

KG
11366
v. 445

*General Catalogue
Observations & Reductions
RA2 1871*

Charles W. Sever, University Bookstore, Cambridge.

General Catalogue
Observations and Reductions
1871
#2

1871phae.proj.144
X J Mercueris ✓
16 16 16 16 16
+ 927

$$7.39 + 3.8 = 11.19$$

1871

Aug. 3.

-56- 558
Aug. 10-

≈ 0.16

16. 17.7	16. 6.3	16 16.0	16.5.3
17.8	7.5	18.2	6.4
22.0	8.5	20.4	7.8
26.5		24.6	19.5
28.7	22.3	26.9	6.5
30.8	7.4	29.1	
33.0		31.2	
35.2		33.4	
39.5	16 7.4	37.5	16 6.5
41.8		39.7	
44.0		42.1	
339.0		349.6	

log sin V 9.52242

logos U 9.97448
12669
-10117

16	30.82	30.814	16	29.05	29.055
	95.10	80.80		15.00	29.04
	15.72	15.10		14.06	15.00
		15.70			14.04
	-15.53			-13.88	
	-1.31	30.80		-20	29.04
	-1.31			-1.21	
	-15.54				13.87
16	13.77	-1.18		13.76	-1.20
		-1.31			-1.21
	+23.51			+22.6	
1.3692	13.77		1.3541		13.76
	79				78

50 5 1.2

$$\begin{array}{r} 55 \ 0 \ 0.7 \\ 8.0 \\ \hline 8.7 \\ 34.35 \end{array}$$
$$\tau_{\text{res}} - \tau_{\text{f}}$$
$$\begin{array}{r}
 + 234 \\
 1.36922 \\
 \hline
 1.47039
 \end{array}
 \qquad
 \begin{array}{r}
 + 226 \\
 1.3541 \\
 \hline
 1.45528
 \end{array}$$

+	19	26	50.22
		27	35.8

26	57.46
27	36.4

$$-36 + 45.6452 + 44.9446$$
$$S' = +19 \quad 27 \quad 13.76$$

 $ - 8.40$
$$27 - 9.00 = 15.47$$

W(?)

X ~~Mercuri~~

16 19 30 16 19 24 68 (+09)
+14 20 27.79 ± 0.11
+12
+11

July 19 16 19 29.19 +14° 20' 20"
14 5 2.6
18 6 3.1
2 6 3.5
28.96 6 2.8

S = +14° 19' 56.5"

+47 126

1771 Aug. 3. -53-519

July 20 -51-477

July 22 -57-512

July 23 -52-501

July 27 -52-525

Aug 2. -50-508

19.320 19.28.0
34.2 29.0
36.3 29.9
40.7 28.9
42.8 28.9
44.9
47.0
49.1
53.2 19.28.9
55.4
57.5
493.1

log 111

7.89369

19.29.4 19.23.3
31.6 24.3
33.7 25.5
37.9 131
40.1 24.4
42.2
44.3
46.5
50.7 19.24.4
52.7
54.8
463.9

19.29.9 19.23.8
32.1 25.0
34.2 26.3
38.5 151
40.6 25.0
42.6
44.8
46.8
51.2 19.25.0
53.2
55.3
469.2

19.30.0 19.25.3
32.1 26.3
34.2 27.3
38.5
40.7 189
42.8 26.3
45.0
47.0
51.3 19.26.3
53.2
55.4
470.2

19.30.6 19.21.7
32.8 23.7
34.9 24.1
39.7
41.2 85
43.3 22.8
45.0
47.0
51.7
53.8 19.22.8
56.1
58.1
491.4

19.31.9 19.31.3
34.0
36.2 20.5.2
40.4
42.6 19.54.0
44.7
46.9
48.9
53.1 19.31.3
55.3
57.4
491.4

log 111 19 44.83 44.827
9.91627 29.02 44.81
12669 15.81 29.11
11296 16.70
-15.55
-18 44.81
-1.34
-15.54
19 27.81 -1.24
-1.34
+15.9
1.2014 27.79
81

19 42.17 42.173
29.18 42.16
12.99 29.27
12.89
-12.70
-13 42.16
-1.50
-12.70
27.84 -1.13
-1.50
+17.8
1.2504 27.83
85

19 42.65 42.655
29.16 42.64
13.49 29.21
13.39
-13.33
-13 +42.64
-1.48
-13.31
27.71 -1.13
-1.48
+17.6
1.2455 27.72
83

19 42.75 42.745
29.15 42.73
13.60 29.24
13.49
-13.37
-13 +42.73
-1.47
-13.38
27.78 -1.13
-1.47
+16.4
1.2146 27.75
87

19 43.31 43.309
43.31
29.10 43.29
14.21 29.19
14.10
-13.38
-13 +43.29
-1.42
-13.94
27.78 -1.13
-1.42
+20.1
1.2118 27.79
80

19 44.67 44.673
29.03 44.66
15.64 29.12
15.38
-15.40
-13 +44.66
-1.35
-15.40
27.79 -1.13
-1.35
+13.4 +20.1
1.1251 27.78
80

11296

2 38.9
46.8
85.2
42.60

+15.4
1.2014
1.31436

+20.6 +20.63
2 42.6 42.60
3 3.2 3.23

Aug 3

+14 19 45.12
-29.86
-28.91

+14 19 16.21
14 20 3.5

-44 + 46.3 45.9

S = 14 18 45.12
-700

2 37.2
45.6
82.8
41.40

+17.8
1.2504
1.26338

2 22.1 22.09
2 41.4 41.40
3 4.5 3.0449

Aug July 20

19 43.86
-30.17
-29.86

19 14.0
20 2.2

+ 48.2 47.7

18 43.86
-5.70

2 37.3
45.8
83.1
41.55

+17.6
1.2455
1.35847

2 22.5 22.53
2 41.6 41.55
3 4.8 3.0438

19 43.97
-30.36
-30.17

19 13.8
20 2.4

+ 48.6 48.2

18 43.97
-5.90

2 39.3
47.7
87.0
43.50

+16.4
1.2146
1.32780

2 21.3 21.28
2 43.5 43.50
3 4.8 3.0478

19 43.57
-29.61
-30.36

19 43.2
20 2.5

+ 49.3 48.9

18 43.57
-6.00

2 36.0 3 30.0
42.0 36.8
78.0 66.8
39.00 33.40

+20.5
1.31175
1.42471

2 26.6 26.59
2 34.0 34.00
3 5.6 3.0559

19 42.76
-29.61
-29.61

19 13.15
20 2.9

+ 49.7 49.2

18 42.76
-6.40

2 42.4
48.0
82.4
46.20

+13.4
1.24006
1.24006

2 46.2 46.20
2 46.2 46.20
3 0.3 3.0358

19 44.77
-28.97
-29.36

19 15.4
20 3.84

+ 48.0 47.6

18 44.77
-6.90

Scorpi 16213008(06)

N. M. M. 1621

-9
-10
-10

162131

29.98 ± 0.02

2609

-49

-522501

-522501

N. M. M. 1621

-56

1871

July 26

July 27

Aug 10

-018

21 31.1	21 27.5	21 31.9	21 35.2	21 36.4	55.2
33.4		34.0	22 5.0	38.7	
35.8		36.3	41.2	41.4	21.374
40.4		40.9		45.6	
42.6		43.2		48.0	
44.8		45.5		50.2	
47.1		47.1		52.5	
49.5		49.5		54.8	
54.1		54.1		57.4	
56.3	21 77.5	56.3	21 25.2	59.7	
58.7		58.7		62.0	
493.8		493.8		552.8	

log sin 9.64416

21 44.89	44.890	21 45.46	45.364	21 50.21	50.209
21 21.89	44.89	21 31.89	45.36	21 50.21	50.209
13.05	31.78	13.05	31.74	31.48	31.42
		25		15.73	18.44
	13.09	13.09	13.61	15.73	18.44
-13.87	44.87	-13.87	45.35	-13.88	50.19
+2.6		+2.6		+2.8	
-1.76	-13.88	-1.72	-13.94	-1.72	
+2.25		+2.25			
16 21.3002	-1.76	30.02	-1.72		

29.98

29.95

99

97

+17.3

2380

+10.3

-20.5

+12.8

31.7

0.7979

25 4 25.3	4 38.3	30.0	14.3	4 34.6
38.9	50.0		24.1	46.3
64.2	68.3		38.4	60.9
32.10	44.15		18.20	40.45

+17.4

1.24055

1.32034

+20.91

29 32.10

29 53.01

-26 7 4.66

+17.4

1.08839

+12.26

29 44.15

29 54.91

7 8.06

X *q* Draconis

16 22 18 16 22 1501 (-15)
 $\begin{array}{r} 12 \\ 22 \\ 68 \\ \hline 1114 \\ -33 \\ \hline 1081 \end{array}$ +61 48 +02
 1.85

Aug. 2-

July 19 16 22 1705 +61° 48' 37.7"
 24 1688 17 38.5 .8
 27 1670 18 39.2 .7
 Aug 3 54 19 39.8 .6
 16.22 19 40.3 .5

Aug. 3-

Aug. 6-

$\delta = +61^{\circ} 48' 24.2''$

-032

22.6.6 21.48.8
 11.0 50.7
 15.3 52.6
 23.9 50.7
 28.3 22 55.8
 -32.8
 37.2
 41.5
 50.3 21 50.7
 54.6
 58.9
 360.4

22.6.8 22.23.0 22.8.8 -21.43.6
 11.1 43 45.4
 15.4 43 48.1
 24.1 43 52.0
 28.3 43 189.1
 32.8 43 47.3
 37.1 43
 41.5 43
 50.1 22 23.0 47.3 21 47.3
 54.6 43
 58.9 43
 360.7

22.8.8 -21.43.6
 8.2 45.4
 12.6 48.1
 21.2 52.0
 25.7 189.1
 30.10 47.3
 34.3
 38.6
 47.3 21 47.3
 51.7
 56.0
 320.4

log h 9.94513

log ear 9.67445
 12.669
 9.50114

22 32.76 32.764 22 32.79 32.790
 16.54 56 30.73 16.50 52 32.76
 16.38 16.35 16.41
 -16.27 32.73 -16.28 32.76
 -15.40 -15.40 -15.55 -15.54
 -92 -92 -98 -96
 -1.53 -1.54 -1.49 -1.48
 16 22 14.88 14.87 14.78 14.93
 89 79 93

22 32.79 32.790 22 32.76 32.76
 16.50 52 32.76 16.35 16.41
 -16.28 32.76 -16.28 32.76
 -15.55 -15.54 -15.54 -15.54
 -98 -96 -96 -96
 -1.49 -1.48 -1.48 -1.48
 14.78 14.93 14.93 14.93
 79 79 79 79

22 32.76 32.76 22 32.76 32.76
 16.35 16.41 16.41 16.41
 -16.28 32.76 -16.28 32.76
 -15.54 -15.54 -15.54 -15.54
 -96 -96 -96 -96
 -1.48 -1.48 -1.48 -1.48
 14.93 14.93 14.93 14.93
 93 93 93 93

+421 -230
 62421 3617 0 99/2

+98
 99/2

+427
 6304

9.50114

30 4 48.235 0 29.2 35 0 7.1
 51.9 31.9 9.9
 100.1 61.1 17.0
 50.05 30.55 8.50
 -78.0
 -142.1
 1.62428
 1.42542
 +26.63
 34 50.05
 85 1668
 +61 47 31.67
 +19.82
 61 47 51.50
 61 48 39.7

35 0 7.1
 9.9
 17.0
 8.50
 +98
 0.99123
 0.79237
 +62.0
 35 08.50
 35 19.70
 47 33.65
 +19.62
 47 53.4
 48 39.8

30 4 46.0
 48.4
 94.4
 47.20
 -77.4
 +142.6
 1.62841
 1.43055
 +26.95
 39 47.20
 35 14.15
 47 34.20
 +19.65
 47 53.85
 48 40.1

+32 +48.7 48.5 +46.4 46.7 +46.3 46.7

$\delta = +61$ 47 31.67
 -15.50

47 33.65
 -15.60

47 34.20
 -15.90

Ophiuchi
16 24 24 21 ✓ 24.56 (-08)
+2 16
+64 +04

-1
-6
-12
-5
-2
-5

July 19.
16 24 26.12
24 29
29
33
38
43
48
53
58
63

16 24 26.12
24 29
29
33
38
43
48
53
58
63

+2° 16'
8.2
8.6
9.0
9.3
9.6
9.8
10.0
10.2
10.3

8.2
8.6
9.0
9.3
9.6
9.8
10.0
10.2
10.3

1871

July 23. -52 -501

July 27. -62 -525

Aug 2. -52 -508

Aug 3. -53 -519

Aug 6. -57 -526

Aug 9. -56

24.27.1	24.25.7	24.27.6	24.31.8	24.29.0	24.27.1	24.29.1	24.21.1	24.28.2	24.27.3	24.27.3
29.1		29.4		31.0		31.2		28.3		29.4
31.2		31.8	24.57.8	33.1		33.3		30.4		31.5
35.4		35.9	0.8	37.2	24.54.3	37.4		34.4	24.23.6?	35.7
37.5		37.9	2.0	39.3		39.5		36.6		37.7
39.5		39.9	18.26	41.3		41.5		38.6		39.7
41.5		42.0	60.9	43.3		43.6		40.7		41.8
43.6		44.1		45.3		45.6		42.8		43.8
47.7	24.25.7	48.2	24.31.8	49.6	24.27.1	49.7	24.21.1	46.8	24.23.6	47.9
49.8		50.3		51.6		51.7		48.8		50.0
51.8		52.3		53.6		53.8		50.8		52.0
434.2		439.4		454.3		456.4		424.1		436.8

log sin 8.89715

log cos 8.98266
12669
12635

24.39.47	39.47.3	24.38.5	39.94.5	41.30	41.30.0	41.50	41.49.0	24.38.58	38.58.2	24.39.71	39.71.1
26.09	39.46	26.05	39.93	25.59	41.28	26.58	41.47	25.94	38.58	25.88	39.71
1338	26.01	1390	25.97	1431	25.51	1452	25.50	12.64	25.86	13.82	39.71
1345		1396		1540	15.39	15.55	18.34	12.84			
-1307		-1398		-1540		-15.55		-1264			
-1.2	39.46	-1.49	39.93	-1.43	41.28	-1.42	41.47	-1.88	38.58	-1.32	
-1.53											
24.24.5		24.46		24.45		24.57		24.54		24.49	
+138		+8.1	-21.0	+14.2	-13.6	+20.4		+15.0			
1398	24.53	9084	1322	1522	1130	3096	24.49	1760	24.52		
	56		50		49		51		54		

