.8	30	30 52.1	30 19.1	30 ~~14.0~~	30 18.6	~~30 2~~	30 18.6	30 12.6
	23.8	13.8	22.8	13.1		53.2	21.7	20.2	21.0	30 19.5	21.1	13.5
	26.3	15.0	25.4	14.4		54.7	24.2	~~21~~	23.5		23.6	14.5
	31.2	41.8	30.4	39.3	30.0	160.0	29.2		28.5		28.7	40.6
sin 9.45733	33.9		33.0		32.3		31.6		31.0		31.2	
	36.3	30 13.9	35.4	30 13.1	34.8	30 53.3	34.2	30 20.2	33.5	30 19.5	33.7	30 13.5
	38.9		37.9		37.4		36.7		36.1		36.1	
	41.4		40.4		40.0		39.2		38.6		38.7	
	46.3		45.4		1745		44.2		43.6		43.7	
cos 9.91398	48.9		48.0				46.7		46.1		46.2	
11804	51.4	30 13.9	50.4	30 13.1		30 53.3	49.3	30 20.2	48.7	30 19.5	48.8	30 13.5
.03202	3996		3595				3761		3692		3704	
	36.327		35.409		34.900		34.191		33.564		33.673	

	31		17.9			
	1 26.3	1 5.3	0 22.6	0 58.8	0 54.0	1 1.5
	0.8	40.6	−4.7	29.7	30.3	37.7
	27.1	105.9	8.95	86.5	84.3	99.2
	13.55	52.95	[illegible]	43.25	42.15	49.60
	+22.4	+22.3	−18.4	+14.0	+14.1	+20.2
	1.35125	1.34830	1.26482 n	1.14613	1.14922	1.30535
	1.38227	1.38032	1.29684 n	1.17815	1.18124	1.33737
	−24.12	−24.01	+19.81	−15.07	~~+~~ 15.16	∓21.74
		30 52.95	30 8.95	30 43.25	30 42.15	30 49.60
	−31 13.55	30 28.94	30 28.76	30 28.18	30 ~~57.38~~ 26.99	30 27.86
	30 49.43					
+34°	51′ 58.92″	52 19.41	52 19.59	52 20.17	52 21.38	52 20.49

12.6
13.5
14.5
40.6

13.5

13.5

α Can Min

32 36.9
32 35.97 35.97
+5 34
32.83

(+.10)
(+.10)

Emi Z = +.60

Feb.10	7 32 36.52		+ 5° 32′ 60″.9	60″.9
15	49	.03	60.7	60.6
20	46	03	60.5	60.4
25	41	05	60.3	60.2
Mar 1	36.36 (+.08)	05	60.0	60.0
6	29 (+.01)	07	59.9	59.9
11	22	07	59.9	59.9
16	15	07	59.9	59.9
21	36.07	08	59.9	59.9
26	00	07	60.0	59.9
31	92	08	60.1	60.0
Ap. 5	84	08	60.2	60.1
10	35.76	.08	60.2	60.2
			61.0	

1872	Feb. 19	Feb. 24	March 1	March 3	March 11	March 14
	+.43 +.430	+.42 +.400	+.45 ~~7~~ +.467	+.38 +.356	+.41 .388	+.36 +.366 -1
-.016	32 11.4 32 5.0	32 10.7 32 5.4	32 11.3 32 8.0	32 11.1 32 5.1	32 32 45.0	32 11.0 32 2.4
	13.6 4.6	12.8 6.7	13.2 8.8	13.2 6.1	46.5	13.0 3.4
	15.7 7.8	14.8 7.8	15.3 9.8	15.2 7.4	47.3	15.0 4.3
	19.7 19.4	19.0 19.9	19.4 26.6	19.5 18.6	0.0 22.5 225 138.8	19.1 10.1
	22.0	21.0	21.5	21.6	2.05 24.5 4 12	21.1
	24.1 32 6.5	23.1 32 6.6	23.6 32 8.9	23.7 32 6.2	4.11 26.6 32.5 14.63	23.2 32 3.4
	26.2	25.2	25.7	25.7	8.27 30.8 .5 1.0	25.2
	28.2	27.2	27.8	27.8	10.37 32.9 .5 1.0	27.4
Sum 8.98549	32.1	31.3	31.9	31.8	-12.44 34.9 .5 11	31.5
	34.2	33.5	33.8	33.9		33.6
	36.4 32 6.5	35.4 32 6.6	36.2 32 8.9	36.0 32 6.2	1.18 32 46.8	35.7 32 3.4
	2636	2540	2597	2595	2358 1.11	2558
co 9.99796	23.964	23.091	23.619	23.591	22.48	23.2545
11804	23.95 23.95	23.07 23.07	23.59 23.59	23.57 23.57	22.86 22.46	36.34 23.24
.11600	36.47 36.46	36.42 36.42	36.36 36.36	36.30 36.04	36.22 36.22	13.09 36.18
	-12.52 -12.51	-13.35 -13.35	-12.77 -12.77	-12.73 -12.77	-13.84 -13.76	12.94
	23.95 23.95	23.07 23.07	23.59 23.59	23.57 23.57	22.56 22.46	23.24 23.24
	+12.49 +12.49	+13.38 13.33	+12.76 +12.76	+12.73 +12.74	+13.74 +13.71	+12.95 36.18
	+ 4 + 4	+ 4 + 4	+ 4 + 5	+ 4 + 4	+ 4 + 4	+ 4 12.94
	-.50 -49	-.45 -45	-.39 -39	-33 -31	-25 -25	-21 23.24
	35.98 35.99	36.04 35.99	36.00 36.01	36.01 35.98	35.99 35.96	36.02 +12.94
						+ 4
						-21
						36.01

	50	45				
	0 20.0	4 56.3	4 59.0	0 2.0	0 5.9	0 1.2
	58.7	36.1	33.2	38.1	43.2	40.6
	88.7	92.4	92.2	100.1	109.1	41.8
	89.35	46.20	46.16	50.05	54.55	20.90
	+17.8	+16.5	+14.7	+17.4	23.8	+19.9
	1.24304	1.21748	1.16732	1.24055	1.37658	1.29885
	1.35904	1.33348	1.28332	1.35655	1.49258	1.41485
	-2286	-2155	-1920	-2273	+3109	-2599
	50 9.35	49 46.20	49 46.10	48 50.05	48 54.55	49 50.90
	49 46.99	49 24.65	49 26.90	48 27.32	49 25.64	49 24.91
+5°	33 1.86	33 23.70	33 21.45	33 21.03	33 22.71	33 23.44
	-46.16	- 0 44.23	- 0 47.45	- 0 46.37	- 0 46.04	- 0 45.26
	32 15.7	32 29.5	32 34.0	32 34.7	32 36.7	32 38.2
	32 60.4	32 60.2	32 60.0	32 60.0	32 59.9	32 59.9
-.56 I	+ 44.7 44.1	+ 20.7 ~~30.7~~ 20.2	+ 26.0 25.4	+ 25.3 24.8	+ 23.2 22.6	+ 21.7 21.2
+5	33 1.86 + 2.70	33 23.70 2.90	33 21.45 3.10	33 21.03 3.10	33 22.71 3.20	33 23.44 3.20

35.98	.99	+2
36.04	.99	+2
36.00	101	+4
36.01	.98	+1
35.99	.96	−1
36.02	1.01	+4
35.99	100	+3
36.95	.96	−1
35.95	.96	−1
35.97	.94	−3
36.00	35.98 (+.01)	
	−3.14	
	32.84	

$\delta = +5^\circ\ 33'\ 3.''1$

+38 ~~+3~~ 8 2
March 19

32 9.4
11.5
13.7
17.7
19.8
22.0
24.0
26.0
30.1
32.2
34.3
2407

32 3.4
4.4
5.2
13.0
32 4.3
32 4.3

21.882
21.87
36.10
−14.23

21.87
36.10
−14.23

21.87
+14.21
+ 4
− 13
35.99

21.87
+14.22
+ 4
−13
36.00

~~March 21~~ mistake

32 ~~22.2~~
22.2
25.6
29.0
32.2
35.5
1445

32 15.6
16.9
18.5
51.0
32 17.0
32 17.0

2890
28.88
36.07
−9.19

28.80
36.07
−.09

28.88
+

+23 +2.18
April 3

32 8.8
11.0
13.0
17.1
19.2
21.3
23.4
25.4
29.6
31.6
33.7
2341

32 5.0
6.0
7.2
18.2
32 49.5
32 6.1
32 6.1

21.282
21.26
35.87
−14.61

21.26
35.87
−14.61

21.26
+14.57
+ ~~1~~ 2
+ 10
36.05

21.26
+14.58
+ 2
+10
35.96

+21 ~~+2.20~~
Apr. 4

32 8.9
11.0
13.1
17.1
19.2
21.3
23.4
25.4
29.6
31.7
33.8
2345

32 1.4
2.4
3.4
7.2
32 2.4
32 2.4

21.319
21.30
35.86
−14.56

21.30
35.80
−14.55

21.30
+14.52
+ 2
+ 11
35.95

21.30
+14.52
+ 2
+ 12
35.96

+21.18
April 10

32 34.7
35.7
36.7
107.1

32 18.4
20.6
22.6
24.7
26.7
113.0
32 35.7
32 35.7

22.60
22.58
35.70
−13.18

22.18
35.76
−13.18

22.58
+13.11
+ 2
+.26
35.97

22.58
+13.13
+ 2
+ 21
35.94

0 0.6
37.6
98.2
49.10
+17.6
1.24557
1.36151
−22.99
49 10
49 26.11
33 22.24
− 0 45.77
82
32 36.4
32 59.9
+ 23.5 22.9
33 22.24
3.20

+11.7
1.07555
1.19155
− 15.54

4 56.0
37.2
93.2
46.60
+45.2
1.18184
1.29784
−19.85
49 46.60
49 26.75
33 21.60
− 0 44.81
32 36.8
32 60.1
+ 23.3 22.8
33 21.60
3.00

4 59.6
40.0

5 60.2
41.7
101.9
50.95
+18.9
1.27646
1.39246
−24.69
50 50.95
49 26.26
33 22.09
− 0 45.00
32 37.1
32 60.0
+ 23.0 22.4
33 22.09
3.00

4 19.4
6.3
25.7
12.85
−13.1
1.11727
1.23327
+ 17.11
49 12.85
49 29.96
33 18.39
− 0 43.88
96
32 34.4
32 68.2
+ 25.8 25.3
33 18.39
+ 2.90

Exp minute.

~~8~~ Monocer.
7 35 06.
−9 15
−16

1872	Feb. 24	March 3	March 14	March 18	March 19	April 3
				41.4 4 ~~46.0~~ 46.0		
	34 42.6 34 35.7	34 43.4 34 38.7	34 42.9 34 33.7	34 ~~6.6~~ 34 ~~54.5~~	34 41.5 34 37.6	34 40.7 34 35.4
	44.7 36.8	45.4	45.0 34.8	43.5 ~~3.0~~ ~~55.6~~	43.5 38.6	42.8 36.4
	46.9 37.8	47.4	47.1 35.8	45.7 ~~5.3~~ ~~57.0~~	45.6 39.5	45.0 37.6
	51.0 110.3	51.5	51.2 104.3	49.7 ~~10.0~~	49.8 115.7	49.1 109.4
	53.1	53.6	53.2	51.9 ~~12.3~~	51.9	51.2 34 36.5
	55.1 34 36.8	55.7 34 38.7	55.3 34 34.8	− 54.0 ~~14.7~~ 34 46.0	54.0 34 38.6	53.4 35 13.6
	57.2	57.9	57.4	56.1 ~~17.0~~	56.1	55.4 14.7
	59.4	0.0	59.5	58.2 ~~19.3~~	58.1	57.6 15.6
	3.5	4.2	3.6	2.4 ~~24.0~~	2.4	1.7
sin δ 9.20613n	5.6	6.1	5.7	4.5 ~~26.2~~	4.4	3.7
	7.6 34 36.8	8.3 34 38.7	7.8 34 34.8	6.5 ~~28.6~~ 34 46.0	6.5 34 38.6	5.8 34 36.5
	6067	6135	6087	4539 4139	5938	5864
				180 180		
				6339 5939		
cos δ 9.99432 11804 ,11236	55.154	55.774	55.337	53.990	53982	53.309

	Feb. 24	March 3	March 14	March 18	March 19	April 3
	35					
	2 52.4	2 53.0	2 55.1	2 39.0	2 51.4	2 51.2 2 1.8
	34.3	30.8	38.3	17.0	30.8	34.6 45.3
	867	83.8	93.4	56.0	82.2	85.8
	43.35	41.90	46.70	28.00	41.10	42.90
	+18.4	+17.2	+20.5	+7.9	+15.4	+16.8
	1.26482	1.23553	1.31175	0.89763	1.18752	1.22531
	1.37718	1.34789	1.42411	1.00999	1.29988	1.33767
	−23.83	−2228	−2655	−10.23	−1995	−2176
	37 43.35	37 41.90	37 46.70	37 28.00	37 41.10	37 42.90
	37 19.52	37 19.62	37 20.15	37 17.77	37 21.15	37 21.14
	−9° 14′ 3117″	14 31.27	14 3180	14 2942	14 3280	14 3279

apr. 4

34 40.8 34 31.8
42.9 32.6
45.0 33.3
49.3 97.7
51.4
53.4 34 32.6
55.4
57.5
1.7
3.8
5.9 34 32.6
58|11

53.3|73

2 — 38.6
40.5 40.9
47.5
48.8 5
+20.8
1.31506
1.43042
→2694
37 48.75
87 ~~2176~~
2181
14 33.46

β Geminor

7 37 24
37 28.84
+28 21
2884
28.15

(+.54)
(+.54)

[illegible] z = +.24

Feb. 10		7 37 29.47		+ 28° 19'	60.6	60.6
15		44	.03		60.9	61.0
20		41	03		61.2	61.3
25		36	05		61.6	61.7
Mar. 1	(+.01)	29.31	05		62.0	62.0
6	(+.01)	24	07		62.3	62.4
11		17	07		62.6	62.7
16		09	08		63.0	63.0
21		29.01	08		63.3	63.3
26		92	09		63.5	63.6
31		28.83	09		63.8	63.9
Apr. 5		74	09		64.0	64.1
6 10		28.65	.09		64.3	64.3
					4.7	

	? +.43 +43		+.43 +.400		+.38 +.386		+.44 +.398		+.36 +.366	
1872	Feb. 17		Feb. 24		March 3		March 11		March 14	
										−1.acc
−.018	37 2.6	36 54.5	37 1.8	36 54.2	37 2.4	36 50.9	37 1.4	36 59.1	37 2.0	36 51.7
	5.1	55.4	4.2	55.1	4.7	51.9	3.6	59.8	4.8	52.8
	7.4	56.7	6.5	55.8	7.0	53.2	6.0	60.7	6.6	53.9
	12.1	166.6	11.2	165.1	11.7	156.0	10.6	178.6	11.4	158.4
	14.4		13.5		14.0		13.0		13.6	
	16.8	36 55.5	15.9	36 55.0	16.4	36 52.0	15.3	36 59.7	16.0	36 52.8
	19.1		18.2		18.8		17.7		18.4	
	21.4		20.6		21.0		20.0		20.7	
	26.1		25.2		25.7		24.6		25.4	
Sin 9.67633	28.4		27.6		28.1		27.0		27.6	
	30.8		30.0		30.4		29.4		30.0	
	184.2	36 55.5	174.7	36 55.0	180.2	36 52.0	168.6	36 59.7	176.0	36 52.8
cos 9.94458	16.746		15.882		16.382		15.327		16.00	
11804	16.73	16.73	15.87	15.87	16.36	16.36	15.31	15.31	15.98	15.98
.06206	29.42	29.41	29.37	29.37	29.29	29.29	29.17	29.17	29.13	29.12
	−12.69	−12.68	−13.50	−13.50	−12.93	−12.93	−13.86	−13.86	−13.15	−13.14
	16.73	16.73	15.87	15.87	16.36	16.36	15.31	15.31	15.98	15.98
	+12.49	+12.49	+13.38	+13.33	+12.73	+12.74	+13.74	+13.71	+12.95	+12.94
	+ 23	+ .23	+ 23	+ 22	+ 21	+ .19	+ 22	+ 22	+ .19	+ .20
	− .58	− .57	− .53	− .53	− .45	− .45	− .33	− 33	− .29	− .28
	28.87	28.87	28.88?	28.89	28.85	28.84	28.94	28.91	28.83	28.84

	? Feb. 17				
	0				
	3 53.9	3 30.7	3 39.8	3 26.7	3 34.0
	23.6	6.0	10.3	59.7	8.4
	77.7	36.7	50.1	86.4	42.4
	38.85	18.35	25.05	43.20	21.20
	+21.2	+20.9	+24.4	+15.6	+23.2
	1.32634	1.32015	1.38739	1.19312	1.36549
	1.38896	1.38277	1.45001	1.25574	1.42811
	−24.49	−24.14	−28.18	−18.02	−26.80
	3 38.85	3 18.35	3 25.05	3 13.20	3 21.20
	3 14.36	2 54.21	2 56.87	2 55.18	2 54.40
+28°	19' 33.99"	19 54.14	19 51.48	19 53.17	19 53.95
	−0 15.81	−0 15.00	−0 15.86	−0 15.65	−0 15.39
	19 18.2	19 39.1	19 35.6	19 37.5	19 38.6
	19 61.2	19 61.6	19 62.1	19 62.7	19 62.9
−.22 I	+ 43.1 42.9	+ 22.5 22.3	+ 26.5 26.2	+ 25.2 25.0	+ 24.3 24.1
+28	19 33.99 −2.40	19 54.14 2.80	19 51.48 3.30	19 53.17 3.90	19 53.95 4.10

28.87 .87 +3
88 .89 +5
85 .84 +0
(94) .91 +7
83 .84 +0
84 .84 +0
84 .85 +1
83 .85 +1
83 .84 +0.
87 .78 −6
82 .87 +3 (+0.
28.86 28.85 −
3.68 +
25.16

$\delta = +28^\circ\ 19'\ 58.''8$

+.42 +.424
March 18

37 ~~36.7~~ 36 54.5
0.6 ~~38.8~~ ~~30.8~~ 37
3.0 40.9 ~~32.0~~
5.3 45.1 ~~33.2~~
10.0 47.4 55.7
12.3 ~~49.5~~ 57.0
14.7 ~~51.6~~ 36 169.2
17.0 ~~53.7~~ 55.7
19.3 ~~57.9~~
24.0 ~~0.1~~
26.3 ~~2.1~~
28.6 36 55.7
161.1

14.656
14.63 14.63
29.06 29.06
−14.43 −14.43

14.63 .14.63
+ 14.20 14.20
+ .23 + .23
− .22 − .22
28.84 28.84

+.38 .382
march 19

0.6 36 49.8 36
3.0 51.2
5.2 52.5
10.0 153.5
12.3
14.6
17.0 36 51.2
19.3
24.0
26.3
28.7
161.6 36 51.2

14.686
14.62 14.62
29.04 29.04
−14.42 −14.42

14.62 14.62
+14.21 14.22
+ .21 + .21
− .20 − .20
28.84 28.85

+.44 .420
March 24

59.9 36 59.1 37
2.4
4.6
9.3
11.6
14.0
16.4 36 57.1
18.6
23.3
25.5
28.0
213.6 36 57.1
.60
153.6

13.964
13.95 13.95
28.96 28.96
−15.01 15.01

13.95 13.95
+14.76 +14.79
+ .24 + .23
− .12 − .12
28.83 28.85

+.23 .218
April 3

0.0 36 33.2 37
2.4 34.5
4.7 35.5
9.4 36.3
11.7 219.5
14.1 37 35.4
16.6 36.8
18.8 38.4
23.5 36 54.9
25.8
28.1
155.1 36 54.9

14.170
14.08 14.08
28.78 28.78
−14.70 −14.70

14.08 14.08
+14.57 +14.58
+ .12 + .12
+ 6 + 6
28.83 28.84

+.21 .220
Apr. 4

0.1 36 49.4 37
2.4 50.4
4.8 51.6
9.3 151.4
11.7
14.0
16.4 36 50.5
18.7
23.5
25.8
28.1
154.8 36 50.5

14.073
14.06 14.06
28.76 28.76
−14.70 −14.70

14.06 14.06
+14.52 14.52
+ 11 + .12
+ 8 + 8
28.87 28.78

+.21 .184
Apr. 10

1.4 37 16.8
3.7
6.1
10.8
13.1
15.5
17.7 37 16.5
20.1
24.8
27.1
29.4
169.7 37 16.8

15.427
15.41 15.41
28.61 28.61
−13.24 13.24

15.41 15.41
+13.11 13.13
+ .11 + .10
+ .19 + .23
28.82 28.87

3 31.8
11.4
33.2
16.60
+18.9
1.27646
1.33908
− 21.83
3 16.60
2 54.77

19 53.58
−10 15.77

19 37.8
19 63.1

+ 25.3 25.0
19 53.58
4.30

3 36.2
47.0
43.2
21.60
+ 23.4
1.36922
1.43184
− 27.03
3 21.60
2 54.57

19 53.78
−10 15.87
5

19 38.2
19 63.2

+ 25.0 24.8
19 53.78
4.40

3 25.0
56.4
81.4
40.70
+14.9
1.17319
1.23581
−17.21
3 10.70
2 53.49

19 54.86
−10 15.75

19 39.1
19 63.5

+ 24.4 24.2
19 54.86
4.70

3 27.9 2 39.0
3.3 14.3
31.2
15.60
+19.2
1.28330
1.34592
−22.18
3 15.60
2 53.42

19 54.93
−10 15.11

19 29.8
19 64.0

+ 24.2 24.0
19 54.93
5.20

3 34.4
9.8
44.2
22.10
+23.6
1.37291
1.43553
−27.26
3 22.10
2 54.84

19 53.51
−10 15.22

19 38.3
19 64.1

+ 25.8 25.5
19 53.51
5.30

3 2.8
45.0
107.80
53.90
−1.4
0.14613n
0.20875n
+ 1.62
2 53.50
2 55.2

19 52.83
−10 14.75
69

19 38.1
19 64.3

+ 26.2 26.0
19 52.83
5.50

4 Puppis
7 40 04
−14 15

−25

1872	Feb. 24		March 3		March 18			March 19		April 3		Apr 4	
	39 37.8	39 30.5	39 38.3	39 28.3	39	~~18.6~~	39 30.8	39 36.6	39 32.4	39 36.0	39 38.7	39 35.9	39 30.6
	40.0	31.4	40.5	29.4	36.7	~~20.9~~	32.0	38.8	33.2	38.1		38.1	31.6
	42.1	32.3	42.7	30.3	38.8	~~23.3~~	33.2	40.9	34.0	40.2		40.2	32.1
	46.3	94.2	46.9	88.0	40.8	~~27.6~~	96.1	45.2	99.6	44.4		44.4	94.3
sin 9.39121$_n$	48.4		49.0		45.1	~~30.0~~		47.3		46.5		46.5	
	50.6	39 31.4	51.2	39 29.3	47.4	~~32.3~~	39 32.0	49.5	39 33.2	48.7	39 38.7	48.7	39 31.4
	52.8		53.3		49.5	~~34.6~~		51.5		50.9		50.8	
	54.8		55.3		51.6	~~36.9~~		53.6		52.9		53.0	
	59.1		59.6		53.7	~~41.3~~		57.9		57.2		57.2	
cos 9.98643	1.1		1.6		57.9	~~43.7~~		0.0		59.3		59.4	
11.806	3.3		3.8		0.1	~~46.0~~		2.2		1.6		1.4	
.10448	5563	39 31.4	3622	39 29.3	2.1		39 32.0	5435	39 33.2	5358	39 38.7	5356	39 31.4
					5437								
	50.573		51.109		49.143			49.409		48.[illegible]09		48.691	