12635

5	1	16.4	1	22.2	2	8.3	1	17.4	1	53.6	1	8.2	1	14.9	1	9.9	1	9.9
		28.2		31.5		12.9		25.6		82.9		18.1		23.4		19.6		19.6
		44.6		53.7		13.2		43.0		116.5		24.3		38.3		29.5		29.5
		22.38		26.85		6.60		21.50		58.25		12.15		19.15		14.75		14.75
		+138		+08.1		-20.9		+14.2		+11.8		+11.8		+11.0		+11.0		+11.0
		1.13988		0.9084		1.32015		1.15229		1.20963		1.20963		1.17605		1.17605		1.17605
		1.26623		1.0348		1.44650		1.27864		1.43578		1.43578		1.30244		1.30244		1.30244
		+1046		+1084		-27.96		+1900		+2229		+2229		+2007		+2007		+2007
		6 22.30		6 26.85		6.60		6 21.50		6 12.15		6 12.15		6 19.15		6 14.75		6 14.75
		6 40.76		6 38.69		38.64		6 40.50		6 39.44		6 39.44		6 39.22		6 38.82		6 38.82
		+2° 16'		16 10.66		9.71		16 7.85		16 8.91		16 8.91		16 9.13		16 9.13		16 9.13
		-48.44		-47.20		47.20		-46.92		-46.31		-46.31		-46.95		-46.95		-46.95
		15 19.15		15 23.5		22.51		15 20.9		15 22.6		15 22.6		15 22.2		15 22.2		15 22.2
		2 16 8.5		16 8.9		8.9		16 9.3		16 9.3		16 9.3		16 9.5		16 9.5		16 9.5

-100 + 49.4 48.8 + 45.4 26.4 + 48.4 47.8 + 46.7 46.1 + 47.3 46.7 + 47.5 46.1

S' = +2 16 7.59 -2.80 16 7.71 -3.20 16 7.85 -3.60 16 8.91 -3.60 16 9.13 -3.80 16 9.53 -4.00

Scorpi
16 24 512
24 512
-58

[illegible]

Praonis ✓

+11 July 19 16 28 17.09 +69° 3' 30"
 +14 24 84 .25
 +10 29 89 .25
 +12 Aug 3 83 .26
 Aug 8 11.06 .27

0.9
 0.7
 0.6
 0.5
 0.4
 0.3
 0.2
 0.1

16 28 20 16 28 146 (1406)
 +69 02 (104) 14.73 + 0.07
 0.11

 $\delta = +69^{\circ} 2' 49.4''$

-45 + 2.61

1871 +

Aug. 3. -53-519

Aug. 6. -54-526

Aug. 10. -56-558

-040

28.219	27.16.0	27.56.1	27.2.9	27.56.8	28.16.3
27.7	17.3	1.534	5.7	28.2.5	
33.3	19.0	7.4	10.5	8.4	
38.9	22.1	18.9	19.0	19.9	29 13.5
44.9	24.4	24.6	6.3	25.6	
16.6.7	27 18.6	30.3		31.6	
		35.8	28.48.0	37.0	
		41.8	50.1	43.0	
		53.3	54.7	54.6	
28 33.34	27.14.6	57.1	15.2	22.0.1	
		4.8	50.9	5.8	
	27 14.6	33.6	27.6.3	34.5.3	28 16.3
				31.39	

log 9.97025

28 33.34	33.340	28 30.33	30.329	31.39	31.390
16.36	33.30	28 16.20	30.29	15.98	31.35
19.07	16.37	14.16	16.21	15.44	16.99
	16.93		14.08		15.34.6
-15.55		-12.64		-13.28	
-1.58	33.30	-11.41	30.29	-1.47	31.35
-1.75		-1.59		-1.37	16.35
	-15.54		-12.65		-13.87
28 14.66	-1.35	14.69	-1.36	14.67	-1.45
	-1.75		-1.58		-1.37
+14.7		+24.0	-2.03	+15.3	-2.19
1 16.73	14.70	1 38.02	30.14.7	18.46	31.47.0
	.72		.75		.71

log 9.25

log 9.55367

log 9.99

20 0	21.3	0	16.40	7.0	0	48.5	0	18.0
	19.7		10.6	10.0		47.1		16.0
	41.0		36.4	17.0		45.6		34.0
	26.50		18.20	8.50		47.0		17.00
	+7.47		+84.0			+15.12		
	1.87332		1.92428			1.17900		
	1.55368		1.60464			0.85936		
	+38.78		+40.24			+7.23		
	20 26.50		20 18.20			47.10		
	20 56.28		20 58.44			53.03		
+69 01	52.07	1 48.81			1 53.32			
+26.94		+27.05			+28.58			
+69 2	19.0	2 16.96			2 11.9			
+69 3	5.2	3 5.5			3 5.8			
+42	46.2	46.6	48.5	48.9	43.9	44.4		
$\delta' = +69$	1 52.07	1 49.91	1 53.32					
	15.80	16.10	16.40					

+2
-3
-6
-9
+1
+3
-1

3 Ophiuchi 16 36 25.45
16 30 06 16 30 343(-02)
-10 19
-18
3.40 ± 0.06
0.12

148 19 16 36 27.05
24
29
26.88
26.76

1871 Aug 10 - July 23 - July 2 - Aug 3 - Aug 5 - Aug 6 -

Aug 10 -	July 23 -	July 2 -	Aug 3 -	Aug 5 -	Aug 6 -
30.6.0 29 59.5 8.2 10.5 14.4 16.6 18.7 20.8 22.9 24.0 30 0.2 25.1 31.1 20 53	30.5.4 30 10.9 7.9 10.1 14.1 16.3 18.4 20.4 22.5 26.5 30 0.9 28.4 30.8 20 16	30. 30 2.7 16.1 18.2 20.2 22.3 30 18.5 24.4 10 1.2 30 20.24 18.5	30.7.4 30 0.0 9.8 11.9 16.2 18.3 20.4 22.5 24.6 28.8 30 1.1 30.9 32.9 22.4	30 16.9 30.24.2 19.0 21.1 23.3 25.4 30 24.2 105.7 30 21.14	30. 30 28.2 9.1 13.3 16.5 17.6 19.7 21.8 25.7 27.9 30 2.2 30.0 19.2 19.26
30 18.66 18.664 8.24 4.86 -13.88 13.87 -1.46 -18.65 30 3.43-13.87 +1.10 -1.45 +160 2671 3.43 43	30 18.33 18.327 8.43 5.07 -13.37 5.06 +9 13.26 -1.64 18.31 3.41 -13.38 +1.09 -1.64 +198 2966 3.38 40	30 20.24 20.240 8.34 4.58 -15.40 4.96 +9 18.26 -1.55 20.22 3.38 -15.40 +1.09 -1.55 +164 +1.7 2148 0.2304336 87	30 20.37 20.373 8.33 4.57 -15.55 4.91 +10 18.21 -1.54 20.36 3.38 -15.54 +1.54 +193 2855 3.37 39	30 21.14 21.140 8.36 4.94 -16.27 4.92 +1.11 16.20 -1.57 21.12 3.47 -16.28 +1.10 -1.57 -3.1 0 4913 3.43 44	30 17.51 17.509 8.29 4.53 -12.64 4.91 +1.10 12.58 -1.10 17.49 3.47 -12.65.91 +1.10 -1.50 -5.6 0 7481 3.44 46
0 50.8 60.0 11 0.8 55.40 +18.4 1,264.52 1,384.43 +24.28 40 9.75 40 34.00 17 45.65	40 0 50.8 14.5 19.5 9.75 40 8.80 40 38.75 17 47.40 4437	0 2.71 36.8 6 3.1 31.55 +16.4 +1.9 1,214.89 0.28040 1,334.45 +216.0 40 31.55 40 33.75 17 45.44	0 2.9 32.2 15.1 7.55 +19.3 1,261.56 1,405.17 +25.42 40 7.55 40 32.97 17 44.62	0 36.2 42.0 75.2 39.10 -3.1 0.449136 0.61097 -4.08 40 39.10 40 35.02 17 46.67	0 36.5 44.9 61.4 40.70 -5.7 0.25527 0.87548 -7.51 40.40.70 40 33.19 17 44.84

8'

24 Scorpii

BAb. 5579

163409

-1730

-32

1871

Aug 2.

Aug 5.

Aug 6.

Aug 10

Gr2373 163 b

34.16.7	34.54	34.11.5	34.14.1	34.8.0	34.3.2	34.9.2	34.34
12.3	7.3	13.7		10.3	4.9	11.3	3.5
15.0	18.9	15.4	34.49.7	12.4	7.2	13.5	5.2
19.4	7.3	20.2	50.3	16.6	15.3	17.8	11.1
21.6	34.43.2	22.4	57.3	18.8	5.1	20.0	3.7
-23.8		-24.5	52.4	-20.9		22.1	84.36.3
25.9		26.4	203.7	23.1		24.3	37.6
28.0		28.4	50.0	25.3		26.3	38.7
32.8	34 4.3	33.1	34 19.1	29.6	34 5.1	30.7	112.6
34.6	34 43.2	35.2	50.9	31.7		32.8	37.5
36.6		37.3		33.8		35.1	
260.7		269.2		230.5		243.1	

34 23.70 23.700 34 24.47 24.473 34 20.95 20.955 34 22.10 22.100

+16.5 - 19.4
1 21241 2878

+10.4 - 36.4
1 21741 561 1

+15.8
1 1986

+20.4 - 15.4
1 30961 1875

.10611
50 0 59.9 1 45.1 1 10.1 1 58.2 0 58.7
1 7.7 54.7 18.6 2 6.1 6.9
129.6 99.8 28.7 124.3 127.6
84.60 49.90 14.35 12.15 83.80

0 55.4 1 38.8
65.1 48.7
120.5 87.5
60.25 43.75

+16.4 - 19.5
1.214.64
1.320.95
51 20.94
51 4.80
51 25.74
-1728 37.39

+10.4 - 26.4
1.01703
1.12314
51 13.28
51 19.35
51 27.63
28 39.28

+15.8
1.19866
1.20477
51 20.57
51 3.60
51 23.87
28 35.62

+18.4
1.26462
1.37093
51 23.49
51 0.25
51 23.74
28 35.39

$\begin{matrix} -5 \\ -7 \\ -10 \\ -6 \\ -3 \\ -6 \end{matrix}$
 $\begin{matrix} +18 \\ +6.2 \end{matrix}$
 +3 Mercuris
 16 36 31 36 2545 (08)
 +31 50
 25.89 +007
 018

July 19 16 36 27.01- +31 50 25.9 0.8
 24 99 8 26.7 26.7
 29 26.92 9 27.4 27.4
 Aug 3 84 8 28.0 28.0
 8 26.76 8 28.6 28.6
 13 67 9 29.0 29.0
 18 58 10 29.4 29.4
 23 37 10 29.6 29.6
 28 26.36 11 29.8 29.8

$\delta = +31^\circ 50' 16.5''$

1871 Aug 2. Aug 3. Aug 5. Aug 6. Aug 10.

(-018)
 Cochin 9.72218

Cochin 9.92927
 126.69
 .05590

36.27.9	36.21.0	36.28.1	36.21.0	36.28.8	36.23.2	36.28.0	36.16.1	36.26.3	36.22.0
30.4	22.1	30.6	22.7	31.3	28.0	27.6	17.7	28.8	23.4
32.9	23.3	33.0	24.0	33.8	26.8	30.1	18.8	31.2	24.8
37.4	20.1	37.8	6.77	38.5	25.0	34.8	5.26	36.1	70.2
46.1	37 0.0	40.2	22.6	41.0	59.9	37.3	17.5	38.8	23.4
42.7	0.7	42.7		43.2		39.8		40.9	37.20
44.4	1.6	45.0		45.8		42.0		43.3	3.1
47.4	2.3	47.5		48.2		44.6		46.7	4.7
52.2	0.8	52.2		53.0		49.4		50.6	9.8
54.7		54.8		55.4		51.9		53.0	3.3
56.9	36 22.1	57.0	36 22.6	57.9	36 25.0	54.3	36 17.1	55.3	36 22.1
467.8		468.9		476.9		436.8		449.7	40.8

36 42.58	42.52.7	36 42.63	42.62.7	36 43.35	43.35.8	36 39.71	39.70.9	36 40.92	40.91.7
26.86	42.51	26.84	42.61	26.81	43.34	26.79	39.69	26.78	40.90
15.67	26.78	15.79	26.76	16.54	26.74	14.61	12.92	14.24	26.68
15.30	16.73	15.54	15.85	16.27	16.61	12.64	12.98	13.88	14.23
-1.31	42.51	-1.33	42.61	-1.36	43.34	-1.38	39.69	-1.35	40.90
-1.41	15.40	-1.39	15.54	-1.36	16.28	-1.34	12.65	-1.28	13.87
36 25.41	13.2	25.36	13.2	25.36	13.36	25.40	13.33	25.21	13.35
-1.41	13.2	-1.39	13.2	-1.36	13.36	-1.34	13.34	-1.28	13.35
+20.6	18.05	+20.11	18.05	+18.2	16.7	+22.3	18.05	+17.5	22.4
1 3138	25702538	3031	25.36	1 2600	1 22225.34	1 3483	25.37	1 2430	13502 25.40

16 36 25.41	25.40	25.36	38	25.36	35	25.40	39	25.41	42
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30 2 31.6	3 17.0	2 31.3	2 35.8	3 14.1	2 37.2	3 17.1
36.9	21.0	35.8	38.2	17.7	38.6	23.0
68.5	38.0	67.1	74.0	31.8	75.8	68.1
39.25	18.06	33.55	37.00	15.90	37.90	20.05

1.204	18.3	+20.0	+18.4	+22.2	+17.5
1.30963	1.30103	1.30103	1.26822	1.34635	1.24304
1.30103	1.30103	1.30103	1.32072	1.40225	1.29894
1.36553	1.35693	1.35693	+20.82	+25.25	+14.90
+2320	+22.75	+22.75	32 3700	3	32 37.80
32 34.25	32 33.30	32 33.30	32 57.92		32 57.80
32 57.40	32 56.30	32 56.30			

+31 49 50.80	49 50.85	49 50.43	49 50.55
9.84	9.62	9.61	9.81
+31 49 41.1	49 42.4	49 40.8	49 40.7
31 50 27.9	50 28.0	50 28.3	50 28.89

-17 + 46.8 46.6 + 45.6 45.4 + 47.5 47.4 + 48.2 48.0

$\delta' = +31$ 49 50.90 11.40 49 52.05 11.50 49 50.43 11.80 49 50.55 12.40

1871phae.proj.1419

Mercurius
16 38 34 38 2846(+02)
+39 09
+10
+73
+17
+4

July 19 16 38 30.14 + 39° 10' 10.11
24 06 8 19.246
29 -98 8 200 8
Aug. 3 89 9 206 6
8 2880 9 212 4
13 69 11 216 4
18 .58 11 220 3
23 47 11 223 3
28 29.35 12 225 2

$\delta = +39^{\circ} 10' 8.0''$

for 2 Camelop.
220 sec after 16.55.26.