	Feb. 24	March 3	March 18	March 19	April 3		Apr 4
	35						
2	36.5	43.1	36.1	37.2	27.6		37.5
	19.6	21.3	15.4	16.2	11.9		21.2
	56.1	64.4	51.5	53.4	39.5		58.7
	28.05	32.20	25.75	26.70	19.75	√10.0	29.35
	+19.2	+21.8	+17.4	+16.2	~~+16.7~~		+17.3
	1.28330	1.33846	1.24055	1.20951	1.02938	(12.70)	1.23805
	1.38779	1.44295	1.34504	1.31400	1.13387		1.34254
	− 2442	− 27.73	− 22.13	− 20.61	− 12.70		− 22.01
37	28.05	37 32.20	37 25.95	37 26.70	37 19.75		37 29.35
37	3.63	37 4.47	37 3.62	37 6.09	37 7.05		37 7.34
° ′	″						
−14° 14	15.28	14 16.12	14 15.27 ✓	14 17.74	14 18.70		14 18.99

o Puppis
7 42 45
−25 37
4.8

1872	Feb. 24		March 3		March 14		March 18		March 19		April 3	
	42 19.7	42 14.7	42 20.3	42 11.7	42 18.8	42 9.8	42 18.6	42 11.9	42 18.6	42 12.2	42 17.9	42 9.9
	21.9	15.9	22.6	12.5	21.2	10.7	20.9	13.0	20.8	12.9	20.1	11.1
	24.3	17.0	24.8	13.6	23.4	11.9	23.3	14.0	23.2	13.8	22.3	12.6
	28.8	47.6	29.4	37.8	28.0	32.4	27.7	38.9	27.7	38.9	27.0	33.6
Sin δ 9.63583	31.1		31.7		30.3		30.0		30.0		29.2	
	33.4	42 15.9	34.0	42 12.6	32.6	42 10.8	32.3	42 12.9	32.2	42 12.9	31.4	42 11.2
	35.7		36.3		34.9		34.6		34.5		33.8	
	38.0		38.6		37.2		36.9		36.9		36.4	
	42.6		43.2		41.8		41.3		41.4		40.7	
cos δ 9.95507	44.8		45.4		44.0		43.7		43.6		43.0	
1180/4	47.1	42 15.9	47.7	42 12.6	46.4	42 10.8	46.0	42 12.9	46.0	42 12.9	45.2	42 11.2
.07311	3674 7		3740		3586		3558		3549		3467	
	33.400		34.000		32.600		32.390		32.264		31.518	

	Feb. 24	March 3	March 14	March 18	March 19	April 3
	55					
	3 38.5	3 44.2	3 45.2	3 40.3	3 44.0	3 45.4
	20.7	22.8	29.1	20.1	22.9	29.5
	59.12	67.0	74.3	60.4	66.9	74.9
	39.60	33.50	37.15	30.20	33.45	37.45
	+17.5	+21.4	+21.8	+19.4	+19.4	+20.3
	1.24304	1.33041	1.33846	1.28780	1.28780	1.30750
	1.31615	1.40352	1.41157	1.36091	1.36091	1.38061
	−20.71	−25.32	−25.80	−22.96	−22.96	−24.02
	58 29.60	58 33.50	58 37.15	58 30.20	58 33.45	58 37.45
	58 8.89	58 8.18	58 11.35	58 7.24	58 10.49	58 13.43
°	′ ″					
−25	35 20.54	35 19.83	35 23.00	35 18.89	35 22.14	35 25.08

9,9
14,1
12,6
3 3,6

11.2

11.2

Gr. 1374

7 44 41

44 4921

+74 15 4421

4189

+ 354)

(3.54)

Feb. 20	7 44	52.13		+74°	15'
25		51.94	.19		
Mar 1		51.73	21		
6		.49	24		
11		51.22	27		
16	+28	93	29		
21	(+32)	50.62	31		
26		.29	33		
31		49.56	33		
Apr. 5		.62	34		
10		49.27	.35		

30".5	30".5	
31.7	31.7	+1.2
32.9	32.9	1.2
33.9	34.0	1.1
34.9	34.9	.9
35.6	35.7	.8
36.4	36.4	.7
36.9	37.0	.6
37.5	37.5	.5
37.8	37.9	.4
38.1	38.1	+.2
38.1		

Cui z = -.53

1872 Feb. 24	March 14	March 18	March 19	April 3	Apr 4
+.43 +.400	+.36	+.42 +.424	+.38 .382	+.23 +.218	+.24 .220

-055 43 52.0 44 12.9 43 12 50.8 43 16.7

59.7 17.2 15 58.2

7.1 20.5 1.3 5.8

22.4 50.6 1.7 20.7

Sin √9.98338 30.2 1.6 28.6

38.0 44 16.9 1.8 36.2

45.4 1.7 43.7

52.8 3.2440

7.7 120

cos √9.43367 15.8 44 16.91.54 2

37.67

11.143 233

955180 35 44

60

414.4

37.67

March 18: 44 40.0 | 44 20.3 | 27.7 | 35.6 44 40.0 | 42.8 | 50.7 | 1771 | 44 40.0

March 19: 44 39.5 | 44 20.0 | 27.7 | 35.7 44 39.5 | 42.9 | 51.1 | 1774 | 44 39.5

April 3: 43 36.0 | 46.0 | 82.0 | 44 19.63 | 29.643 41.0 | 34.6 44 10.6 | 42.0 13.0 | 49.8 15.7 | 1736 18.1 | 43 41.0 | Ang

Apr 4: 44 19.6 44 35.5 | 27.0 | 34.7 | 42.2 | 50.0 | 1735 44 35.5 | Md. gr | 44 35.5

Feb. 24		March 14	March 18		March 19		April 3		Apr 4	
37.67		3613	3542		35.48		34.72		34.700	
37.62	37.62	36.07	35.37	35.37	35.43	35.43	34.67	34.67	34.64	34.64
51.97	51.97	51.04	50.79	50.80	50.73	50.73	49.75	49.74	49.68	49.67
-14.35	-14.35	-14.97	-16.42	-15.43	-15.30	-15.30	-15.08	-15.07	-15.04	-15.03
	-.28			-.28		-.28		-.28		-.21
37.62	14.63	36.07	35.37	-15.71	35.43	15.58	34.67	-15.35	34.64	-15.31
+13.38		+12.95	+14.20		+14.21		+14.57		+14.12	
+1.54	37.62	+1.27	+1.49	35.37	+1.35	35.43	+.81	34.67	+.81	34.64
-2.76	+13.23	-1.83	-1.58	+14.20	-1.52	+14.22	-.54	+14.58	-.46	+14.52
	+1.42			+1.50		+1.36		+.77		.78
49.80	-2.76	48.44	49.48	-1.59	49.47	-1.52	49.51	-.53	49.51	-.46
	49.61			49.48		49.49		49.49		49.48

5

Feb. 24	March 14	March 18	March 19	April 3		Apr 4
3 40.0	3 37.8	3 33.4	3 31.0	3 46.1	3 34.5	3 26.3
11.0	8.7	59.0	57.9	15.0	7.6	59.6
111.0	146.5	92.4	88.9	1241	421	85.9
55.50	53.25	46.20	44.45	62.05	210.5	42.95
+20.8	+11.8	-4.0	-4.0	+53.7		-0.8
1.31806		0.66276 n	0.60206 n	1.72997		9.90309 n
1.86976		0.21446 n	0.15376 n	1.28167		9.45479 n
-7.41		+1.64	+1.42	-19.13		+2.9
8 25.50		8 16.20	8 14.45	8 32.05		8 12.95
8 18.09		8 17.84	8 15.87	8 12.92		8 13.24
+74° 14 30.26		14 30.51	14 32.48	14 35.43		14 35.11
0 36.71		+0 38.44 39	+0 37.77	+0 39.21 36.79		+0 37.36
15 6.5		15 8.9	15 10.2	15 12.2		15 12.5
15 31.5		15 35.9	15 36.1	15 37.8		15 37.9

+.49 I + 25.0 25.5 | + 27.1 27.5 | + 25.9 26.4 | + 25.6 26.1 | + 25.4 +25.9

+74 14 3026 -1270 | 14 3051 1710 | 14 3248 1730 | 14 3543 1900 | 14 3511 -1910

49.(88) .61 +40 δ = + 74° 15' 18.8"
49.48 .48 +.27
47 .49 +28
51 .49 +28
57 .48 +27
(79) .66 +.45

49.49 49.53 +.32
−7.32
42.21

+21, 187

Apr. 10

44 20.7 42 56.0
28.5 59.1
35.7 61.6
43.6 176.7
51.3
179.8 42 58.9

42 58.9

35.960

35.91 35.91
49.25 49.25
−13.34 −13.34
−.28
35.91 −13.62
+13.11
+ .81 85.91
− .04 +13.13
49.79 + .66
− 4

49.66

3 37.9
16.6
−11.45
57.25
+97.1
1.98722
1.53892
−3.458
8 27.25
(7 52.67)
14 55.68

381

14 55.68

δ Geminor
α 7 45 35
+27 06
+57

(8) ~	March 3	March 18	March 24	April 3	Apr. 4
	45 13.4 45 3.5	45 44.6	45 11.0 45 8.1	45 49.1	45 36.3
	15.7 4.8	45.4	13.4 9.3	50.2	37.2
	18.0 5.8	46.5	15.7 ~~7~~.4	50.9	38.7
	22.6 14.1	136.5	20.3	45 20.3 150.2	45 20.5 112.2
sin δ 9.65853	24.9		22.6	22.6	22.7 45 (50.0)
	27.2 45 4.7	45 45.5	24.9 45 8.7	24.9 45 50.1	25.0 45 37.4
	29.5		27.2	27.3	27.2
	31.9	45 30.0 1.9	29.5	29.7	29.5
	36.4	34.8 1.6	34.1	12 48	249
cos δ 9.94949	38.9	37.1 1.8	36.5		
11804	41.2 45 4.7	39.5 4 5.4 45.5	38.8 45 8.7	45 50.1	45 37.4
.06753	2997	3.0	2740		
		1.75 1.75			
		27.25			
	27.276	25.50	24.908	24.96	24.98

	15				
	2 54.9	2 2.6	2 45.1	1 53.2	2 7.5
	24.9	32.3	16.4	28.9	43.9
	79.8	34.9	61.5	82.1	111.4
	39.90	17.45	30.75	41.05	55.70
	+22.5	−20.1	+16.2	−25.1	−12.4
	1.35218	1.30103 n	1.20951	1.39967 n	1.09342 n
	1.41971	1.36856 n	1.27704	1.46720 n	1.16095 n
	−2629	+2337	−1892	+2932	+1448
	17 39.50	16 47.45	17 30.75	16 41.05	16 55.70
	17 13.61	17 10.82	17 11.83	17 10.37	17 10.18
+27°	5' 34.74"	5 37.53	5 36.52	5 37.98	5 38.17

ε Draco Lb. N.A.

7 48 26 48 35.61

110 04 35.61

69 56

3

(−2.74)

35.65
64
72
35.67

(+.06)
+.15
(+.16)

69 56 29.54 = N.A.
98.01 − P

35.74 .81 −11 −9 +11
.74 .71 −1 −6 +1
.81 .80 +10 −7 +10
.77 −.10 +.07
35.76 35.77
+17
35.94 = 1871

19 48 35.87 = P 1871
35.70 = P 1872

sin 2 = −.93

	+.38 +.386		+.36 +.366		+.42 +.424	
1872	March 3		March 14		March 18	
+.041	48	19.5 47	44.6 48	2.0 47	44.8 47	59.3
			50.6		50.4	
			56.5		56.8	
	48 9.2		8.6		8.9	
	15.2		14.7		14.6	
	21.2 48	19.5	20.5 48	2.0	−20.6 47	59.3
	27.3		26.5		26.9	
	33.3		32.4		32.8	
	1062		44.7		45.0	
sin δ 9.97280			50.6		51.4	
	48	19.5	56.3 48	2.0	56.8 47	59.3
			4060		4086	
			180		180	
			226.0		228.6	
cos δ 9.53544 n	21.240		20.546	+1	20.882	
11804	21.28	21.28	20.59	20.59	20.82	20.82
9.65348	32.93	32.84	33.52	33.43	33.76	33.67
	11.65	−11.56	12.93	−12.84	12.94	−12.85
		.15		−.15		−.15
	21.28	−11.71	20.59	−12.99	20.82	−13.00
	+12.73		+12.95		+14.20	
	−1.04		−1.99		−1.15	
	+2.08	21.28	+2.09	20.59	+1.84	20.82
		+12.74		+12.94		+14.20
	35.67	−.98	35.64	−2.00	35.87	−1.96
		+2.77		+2.18		+1.94
		35.81		35.71		35.80

α

20			
	2 14.1	2 25.6	2 3.0
	37.0	51.8	24.9
	31.1	77.4	27.9
	25.55	38.70	13.95
	+1.7	+18.5	+21.5
	0.23045	1.26717	1.33245
	9.88393 n	0.92065 n	0.98593 n
	+ 0.76	+ 8.33	+ 9.68
	21 55.55	22 08.70	21 43.95
	22 56.31	(22 17.03)	21 53.63
+110°	0 52.04	0 31.32	0 54.72
	+2 27.21	2 24.70	2 28.84
	3 19.2	2 56.0	3 23.6
(+.5) 69 56	10.7	8.4	7.8
	11.2	8.9	8.3
	03 48.8	51.1	51.7
+.86 I	+ 29.6 30.5	+ 55.1 55.9	+ 28.1 29.0
	−18.8	−21.1	21.7

1872phae.proj.1456.

N. A.
Mes Min

7 52 18
52 18.36 18.34
91 06

7 53 18.52 = P 1871
52 18.96 = P 1872

Redn. to m. w. δ = 88° 55′ 3″ order = S.P.

1	10	51.9	+ ~~x~~10	54.7	11	7.5	10	53.8
2	9	4.8	+ 9	4.8	9	16.3	9	4.9
3	7	14.7	+ 7	15.8	7	25.7	7	16.1
4	3	37.8	+ 3	38.1	3	42.0	3	37.4
5	1	48.4	+ 1	48.8	1	50.5	1	48.8
6		0.1	+	0.0	±	.4		0.4
7	1	48.1	− 1	48.8	1	51.1	1	48.2
8	3	37.8	− 3	37.8	3	42.4	3	37.9
9	7	14.5	− 7	16.6	7	25.2	7	15.8
10	9	5.3	− 9	5.4	9	15.4	9	4.0
11	10	52.8	− 10	54.5	11	8.6	10	54.9

~~37~~
−0.27
(+.03)

88 55 22.94 = N.A.
28.93 = P.

δ = +88° 55′ 23.″9

Inc Z = −.75

tan δ = 52.98

tan δ = 52.92

+.810	+.43 +.400	+.42 +.416	+.41 +.438	+.36 +.366	~~+.42~~ +.424	+.38 +.382
	Feb. 24	Feb. 27	Feb. 28.	March 14	March 18	March 19

1872

7 46 51.2
52 34.5
~~85.7~~

47 58.0
49 48.8 ~~43.8~~
51 36.9
53 26.6
55 15.6
18.59
− 46 51.2
42.8
37.180

No. δ

38 56.3
47.5
34.6
42.7 40.1
42.7 42.1
41.6 39.7

53 29.5
51 42.2 m.w.
~~54 0.9~~
55 19.4 53 29.5
42.2
41.6

50 23.8
Incl. wire
51 46.3
last
55 26.4
~~0 54.3~~
46.3 50 23.8
48.6
14.4

7 50 59.6
50 60 54.8
51 53.0 53.0
53 42.4 59.6
55 32.5 54.7
16.2
50 59.6

49 20.0
48 13.9 53 53.0
50 4.4
51 53.6
53 40.8
55 32.8
14.55
12
26.55 49 20.0

51 37.180
37.99 37.99
51 29.18 29.18
+8.81 +8.81
+.37
37.99 +9.18
+13.38
−22.79
+49.18 37.99
+13.33
18.1777 −21.19
+49.18
19.31

51 42.00 40.06
42.81 40.87 40.87
31.49 31.49 31.49
+11.32 +9.38 +9.38
+.37
40.87 +9.75
+12.91
−22.25
+46.87 40.87
+12.91
18.40 −22.04
+46.87
18.61

51 41.90
42.71 42.71
31.27 31.27
+11.44 +11.44
+.37
42.71 +1.51
+12.90
−21.72
+47.09 42.71
+12.84
20.98 −23.21
+47.09
19.43

51 47.45
48.26 48.26
44.52 44.52
+3.74 +3.74
+.37
48.26 +4.11
+12.95
−19.05
+33.84 48.26
+12.94
16.00 −19.37
+33.84
(15.67)

51 54.05
54.86 54.86
47.96 47.96
+6.90 +6.90
+.37
54.86 +7.27
+14.20
−22.22
+30.40 54.86
+14.20
17.24 −22.44
+30.40
17.02

51 53.10
53.91 53.91
48.81 48.80
+5.10 +5.11
+.37
53.91 +5.48
+14.21
−20.11
+29.55 53.91
+14.22
17.56 −20.22
+29.06
17.47

+286.0 − 67.3

15
4 39.2 4 47.9
7.0 15.0
46.2 62.5
23.10 31.45

2.45637 1.82802
.857765 .22730
+7.20 − 1.70
23.10 31.45
19 30.30 29.75
+91° 3′ 18.05″ 18.60
+1 10.02
4 28.07
~~38.1~~
+1.04
88 55 7.9
8.9
4 51.1
+.69 +23.0 23.7
− 15.0

A. R. only.

7.1
8.1
51.8
−15.8

4 58.6
18.8
77.4
38.70
−107.6
2.03181 n
0.49309
−77.1
19 38.70
19 35.99

4 42.9
8.7
51.6
25.80
+63.6
1.80346
0.20474 n
+ 16.0
19 25.80
19 27.40
3 20.95
1 8.21
4 29.2
3.6
4.6
4 55.4
+26.2 26.9
−19.3

4 46.8
8.2
55.0
27.50
+54.4
1.73560
0.13688 n
+13.7
19 27.50
19 28.87
3 19.48
1 10.12
29.6
3.0
4.0
56.0
+26.4 27.1
−19.9

4 42.4 4 49.6
5.9 11.6
48.3
24.15
+153.1
2.18497
0.58625 n
+ 34.7
19 24.15
19 28.02
3 20.33
1 9.20
29.5
2.9
8.9
56.1
+26.2 26.9
−20.0

~~Reduction to mean of three~~ 52m 53m

18. 17.77	17.77	19.31	for 1871.0	19.76	+1.24
18.40	18.40	18.61		19.06	+.54
20.98		19.43		19.88	+1.36
(16.00)				17.57	−1.01
17.24	17.24	17.06		17.92	−60
17.56	17.56	17.47		19.77	+1.25
18.24	18.24	19.32		17.95	−57
16.65	17.80	17.50		18.43	−9
18.10	18.40	17.98		19.95	+1.40
18.27	18.37	19.50		18.20	−32
17.49		~~17.72~~			
18.09	17.92	18.39		18.84	4.32

+.44 +420 | +23 +218 | Tang δ = 52.90 | +21 +220 | +21 187 | +19 +185

March 24) | April 3 | Apr. 4 | Apr. 10 | Apr. 11

Indigo

0.0 48 23.5 46 47.3 | 52 21.2 48 22.4 46 54.2 | 52 25.8 | 8 1 29.1
50 10.4 | 50 10.2
3.0 52 113.4 | 53 11.0 52 2.2 52 15.1 | 56 7.5
53 51.1 | 48 19.9 | 53 48.6 | 48 32.2
55 40.5 | 50 11.8 | 55 42.2 | 50 20.6 100
51 60.5 | 125.5 | 52 10.3 87
52 013 11 | 53 48.0 | 120 | 53 57.7 102
51 585 −.8 | 55 | 55 45.6 9.3
52 30 23 | 57 57.7 | 16.64 7.8 | 55 46.7 8.9
27 | 59.9 | 120 46.0
20.0 52 246 47.3 | 60.4 52 21.2 | 46 54.2 | 46.4 52 25.8 | 1 14.8 1 9.9.1
55 | 59.6 | 9.28 9.20 | 3 2.8 8.3
2376

Sin √ 9.99992

cos √ 8.28324
11802
8.40126

~~52~~ 14 52 14.5 51 59.40 | 52 1.10 | 52 9.20 | 52 8.87
52.95 | 2.26 2.26 | 0.21 0.21 | 1.91 1.91 | 10.09 10.09 | 9.68 9.68
53.86 | 53.86 53.86 | 4.12 4.12 | 5.18 5.18 | 12.18 12.29 | 13.27 ? 13.27
0.91 | +8.40 +8.40 | −3.91 −3.91 | −3.27 −3.27 | −2.09 −2.10 | −3.58 −3.58
+.37 | +.37 | +.07 | +.37 | +.37
2.26 | +5.77 | 0.21 −3.58 | 1.91 −2.90 | 10.09 −1.73 | 9.68 −3.02
+14.76 | +14.59 | +14.57 +14.58 | +14.12 +14.52 | +13.11 +13.13 | +12.76
−23.28 | −12.17 | −11.11 | −11.11 | −10.05
+24.50 | 2.26 | +14.24 | 0.21 | +13.18 | 1.91 | +6.18 | 10.09 | +5.09 | 9.68
+14.79 | 14.58 | 14.52 | 13.13 | +12.77
18.24 | −22.23 | 17.80 16.85 | −11.53 | 18.10 | −11.63 | 18.27 | −9.89 | 17.49 | −9.79
+24.50 | +14.24 | +13.18 | +6.17 | +5.09

19.32 | 17.50 | 17.98 | 19.50 | 17.75

+314.1 −42.0 | +306.8 | −56.2

49.6 4 39.6 | 4 46.2 | 4 38.7 | 4 41.8 | 4 32.2 | 4 39.1 | 4 35.10 | 4 41.8 | 4 6.10
11.6 4.3 | 11.3 | 6.9 | 9.2 | 1.3 | 7.2 | 10.2 | 15.0 | 32.8
43.9 | 57.5 | 45.6 | 51.0 | 33.5 | | 45.2 | | 43.8
21.98 | 28.75 | 22.80 | 25.50 | 16.75 | | 22.60 | | 46.90

−21.8 | −16.6

2.49707 | 1.62325 | 1.33846 n | 1.48686 | 1.22011 n | 2.71834
.89835 | .02453 | 9.73974 | 9.88814 n | 9.62139 | 1.14562 n
+7.51 | −1.06 | −.55 | +7.73 | −42 | +14.11
19 21.95 | 19 28.75 | 22.80 | 19 16.75 | 19 22.60 | 18 46.90
19 29.86 | 19 27.69 | 19 22.25 | 19 24.48 | 19 22.18

3 18.49 | 3 20.66 | 3 26.10 | 3 23.87 | 3 26.17
1 11.10 | 1 9.91 | 1 9.11 | 1 6.68
29.6 | 34.0 | 33.0 | 32.9
20 | 12 | 10 | 08
8.0 | 22 | 20 | 18
57.0 | 57.8 | 58.0 | 58.2

+27.4 28.1 | +23.8 24.4 | +25.0 25.7 | +25.3 26.0
−20.9 | −21.7 | −21.9 | −22.0

8 Mo. Maj 8 o

Q Argûs   M. 408   8 0 3

8 2 6

−23 56

−44

1872	March 18		March 19		Apr. 4		April 10	
~~38~~	38.4 1	32.6 1	38.5 1	31.6 1	37.8 1	32.8 1	39.0 1	28.7
1	40.6	33.8	40.7	32.6	40.0	33.7	41.3	29.8
	42.7	35.1	42.8	33.5	42.2	34.8	43.4	30.9
	47.4	101.5	47.5	97.7	46.8	101.3	48.0	89.4
sin δ 9.60818	49.7		49.7		49.1		50.3	
	52.0 1	33.8	51.9 1	32.6	51.3 1	33.8	52.6 1	29.8
	54.1		54.3		53.5		54.7	
	56.4		56.4		55.7		57.0	
	1.1		1.0		1.3		1.6	
cos δ 9.96095	3.3		3.2		2.6		3.8	
11804	5.6 1	33.8	5.6 1	32.6	4.8 1	33.8	6.0 1	29.8
.07899	5713		5716		5651		5777	
	57.537							
	57.944		51.964		51.373		52.518	

15				
	2 48.7	2 52.2	2 50.0	2 59.6
	26.8	31.2	33.8	49.6
	75.5	83.4	83.8	109.2
	37.75	41.70	41.90	54.60
	+24.1	+19.4	+17.6	+22.7
	1.38202	1.28780	1.24551	1.35603
	1.46101	1.36679	1.32450	1.43502
	−28.51	−23.27	−21.11	−27.23
	17 37.75	17 41.70	17 41.90	19 54.60
	17 8.84	17 18.43	17 19.99	17 26.93
				27.37
−23°	54′ 20.49″	54 30.08	54 31.44 ✓	54 39.02

1872phae.proj.1456.