Aug 2. -50-508
Aug 5. -58-573
Aug 6. -54-526
Aug 10. -56-558
Aug 11. -55-556

36.249 38 28.1	28.30.7 38.18.5	38.27.0 38.19.4	38.28.2 38.22.5	38.28.4 38.26.4
32.4 26.5	33.3 20.0	29.7 21.1	30.8 22.8	30.9 22.1
35.2 27.9	36.9 21.3	32.2 22.9	33.5 25.2	33.7 25.1
40.4 26.7	41.3 19.9	37.6 63.4	38.8 71.5	38.9 63.3
43.0 39 6.7	43.9 39 7.3	40.2 21.1	41.4 23.8	41.6 10.3
-45.7 7.8	46.6 9.0	42.9 45.6	44.1 39 8.2	44.2 25.6
48.4 9.2	49.3 11.1	48.3 53.6	46.8 9.8	46.8 8.5
57.0 23.7	51.9 27.4	56.3 38 21.1	49.4 11.7	49.5 54.8
58.4 7.9	57.2 9.1	57.9 38 23.8	54.7 26.7	54.8 57.3
58.9 38 26.7	59.8 38 19.9	57.4 38 23.8	57.4 38 23.8	57.3 38 23.8
503.0	45.34	472.2	485.0	426.3
38 45.73 45.727	38 46.67 46.673	38 42.93 42.927	44.09 44.090	38 44.21 44.209
39.91 45.71	39.91 46.65	39.91 42.91	44.09 44.09	39.91 44.19
1482 45.71	1482 46.65	1482 42.91	1482 44.09	1482 44.19
-15.40 45.71	-15.40 46.65	-15.40 42.91	-15.40 44.09	-15.40 44.19
-1.45 -15.40	-1.45 -16.28	-1.45 -12.65	-1.45 -13.87	-1.45 -13.97
38 28.48 -1.41	38 28.51 -1.48	38 28.49 -1.43	38 28.46 -1.45	38 28.43 -1.45
-1.45 -1.45	-1.45 -1.38	-1.45 -1.36	-1.45 -1.29	-1.45 -1.27
+19.0 -22.2	+26.7 -22.5	+21.8 -22.5	+20.3 -25.8	+24.3 -24.3
2787 28.45	3463 3521 28.50	3364 28.47	3074 14116 28.46	3856 28.51
47	56	49	47	53

10 2 50.2 3 31.7 2 41.9 3 33.5 2 45.3	2 45.7 33.0 3 30.7
53.8 35.8 45.0 34.9 48.2	48.8 37.5 33.9
104.0 67.5 86.9 66.4 93.5	95.5 70.5 64.6
52.00 33.75 43.45 34.20 46.75	47.75 35.25 32.30
+19.0 -22.2 +26.8 -22.4 +21.8	+20.3 -25.8 +24.3
1.27875 1.42813 1.33846	1.30750 1.38561
1.27503 1.44440 1.35473	1.32377 1.40188
+1823 +2782 +2263	+2107 +2263
12 52.00 12 43.95 12 46.75	12 42.35 12 45.75
13 11.73 13 11.27 13 9.38	13 8.82 13 8.22
+39 9 36.62 9 37.08 9 38.97	9 38.53 9 41.28
-2.66 -2.64 -2.70	-2.60 -2.45
+39 9 34.0 9 34.4 9 36.3	9 36.9 9 38.8
+39 10 20.5 10 20.9 10 21.0	10 21.4 10 21.5

-05 +46.5 46.4 +46.5 46.5 +44.7 44.6 +44.5 44.5 +42.7 42.6

$\delta' = +39^{\circ}$ 9 36.62 9 37.08 9 38.97 9 39.53 9 41.28
12.50 12.90 13.00 13.40 13.50

$$\delta = +57^{\circ} 0' 46.8''$$

x Groom 2377.

lay 1.64
lay 1.64

16.42.4 16.42 51.16(06)

57.10 ± 0.15

+57.2

+1.54

lay -2.5

1871

Aug. 2. -50-508

Aug. 5. -58-573

Aug. 10. -56-556

Aug. 11. -57-556

Aug. 13. -56-553

-0.29

42.46.3 42.24.0 42.47.1 43.52 42.44.5 42.35.7 42.44.7 42.30.8 42.44.9 42.43.0

50.2 25.6 50.9 48.3 48.3 37.3 48.3 37.3 48.3 37.3

54.0 27.5 54.0 52.2 52.2 38.7 52.0 37.3 52.0 37.3

1.4 29.6 2.3 43.43.0 59.6 11.7 57.7 7.7 57.7 7.7

5.3 26.2 6.0 45.0 3.5 37.2 8.6 39.3 8.6 39.3

8.9 43.45.2 9.8 47.0 7.3 43.36.0 7.3 37.3 7.3 37.3

12.8 47.5 13.5 47.0 11.0 37.7 11.0 37.7 11.0 37.7

16.6 48.9 17.2 45.0 14.8 40.7 14.8 40.7 14.8 40.7

24.1 22.1 24.8 22.3 22.3 11.4 22.3 11.4 22.3 11.4

27.9 47.4 29.7 29.8 29.8 38.1 29.8 38.1 29.8 38.1

31.6 27.9.1 42.26.7 28.7.5 43 5.2 42 37.2 43 33.3 42 45.0

18.1 18.1 18.1 18.1 18.1 18.1 18.1 18.1 18.1 18.1

42 32.8 9.01 43 9.77 9.77 3 7.26 7.26 43 7.26 7.26

14.8 8.98 17.08 9.74 52.62 52.62 52.62 52.62 52.62 52.62

-15.20 52.72 16.27 18.12 18.12 18.12 18.12 18.12 18.12 18.12

-77 -8.78 -1.52 -1.52 -1.52 -1.52 -1.52 -1.52 -1.52 -1.52

-1.62 42 51.2 -15.40 51.09 -16.28 51.12 -16.28 51.12 -16.28 51.12

+4.22 +3.85 +4.6 -35.2 +30.1 -20.5 +34.0 +34.0 +34.0 +34.0

1 6253 15854 6627 5465 4785 3180 5314 5314 5314 5314

51.09 51.09 51.09 51.09 51.09 51.09 51.09 51.09 51.09 51.09

(21) 09 11 11 11 11 11 11 11 11 11

9.86241 20 2 15.5 3 14.7 2 45.0 3 12.6 2 22.0 3 6.3 3 4.2 2 27.1 3 4.2

15.2 16.6 45.0 14.2 25.3 8.8 5.3 28.3 5.2

33.7 31.3 9.0.0 28.8 47.3 6.1 9.5 55.4 9.4

16.85 15.65 45.00 13.40 23.65 8.05 4.75 27.70 47.0

+423 -38.4 +46 -35.2 +30.0 -30.9 -26.1 +24.7

1.62634 1.48875 1.66276 1.47712 1.41664 1.38270

+30.81 22 16.85 22 45.00 22 23.65 22 45.00 22 45.00 22 45.00

+57 00 0.69 +14.75 0 0.00 +15.19 0 2.85 +15.17 0 2.61 +15.43 0 2.66 +15.25

+57 00 15.4 +57 00 62.6 00 15.2 00 62.0 0 18.0 0 62.5 0 18.0 0 62.6 0 17.9 0 62.7

+24 +46.2 46.4 +46.8 47.1 +44.5 44.7 +44.6 44.8 +44.8 45.1

$\delta = +57^{\circ} 0' 0.69$ $\delta = +57^{\circ} 0' 15.20$ $\delta = +57^{\circ} 0' 2.85$ $\delta = +57^{\circ} 0' 2.61$ $\delta = +57^{\circ} 0' 2.66$

-14.80 -15.20 -15.70 -15.80 -15.90

49
Herculis -

July 19 16 46 14.11 +15 11 35.11 S = +15 11 32.7
 24 7 4 99.2 .4
 29 02 5 398 .6
 Aug 3 96 6 403 .5
 8 13.90 6 407 .4
 13 83 7 410 .3
 18 76 7 413 .3
 23 68 8 416 .3
 28 59 9 418 .2

+4 16.46.15 46 12.41 (+02)
 +2 +15.12 12.53 +0.06
 +7 .060
 +6 +.27
 +4 +.46

1871

Aug 2 -

Aug 5 -

Aug 6 -

Aug 10 -

Aug 11 -

46.16.8 46.5.9 46.17.6 46 10.0 46 13.9 46 3.8 46 15.3 46 10.5 46 23.8 46 37.0
 19.0 7.2 19.8 11.5 16.0 4.9 17.3 11.8 25.8 35.5
 21.0 18.6 22.0 12.7 18.3 6.4 19.5 22.3 28.1 39.8
 25.3 12 26.2 11.4 22.4 15.1 23.6 17.2 30.2 11.3
 27.4 46 44.8 28.3 46 45.1 24.7 5.0 25.9 32.3 38.4
 -29.5 46.5 -30.4 32.5 26.3 31.1 30.1 46 49.1 140.2
 31.8 47.5 32.5 34.7 28.9 31.1 32.2 50.6
 33.9 13.88 34.7 38.8 35.3 37.3 46 5.0 36.4 52.1
 38.0 46.3 38.8 40.9 46 11.4 37.5 38.6 15.1 46 38.4
 40.1 43.6 39.5 40.7 50.6
 42.2 46 7.2 33.4.2 29.2.2 36.7.5 46 11.2
 325.0 - - - - -

log h 9.4161

log cos 9.81954
12669
.11123

46 29.55 29.545 46 30.38 30.382 46 26.75 26.745 46 27.96 27.955 46 28.04 28.040
 13.97 29.53 13.94 30.36 13.93 26.83 13.87 27.99 13.86 28.02
 15.58 13.89 16.44 13.86 12.82 13.85 14.09 13.89 14.88 13.88
 15.41 16.28 -16.28 -16.28 -12.65 -12.65 -13.88 -13.88 -13.95 -13.95
 -13 29.53 -11 -30.36 -14 -26.73 -15 -27.94 -16 -28.04
 -1.48 -1.45 -1.44 -1.44 -1.38 -1.38 -1.37 -1.37
 46 12.53 12.49 12.49 12.52 12.52 12.55 12.55 12.56 12.56
 -15.40 -16.28 -16.28 -16.28 -12.65 -12.65 -13.88 -13.88
 -1.48 -1.45 -1.45 -1.45 -1.44 -1.44 -1.38 -1.38
 +22.3 -16.5 +19.0 -14.7 +21.8 29.5 -22.7 -10.3
 3483 2253 2787 1673 3384 3117 3560 0128
 12.51 12.49 12.80 12.59 12.53

.11123

83

57

57

56

55

10 0 52.8 43.4 0 58.5 42.8 0 52.9 57.1 148.5 1 33.3
 58.6 50.3 63.2 47.3 59.8 64.5 55.5 38.5
 11.4 93.7 121.7 90.1 112.7 121.9 104.0 71.8
 55.70 46.85 60.85 45.05 56.35 60.95 52.00 35.90

+22.3 +16.8 +19.0 -14.7 +21.7 +16.8 -10.4
 1.34830 1.27675 1.38998 1.33646 1.22531 1.01703
 1.45953 1.38998 1.44769 1.44769 1.33654 1.12826
 2881 +2.58 +2803 +21.70 -13.44
 10 55.70 11 0.85 10 56.35 11 0.95 11 35.80
 11 24.57 11 25.40 11 24.38 11 22.65 11 22.46
 +15 11 2384 11 22.95 11 23.97 11 25.70 11 25.89
 -28.77 -28.32 -28.73 -28.85 -28.74