ξ Cancri
~~Coma~~
8 4 48
+18 03
T.33

1872 March 14 | March 18 | March 19 | April 3 | Apr. 4

	March 14		March 18		March 19		April 3		Apr. 4	
4	25.5 4	18.6 4	25.2 4	15.8 4	25.1 4	13.7	4	48.1 4	24.7 4	19.8
	27.6	19.3	27.4	16.8	27.3	15.0			26.8	20.6
	29.8	20.2	29.5	17.8	29.5	15.8			29.0	21.7
	34.2	58.1	33.9	50.4	33.8	44.5 4	33.3		33.2	62.1
Sin 9.49115	36.4		36.0		36.0		35.4		35.5	
	38.5 4	19.4	38.1 4	16.8	38.2 4	14.8	37.6 4	48.1	37.7 4	20.7
	40.7		40.3		40.3		39.8		39.8	
	42.9		42.4		42.5		42.0		42.1	
	47.1		46.8		46.8		1881		46.4	
cos 9.97808	49.3		48.9		48.9				48.6	
1.1804	57.5 4	19.4	51.0 4	16.8	51.2 4	14.8	4	48.1	50.7 4	20.7
.09612	4235		4295		4196				4145	
			38.137							
	38.500		~~3823~~		38.176		37.620		37.682	

	20				
	1 25.1	1 30.9	1 32.0	0 48.2	1 21.2
	4.7	5.5	7.9	28.9	2.3
	29.8	36.4	39.9	77.1	23.5
	14.90	18.20	19.95	38.55	11.78
	+19.1	+21.3	+23.3	−10.5	+17.0
	1.28103	1.32838	1.36736	1.02119 n	1.23045
	1.37715	1.42450	1.46348	1.11731 n	1.32657
	− 23.83	− 26.58	− 29.07	+ 13.10	− 21.21
	21 14.90	21 18.20	21 19.95	20 38.55	21 11.75
	20 51.07	20 51.62	20 50.88	20 51.65	20 50.54
	′ ″				
+18°	1 57.28	1 56.73 ✓	1 57.47	1 56.70 ✓	1 57.81

	Apr 10				Apr. 11		
4	26.0	4	18.7	4	26.3	4	20.8
	28.1		19.8		28.4		21.7
	30.3		21.0		30.6		22.6
	34.6		59.5		35.0		65.1
	36.8				37.2		
	39.0	4	19.8		39.3	4	21.7
	41.1				41.4		
	43.3				43.6		
	47.6				47.9		
	49.8				50.1		
	51.9	4	19.8		52.3	4	21.7
	4285				4321		
	38.955				39.282		

1	22.6	1	26.2
	9.8		10.6
	324		368
	16.20		18.40
	+19.2		+17.6
	1.28330		1.24551
	1.37942		1.34163
	−23.96		−21.96
21	16.20	21	18.40
20	5224	20	56.44
1	56.11	1	51.91

20 Puppis
8 7 26
−15 24
− .28

	1872 March 18		March 19		Apr. 10		Apr. 11	
7	0.4 6	54.8 7	0.4 6	52.3 7	1.0 6	55.6 7	1.6 6	55.9
	2.6	56.0	2.6	53.2	3.3	56.7	3.6	56.8
	4.8	57.5	4.7	54.3	5.4	57.7	5.7	57.8
	9.0	168.8	9.0	159.8	9.7	170.0	10.6	170.5
Sin 9.42416	11.1		11.2		11.8		12.0 6	56.8
	13.4 6	56.1	13.2 6	53.3	13.9 6	56.7	14.4 7	33.2
	15.4		15.4		16.1		16.5	34.3
	17.5		17.5		18.2		18.7	35.7
	21.7		21.8		22.4		22.9	
cos 9.98412	23.9		24.0		24.6		25.0	
11.804	26.1 6	56.1	26.0 6	53.3	26.7 6	56.7	27.2 6	56.8
1.021.6	14 59		1458		1531		1576	
	13.264		13.255		13918		14327	

45									
1	30.2		1	36.6	1	34.0	1	38.0 8	51.6
	8.6			15.1		24.2		26.0	39.3
	38.8			51.7		58.2		64.0	
	19.40			25.85		29.10		32.00	
	+17.2			+20.0		+17.2		+17.5	
	1.23553	1.23558		1.30183		1.23553		1.24304	
	− 21.76	1.33769		1.40319		1.33769		1.34520	
				− 25.30		− 21.76		− 22.14	
46	19.40		46	25.85	46	29.10	46	32.00	
46	57.65		−46	0.55	46	6.34	46	9.56	
−15° 23′	9.30″		23	12.20	23	17.99	23	21.51	

β ~~Coma~~ Cancri

8 9 31
9 34.33
+9 35 34.33
4 31.07
(+.17)

Mar 1	8	9	34.88		+9°	34'	39.1	39.1
6			83	.05			39.2	39.1
11			78	05			39.2	39.2
16	(+.01)		72	06			39.3	39.3
21			34.65	07			39.3	39.3
26	(+.01)		58	07			39.4	39.4
31			50	08			39.5	39.5
Ap. 5			42	08			39.6	39.7
10			34.34	.08			39.8	39.8
							40.6	

cos Z = +.54 +.36 +.366 | +.42 +.424 | +.38 +.382 | +.21 +.187 | +.19 +.189

1872	March 14		March 18		March 19		Apr. 10		Apr. 11	
-.016 9	8.3 9	1.2 9	7.9 9	0.3 9	7.9 8	58.9 9	8.5 9	0.5 9	9.0 9	8.6
	10.3	2.3	10.0	1.3	10.0	59.8	10.8	1.5	11.0	
	12.5	3.4	12.2	2.4	12.1	1.0	12.9	2.6	13.1	
	16.6	6.9	16.3	4.0	16.2	179.7	16.9	4.6	17.3	
	18.7		18.3		18.3		19.1		19.5	
	20.7 9	2.3	20.4 9	1.3	20.5 8	59.9	21.3 9	1.5	21.6 10	4.5
	22.8		22.5		22.5		23.4		23.7 9	8.6
	25.0		24.6		24.7		25.5		25.9	
	29.1		28.8		28.7		29.6		30.0	
s.∫9.22062	31.2		30.9		30.9		31.6		32.0	
	33.2 9	2.3	33.0 9	1.3	33.0 8	59.9	33.7 9	1.5	34.0 9	8.6
	2284		2249		2248		2339		2371	
							21.28			
∫9.99392	20.764		20.476		20.436		21.220		21.555	
.11804	20.75	20.75	20.43	20.43	20.42	20.42	21.20	21.18	21.54	21.54
.11196	34.75	34.75	34.69	34.69	34.68	34.68	34.34	34.34	34.32	~~34.32~~
	-14.00	-14.00	-14.26	-14.26	-14.26	14.26	-13.14	-13.14	-12.78	12.78
		-.1		-.1		-.1		-.1		-.1
.82	20.75	-14.01	20.43	-14.27	20.42	-14.27	21.20	-13.15	21.54	12.79
	+12.98	+32	+14.20		+14.21		+13.10		+12.76	
	+ .06	20.75	+ 7	20.43	+ 6	20.42	+ 3	21.20	+ 3	21.04
	-.42	+12.94	-36	+14.20	-35	+14.22	-.01	+13.12	+.01	+12.79
		+.06		+.07		+.05		+.03		+.03
	34.34	-.42	34.34	-.36	34.34	-.35	34.32	-.01	34.34	+.01
		34.33		34.34		34.34		34.32		34.34

	45					
	3 29.2	3 33.1	3 33.8	3 28.2	3 25.1 2	15.6
	8.3	7.0	8.9	15.1	10.0	59.2
	37.5	40.1	42.7	43.3	35.1	
	18.75	20.05	21.35	21.65	17.55	
	+18.5	+19.1	+20.5	+19.7	+13.0	
	1.26717	1.28103	1.31175	1.29447	1.11394	
	1.37913	1.39299	1.42371	1.40643	1.22590	
	-23.54	-24.72	-26.53	-25.49	-16.82	
	48 18.75	48 20.05	48 21.35	48 21.65	48 17.55	
	47 54.81	47 55.33	47 54.82	47 56.16	48 0.73	
+9°	34 53.54	34 53.02	34 53.53	34 52.19	34 47.62	
-	0 39.13	- 0 40.20	- 0 39.58	- 0 37.44	- 0 38.56	
	34 14.4	34 12.8	34 14.0	34 14.2	34 9.1	
	34 39.3	34 39.3	34 39.3	34 39.8	34 39.8	
-51 I	+ 24.9 24.4	+ 26.5 26.0	+ 25.3 24.8	+ 25.6 25.1	+ 30.7 30.1	
+9	34 53.54	34 53.02	34 53.53	34 52.19	34 47.62	
	+1.80	1.80	1.80	1.30	+1.30	

8434	.33	0
34	.34	+1
84	.34	+1
32	.34	+1
34	.34	+1
8434	.34	+.01
	−3.26	
	81.08	

$\delta = +9^\circ\ 34'\ 41.1''$

κ Cephei

8 13 08	Mar 11	20 13	5.21	.40	(+.06) +.09	+ 77° 19'	9."6.	9."6
13 9.23	16		.62	41	(+.07)		8.7	8.6
102 41 9.23	21		6.03	45			7.7.	7.7
77 19 11.12	26		6.48	46			7.0	7.0
	31		6.94	48	(+.14)		6.4.	6.4
	Apr. 5		7.42	.48			6.0	6.0
	10		7.90				5.7:	5.7
							5.6:	

(−4.44) Cos Z = −.87

−1.44

1872	March 14	March 19	Apr. 2	Apr. 10	Apr. 11
	+.36 +.366	+.38 +.382	+.23 +.235	+.21 +.147	+.19 +.185
+.070	11 56.7 11 40.0	13 3.6	11 57.5 F ~~57.5~~ 11	59.5 11 50.0	11 59.5 14 44.1 +0
	12 6.1 94		7.0 ~~7~~	8.2	8.8 47.5 +6
	15.6 95		16.4 12 37.1	18.4	18.8 52.0 +4
	34.5 189		35.1	36.6	37.3 143.6 +7
S 9.98927	43.7 11 40.0	13 3.6	44.9 12 37.1	46.1 11 50.0	46.3 11 47.9 +2
	52.7 90	13 2.8 +5	54.1 13 20.2	55.8	66.3 14 21.0 +5
	13 2.3 86	12.1 +3	3.3 26.0	5.3	5.1 −2
	11.8 95	~~14.9~~ +1	12.9 29.3	14.5	14.7 +2
	31.0 192	31.1 +4	31.6	33.0	24
cos 9.34156	39.9 89	40.3 −2	40.9	42.9	30
11824	49.9 100	49.7 11	50.2	52.0	53.7
9.45960	m 344.2 11 40.0	+18 13 3.6	353.9 12 37.1	372.2 11 50.0	+0.36 11 47.9
	240	53.11	240	240	55.75
	584.2		593.9	613.2	
1s?	53.109	53.29	12 53.991	55.646	56.05
	53.18 53.18 12	53.36 53.36	54.06 54.06 54.06	55.746 55.82 55.82	56.12 56.12
	5.50 5.51	5.85 5.85	6.72 7.15 7.10	7.87 7.87	7.96 7.96
	−12.32 −12.33	−12.49 −12.49	−12.66 13.08 13.04	7.93 −12.11 −12.05	8.02 −11.90 −11.89
	+53.18 −11.40	53.36 −12.56	54.06 −13.11	55.82 −12.12	56.12 −11.91
	+12.95	+14.21	+14.42	+13.10	+12.76
	−1.60 54.18	−1.69 53.36	−1.02 54.06	−.93 55.82	−.84 56.12
	+3.73 +12.94	+3.38 +14.22	+2.08 +14.41	+1.30 +13.12	+1.21 +12.77
	−1.63	−1.70	−1.04	−.83	−.82
	9.26 +3.72	9.26 +3.38	9.54 +2.13	9.29 +1.36	9.25 +1.27
	9.21	9.26	9.56	9.47	9.34