+ N 10 55.1 10 54.6 10 55.2 11 56.85 11 57.15
 + N 11 40.2 11 40.5 11 40.6 11 40.88 11 40.9

-42 +45.1 44.7 +45.9 45.5 +45.4 44.9 +44.0 43.6 +43.8 43.4

S' = +15 11 2384 11 22.95 11 23.97 11 25.70 11 25.89
 -7.50 -7.80 -7.90 -8.10 -8.20

25 & Ophuchi- Is this i?
 16 47 57
 +10.23
 +18

1871 Aug 2 - Aug 5 - Aug 6 - Aug 13 -

log a 9.25583

log c 8.88883
 12869
 11952

47.58.7	47.50.5	47.59.6	47.46.5	47.55.9	47.45.9	47.57.7	47.52.7
0.6	5.16	1.7	47.6	57.9	47.6	57.8	58.8
3.0	5.27	3.8	48.7	6.2	48.3	5.9	54.8
7.1	5.16	7.9	142.18	4.4	21.2	6.1	53.8
7.2	48.29.4	10.0	47.6	6.5	47.1	8.2	48.24.7
-11.3	30.3	-12.1		-8.6		-10.3	25.7
13.4	31.3	14.2	48.25.1	10.6		12.3	508
15.5	9.10	16.3		12.7		14.5	25.4
19.5	30.3	20.5		16.8		18.5	
21.7		22.6		18.9		20.6	
23.9		24.7		21.0		22.7	
18.4.1		193.14		213.5		232.6	
60.1	47 51.6	60. 47 47.6		120. 47. 47.1		120. 47 53.8	
124.1		133.4		93.5		112.6	
48 11.28		48 12.13		48 8.50		48 10.24	

+ 19.7 - 19.0 + 24.5 - 13.0 + 21.5
 2944 2787 3891 1139 3324

+ 16.5 - 15.1
 2174 1789

11952

53	4	37.0	00	27.0	4	31.7	0	22.0	4	33.3	4	37.8	0	20.7
		44.8		34.5		38.6		27.3		41.2		45.6		26.8
		81.8		61.5		70.3		49.3		74.5		83.4		47.5
		40.90		30.75		85.15		24.65		37.25		41.76		23.75
		+198		-190		+245		-130		+21.4		+16.4		
		1,294.47				1,389.17				1,330.41		1,214.44		
		1,413.99				1,508.69				1,449.93		1,334.36		
		+25.89				+3226				+2818		+21.59		
		59 40.90				59 35.15				59 38.25		59 41.70		
		60 68.4				60 78.1				60 54.3		60 3.29		
		+10 22 41.51				22 40.84				22 42.82		22 45.06		

Ophiuchi

16.51.37

+9.35

+1.1

+1
-3
+5
+7
+8

July 19. 16 51 35.36
24 32
29 28
Aug 3 23
8 35.17
13 11
18 6
23 6
28 04
324.88

+9 34 434
440 .6
448 .5
449 .4
453 .4
456 .3
459 .3
462 .3
464 .2

" 8 = +9 34.388

1871

Aug 13

Aug 2 -

Aug 5 -

Aug 6 -

Aug 10 -

Aug 11 -

57.38.2 51.33.0
40.3
42.4 52.124
46.5 13.3
48.7 14.1
50.8 9.8
52.8 13.3
55.0
57.1
1.2
3.3
43.83
120. 51 32.0

51.39.1 51.33.9
41.1 35.0
43.3 36.0
47.3 14.9
49.5 34.9
51.6
53.7
55.8 52.56
57.9 6.9
2.0 8.1
4.1 20.6
49.4 6.9
51.38 51.34.9

57.43.8 51.37.6
46.0 39.7
48.0 42.4
50.1 52.2
52.2 58.4
54.3 0.5
56.4 432.6
492.6
51.32.0

51.34.1 51.33.0
36.7 34.1
38.7 67.1
40.9 33.5
45.0 52.46
47.1 6.0
49.2 7.0
51.3 17.6
53.4 59
55.6 57.6
57.8 57.7
1.7 57.8

51.34.1 51.29.5
36.7 30.5
38.7 31.7
41.1 30.6
43.2
45.2
47.2
49.2
51.4
53.5
55.6
57.7
59.8

log sin 922137

log cos 9.88390

51.33.7
17.8
2504
12059

51.33.7
17.8
2504
12059

51.33.7
17.8
2504
12059

51.33.7
17.8
2504
12059

51.33.7
17.8
2504
12059

45 2 53.1 3.42.845
59.1 4.7
112.2 9.05
56.10 45.25

2 47.2 3 39.8
54.9 46.8
102.1 86.6
51.05 43.30

2 49.0 3 31.5
53.7 38.4
104.7 70.9
52.35 35.45

2 49.3
57.0
116.9
53.45

2 47.8 28.8
56.3 37.0
104.11 65.8
52.05 32.90

2 43.5
50.2
93.7
46.85

+17.7
1.24497
1.36856
+23.37
47 51.05
48 1442

+16.7
1.22272
1.34331
+22.04
47 52.35
48 1439

+16.0
1.20412
1.32471
+21.12
47 53.45
48 1459

+15.7
1.19520
1.31649
+20.72
47 52.05
48 1299

+16.7
1.27104
1.37243
+24.68
47 46.55
48 1153

+9 34 3393
-35.48

34 3396
-34.78
35.04

34 3398
-35.35
35.0

34 3558
-35.47
35.7

34 3682
-35.61
35.4

9 34 58.3
9 34 44.8

33 58.5
34 45.1

33 58.2
34 45.2

34 59.5
34 45.4

34 59.0
34 45.5

-49 +46.5 46.0

+46.2 45.7

+47.0 46.5

+45.5 45.0

+44.8 44.0

8' = +9 34 3393
-6.00

34 3396
-6.30

34 3378
-6.40

34 3558
-6.60

34 3682
-6.70

+ E Herculis- ✓ +60
16.55.26 60
+ 31.07 16.55.2128
+19 +60 21.38 ± 1109
+6 010

July 19 16.55 22.88 731° 12" 8 = +31° 7' 39"
24 22.88 6.012 13.6 8
29 22.88 6.012 144 8
Aug 3 22.88 6.012 151 8
8 22.88 6.012 157 6
13 62 9 018 162 5
18 53 9 018 166 4
23 43 10 020 169 3
28 22.88 10 020 172 3

Aug. 6. 1877 Aug. 2. Aug. 5. Aug. 10. Aug. 11. Aug. 13.

log sin 47.1331

log cos 9.93253
12669
05822

55.241 55.18.8 26.5 19.9 29.0 21.7 33.7 20.1 36.2 56.7.1 -38.7 18.1 41.0 9.7 43.4 24.9 48.1 8.3 50.6 53.2 55.20.1 424.5 -55.20.1	55.250 55.15.7 27.4 16.7 29.8 17.2 34.6 20.0 37.0 16.7 39.4 41.8 55.55.1 44.3 56.6 49.0 57.7 53.4 16.7 53.8 56.5 433.5 55.16.7	55.224 55.16.6 24.9 17.7 27.3 16.5 32.0 7.3.8 34.6 17.9 37.0 56.1.0 39.4 2.3 41.7 3.3 46.5 1.6 49.0 51.3 406.1 55.17.7	55.222 55.14.5 24.9 16.9 27.4 18.6 32.2 19.9 34.6 16.6 37.0 39.2 41.4 46.7 49.1 51.4 406.9 55.16.6	55.230 55.15.8 25.3 17.8 27.8 14.4 32.6 23.9 35.1 17.7 37.4 55.56.2 39.8 60.4 42.2 61.9 46.8 16.0.5 49.4 60.2 51.7 41.1 55.17.7
55 38.60 38.590 22.89 38.8 1580 22.81 -1541 1579 -30 38.58 -1.51 15.40 55 21.38 -1.81 +18.6 -29.6 2695 471.2	55 39.40 39.409 22.76 39.39 16.60 22.76 -1629 1663 -35 39.39 -1.48 16.28 21.28 -1.34 21.36 38 -1.48 +22.7 -17.1 3560 2329	55 36.92 36.918 22.68 36.90 1424 22.68 -1348 1422 -34 36.90 -1.40 -13.87 21.30 -1.34 21.29 31 -1.40 +19.1 -24.6 2810 3909	55 36.99 36.990 22.66 36.97 1433 22.66 -1326 1431 -36 36.97 -1.38 -13.87 21.31 -1.33 21.29 30 -1.38 +20.4 -22.8 3096	55 37.37 37.464 22.62 37.45 1475 22.62 -1344 1488 -34 37.45 -1.34 14.45 21.25 -1.33 21.29 32 -1.34 +19.7 -22.8 2941 3579

05822

15 1 8.7 13.9 22.6 11.30 +18.5 1.26717 1.28639 +21.20 15 44.35 16 8.55 +31 6 39.80 -11.12 +31 6 28.7 +31 7 4.9	15 0 44.9 141.2 49.8 45.6 49.7 85.8 47.35 42.90 +18.5 1.26717 1.28639 +21.20 15 44.35 16 8.55 +31 6 39.80 -11.12 +31 6 28.7 +31 7 4.9	0 41.0 127.1 45.8 30.3 86.0 57.4 43.00 28.70 +22.7 1.35603 1.41523 +26.02 15 43.00 16 9.02 6 39.33 -10.05 6 28.3 7 8.4	0 42.1 132.7 48.0 32.3 90.1 70.0 45.05 35.00 +19.0 1.27477 1.33797 +21.78 15 45.05 16 6.83 6 41.52 -10.40 6 30.3 7 15.9	0 42.0 46.3 88.3 44.15 +20.24 1.30963 1.26885 +23.38 15 44.15 16 5.03 6 40.82 -10.45 6 29.6 7 16.01	0 40.4 1 30.6 44.7 33.2 85.1 63.6 42.55 31.90 +19.8 1.28666 1.35588 +22.69 15 42.55 16 5.24 6 43.11 -11.25 6 31.8 7 16.2
---	--	---	--	--	---

-17 I +46.3 46.1 +47.1 47.0 +45.7 45.5 +46.5 46.3 +44.4 44.3
S' = +31 6 39.80 -11.10 6 39.33 -11.50 6 41.52 -12.10 6 40.82 -12.20 6 43.11 -12.30

Cannulo.

16 41 4

113.53.03

-28.07

-95 -2.26

667 1010 = P
7 103 = A.
$$\begin{array}{r} +7 +13 \\ +10 +19 \\ +5 +11 \\ +8 +43 \\ +14 \end{array}$$

1871

Aug 5

Aug 6

Aug 13

+0.64	16.4059016 4.182	40.55.4	40.52.5	40.57.3	41.1.9
	41 38	0.8		41 27	3.8
	8.9	5.6		8.0	5.1
	19.1	42.3.0	16.3	18.3	2.6
	24.5	7.8	20.8	22.9	
	29.3	8.8	26.0	28.0	
	34.4	12.3	31.0	33.3	41.47.8
	39.7	31.8	36.2	38.6	
	49.8	10.6	46.3	48.4	
log sin $\sqrt{9.60732}$	54.9	57.1	40 50.5	53.5	41 2.8
9.6112	57.7	56.4		58.4	
	38.31	34.59		36.94	
	60	28.59		30.94	28.13 41
	32.31	41.25.9	25.9	28.13	28.09
	41.25.9	41.14.0	26.05	14.86	14.48
	41.14.0	-11.56	14.53	13.21	
	-15.00	14.96	11.52	-12.28	
	-13.1			-14.44	28.17
	-16.31	29.41	-12.65	-11.26	-14.4
	-16.29	-16.28	-12.65	-5.0	+1.20
	+1.20	+1.29	+1.16		-5.4
	+2	.91	-07	49	14.40 41
		14.40	14.47	+25.2	-14.8
	+1.11	41.3	+3.55	40.14	29.66
	04.53	615.9	55.02		

30 3	26.6 3	0.5 3	42.8	3 37.9 3	13.2
	27.0 2	55.6	39.4	32.3	7.9
	47.6	56.1	5.21.2	70.2	21.1
	23.50	58.05	4.1.10	35.10	10.55
	+11.1	57.7	+35.5	+2.53	1.40212
1.578	1.84922	1.8223	1.55023	1.53095	1.66456
1.57850	1.84922	+6.07	1.62804	-15.26	-46.23
1.81151	1.84922	33.23.50	-48.33	41.10	33 35.10
-20.49	33 17.73		33 21.84	+16.24	8.87
	20.49		33 21.84	33 21.84	
	33 21.84				
	33 21.84				
113 49	45.04	+49 26.51	49 26.51	+2 45.40	
		+2 43.49		52 12.36	
		52 10.00			
	6 59.1	6 59.1	6 58.9		
-0.2	53 0.8	53 0.9	53 1.1		
(+0.2)	53 0.7	53 0.7	53 0.9		
		6 59.3		+48.5	49.4
+88		+50.7 51.6			
		113 49 26.51	49 26.96		
		-11.2	-10.8		

x E Use min -

16 59 40

82.15

82.14 43.4

-64

1871

Aug. 5

Aug. 6

Aug. 9

Aug. 10

Aug. 11

-113

58.9.3

57.1.0

58.4.9

57.6.2

59.37.0

58.6.1

57.31.9

58.5.2

58.46.6

58.46.6

58.46.6

24.5

5.2

20.6

57.48.7

22.8

48.0

21.3

35.8

21.1

54.8

54.8

39.6

12.5

35.7

50.4

37.5

2.25

36.6

39.7

36.3

57.1

57.1

57.16.5

17.2

57.1

52.2

52.8

14.5

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

25.6

3.60

57.1

51.6

0.78

49.2

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

41.0

12.04

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

55.7

12.0

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

0.10.4

1.520

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

41.6

2.5.1

57.1

51.6

12.7.1

57.7.0

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57.7.0

56.5

18.8

57.1

51.6

12.7.1

57.7.0

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57.7.0

57.7.0

1.12.1

19.59

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

328.3

57.6.2

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

12

9.0

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

448.3

40.75

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

59.40.76

40.4

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

59.20.18

10.4

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

-26.58

20.8

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

-4.26

20.46

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

-16.32

40.64

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

-16.28

40.64

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

-4.21

40.64

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

-3.92

40.64

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

59.16.23

16.23

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

25

16.23

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

30

16.23

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

44

16.23

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

38

16.23

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

38

16.23

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

38

16.23

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

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57.7.0

38

16.23

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

57.7.0

38

16.23

57.1

51.6

12.7.1

57.7.0

57.7.0

57.7.0

logos: 5 9.98377
12669
11046

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+ 5465490
Yroom 2415

17.3.35 3 3411(+21)
40.41 34.38 ± 0.24

+0.3

+86

+15
+22
+22

Aug 19 17 03 35.91
24 84
29 77
Aug 3 68
8 59
13 49
18 38
23 26
25 14

+40 41 197
10.0
20.7
21.6
22.4
23.1
23.7
24.2
24.6
24.9

771

Aug 6 - 54 5 26

Aug 11 - 57 5 56

June 29 3
July 4 3

3607 3
3604 3
3601 5
3596 5
3591 5

41 150 13
163 12
175 11
186 11
197 11

-0.20

3 32.5 3 24.8 3 34.0 3 28.6
35.3 26.1 36.4 30.7
38.2 27.8 39.4 32.4
43.5 187 44.8 92.2
46.3 47.5
48.9 2 612 50.3 30.7
51.6 52.4
54.4 55.6
57.8 1.0
6.5 3.8
6.1 6.6

log sin 9.81417

log cos 9.87985
12669
.00654

418.1 3 26.2 3727 3 30.7
12.0 240
538.1 5527 50.245
48.90 48.918 3 50.25 50.22
35.63 48.90 35.74
13.27 36.84 14.82 14.82
-12.61 48.90 -135.6 50.22
-1.46 49
-1.52 -12.65 -1.42 -13.97
3 34.27 -1.46 34.38 -1.46
+ 22.7 -1.52 -1.42
35.60 34.28 292.2 34.35
30 36

.00654

40 1 46.0
48.3
74.3
47.15

1 46.5
48.3
75.1
47.55

+23.7
1.38603
1.36257
+23.05
41 47.15
42 19.20

+19.5
1.28003
1.29657
+19.80
41 47.55
42 7.35

+40 40 38.15
- 1.34

40 41.00
- 1.33

+40 40 36.8
+40 41 22.89

40 39.7
41 23.45

+46.1

+43.8

S' = +40 40 38.15
-13.20

40 41.00
-13.80

[illegible][illegible]

+ L'Herculis.