	40				
	4 4.4	4 30.8	4 17.0 4 29.5	3 58.2	4 8.0 4 31.2
	30.7	54.7	44.4 58.0	34.6	40.5 7.3
	35.1	85.5	61.4	92.8	48.5
	17.55	42.75	30.70	46.40	24.25
	+73.1	−10.3	+16.9	+65.7	+68.1
	1.86392	1.01284 n	1.22789	1.81757	1.83315
	1.32352 n	0.47244	0.68749 n	1.27717 n	1.29275 n
	+21.06	−2.98	+4.87	+18.53	+19.62
	43 47.55	44 2.75	44 0.70	43 46.40	43 54.25
	43 ~~26.49~~ 44 8.61	44 9.77	44 5.57	44 5.33	44 13.87
102°	38 39.74	38 38.58	38 42.78	38 43.02	38 34.48
+	1 45.40	+ 1 45.48	+ 1 45.27	+ 1 42.76	+ 1 44.57
	40 25.1	40 24.5	40 28.0	40 25.8	40 19.0
	40 51.0	40 51.9	40 53.7	40 54.3	40 54.4
	~~19 34.9~~	~~19 35.5~~	~~19 32.0~~	~~19 34.2~~	~~19 41.0~~
	19 9.0	19 8.1	19 6.8	19 5.7	19 5.6
+81 I	+ 25.9 26.7	+ 27.4 28.2	+ 25.7 26.5	+ 28.5 29.3	+ 35.4 36.2
102	38 39.74	38 38.58	38 42.78	38 43.02	38 34.48
	−19.70	−20.60	22.40	23.00	−23.10

9.26 .21 − 2 $\delta = +77^\circ\ 19'\ 28''.7$

26 .26 + 3

54 .56 + 33

29 .47 + 24

25 .34 + 11

9.32 — 9.37 (+.14)

+1.89

~~708~~

11.26

V ~~a~~ Puppis
8 16 24
−32 88
−.64

1872	March 18				March 19				Apr. 10				Apr. 11			
	15	52.6	15	44.1	15	52.5	15	46.7	15	52.9	15	45.0	15	53.4	15	48.5
		55.0		45.1		54.9		47.6		55.4		46.3		55.8		51.0
		57.5		46.6		57.5		48.6		57.9		47.6		58.3		52.8
		2.3		135.8		2.3		49.7		2.8		138.9		3.0		152.3
Sin √9.73180m		4.9				4.8		192.6		5.3				5.6	15	50.8
		7.3	15	45.3		7.2	15	48.1		7.7	15	46.3		8.1	16	31.8
		9.7				9.6				11.1				10.7		33.1
		12.0				12.0				12.6				13.0		34.7
		17.1				17.1				17.5				17.8		
cos √9.92538		19.5	15	45.3		19.5	15	48.1		19.8	15	46.3		20.2	15	50.8
1.8804		22.0				22.0				22.4				22.8		
.04342		259.9				259.4				265.4				268.7		
		180				180				180				180		
		79.9				79.4				85.4				88.7		
		7.264				7.278				7.764				8.064		

	55									
	4	9.8	4	9.2	4	17.1	4	18.1	3	29.7
		44.5		46.0		49		4.1		16.8
		11 4.3		11 5 2		22.0		22 2		
		57.15		58.60		11.10		11.10		
		+ 22.0		+ 19.1		+ 21.5		+ 17.3		
		1.34242		1.28103		1.33244		1.23805		
		1.38584		1.32445		1.37586		1.28147		
		− 24.31		− 21.11		− 23.76		− 19.12		
	58	57.15	58	57.60	59	11.00	59	11.10		
	58	32.84	58	36.49	58	47.24	58	51.98		
−32°	35′	44.49″	35	48.14	35	58.89	36	3.63		

86 47.4′ 8

Mar 21 8 19 37.70 .16 + 61° 8′ 47.″9 .5 47.9 .7
26 54 16 48.4 .6 48.6 .6
31 (+0.1) .37 17 49.0 .6 49.2 .5
Ap. 5 (+.13) 20 17 49.6 .6 49.7 .5
10 37.03 17 50.2 . 50.2
50.8

0 Urs. Maj.

8 19 32
19 36.63 36.63
+ 61 09 31.59
8 err z = −.32

(+1.81)

1.81 +.42 +.424 +.38 +.382 +.30 +.330 +.23 +.235 +.21 +.187 +.19 +.185

1872 March 18 march 19 March 27 Apr. 2 Apr. 10 Apr 11

−.032 18
sin √9.94238
cos √9.68374
11804
9.80178

March 18

57.4 18 57.0 18
1.5
5.9
14.2
18.6 18 57.0
22.8
27.0
31.4
40.0
44.2 18 57.0
48.6
311.6
60
251.6
22873
22.84 22.84
37.79 37.79
14.95 −14.95
14.96
22.84
+14.20
+ .76
− 1.16
36.64
22.84
+14.20
+ .77
− 1.16
36.65

March 19

57.3 18 39.1 18
1.5 40.3
5.6 41.8
14.3 121.2
18.6 18 40.4
− 22.9
27.2
31.5
39.8
44.3 18 40.4
48.5
311.5
26
251.5
26.378 22.864
22.85 22.85
37.76 37.76
14.91 14.91
9.47
14.92
22.85
+14.21
+ .69
−1.13
36.62
22.85
+14.22
+ .69
−1.13
36.68

March 27

56.2 18 52.0 18
0.3 54.3
4.4 55.9
13.0 162.2
17.4 18 54.1
21.7
25.9
30.1
38.8
42.9 18 54.1
47.2
297.9
60
237.9
21.628
24.60 21.60
37.50 37.50
16.90 −15.90
15.91
21.60
+15.32
+ .54
− .87
36.59
21.60
+15.30
+ .60
− .87
36.68

Apr. 2

57.0 18 47.9 18
1.1 52.1
5.5 54.7
14.0 154.7
18.3 18 51.6
22.5 19 54.7
26.7 56.8
31.1 58.2
39.7
43.9 18 51.6
48.1
307.9
60
247.9
22.536
22.50 22.50
37.29 37.29
14.79 −14.79
14.80
22.50
+14.42
+ .42
− .66
36.68
22.50
+14.41
+ .42
− .66
36.67

Apr. 10

58.2 18 40.7 18
2.3 43.1
6.5 46.0
15.1 129.8
19.2 18 43.3
23.7
27.9
32.2
40.7
45.1 18 43.3
49.3
320.2
60
260.2
23.655
23.62 23.62
37.02 37.02
13.40 −13.40
13.41
23.62
+13.10
+ .38
− .39
36.71
23.62
+13.12
+ .34
− .39
36.74

Apr 11

58.4 18 43.6
2.6 45.6
6.8 47.7
15.4 137.1
19.6 18 45.7
23.8 19 39.6
28.3
32.6
40.7
45.2 18 45.7
49.6
323.0
60
263.0
23.909
23.88 23.88
36.99 36.99
13.11 13.11
23.88 13.12
+12.76
+ .34
− .36
36.62
23.88
+12.77
+ .33
− .36
36.62

March 18

15 7.4
0 20.4
−13.0
33.70
+25.9
1.41330
1.21503
− 16.41
15 3.70
14 47.29
+61° 8′ 1.″06
+ 0 20.48
8 22.0
8 47.6

March 19

0 29.0
56.7
85.7
42.85
+ 42.5
1.62839
1.43017
− 26.23
15 12.85
14 40.92
8 2.43
+0 20.39
8 28.8
8 47.8

March 27

0 16.2
4 46.4
62.6
31.30
+27.5
1.43933
1.24111
− 17.42
15 1.30
14 43.88
8 4.47
+0 20.59
8 25.0
8 48.8

Apr. 2

10
0 18.0 4 36.0
4 48.1 7.4
66.1
33.05
+30.9
1.48996
1.29174
− 19.58
15 3.05
14 43.47
8 4.88
+0 20.41
8 25.3
8 49.4

Apr. 10

0 18.9
58.3
77.2
38.60
+40.4
1.60638
1.40816
− 25.60
15 8.60
14 43.00
8 5.35
+ 0 19.68
25.0
8 24.9
8 50.2

Apr 11

0 24.3 4 52.5
1.9 28.5
26.2
13.10
+38.2
1.58206
1.38384
− 24.20
15 13.10
14 48.90
7 59.45
+ 0 20.06
8 19.5
8 50.3

+.30 I + 25.6 25.9 + 25.0 25.3 + 23.8 24.1 + 24.1 24.4 + 25.2 25.5 + 30.8 31.1

+61 8 1.06 8 2.43 8 4.47 8 4.88 8 5.35 7 59.45
− 13.00 13.20 14.20 14.80 15.60 − 15.70

36.64 .65 +2 $\delta = +61^\circ\ 8'\ 34''.6$
62 .63 +0
59 .63 +0
68 .67 +4
71 .74 +11
62 .62 −1
36.64 36.66 (+.03)
−4.04
31.62

B.A.C. 2846 ~~8228~~

8 22 28

− 25 42

− .48

1872

March 18

22 0.7 21 54.9 22
3.0 56.0
5.3 56.9
9.8 167.8
12.0 21 55.9
14.3
16.6
18.9
23.5
25.7 21 55.9
28.0
1578
14.356

sin 9.63715
cos 9.95476
11.804
.07280

March 19

0.6 21 52.3 22
2.9 53.3
5.1 54.6
9.7 160.2
12.0 21
14.3
16.5
18.8
23.2
25.6 21 53.4
27.8
1565
14.228

March 21

0.5 21 55.0 21
2.8 55.9
5.1 56.8
9.6 167.7
11.9
14.2
16.5
18.7
23.4
25.6 21 55.9
27.8
1561
14.191

March 27

59.3 22 0.5 22
1.5
3.7
8.4
10.7
13.0
15.2
17.6
22.0
24.4 22 0.5
26.7
2025
60
1425
12.9546

Apr. 2

0.0 21 51.7 22
2.2 52.7
4.6 54.0
9.0 158.4
11.4
13.7 22 36.7
16.0 37.6
18.3 38.3
22.8
25.2 21 52.8
27.4
1506
13.691

Apr 10

1.1 22 0.3
3.4 1.8
5.6 2.9
10.2 5.0
12.4
14.6
17.0
19.8
23.8
26.2 22 1.7
28.4
1620
14.727

°
4 3.1
39.3
43.4
21.20
+18.4
1.26482
1.38762
−21.76
3 51.20
3 29.44
− 25° 40′ 41.09″

4 7.9
46.4
54.3
27.15
+20.8
1.31806
1.39086
−24.59
3 57.15
3 32.56
40 44.21

4 2.7
39.3
42.0
21.00
+18.3
1.26245
1.33525
−21.64
3 51.00
3 29.36
40 41.01

3 55.8
37.8
93.6
46.80
+12.5
1.09691
1.16971
−14.78
3 46.80
3 32.02
40 43.67

°
4 8.0
49.3
57.3
28.65
+20.9
1.32015
1.39295
−24.71
3 58.65
3 33.94
40 45.59

2 14.4
57.9

Exclu[illegible]
°
4 0.3
50.0
50.3
25.15
+13.0
1.11394
1.18674
−15.37
3 50.15
3 39.78
40 51.43

apr. 11

22 1.522 2.0
3.7
6.2
10.6
12.9
15.0 22 42.7
17.6
19.6
24.4
26.7 22 2.0
29.0
16 7 2

15.200
15.018

4 3.6 3 17.0
51.9 4.0
55.5
27.75
1.13.0

1.11394
1.18674

1.5.37
3 57.75
3 42.38

40 54.03

η Cancri. ~~Ri: 1446 8 25~~

Mar 21 8 25 14.69 + 20° 52' 28".0 28.0
26 62 .07 28.8 28.3 .3
31 (-.08) 54 8 28.6 28.6 .3
Apr. 5 1.46 8 28.9 28.9 .3
10 (-.01) 18.38 .08 29.1 29.1 .2
30.0