8 +14 32 21.3

7.26

July 19 17 08 47.66

H4 32 27.2

0.6

17 8.50

14.33 17 8

45.96 (-0.3)

+3

-8

-2

-5

-0

-2

24 62
29 58
Aug 3 53
8 48
13 41
18 34
23 26
28 18

4 4
5 5
5 5
7 7
7 7
8 8
8 8

27.8
28.4
29.0
29.5
30.2
30.8
30.8

0.6
0.6
0.6
0.5
0.4
0.3
0.3

+47

+26

Aug 5 -58-573

Aug 6 -54-526

Aug 9 -58-573

Aug 10 -56-558

Aug 11 -57-556

1871 Aug 13

-016

8. 51.2 8 43.5

8. 47.5 8 39.1

8. 43.3 8 44.1

8. 50.8 8 45.4

8. 57.3 9. 7.7

23.3 45.0

49.8 40.4

50.7 45.4

52.9 46.3

54.4 47.4

33.5 46.3

51.9 41.6

52.8 47.3

53.2 47.2

54.4 47.4

37.7 14.8

55.2 12.1

56.8 16.8

57.3 18.9

58.4 19.0

1.7 4 4.9

58.1 40.4

59.1 45.6

60.4 46.3

61.5 47.4

-4.0

-0.3 8 56.0

-1.2

-1.4

-1.5

6.1 9. 26.7

2.4

2.3 9 23.4

2.7

2.8

8.3 28.0

4.6

5.5 25.0

6.0

6.1

12.5 24.3

8.7

9.8 26.5

10.1

10.2

14.5 24.0

10.8

11.9 14.9

14.2

14.3

16.7 28.0

12.0

13.6 24.9

14.2

14.3

28.3 7

30.3 3

31.3 3

31.8 3

30.7 8

24.0 8 44.9

30.0 8 40.4

30.0 8 45.6

30.0 8 46.3

30.7 8 46.3

43.7

2.3

1.30

1.58

1.58

9 3.97 3.97 18

8 0.21 0.20 9

9 1.18 1.18 2

9 1.44 1.43 6

9 1.54 1.56 0

47.51 3.95

47.52 0.19

47.48 1.10

47.46 1.41

47.45 1.54

16.46 47.48

12.71 47.48

13.71 47.48

13.98 47.44

14.09 47.45

-16.29

-12.65

-13.57

-13.88

-13.96

-1.5 3.95

-1.4 0.19

-1.5 1.18

-1.5 1.41

-1.5 1.54

-1.55

-1.54

-1.57

-1.50

-1.49

8 45.98 16.28

46.48 12.65

46.05 13.55

45.91 13.87

45.94 13.97

-1.55 45.97

-1.54 4.3

-1.51 45.95

-1.50 45.95

-1.49 45.95

+ 19.1

+ 4.3

+ 15.6

+ 15.1

+ 15.1

28.10

29.88

28.15.6

28.15.1

28.15.1

38.02

633.4

374.7

374.7

374.7

+ 19.1

+ 19.8

+ 15.6

+ 15.1

+ 15.1

1.28 10.3

1.28 6.7

1.28 12

1.28 12

1.28 12

1.39 25.6

1.40 9.0

1.30 56.5

1.29 15.1

1.29 15.1

+ 24.45

+ 25.66

+ 20.21

+ 19.16

+ 19.16

50 10.90

50 8.35

50 15.45

50 13.65

50 13.65

50 35.60

50 34.01

50 35.66

50 33.21

50 33.21

+ 14 32 12.70

32 14.34

32 12.69

32 15.14

32 14.79

- 29.37

- 29.74

- 29.27

- 29.87

- 29.82

+ 14 31 43.3

31 44.6

31 43.4

31 45.3

31 45.0

+ 14 32 29.23

32 29.84

32 29.6

32 29.7

32 29.8

- 44 + 46.0 45.6

+ 44.8 44.3

+ 46.2 45.8

+ 44.4 44.0

+ 44.8 44.3

S' = +14 32 12.70
- 8.0032 14.34
- 8.1032 12.69
- 8.3032 15.14
- 8.4032 14.79
- 8.50

π Herculis. ✓

$\delta = +36^{\circ} 57' 21.9''$

17 10 39 - 17 10 33 34 (-07)

36.58 -

33.30 ± 0.07

0.017

$$\begin{array}{r} +75 \\ -4 \\ -1 \\ -4 \\ -7 \\ -5 \\ -4 \end{array}$$

July 19	17 10	35.71		
24		08	06	0
29		01	07	
Aug 3		94	7	
8		3486	8	
13		77	9	
18		68	9	
23		57	11	
28		3446	11	

36.57	313	10
32.3	32.3	0.9
33.2	34.0	0.8
34.7	35.3	0.6
35.8	36.2	0.4
36.6		0.4

+09 +.75

Aug 5 - 573

Aug 6 - 526

Aug 9 - 573

Aug 13 - 553

Aug 17 - 550

-0.20

10	36.1	10.22	10.32	4	10.24	5	10	33.4	10.26	3	10.34	1	10.27	7	10	35.0	10	29.4
	38.7	23.9	35.1		26.4			36.0	28.4		36.6		28.8			37.7		31.0
	41.3	26.6	37.6		28.1			38.5	30.1		39.3		30.6			40.2		32.1
	46.4	13.0	42.8		19.0			43.7	8.4		44.5		8.7			45.4		9.25
	49.0	2.4	45.4		26.3			46.2	28.2		47.0		29.0			48.0		30.8
	-57.6		-47.9					-48.8			-49.6					-50.6		
	54.1		53.6					51.1	11.8		52.2		11.8			53.0		
	57.7	10.24	53.1					53.9	20.5		54.8		20.5			55.7		
	7.8	11.8	58.2	1	26.3			59.10	28.2		59.5	10	29.5			60.8	10	30.8
	4.6	13.7	0.8					1.7	6.1		2.5	12	6			3.4		
	7.0	15.0	3.3					4.3	20.3		5.0		9.9			6.0		
	387.3	10.5	407.2					536.7			425.4					375.8		
	180.1	13.5	120.1								12					18.0		
	567.3		522.2								545.4					555.8		
	11	51.57	51.57	10	47.93	47.927		10	48.79	48.790	10	49.58	49.582	11	50.53	50.527		
	35.91	18.56	34.89		48.91			34.84	48.77		34.77	49.58		34.66	50.57			
	15.66	35.84	13.03		34.82			13.95	34.77		14.82	34.70		15.87	34.59			
	-162.9	15.72	13.09		13.09			-13.57	14.00		-14.44	14.87		-15.50	15.72			
	-43	51.56	-40		47.91			-43	48.77		-42	49.57		-43	50.51			
	-1.57		-1.57					-1.50			-1.43							
	10	33.28	-16.28		33.23	-12.65		33.29	-13.56		33.29	-14.48		33.28	-15.57			
		-4.3				-40			-43			-41			-10.41			
		-1.57	33.28		-1.57	33.31		-1.50	33.29		-1.43	33.25		-1.43	33.25			
	+27.6	-21.9	3021.6					+332.0	-31.5		302.0	-20.5		27.198				
	440.9	340.4	3344					213.5	498.3		313.8	307.4		29.66				

25	0	23.9	1	18.5	0	29.3		0	30.6	1	25.3	0	29.0	1	13.6	0	31.7
		26.8		19.5		34.1			34.5		31.1		31.7		16.7		34.2
		50.7		38.0		63.4			65.1		58.4		60.7		50.3		66.9
		25.35		19.00		31.70			32.55		28.20		30.35		15.15		32.95
		+27.6				+21.6			+20.6				+20.6				+19.7
		1440.91				1.33445			1.3387				1.3387				1.29447
		1.47014				1.36368			1.34310				1.34310				1.32370
		+22.52				+23.40			+22.03				+22.03				+21.08
		25 25.35				25 31.70			25 32.55				25 30.35				25 32.95
		25 54.87				25 54.80			25 54.58				25 52.38				25 54.03
		+36.56	53.48			56 53.55			36 53.77				56 53.97				56 54.32
		-5.37				-5.35			-5.25				-5.45				-5.39
		+36.56	48.1			56 48.2			56 48.5				56 50.5				56 48.9
		+36.57	34.3			57 24.4			57 34.89				57 35.3				57 35.7

-08	+46.2	46.1		+46.2	46.1		+46.4	46.4		+44.8	44.7		+46.8	46.7
-----	-------	------	--	-------	------	--	-------	------	--	-------	------	--	-------	------

$\delta' = +36$	56	53.48		56	53.55		56	53.77		56	53.97		56	54.32
		-12.40			-12.50			-13.00			-13.40			-13.80

θ Ophiuchi.

17.14.06

-24.53-

-46

1871

Aug. 6.

Aug. 10.

Aug. 18.

Aug. 19.

Aug. 22.

14 6.1 14.12.9

8.3
10.6
15.1
17.2
-19.5
21.9
24.1
-28.7
30.4
33.1
215.4

14 7.1 14.11.0

9.4
11.6
16.3
18.6
20.8
23.0
25.4
29.6
32.0
34.3
228.3

14 9.0 14.0.3

11.1
13.4
18.1
20.4
-22.6
24.9
27.1
31.2
33.9
36.1
248.3

14 9.2 14 5.9

11.4
13.7
18.3
20.4
-22.9
25.0
27.2
31.8
33.9
36.3
250.1

14 9.5 14 3.0

12.0
14.4
18.9
21.1
-23.6
25.7
27.9
32.5
34.7
37.1
257.7

log sin 9.62405 w

cos 9.95769
12669
0.08438

14 19.58 19.582

14 20.75 20.755

14 22.57 22.572

14 22.79 22.798

14 23.43

+6.6
8195

+18.3
2624

+21.5
3324

+23.4
3692

+19.7
2944

40 3 17.4
28.5
45.9
22.95

+86.7
0.82667
0.91045
+8.12
43 22.45
43 31.09

14 3 1.9
12.1
14.0
2.00

+18.2
1.26007
1.34445
+22.10
43 7.00
43 29.10

2 54.0 3 53.2
66.3 65.2
120.13 118.14
20.15 59.20
9.75

+21.5
1.58244
1.41082
+26.11
43 21.15
43 28.26

3 1.2
6.8
8.0
4.00

+19.7
1.22644
1.37885
+23.93
43 4.00
43 28.93

20 42.74

20 40.75

20 39.88

20 41.19

20 39.58

w Herculis -

17.15.52

+ 32.37

+64

1871

Aug. 5

Aug. 18

Aug. 22

Aug. 31

15 53.5 15 49.0

56.0 50.4

58.6 51.4

16 3.4 15 11.1

5.4 50.4

-8.3

10.8 16 23.3

13.2

18.0

20.4

22.8

270.9

180.

9 0.9 15 50.4

15 8.26

15 52.9 15 46.4

55.1 47.7

57.9 49.1

2.6 23.2

5.0 47.8

-7.5

10.1 16 30.0

12.5 31.2

17.2 32.8

19.8 41

22.1 31.3

263.7

180.

5 2.7 15 47.8

15 7.52

15 53.7 15 46.0

56.1 49.2

58.6 51.0

3.3 14.82

5.9 49.4

-8.4

10.8 16 32.8

13.1 34.0

18.0 36.1

20.5 12.9

22.9 34.3

271.3

180.

9 1.3 15 49.4

16 8.30

15 56.0 15 49.9

58.3 51.5

1.0 54.1

5.8 15.55

8.1 51.8

-10.7

13.0

15.4

20.5

22.8

25.2

336.8

120.

146.8 15 57.8

16 9.71

10.02

+ 17.9 - 15.0

2528 1760

+ 39.7 - 23.9

5987 3783

+ 18.7 - 25.9

2718 4132

+ 18.9

2764

40 4 46.3 5 25.0

50.1 28.0

96.4 53.0

46.20 26.50

+ 17.9

125265

130500

+ 20.15

40 48.20

45 838

+ 32.37 38.97

4 41.5 0 29.8

46.3 33.9

67.8 63.7

43.90 31.85

+ 19.7

125446

134661

+ 22.1

44 48.90

45 6.11

37 42.4

4 46.5 5 42.3

46.9 37.4

93.4 78.7

46.70 39.85

+ 18.9

128646

132861

+ 21.31

44 46.70

45 8.01

37 40.34

4 47.5

45.8

73.3

46.65

+ 18.9

128646

132861

+ 20.15 + 21.20

44 46.65 41 46.65

45 6.82 45 7.85

37 40.50

+ 20.9	+ 24.2	- 48.2	+ 16.1	- 23.5	+ 17.6	+ 16.8
1.32615	1.32882	1.26010	1.20643	1.37107	1.28554	1.22531
1.40734	1.42108	1.34725	1.29403	1.48826	1.39279	1.31250
+ 25.58	+ 29.58	- 22.5	+ 19.68	- 28.72	+ 21.52	+ 20.54
24 19.95	24 15.80	24 5.45	24 20.20	24 7.65	24 22.25	24 22.95
24 15.50	24 49.98	43.20	24 38.88	38.93	24 43.97	24 43.98
1 57.15	1 54.85	1 57.53	1 50.55	1 55.42	1 55.14	

v Scorpii

17 21 59.

- 37.12.

-76

1871

Aug. 6.

Aug. 9.

Aug. 10.

Aug. 13.

Aug. 18.

17

21.58.8 22.6.0

21.59.2 22.2.8

21.59.7 21.55.0

22.0.6 22.0.0

22.1.7 21.52.3

22 1.1

4.2 7.4

2.4 56.9

2.9 1.0

4.1 53.5

3.8

4.1 10.2

4.9 54.0

5.6 1.0

6.8 57.2

8.0

5.4 5.4

10.2 20.9

10.7 0.5

11.9 13.0

11.5

12.4 22.46.0

12.7 56.4

13.3 22.47.1

14.6 54.3

14.3

15.0 48.0

15.3 17.8

15.7 22.47.1

17.1 22.40.3

16.7

17.5 94.0

17.8 20.4

18.3 44.0

19.7 22.40.3

19.4

20.1 22.47.1

20.4 25.6

21.0 65.8

22.2 42.2

24.4

25.1 50.2

25.6 28.3

26.3 14.75

27.4 45.3

27.0

27.8 47.0

28.3 30.8

28.8 44.2

30.0 78

39.7

30.3

28.1 22.8.1

31.3 174.7

32.6 12.6

215.7

22.3.8 22.5.1

60. 21.56.9

22.0.5

21.54.3

60.

60.

168.1

22.15.88

22.17.10

155.7

163.8

22.15.28

15.48

17.10

22.14.15

22.14.59

22.15.28

14.44

15.44

22.14.15

22.14.59

22.15.28

14.44

15.44

1.51

1.33

1.48

1.44

1.38

+ 42

46

43

42

42

1.93

1.79

1.92

1.86

1.79

22.1.52

+ 1.78

+ 1.91

+ 1.85

+ 1.76

+ 1.53

+ 11.6 - 32.0

+ 18.4

+ 15.4 - 33.3

+ 12.8 - 25.5

9190

0644 5051

2648

1675 5224

1072 4065

25 4 57.8

30 0 30.3

25 4 48.2

4 45.7

4 40.8 5 34.2

71.3

30.3 43.9

61.3

58.3

57.0 46.4

129.1

12.7 71.12

110.5

104.0

97.8 69.8

64.55

63.5 37.10

55.25

52.00

49.90 40.30

18.1

17.8 - 32.1

18.4

115.4

122.8

0.90848

0.90823 1.50650

1.26482

1.14713

1.35794

0.93637

1.01913 1.53439

1.28271

1.21542

1.38583

+ 86.4

+ 10.0 - 30.3

+ 19.62

+ 16.42

+ 24.31

30 4.55

29 53.60 30 38.0

29 55.25

29 52.00

29 45.80

30 13.19

30 4.10 28.8

30 14.89

30 8.42

30 13.21

- 37 2484

2652

20.07

2486

λ Scorpii.

17 24 53

-37. 1.

-75

(1871)

Aug 6-

Aug 9-

Aug 13-

Aug 17-

Aug. 18-

24.50.0 24.46.8

52.6

55.1

0.5

3.0

-5.5

8.1

10.6

15.7

18.4

20.9

24.0.4

180. 24

60.4

25 5.49

-126.4

24 52.85

+41

53.26

+18.7
2718

15

52.0

65.3

117.3

58.65

+18.7

1.27184

1.30078

+1999

19 53.65

19 15.64

-36 56 30.29

24.50.8 24.40.3

53.3

56.1

1.1

(4.2)

-6.30

8.6

11.5

16.6

19.0

21.7

60.2

6.24

25 6.29

-12.56

52.78

+40

53.18

+25.0 -6.9
3979 5385

3

44.1

56.5

100.6

50.30

+25.0

1.39794

1.42980

1.45872

+26.72

18 50.3019

19 19.02

56 28.67

19 13.44

24.52.0 25.3.7

52.9

56.7

2.0

4.5

7.0

9.8

12.4

17.6

20.1

22.7

259.1

180. 25

79.1

7.20

19.44

52.78

41

53.19

+3.3
5185

4

38.4

52.6

16.0

19.4

9.70

+3.5

0.544.27

0.573.61

+3.74

18 9.70

19 13.44

56 25.09

19 13.44

24 52.9 24 51.0

55.3

58.0

2.9

5.7

-8.1

10.9

13.4

18.6

21.1

23.7

270.5

180. 24

90.6

5.23

15.52

52.71

41

53.16

+17.1
2329

3

54.2

64.4

118.6

59.30

+17.2

1.24055

1.28550

1.26444

+16.0

18 54.3018

19 17.68

56 29.33

19 17.68

52.9

53.5 24 44.5

58.2 46.0

25 3.2 48.9

5.8 19.4

-8.3 46.5

10.9 25 31.0

18.8 34.8

21.2 37.3

24.0 131

27.2 34.4

180. 1

92.1 4 46.5

8.38

15.52

52.62

41

53.08

53.08

+21.8 -26.1
3384 4166

3 49.6 4 36.8

62.2 50.5

111.8 87.3

55.90 43.65

+21.9

1.25646

1.36934

+23.20

18 54.3018

19 17.68

56 30.95

19 17.68

β Draconis.

Recompute this #152.2457
 Aug 8 17 27 32.83
 13 69.14
 18 53.14
 23 40.15
 28 24.16
 $\delta = +52.23 \ 51.5$

17 27 36

17 27 31.11.001

31.15.008
 014

58.24

+4
 -6
 +1
 +2
 +7
 +4

Aug 9. -58-573

Aug 10. -52-558

Aug 11. -57-556

Aug 17. -68-550

Aug 18. -54-528

-024

27.26.9	27.19.0	27.27.1	27.17.0	27.27.1	27.19.3	27.28.5	27.20.8	27.28.8	27.17.8
30.1	20.8	30.5	19.3	30.5	21.0	31.9	21.8	32.1	19.3
33.6	22.4	33.8	22.0	34.0	23.7	35.3	23.5	35.5	22.5
40.4	62.2	40.7	5.3	40.8	6.46	42.0	61	42.3	59.6
43.8	20.7	44.0	19.4	44.2	21.3	45.5	22.0	45.6	19.9
47.1		47.3		47.3		48.7		49.0	
50.4	28 13.6	50.8		51.0		52.1		52.4	28 16.0
53.8	15.5	54.2		54.2		55.5		55.9	17.6
0.5	17.7	1.0		0.7		2.3		2.5	20.0
4.0	16.8	4.2		4.2		5.7		5.9	53.6
7.4	15.6	7.5		7.4		9.0		9.1	17.9
338.0	27 22.7	341.4	27 9.4	341.4	27 21.3	356.5	27 22.0	369.1	27 19.9
180		180		180		180		180	
518.2		521.4		521.4		536.5		549.1	
27 47.09	47.090	27 47.37	47.372	27 47.40	47.400	28 48.77	48.772	27 49.01	49.009
32.80	47.09	32.77	47.35	32.74	47.38	32.58	48.76	32.54	48.79
14.39	32.80	14.59	32.77	14.69	32.74	16.18	32.58	16.46	32.54
27 48.09	48.09	27 48.37	48.37	27 48.40	48.40	28 48.77	48.77	27 49.01	49.01
-13.56	-1.69	-13.56	-1.66	-13.56	-1.63	-13.56	-1.46	-13.56	-1.43
27 33.58	31.13	27 33.58	31.15	27 33.58	31.12	27 33.58	31.11	27 33.58	31.18
32.80		32.80		32.80		32.80		32.80	
47.07	-1.69	47.35	47.35	47.35	47.35	47.35	47.35	47.35	47.35
-13.56	+2.64	-13.56	+2.64	-13.56	+2.64	-13.56	+2.64	-13.56	+2.64
-1.69	42.16	-1.66	44.58	-1.63	41.49	-1.46	42.65	-1.43	46.08
27 31.8		31.10		31.06		31.06		31.06	
55	4 14.8	4 14.2	4 14.2	4 15.0	4 14.8	4 14.8	4 14.8	4 12.8	4 59.0
	17.8	1.3	14.3	13.2	13.9	13.9	13.9	12.9	61.7
	32.6	2.1	28.5	28.2	28.7	28.7	28.7	25.7	121.7
	16.30	1.65	14.25	14.10	14.35	14.35	14.35	12.85	60.35

+26.4	1.4216	+28.1	1.44716	+26.1	1.41664	+26.8	1.42813	+29.1	1.46889
1.4216	1.3372	1.44716	1.35928	1.41664	1.32876	1.42813	1.34025	1.46889	1.37601
22.53	+21.74	23.89	+22.58	24.07	+21.32	22.57	+21.89	24.83	+23.77
59 16.30	16.30	59 14.25	14.25	59 14.10	14.10	59 14.35	14.35	59 12.85	12.85
59 38.53	59 38.04	59 38.44	38.13	59 38.32	38.42	59 38.22	+36.24	59 38.08	+36.62
+53	33 10.31	23 11.22	+10.86	23 12.93	+10.93	23 12.11	+10.66	23 11.73	+10.61
+52	13 21.0	13 22.1		23 23.9		23 22.8		23 22.3	
+52	24 6.1	24 6.3		24 6.4		24 7.3		24 7.4	
+16	+45.1	44.2	44.3	+42.5	42.7	+44.5	44.6	+45.1	45.3
$\delta = +52$	23 10.31	23 11.22	-1480	23 12.93	-1490	23 12.11	-1580	23 11.73	-1590

1871 phase: proj. 1448

* 2 Ophiuchi.
17 29 2
12.39
+50
+22

17 28 56.50 (+10)
56.3 ± 0.20

Aug 8 17 28 58.43 +12 39 29.11
13 37 6 29.6
18 30 7 30.0
23 23 7 30.3
28 15 8 30.6
30.8
30.9
31.0
31.8
31.0

Aug. 31 -60-613 Aug 6 -54-526 Aug 9 -58-573 Aug 18 -54-528 Aug 19 -50-500 Aug 22

<div><div>-116</div><div>29 4.5 28 55.8 28.58.6 28 53.1 29 7.9 29 17.5 29 10.0 29 20.0 29 1.8 17 28 56.3 29 29.4 27 19.9</div><div>6.7 58.1 0.8 54.3 10.0 18.9 12.1 21.0 3.9 57.6 29.4 21.2</div><div>8.9 0.6 2.9 55.7 12.1 20.0 14.2 22.9 6.0 59.4 36.2 23.0</div><div>10.0 17.45 7.0 55.7 14.2 56.4 16.3 39 10.2 233 43.0</div><div>10.2 56.2 9.2 54.4 16.4 18.8 18.5 21.3 12.3 57.8 46.6</div><div>-10.13 11.3 13.4 21.8 23.9 16.7 18.7 22.8 24.9 27.1 49.8</div><div>-16.5 15.4 19.8 23.9 18.7 22.8 24.9 27.1 16.7 18.7 53.1</div><div>21.5 19.8 23.9 18.7 22.8 24.9 27.1 16.7 18.7 53.1</div><div>25.8 27.9 30.2 18.7 22.8 24.9 27.1 16.7 18.7 53.1</div><div>28 58.2 18 4.1 28 54.4 60.6 29 18.8 29 21.3 159.0 28 57.8 29 29.4 27 19.9</div><div>19 0.3 17.300 6.0 11.282 12.120 14.220 14.455 14.455 14.455 14.455</div><div>9.340 43 17.30 -19.02 12.41 -12.61 29 12.12 -13.57 29 14.22 -12 29 14.45 -11 29 14.45 -11</div><div>58.10 -13 29 11.28 58.45 -1.65 58.42 -1.62 29 58.30 -1.50 29 58.29 -1.49 29 58.29 -1.49</div><div>19.20 -1.30 28 56.83 12.64 56.86 13.70 56.80 16.92 56.86 16.16 56.80 16.16 56.80 16.16</div><div>29 17.20 17.28 11.28 11.27 12.12 12.10 14.22 14.20 14.45 14.44 14.44 14.44 14.44</div><div>9.19 89.33 19.08 58.13 -12.64 56.88 13.56 58.45 15.71 58.33 16.81 58.32 16.12 16.12</div><div>12.669 58.25 18.15 58.64 12.79 58.56 1.61 1.50 1.49 58.54 1.49 58.54 1.49 58.54</div><div>11602 1.30 56.85 56.80 56.95 56.95 56.95 56.95 56.95 56.95 56.95 56.95 56.95 56.95</div><div>+ 19.1 17.28 + 16.9 11.27 - 6.7 12.10 - 7.1 14.20 + 16.8 14.44 14.44 14.44</div><div>2810 -19.06 22.78 -12.66 826.6 -13.58 8512 -15.75 22.53 -15.89 22.53</div><div>-1.13 -1.30 -1.85 -1.62 -1.50 -1.72 -1.49 -1.49 -1.49 -1.49 -1.49 -1.49 -1.49</div><div>28 56.79 56.84 56.86 56.79 56.80 56.83 56.83 56.83 56.83 56.83 56.83 56.83</div><div>50 4 10.1 4 4.8 25 0.5 4 4.8 25 0.5 4 4.8 25 0.5 4 4.8 25 0.5</div><div>2810 15.9 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0</div><div>40 3 7.0 3 36.3 3 37.3 3 8.0 3 8.0 3 8.0 3 8.0 3 8.0</div><div>14.8 45.6 45.8 14.8 14.8 14.8 14.8 14.8 14.8 14.8 14.8 14.8</div><div>21.8 53.9 53.1 21.8 21.8 21.8 21.8 21.8 21.8 21.8 21.8 21.8</div><div>10.90 41.95 41.55 11.40 11.40 11.40 11.40 11.40 11.40 11.40 11.40 11.40</div><div>19.1 116.9 122.7 122.7 122.7 122.7 122.7 122.7 122.7 122.7 122.7 122.7</div><div>1.25 103 1.34 39.1 0.826 0.942 0.851 1.26 1.26 1.26 1.26 1.26 1.26</div><div>1.39 7.05 1.34 39.1 0.942 0.942 0.942 0.942 0.942 0.942 0.942 0.942</div><div>24.98 22.07 22.07 22.07 22.07 22.07 22.07 22.07 22.07 22.07 22.07 22.07</div><div>43 10.80 43 11.55 43 41.55 43 11.40 43 11.40 43 11.40 43 11.40</div><div>43 32.97 43 32.97 43 32.97 43 32.97 43 32.97 43 32.97 43 32.97</div><div>+ 12 39 15.38 39 15.75 39 16.07 39 15.14 39 15.14 39 15.14 39 15.14</div><div>- 31.35 - 30.83 - 30.62 - 32.41 - 32.41 - 32.41 - 32.41 - 32.41 - 32.41 - 32.41</div><div>12 38 44.03 38 44.3 38 44.4 39 42.7 39 42.7 39 42.7 39 42.7</div><div>12 39 28.89 39 29.2 39 30.0 39 30.1 39 30.1 39 30.1 39 30.1</div><div>-46 + 44.6 44.7 + 44.9 44.5 + 45.6 45.1 + 47.4 47.0</div><div>8' = +12 39 15.38 39 15.15 39 16.07 39 15.14 39 15.14 39 15.14 39 15.14</div><div>-7.50 -7.80 -8.60 -8.70 -8.70 -8.70 -8.70 -8.70 -8.70 -8.70 -8.70 -8.70</div></div>