8 25 16
25 18.26 15.26
+ 20 53 14.78
2
min z = +.37

(+.38) +.42 +.424 +.30 +.330 +.23 +.235 +.21 +.187 +.19 +.185

1872 March 18 March 27 Apr. 2 Apr. 10 Apr. 11

-.016 24 51.3 24 44.5 24 50.0 24 43.7 24 50.8 24 42.3 24 52.0 24 46.8 24 52.3 24 44.8
53.4 45.5 52.1 44.9 53.0 43.0 54.2 47.6 54.5 46.0
55.6 46.5 54.3 45.8 55.2 44.0 56.4 48.3 56.7 47.2
0.1 136.5 58.8 134.4 59.6 129.3 142.7 1.1 138.0
2.1 0.9 1.8 1.2 3.3
4.3 3.2 4.0 25 28.4 1.2 5.6 25 18.3
6.6 5.4 6.1 30.5 1.2 7.8
8.8 7.6 8.4 31.2 10.0
13.2 12.1 12.8 14.3
sin √ 9.55169 15.3 24 45.5 14.2 24 44.8 15.0 24 43.1 24 47.6 16.6 24 46.0
17.6 16.4 17.1 18.8
228.3 275.0 263.8 120 241.0
180 240 240 39.8 180
48.3 35.0 43.8 61.0
cos √ 9.97054 4.391 3.182 3.982 25 5.180 5.545
11804 4.37 4.37 3.17 3.17 3.97 3.97 5.16 5.16 5.53 5.53
.08858 18.73 18.73 18.60 18.60 18.51 18.50 18.38 18.38 18.36 18.36
-14.36 -14.36 -15.43 -15.43 -14.54 -14.53 -13.22 13.22 -12.83 -12.83

4.37 3.17 3.97 5.16 5.53
+14.20 4.37 +15.32 3.17 +14.42 3.97 +13.10 5.16 +12.76 5.53
+ .16 +14.20 + 11 +15.30 + 9 +14.41 + 7 +13.12 + .07 +12.77
-.47 + .16 -.34 + .13 -.25 + 9 -.12 + 7 -.10 + .07
-47 -34 -24 -12 -10
18.26 18.26 18.26 18.26 18.23 18.23 18.21 18.23 18.26 18.27

30 25
1 0.7 0 55.1 0 57.3 4 0.4 0 51.8 0 59.9 0 19.8
32.0 31.2 33.1 37.4 37.1 41.1 43
92.7 86.3 90.4 88.9 101.0
46.35 43.15 45.20 44.45 50.50
+18.1 +18.4 +20.9 +17.6 +19.5
1.27646 1.26482 1.32015 1.24551 1.29003
1.36504 1.35340 1.40873 1.33409 1.37861
-23.18 -22.56 -25.63 -21.58 -23.91
30 46.35 30 43.15 30 45.20 30 44.45 30 50.50
30 23.17 30 20.59 30 19.07 30 22.87 30 26.59
° ' "
+20° 52 25.18 52 27.76 52 28.78 52 25.48 52 21.76
- 0 24.60 - 0 24.14 - 0 24.01 - 0 23.28 - 23.71

52 0.6 52 3.6 52 4.8 52 02.2 51 58.0
52 27.89 52 28.4 52 28.7 52 29.1 52 29.1

-.33 I + 27.3 27.0 + 24.8 24.4 + 23.9 23.6 + 26.9 26.6 + 31.1 30.7
+20 52 25.18 52 27.76 52 28.78 52 25.48 52 21.76
- 1.30 1.80 2.10 2.50 - 2.50

28.0"
28.3
28.6
28.9
29.1

18.26.26 +0
26.26 +0
23.23 −0
21.23 −3
26.27 +1

18.25.28 (−.01)
−3.48
14.77

δ = + 20° 52′ 26.6″.

B.A.C. 2887

8 28 44
+ 53 52
+ 1.37

δ ∫ 9.90722
or ∫ 9.77061
11804
9.88865

1872 March 18		March 27		Apr. 2		Apr. 3		Apr. 10		Apr. 11	
28 13.3	28 8.2	28 12.1	28 1.6	28 12.9	28 3.0	28 12.8	28 0.7	28 14.3	28 2.1	28 14.4	28 22.3
16.7	10.0	15.6	3.1	16.3	4.0	16.3	2.0	17.6	3.7	17.9	
20.[illegible]	11.0	19.0	4.6	19.8	4.8	19.7	4.0	21.0	5.4	21.3	
27.3	29.2	26.1	9.3	26.8	11.8	26.6	6.7	28.1	11.2	28.3	
30.8		29.5		30.3		30.2		31.4		32.0	
34.1		33.0		33.8	28 59.1	33.7	28 43.6	35.0	28 54.2	35.3	28 56.5
37.4		36.4		37.3	60.8	37.2	45.1	38.5		38.7	59.7
41.1		40.0		40.9	62.3	40.7	46.8	42.0		42.4	61.3
48.1		46.9		47.7		47.6		48.8		49.3	
51.6	28 9.7	50.5	28 3.1	51.3	28 3.9	51.2	28 2.2	52.6	28 3.7	52.8	28 22.3
55.1		54.0		54.8		54.6		55.9		56.3	
37 56		36 31		37 19		37 06		38 52		38 87	
34.176		33.089		33.809		33.691		35.018		35.336	

30 3 10.4	3 10.1	3 100.3 2	25 24.8 3 10.8 2	36.2 3 54.8 2	27.3 2 58.42 39.8
37.4	40.8	40.0	30.9 44.4	9.0 45.7	7.4 36.0 68
47.8	50.9	50.0	3 10.8	50.5	94.4
23.90	25.45	25.00	41.1 51.9 25.95	25.25	47.20
+24.4	+29.9	+29.9	+31.5	+31.3	+13.0 ✓
1.88789	1.47567	1.47567	1.49831	1.49554	1.11394
1.27604	1.36432	1.36432	1.38696	1.38419	1.00257
− 1888	−23.14	−2314	−2438	−2422	−1006
32 53.50	32 55.45	32 55.00	32 55.55	32 55.25	32 47.20
32 35.02	32 32.31	32 31.86	32 31.57	32 31.03	32 37.14
+53° 50′ 13.33″	50 16.04	50 16.49	50 16.78	50 17.32	50 11.21

δ Hydrae

δ 30 52
+ 6 10
+.11

1872	March 18		March 21		March 24 +2 seconds		March 27		Apr. 2		Apr. 11	
	30 26.6	30 18.9	30 26.6	30 20.6	30 24.0	30 18.6	30 25.3	30 19.3	30 26.1	30 29.7	30 27.6	30 25.6
	28.6	19.8	28.6	21.2	26.0	19.4	27.4	19.8	28.2		29.6	26.7
	30.7	20.7	30.6	22.0	28.1	20.2	29.4	39.1	30.2		31.8	27.7
	34.8	59.4	34.7	63.8	32.1	58.2	33.6		34.3		35.9	80.0
sin 9.03109	36.9		36.8		34.2		35.6		36.4		38.0	
	39.0		38.9		36.2		37.7		38.5	31 6.3	40.0	30 59.5
	41.0		40.9		38.3		39.7		40.6		42.0	60.4
	43.1		43.0		40.5		41.8		42.7		44.1	61.6
	47.2		47.2		44.6		46.0		46.9		46.3	
9.99748	49.3		49.1		46.7		48.0		49.0		50.3	
11844	51.4	30 19.8	51.3	30 21.3	48.7	30 19.4	50.1	30 19.5	51.0	30 29.7	52.4	30 26.7
.11562	4286		4277		399.4 22 6194		4146		4239		4400	
	38.964		38.852		38.309		37.691		38.536		30 40.000	

								20.9
	10	1						
	4 12.4	4 14.0	4 9.9	4 9.6	3 59.0	3 5.6	4 9.4	3 25.6
	47.8	47.3	45.6	48.8	38.8	45.7	56.1	109
	60.2	61.3	55.5	58.4	97.8		65.5	36.5
	30.10	30.65	27.75	29.20	48.90		32.76	18.25
	+11.2	+11.6	+16.9	+18.2	+8.8		+13.3	
	1.28330	1.24551	1.22788	1.26007	0.94448		1.12385	1.32015
	1.39882	1.36103	1.34340	1.37559	1.06000		1.23937	1.43567
	−25.05	−22.96	−22.05	−23.75	−11.48		−17.34	27.27
	14 6.10	14 0.65	13 57.75	13 59.20	13 48.90		13 2.75	13 18.25
	13 35.05	13 37.69	13 35.70	13 35.45	13 37.42		13 45.40	13 45.52
	′ ″							
+6°	9 13.30	9 10.66	9 12.65	9 12.90	9 10.93		9 2.95	2.89

6 Hydrae.

8 33 56
− 12 01
−.21

	1872 March 18		March 21		March 24		March 27		Apr. 11	
	33 31.3	33 25.6	33 31.3	33 26.0	33 30.7	33 25.3	33 30.1	33 22.8	33 32.3	33 19.6
	33.4	26.3	33.4	27.0	32.9	26.2	32.2	23.7	34.5	20.7
	35.6	27.7	35.5	27.8	35.0	27.4	34.4	25.0	36.6	22.3
	39.8	79.6	39.7	80.8	39.1	78.9	38.6	71.5	40.7	22.9
sin 9.31847	42.0		41.8		41.3		40.7		42.9	85.5
	44.0		44.0		43.4		42.7		45.0 33/34	5.0
	46.1		46.1		45.5		44.8		47.0	6.0
	48.3		48.2		47.7		46.9		49.3	6.6
	52.4		52.4		51.8		51.1		53.3	
cos 9.99038	54.5		54.5		53.9		53.2		55.4	
11804	56.7	33 26.5	56.5	33 26.9	55.9	33 26.3	55.3	33 23.8	57.7	33 21.4
.10842	4841		4834		4772		4700		4947	
	44.009		43.956		43.382		42.727		44.973	

20					
3 56.9	3 57.8	3 56.0	3 56.9	4 11.9	3 15.0
35.4	35.2	35.0	40.1	0.4	4.5
92.3	93.0	91.0	99.0	72.3	
46.15	46.50	45.50	49.50	36.15	
+ 17.5	+ 17.0	+ 17.1	+ 18.9	+ 23.6	
1.24304	1.23045	1.23300	1.27646	1.37291	
1.35146	1.33887	1.34142	1.38487	1.48143	
− 22.46	− 21.82	− 21.95	− 24.26	− 30.36	
23 46.15	23 46.50	23 45.50	23 49.50	24 06.15	
23 23.69	23 24.68	23 23.55	23 25.24	24 35.79	
−12° 0′ 35.34″	0 36.33	0 35.20	0 36.89	1 47.44	

γ Cancri
8 35 52
+ 21 57
+.40

1872	March 21		March 27		Apr. 2		Apr. 3		Apr. 10		Apr. 11	
	35 25.3	35 18.1	35 24.2	35 15.0	35 25.1	35 22.7	35 25.0	35 18.2	35 26.2	35 17.9	35 26.6	35 29.9
	27.4	19.5	26.4	16.1	27.3	24.1	27.2	19.2	28.5	19.0	28.8	
	29.7	20.5	28.6	17.1	29.5	25.3	29.4	20.3	30.6	20.1	30.9	
	34.2	5-8.1	33.1	48.2	34.0	72.1	33.8	57.7	35.2	57.0	35.3	
Sin 9.57264	36.4		35.3		36.3		35.9		37.3		37.7	
	38.6		37.6		38.3	36 1.7	38.3		39.6	35 59.6	40.0	36 9.1
	40.8		39.9		40.6	2.7	40.4		41.8	0.6	42.0	
	43.0		42.0		42.8	3.5	42.6		44.0	1.6	44.4	
	47.5		46.5		47.2		47.1		48.6		48.8	
cos 9.96732	49.7		48.6		49.5		49.3		50.7		51.1	
11804	52.0	35 - 19.4	50.9	35 - 16.1	51.7	35 24.0	51.6	35 - 17.2	52.9	35 19.0	53.3	35 - 29.9
.08536	4246		4131		4223		4206		4354		4389	
	38.600		37.554		38.391		38.236		39.582		39.900	

	25											
	2 52.5		2 50.0		2 41.0	1 54.3	2 47.0		2 45.9	1 55.0	2 38.3	1 50.8
	21.4		24.5		16.0	29.1	22.7		28.5	37.0	18.0	31.3
	73.9		74.5		57.0	~~3.4~~	69.7		74.4		56.3	
	36.95		37.25		28.50		34.85		37.2		28.15	
	+19.2		+21.5		+14.4		+17.0		+20.6		+10.0	
	1.28330		1.33244		1.15836		1.27875		1.31387		1.00000	
	1.36866		1.41780		1.24372		1.36411		1.39923		1.08536	
	−2337		−26.17		−17.53		−2313		−2508		−1217	
	27 36.95		27 37.25		27 28.50		27 34.85		27 37.20		27 28.15	
	27 13.58		27 11.08		27 10.97		27 11.72		27 12.12		27 15.98	
+21°	55′ 34.77″		55 37.27		55 37.38		55 36.63		55 36.23		55 32.37	

δ Cancri

Mar 21	8 37 24.98	.07	+ 18° 37′ 22.9	22.9	.3
26	.91	.07	23.2	23.2	.2
31	{00} 83	8	− 23.5	23.5	.3
Apr. 5	76	7	23.8	23.8	.2
10	(.00) .69	.07	24.0	24.0	
			25.0		

8 37 24
37 24.51 24.51
+ 18 38 21.09

(+.34)
+.34
ẽm z = +.40

1872 March 24	March 27	Apr. 2	Apr. 3	Apr. 10	Apr. 11
+.44 +420	.30 +830	+.23 +235	+.23 218	+.24 +187	+.19 +185
36 59.0 58.1 1.3 5.7 7.9 10.1 12.2 14.3 18.8 22.0 23.1 230.5 120 110.5 10.046 10.03 24.94 −14.91	36 56.4 58.6 0.8 5.0 7.2 9.5 11.6 13.8 18.1 20.4 22.6 2240 120 104.0 9.456 9.43 24.89 −15.46	37 10.4 9 12.4 8 14.7 1.1 19.0 9 21.2 8 24.4 1021 88 9.45 10.33 10.31 24.80 14.49	36 57.2 59.2 1.5 5.9 8.1 10.3 12.4 14.5 18.8 21.0 23.2 2321 120 112.1 10.191 10.18 2478 14.60	37 ~~11.4~~ ~~1.1~~ 13.7 1.3 15.9 1.4 20.2 1.4 22.4 1.4 24.6 ~~1082~~ 1.38 10.19 ~~18.03~~ 11.55 2469 −13.14	37 ~~9.4~~ 11.8 1.5 14.0 1.6 16.2 1.7 20.6 1.8 22.7 1.8 24.9 ~~1196~~ 17.086 2 1.66 10.19 11.85 11.83 24.67 −12.84
36 42.6 43.5 44.5 130.6 36 43.5	37 2.2 3.0 4.0 9.2 37 3.1	37 17.6 37 17.6 58	37 4.2 37 4.2	37 25.3 26.1 27.2 78.6 37 26.2 19	37 31.6 32.7 34.1 98.4 37 32.8 40
10.03 24.93 14.50	9.43 24.89 15.46	10.31 24.80 14.49	10.18 24.78 14.60	11.55 24.69 13.14	
10.03 +14.75 + 15 −.43 24.50	9.43 +15.32 + 10 −.38 24.47	10.31 +14.42 + 8 − 29 24.52	10.18 +14.57 + 8 −.27 24.56	11.55 +13.10 + 7 − 18 24.54	11.83 +12.76 + 6 −.16 24.50
10.08 14.80 +.14 −.42 24.55	9.48 15.30 +.11 − 38 24.46	10.31 +14.41 + 8 −.29 24.57	10.18 +14.55 + 7 −.28 24.52	11.55 +13.12 + 6 − 18 24.55	

−01b
6 ∫ 9.50411
cos ∫ 9.97666
11804
.0947

45 1 8.9 44.0 112.9 56.45 +26.5 1.42325 1.51795 −32.96 45 56.45 45 23.49	0 41.7 20.2 61.9 30.95 +6.5 0.79934 0.89404 −7.84 45 30.95 45 23.11	0 24.4 2.3 26.7 13.35 −7.3 0.86332 n 0.95802 n + 9.08 45 13.35 45 22.43	0 38.8 18.7 57.5 28.75 +61.0 0.77815 0.87285 −7.46 45 28.75 45 21.29	0 12.5 59.9 132.4 66.20 −14.6 1.16435 n 1.25905 n + 18.16 45 6.20 45 24.36	0 12.6 56.9 69.5 34.75 −21.8 1.33846 n 1.43316 n +27.11 45 4.75 45 31.86
+18° 37′ 24.86″ − 6 27.48	37 25.24 −10 26.91	37 25.92 −10 26.75	37 27.06 − 0 26.50	37 23.99 −10 26.00	37 16.49 −10 26.51
36 57.4 37 23.1	36 58.3 37 23.3	36 59.2 37 23.6	37 00.6 37 23.7	36 58.0 37 24.0	36 50.0 37 24.0
−.37 I + 25.7 25.3	+ 25.0 24.6	+ 24.4 24.1	+ 23.1 22.7	+ 26.0 25.6	+ 34.0 33.7
+18 37 24.86 − 0.70	37 25.24 0.90	37 25.92 1.20	37 27.06 1.30	37 23.99 1.60	37 16.49 − 1.60

2450 .55 +4
47 .46 +5
52 .51 +0
56 .52 +1
54 .55 +4
50 .50 −1
2451 24.51 (00)
−3.42
21.09

δ = +18° 37′ 22.″4

11.83
21.67
+.84

*11.83
+12.77
+.06
−.16
24.50

ε Hydrae.

59.82 61 +3
75.77 +1
77.79 +1
59.79, 79 (±01)
−3.16
56.61

Mar 21 8 40 0.23
26 .16 07
31 (+01) 09 7
Apr. 5 02 7
10 (+01) 39 59.95 .07

+6° 53′ 9″.6 9.6
9.7 9.7 .1
9.8 9.8 .1
9.9 10.0 .2 .1
10.1 10.1
10.9

8 40 00
39 59.78 59.78
+ 6 04 56.60
6 53

(+.11)
+.12 eniz = +.58

1872

	March 27		Apr. 2		Apr. 10	
	+.30 +.33°		+.23 +.235		+.21 +.187	
−.015 39	32.3 39	27.4 39	33.2 39	34.7 39	34.4 39	26.3
	34.4	28.1	35.3		36.4	27.3
	36.4	28.9	37.3		38.6	28.3
	40.8	84.4	41.5		42.7	81.9
sin ∫ 9.07863	42.8		43.5		44.8	
	45.0		45.6		46.9	
	46.9		47.7		48.9	
	49.0		49.7		51.0	
	53.2		54.0		55.1	
cos ∫ 9.99686	55.3		56.0		57.2	
11804	57.4 39	28.1	58.1 39	34.7	59.2 39	27.3
11490	4935		5019		5152	

44.864
020
~~45.84~~
~~45.85~~ 44.85 49.85
0.16 0.16
−14.84 14.31
15.31 − 1
+15.32 14.72
+ 3
− .38 44.85
44.85 +15.30
+ 4
59.82 − 38
59.81

45.627
45.61 45.61
0.06 0.06
−14.45 −14.45
+14.42 − 1
−14.46
+ 3
− 28 45.61
45.61 +14.41
+ 3
59.78 − 28
59.77

46.836
46.82 4682
59.95 59.95
−13.13 −13.13
+13.10 − 1
−13.14
+ 2
− 17 46.82
46.82 +13.12
+ 2
59.77 − 17
59.79

25

4 51.8	4 42.7	4 53.5
31.2	23.2	41.3
83.0	65.9	94.8
41.50	32.95	47.40
+16.1	+10.1	+19.3
1.22272	1.03743	1.29003
1.33762	1.15233	1.40493
−21.76	−14.20	−25.41
29 41.50	29 32.95	29 47.40
29 19.74	29 18.75	29 21.99
+6° 53 28.61	53 29.60	53 26.36
− 0 43.556	−0 43.30	− 0 41.98
52 45.1	52 46.3	52 44.4
53 9.7	53 9.9	53 10.0

−.53 I + 24.6 24.1 + 23.6 23.1 + 25.7 25.1
+6 53 28.61 53 29.60 53 26.36
+ 2.70 + 2.50 + 2.30

$\delta = +6^{\circ}\ 53'\ 12''.4$

ρ Hydrae

8 41 39
+ 6 19
+11

1872	March 21		March 27		Apr. 2		April. 10		Apr. 11	
	41 12.8	41 8.1	41 11.8	41 10.8	41 12.5	41 21.3	41 13.6	41 5.9	41 14.0	41 9.8
	14.9		13.8	12.8	14.6		15.7	7.4	16.0	11.0
	17.0		16.0	12.6	16.6		17.8	8.4	18.1	12.5
	21.1		20.0	12.2	20.8		22.0	21.7	22.4	33.3
sec ∫ 4.04149	23.2		22.1	12.6	22.8		24.1		24.4	
	25.3		24.1	45.7	24.9	41 55.3	26.1		26.5	41 46.6
	27.3		26.2		27.0		28.3		28.5	47.8
	29.4		28.3		29.0		30.3		30.6	49.0
	33.6		32.4		33.2		34.5		34.8	
cos ∫ 9.99736	35.6		34.4		35.3		36.5		36.8	
11804	37.8	41 8.1	36.7	41 11.4	37.4	41 21.3	38.6	41 7.2	38.9	41 11.1
.11540	2780		2658		2741		2875		2910	
	25.273		24.164		24.918		26.136		26.455	

	0									
	4 37.6		4 25.0		4 14.5	3 29.4	4 33.1		4 35.6	3 47.6
	10.6 ?		3.8		53.0	9.3	20.0		20.3	32.2
	48.2		28.8		1275		53.1		55.9	
	24.10		14.40		63.75		26.55		27.95	
	+17.2		+12.8		+5.6		+18.9		+13.4	
	1.23553		1.10721		0.55630		1.27646		1.18752	
	1.35093		1.22261		0.67170		1.39186		1.30292	
	−2243		−1670		−470		−2461		−2009	
	4 24.10		4 14.40		4 8.70		4 26.55		4 27.95	
	4 1.67		3 57.70		3 59.05		4 1.90		4 7.86	
+6°	18′ 46.68″		18 50.65		18 49.30		18 46.45		18 40.49	

1872

35 Lyncis.

δ 43 24
+ 44 13
+.97

1872	March 21		March 27		Apr. 3		Apr. 10		Apr. 11	
		43 24.9?	42 49.0	43 15.3	42 49.5	42 41.9?	42 50.7	42 53.1	42 51.1	42 41.0
			51.7	16.4	52.4	44.0	53.7	54.2	54.0	
			54.4	17.1	55.2	45.6	56.4	107.3	56.9	
			0.3	48.8	1.0	131.5	2.3		2.6	
			3.0		3.9		5.1		5.4	
			– 6.0		6.7	43 20.6?	7.9	43 47.1	8.3	43 33.2
	43 9.7 9		8.8		9.6		10.9	48.1	11.2	
	12.7 10		11.7		12.4		13.7	49.1	14.0	
	18.5 9		17.6		18.2		19.4		19.7	
√9.84347	21.3 10		20.3		21.0		22.3		22.7	
	24.2	~~42~~ 24.9	23.1	43 16.3	23.8	43 43.8	25.2	42 53.6	25.5	42 41.0
	~~66.4~~	49 0.98 6.00	245.9		253.7		267.6		271.4	
			180		180		180		180	
			66.0		73.7		87.6		91.4	
√9.85534	~~17.2~~ 06.980		6.990	43	6.700		7.964		8.309	
11804										
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	10									
	1 7.9		1 8.5		1 37.0	1 3.0	1 26.1	0 34.2	1 44.9	0 55.6
	35.2		41.9		12.9	38.2	7.6	15.4	25.9	35.8
	49.1		50.4		49.9	1012	33.7		70.8	
	21.55		25.20		24.95		16.85 –		35.40	
	+42.1		–10.3		–37.1	5060	+14.4		+27.3	
						~~23.2~~ –39				
	1.62428		1.01284 n		1.56937 n	~~1.36549~~	1.15836		1.43616	
	1.59766		0.98622 n		1.54275 n	1.33887	1.13174		1.40954	
	– 2960		+ 9.69		+34.89	÷ 2154	– 1354		– 2568	
	10 51.55		10 55.20		11 24.95	50.60	11 16.85		11 35.40	
	10 11.95		11 4.89		10 59.84	~~1244~~ 52.14	11 3.31		11 9.72	
+44°	12′ 36.40″		12 43.46		11 58.51		11 45.04		11 38.63	

Whole number of stars in this book = 47
" " " Obs. " " " = 288