u Ophiuchi.

17 30 52

-14 - 8.3

1877 Aug 6 - Aug 9 - Aug 17

30 51.9	30 44.0	30 53.0	30 41.5	30 54.8	30 23.0
54.0	45.2	55.0	43.1	56.8	24.5
56.1	46.4	57.0	44.6	58.8	25.8
0.3	15.0	1.1	46.0	3.0	18.3
2.3	45.2	3.1	15.2	5.0	24.4
-4.4		3.1	43.8	7.0	
6.4		7.2		9.1	
8.8		7.3	31 27.9	11.2	
12.7		13.5	24.2	15.4	
14.4		15.5	21.2	17.7	
16.8		17.6	8.3	19.6	
228.1		23.4	29.4	23.4	
18.0		18.0		288.4	
48.1	30 48.2	57.4	30 48.8	16.0	31 24.4
31 4.37		5.22		78.4	
				7.13	

log sin $\sqrt{9.14624}$ log cos $\sqrt{9.99570}$
12669
.12239

31 4.37	522	713
-12.64	18.0	15.32
51.73	51.66	51.61
+1.08	+0.8	+1.88
57.81	57.74	51.69
+ 1.92	+ 2.13	- 17.4
2633	3283	2405

huc.

20 4 10.1	4 14.8	25 0 5.1	4 57.3
21.5	15.9	17.0	65.2
31.6	28.7	25.1	122.5
15.80	10.35	12.55	61.25
+19.5	+21.4	-24.0	-17.3
1.25330	1.33041	1.38028	1.23805
1.40569	1.45280	1.60260	1.36044
+25.4	+28.36	-31.41	-22.93
24 15.80	24 10.35	25 1.25	25 1.25
24 4.25	24 34.71	43.78	34 38.32
- 8 5290	1 5036	1 4997	

X Scorpii
K 17 32 37
-38 58

Aug 6.

33.32.45 33.24.8
35.3 27.3
37.9 21
43.0 26.0
45.7
48.6
51.0
53.8
59.1
1.8
4.2
412.8
120.
532.8
34 48.44

+ 22.6
3541

15 0 9.4
17 0
81
40.5%

58 ophiuchi.

17. 35 43

-21. 37

-40

1871

Aug 6.

Aug 9.

Aug 10.

Aug 11.

Aug 17.

35.43.1	35.38.5	35.44.2	35.32.0	35.44.5	35.41.2	35.44.5	35.41.2	35.45.7	35.39.2
45.3		46.3	36.0	46.6	42.0	46.8	43.1	48.0	46.1
47.7		48.8	70.0	48.8	43.4	48.9	43	50.3	80.3
52.0		52.8	35.0	53.1	6.6	53.3	4 2.1	54.7	40.1
54.3		55.0		53.5	42.2	55.6		57.0	
-56.4		-57.1	36.16.5	-57.7		57.8		59.1	
58.7		59.4		6.8		0.1		1.4	
0.9		1.8		2.0		2.2		3.5	
5.3		6.2		6.4		6.6		8.0	
7.5		8.3		8.8		9.8		10.1	
9.7		10.6		10.9		11.0		12.4	
38.0.9	35 38.5	39 0.5	35 38.0	335.1	35 42.2	325.6	35 42.1	360.2	35 46.1
240.1		240		308.1		300.1		300.1	
62.0.9		63.0.5		635.1		625.6		650.2	
39 56.45		57.32		57.74		57.78		69.11	
-12.67		13.56		13.88		13.96		1.52	
4378		4376		4386		4382		48.98	
+22		124		23		23		24	
4400		4400		4409		4405		46.83	

+ 19.9
2988+ 22.1
3443- 19.2
2833+ 15.7
1958+ 19.0
278755 3 16.1
29.3
45.4
22.703 7.5 4 0.2
19.3 14.1
26.8 14.3
13.40 7.153 19.3
29.2
46.5
24.253 17.0
25.2
42.2
21.10+17.9
1.2525
1.5483
+22.50
58 22.70
58 45.00+25.3
1.39480 140212
1.44382 149864
+31.52
58 13.40 13.40
58 44.92 44.92+15.5
1.19033
1.28585
+19.31
58 25.80
58 45.11+14.8
1.19540
1.29142
+19.56
58 24.25
58 43.81+19.0
1.27575
1.37427
+23.67
58 21.10
58 49.84

-21 35 56.65

35 56.57

35 56.76

35 55.46

35 56.42

+ W Draconis

 $\delta = +68^{\circ} 49' 16''$

Aug 8

17

37

44.5

+68° 49' 16"

17

+6
-6
-1
+6
-9
-2

17
17
68.
-44

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1871

Aug 6-

Aug 9.

Aug. 18-

Aug. 22-

Aug. 31

-039

log dms P. 96862

log cos 9.55493
12669
9.68462

30

30

4

40.5

39.5

60.0

40.00

+12.9

1.11059

0.7521

+6.24

34 10.00

34 46.24

+68.48

2.11

+29.11

68 48 31.22

68 49 16.44

+40

+45.2

45.6

 $\delta' = +68$

48

2.11

-14.80

48

3.06

-15.30

48

5.27

-16.60

48

2.45

-17.20

48

3.78

-18.30

3 Sagittarii
17 39 18

17' 39 18

$$\underline{\quad} 27.47 - 53$$

1871 Aug. 22. Sept. 1 Sept. 3 Sept. 10.

first wire lost.

39	33.7	40	2.7	82	33.3	17	39.263	39	33.0	39	30.5	39	35.5	39	27.8
	35.0		9.1		35.7		28.0		45.5		31.8		37.7		29.1
	30.0		6.1		38.0		29.4		48.0		33.6		40.1		30.0
	42.4		12.9		42.6		23.7		50.2		5.9		44.8		87.4
	44.7		4.3		45.0		27.9		52.0		31.9		47.3		29.1
	47.0				47.3				239.3				49.4		
	49.0				49.0								50.8		
	54.0				51.9								54.1		
	56.4				56.5								58.8		
	58.8				58.8								61.1		
471.6	40	4.3			11	29	27.9		29	31.9			3.4	39	28.1
493.2					459.8								424.0		

$$\log_{10} \sqrt{9.66851}$$

layers 9.94680

$$\begin{array}{r} 12669 \\ \times 07344 \\ \hline \end{array}$$

5 3 3.3
10.3
13.6
6.8

$$\begin{array}{r} -19.5 \\ 1,290.03 \\ \hline 1,363.53 \end{array}$$

$\begin{array}{r} 23.72 \\ - 23.08 \\ \hline 6.80 \end{array}$

$$-29^{\circ}44'55.37''$$

2 17.1
25.0
~~32.1~~
26.05

$$\begin{array}{r} + 19.3 \\ 1.28556 \\ 1.35905 \\ + 22.86 \\ 7 \quad 24.05 \\ 7 \quad 46.91 \end{array}$$

44 55, 56

$$\begin{array}{r} 2 \quad 22.5 \\ 24.8 \\ 52.3 \\ 26.15 \end{array}$$
$$\begin{array}{r} + 16.0 \\ 1.20412 \\ 1.27761 \\ + 1895 \\ 7.26.15 \\ 7.45.10 \end{array}$$

44 86.75

2 19.3
24.9
44.2
22.10

$$\begin{array}{r} +20.3 \\ 1.30750 \\ 1.38099 \\ +2404 \\ 7 \quad 2210 \\ \hline 4614 \end{array}$$

44 57.79

$$\delta = +27^{\circ} 47' 51.8'' - 3$$

\times ii Hercules - ✓

17. 41. 18 17 41 24.65 (-02)

24.60 + 0.01

+25 + 27.48

1871

Aug 22

Sept 3

Sept 7

Aug 8 17 41 26.27
13 20
18 12
23 3
28 25.94
Sept 2 84
7 74
12 64
17 25.53

+27° 48' 25''
32
38
43
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17
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log 9.66875

log 9.99674
126.69
07393

41	29.0	41 22.2	41	32.0	42 4.3	41	33.3	41 25.8
	31.2	25.4		34.3	5.2		35.5	27.2
	33.7	11.6		36.7	6.5		37.9	28.8
	38.3	23.9		41.4	16.0		42.4	21.8
	40.7			43.7	5.3		44.9	27.3
	43.0	42.4		46.0			47.3	
	45.2	6.0		48.3			49.6	
	47.7	7.9		50.7			51.9	
	52.1	18.3		55.2			56.5	
	54.6	6.1		57.7			58.8	
	57.0	23.9		60.4	5.3		1.0	41 27.3
47.5		42.955	41 46.0	46.0	19.0	459.1	6.0	47.190
		-1.65	41 46.0	-3.0	-1.19	519.1	-27.14	
41 42.95		-2.6	41 46.0	-3.0	-1.19	519.1	-27.14	
26.05		-1.42	20.08	24.61		25.74	-1.11	
15.90	41 24.62		20.08	24.61		21.46	24.61	
42.95			42.95	42.95		42.95	42.95	
16.67	42.94		29.52	45.8		21.17	47.17	
26.28	26.03		26.03	25.80		26.08	25.72	
-2.5	16.91		-3.2	20.18		26.09	21.93	
26.03			25.76			25.79		
-1.42			1.19			1.11		
24.61	42.94		24.57	45.98		24.68	47.17	
	-16.70		-19.98			-21.16		
	-1.24		-1.29			-1.29		
	-1.42		-1.19			-1.11		
	24.58		24.58			24.61		
	60		58			62		
30 4 56.3	35 0 44.4	37.8	30 4 53.0			56.1		
56.6	45.4	39.7	56.1			109.1		
112.9	89.8	77.5	54.55					
56.45	44.90	38.75						
+19.0		-19.3						
1.27875		1.28556						
1.35218		1.35899						
+22.50		+22.86						
34 56.45		35 38.75						
35 18.95		35 15.88						
2 30.60		47 32.46						
+27 47 29.40		-15.00						
-14.33								
27 47 15.1		47 17.5						
27 48 4.2		48 5.1						

-24 + 49.1 48.9

+49.6 47.3

+49.0 48.8

$\delta' = +27^{\circ} 47' 29.40''$
-12.40

47 32.46
-13.30

47 30.23
-13.40

72 12 4187 = Δ f.

4073 = p

+25

-1

-5

-14

-8

+0

Aug 18 17 44 16.12.10
 23 77.75.35 07
 28 15.42.40 35 07
 Sept. 2 05.3.87 072
 7 14.68.4 37 072
 12 14.88.9 37 072

S = +72° 12' 40.7"

312 17. 44. 174 1415
 -50 47-440 14.15+070
 1871 72+50 3 4997
 Aug. 22. Aug. 28 Aug. 31 Sept 1 Sept 3

log sin 9.97874

log cos 9.48990
 12669
 961159

43 53.7	43 44.0	17 43 55.1	17 43 34.0	55.4	43 50.2	43 56.1	43 47.6	43 56.2	45 25.1
0.3	46.2	44 4.3	38.6	44. 2.2	53.4	2.5	50.8	3.0	28.6
7.3	51.7	8.5	43.7	9.5	58.2	9.4	55.0	9.7	32.0
21.0	141.9	21.1	117.3	22.6	161.8	23.0	153.4	23.1	85.7
27.3	47.3	28.2	39.1	29.6	53.9	29.8	51.1	29.9	28.6
34.3		35.0		36.1		36.5		36.4	
40.9	45 30.5	41.7	45 18.5	43.0		42.7		43.3	
47.9	32.8	48.6	22.1	49.6		50.2		50.1	
1.0	36.2	1.9	27.0	3.0		3.3		3.3	
7.6	95	8.4	67.6	9.8		10.1		10.3	
14.8	33.2	14.8	22.5	16.7		16.8		17.3	
256.1 43	47.3	26 4.6 45	27.5	272.1 43	53.9	280.0 43	51.1	276.45	28.6
120.		120		120		120		44 36.60	
376.1	-16.5	384.6	-179.1	392.5	-19.05	399.4	-1938	-1990	
44 34.18	-1.56	18 34.96	-1.56	42 36.14	1.87	40 36.40	-1.87	44 36.60	-1.87
44 15.86	-1.71	15.44	-1.25	1123	-1.05	15.14	-9	1500	-5
18.39 44	14.27	19.86	14.20	2085	14.14	21.38	14.07	21.64	19.07
3419	34.190	3496	34.964	3614	36.136	3641	36.408	3660	36.600
16.87	34.14	17.94	34.91	18.05	36.09	19.35	36.35	19.63	36.55
17.52	16.82	17.02	15.40	18.05	15.19	17.12	15.10	16.69	16.86
-1.47	18.32	1.59	19.47	1.74	20.90	1.80	21.16	1.72	20.81
16.05		15.42		15.35		15.14		14.95	
-1.61	34.14	1.19	34.91	.98	36.09	.89	36.38	.75	36.55
14.04	-16.70	.24	-18.07	.37	-19.06	.25	-19.38	.20	-19.69
	-1.40		-1.50		-1.91		-1.94		-1.95
	-1.66		-1.24		-1.03		-94		-80
44	14.33		14.12		14.09		13.81		14.05
	.40		14		10		92		97

10 0 57.1	1 40.6	1 2.9	1 34.3	0 56.0	0 56.8	1 35.2
51.1	34.2	95.1	27.5	48.9	51.4	28.3
18.2	74.8	148.0	61.8	104.9	108.2	23.5
54.10	37.40	29.00	30.90	52.45	54.10	36.75
+46.9		15.9	-475	+42.2	+46.2	-52.0
1.67117		1.40401	1.67669	1.62531	1.65521	1.41600
1.28276		1.35700	1.28825	1.23670	1.26680	1.32759
+19.18		28.85	-19.42	+17.25	+18.40	-21.26
10 54.10		11 24.00	11 30.90	10 52.45	10 54.10	11 50.25
11 13.28		+6.88	11 11.98	11 9.70	11 12.50	11 10.95
+72 11 35.07		11 36.87		11 38.65	11 35.87	11 37.86
+33.28		+32.74		32.56	+33.28	+32.74
12 08.3		12 9.6		12 11.2	11 9.1	11 10.7

-07) 72 12 58.3	12 58.6	12 59.1	12 59.2	12 59.4
12 59.4	12 58.2	13 58.4	12 58.5	12 58.7
I +46 149.1 496	+48.6 490	+47.3 478	+47.9 498	+48.0 485
S' = +72 11 35.07	11 36.87	11 38.65	11 35.77	11 37.86
-16.70	-17.50	-17.70	-17.80	-18.00

+84
B.A. 6062
17 47 47

(17) +40.01
Aug. 22.

Aug. 28 - Aug. 29 Aug. 31 Sept. 3.

47 50 46 56.9	47 56.5 47 48.8	47 53.9 47 51.9	47 7.3 47 2.2	47 58.4 47 48.7
7.9 58.0	59.1 50.3	59.6 53.4	10.0 3.7	1.0 50.4
10.6 59.6	2.0 51.9	2.0 55.5	12.8 5.7	3.8 52.7
16.0 24.5	7.1 15.0	7.6 10.8	18.0 11.6	9.1 56.6
18.6 58.2	9.9 50.3	10.4 55.6	21.0 3.9	11.8
21.1	12.7	-13.0	-23.5	-14.5
23.8 47 44.0	15.2 48 29.1	15.6 48 36.0	26.1	17.1
26.6 45.4	17.9 29.7	18.4 38.7	28.9	20.0
32.0 47.8	23.1 16.8	23.8 41.4	34.2	25.4
34.7 17.2	26.0 28.4	26.3 11.67	37.0	28.0
37.3 45.7	28.7	29.0 38.4	39.8	30.7
23.3 46 58.2	258.247 503	263.647 53.6	258.647 3.9	219.847 50.6
—	120	120	—	101
—	135.2	142.6	—	159.5
47 12.24	48 12.55	48 12.96	47 23.51	14.53

log sin 9.8022

log cos 9.88415
12669
.01089

Disturb.
by accident

10 1 34.4 2 23.0 20 2 15.9 2 53.0 2 18.4 3 3.7 15 1 36.3 20 12.2	38.4 21.5 11.3 51.0 18.3 4.1 34.5 16.3	67.8 44.5 27.2 104.0 26.7 7.8 70.8 29.0	33.90 22.25 13.60 52.00 18.35 3.90 35.40 14.50	+23.0 1.36143 1.37257 +23.08 16 33.90 16 87.48 +40 5-50.87	+22.2 1.38635 1.35719 +22.76 22 13.60 22 36.36 +40 0 11.99	+19.4 1.28750 1.29864 +19.89 22 13.35 22 38.24 10 10.11	+19.6 1.28226 1.30810 +20.10 16 35.40 16 53.50 5 52.85 5 47.85 ✓	+22.9 1.38840 1.38924 +24.10 22 14.50 22 38.00 0 9.38
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+49.
89 Herculis -
17.50.06

+26.04

Aug 22

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Sept 1

Sept 3.

50 17.617	50 7.2	50 18.9	50 14.2	50 20.0	50 10.7	50 12.9	50 29.8	50 40.8
20.0	8.6	21.0	15.6	22.1	11.9	14.4	32.1	42.0
22.2	9.7	23.3	17.0	24.5	13.0	16.1	34.4	43.3
26.7	25.5	28.0	16.8	29.1	5.6	13.4	36.7	61
29.1	8.5	30.3	15.6	31.4	11.9	14.5	39.0	42.0
-31.3		32.6		33.7		33.8	172.0	
32.5	50 55.0	34.9	50 52.3	36.0		36.1 50 53.8		
35.9	56.3	37.1	53.6	38.5		38.5 56.5		
40.5	57.8	41.7	54.8	42.7		43.0 57.1		
42.8	19.1	44.1	18.7	45.0		45.3 16.4		
45.0	56.4	46.3	53.6	47.4		47.6 55.5		
344.6	50 8.5	358.2	50 15.6	376.4	50 11.9	385.5	50 42.0	

Logan 9.64288

Logan 9.98341
12669
08010

Recordary poor

15 3 19.2	3 24.9	3 22.0	3 21.7	4 10.7	3 54.2
20.5	25.8	20.8	25.3	13.4	55.7
39.7	51.7	42.8	47.0	24.1	109.9
19.85	25.35	21.40	23.50	12.05	54.95
+22.8	+17.0	+21.8			-7.6
1.35493	1.23045	1.33846			2.06812
1.43803	1.31055	1.41856			0.76071
+27.92	+20.44	+26.22			-9.14
18 19.85	18 25.35	18 27.40			18 54.95
18 47.27	18 45.79	18 47.62			18 45.51
+26 4 1.08	4 25.6	4 0.73			4 25.4

Draconis

+12.6 17. 53. 33 53 36.50 (-09)

-16 51. 30

Aug. 22

Aug. 28

Aug. 29

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34.8 +5

35.1 +3

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35.5 +2

35.7 +0

35.9 -1

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+4.33

35 Draconis in B.H.

17 55 13

76.59
171

Aug 28

Aug 29

Aug 31

Sept 3

Sept. 10

55 16.9 55 11.0 55 17.0 56 3.3
28.58 20.5 26.4 7.1
35.7 31.5 35.2 10.4
44.6 15.7 45.0 5.2
53.6 56 5.0 54.0
17.73 15.6 17.76
55.35.46 29.8 55.35.52
9.9

55 18.1 56 21.8 54 42.1 55 6.0
27.1 24.1 51.1 10.9
36.3 34.3 55 0.2 16.7
45.9 77.2 18.2 33.6
55.0 25.7 28.0 71.2
32.4 36.4
55 36.48 45.7
55.3
56 22.3
31.7
404.0 55 11.2
55.26.55

54 42.1 55 6.0 55 19.2 53 55.8
51.1 10.9 28.2 62.4
16.7 37.1 69.9
33.6 46.5 16.81
71.2 55.6 62.7
186.6 54 5.2
37.32 7.7
10.0
23.9
7.6
4 7.4

55 19.2 53 55.8
28.2 62.4
37.1 69.9
46.5 16.81
55.6 62.7
186.6 54 5.2
37.32 7.7
10.0
23.9
7.6
4 7.4

log sin 9.88869

log cos 9.88263
12.669
9.47932

25 0 33.0 0 31.2
26.7 26.7
54.7 57.9
29.65 28.95
+19.5 -25.8
1.29666 1.41162
1.7598 0.88094
+8.94 -27.7
25 29.85 25 28.95
35 35.82 25 22.05
25 20.00
Σ + 76.57 28.35

0 37.4 0 18.5
30.4 8.2
07.8 22.0
33.90 1.100
-19.2
1.69167
1.17127
-14.45
25 38.56
25 18.06
57 29.29

0 18.5
8.2
22.0
1.100
+25.3
1.40312
6.88244
+76.2
25 11.0
25 18.62
57 29.73

Rei
0 52.0 0 11.9
53.2 16.2
14.8 26.1
7.10 14.10
+29.6 +34.6
1.97857 1.47301 53.98
1.4442 0.95222 1.01700
-21.46 +1.03 +1.43
25 52.50 25 19.05 105
25 24.14 22.8 21.04
57 28.37 23.87

+53

$\frac{1}{2}^m$ Sagittarii

17. 57. 20⁵⁷ 31.31 ± 0.30

— 30. 25

-59

-613
Aug. 31

-622
Sept 1

-547
Sept 7

Reg
Sept 10

57 37.6	57 32.7	57 47.7	57 38.5	57 32.4	57 40.0	57 31.8
46.0	33.9	30.0	41.7	33.6	42.4	33.6
42.4	35.4	-52.2	44.2	60	45.0	35.1
47.2	11.7	54.7	49.1	33.0	45.8	10.5
49.5	33.9	56.9	51.6		52.0	37.5
-54.8		21.5	53.7		-54.5	
54.2	58 9.0	58 16.9	56.3		57.0	58 15.9
56.8	14.2	19.9	58.5		39.5	17.4
1.7	13.0	21.8	3.5		4.0	19.5
3.9	33.2	52.30	5.8		6.4	22.8
6.4	11.8	33.18	8.2		8.7	17.6
391.257	33.9	19.1258	412.157	33.0	399.4	57 33.5
180.		19.5	180.			
571.2			592.1			
58 51.93	57.50	57 52.30	58 53.83	52.82	54.49	
33.9	57.8	33.18	33.0	53.80		
16.41	33.19	19.12	20.25	53.07		
	1869	19.10		20.88		
	51.92	52.25		52.80	53.80	
-19.06		-19.39	-21.17			
+ .36		+ .37	+ .32			
-1.88		-1.87	-1.76			
31.30		31.39	31.19			
36		41	21			

45 0 34.4	19.5	451 23.0	0 31.0	0 32.4	1 22.2
40.9	26.1	31.1	39.4	39.4	30.0
54.9	45.6	54.1	70.4	71.8	52.2
37.45	22.80	27.05	35.20	35.90	26.10
+18.0		-27.2	+20.8	+21.6	
1.25527		1.45487	1.31806	1.32222	
1.31765		1.49693	1.38044	1.38460	
+2078		-3190	+2401	+2024	
45 37.45		46 27.05	46 35.20	46 35.90	
45 58.23		45 55.65	45 59.21	46 00.14	
			5	5	
-30 23 9.88		23 7.30	23 10.86	23 11.79	

B.A.6-6127

17 59 43

-28.28

-54

Aug. 31

Sept. 3.

Sept. 6

Sept. 7

0 1.4	59 55.2	0 2.259	52.0	17 59.30	59 56.4	0 34 59 58.4
3.8	50.8	4.6	53.3	6.4	57.9	5.7 57.6
6.1	54.7	7.0	54.8	7.7	59.6	8.0 60.6
10.9	27.7	11.7	10.1	12.4	23.9	12.7 178.6
13.1	57.2	14.0	53.4	14.7	57.9	15.1 59.5
15.6		16.3		17.0		17.4
17.9	0 32.8	18.7		18.4		19.8
20.1	04.0	20.9		21.8		22.0
24.9	06.2	25.7		26.4		26.8
27.1	13.6	28.0		28.7		29.2
29.6	34.5	30.3		31.0		31.5
170.559	57.2	179.459	52.4	187.557	57.1	191.657 59.5

log₁₀ 9.67820log₁₀ 9.84404
1.2668
0.05082

45 3	37.44	23.6	3 31.6
	46.1	30.8	38.1
	85.5	54.4	69.7
	42.75	27.20	34.85
	+18.3		+22.7
	1.86245		1.35984
	1.33317		1.43056
	+21.54		+26.85
	48 42.75		48 34.85
	49 42.9		49 1.80
-28	26 15.94		26 13.45

3	41.6	3	37.1
	45.8		46.1
	90.4		83.2
	45.20		41.60
	+17.9		+17.9
	1.61182		1.25285
	1.62244		1.32357
	+21.06		+21.06
	48 41.20		48 41.60
	49 26.8		49 26.6
	26 8.72		26 14.31

+ 0 Hercules

18 2 31 18 2 306.3 (01)

+ 28.45

+24

Aug- 29

Aug. 31

Sept. 1

Sept. 3

Sept. 6

-018

log lin 9.68213

log cos 9.99256
12668
06254

2	36.6	2	25.7	2	37.5	2	28.7	2	37.6	2	29.2	2	38.1	2	29.3	2	38.8	2	34.4
	39.0		27.3		39.8		29.0		40.1		25.7		40.6		30.8		41.2		35.6
	41.3		28.9		42.1		34.4		42.4		27.5		43.0		32.7		43.6		37.3
	45.9		21.9		46.1		9.01		47.0		20.4		47.7		92.8		48.2		17.3
	46.2		27.3		49.1		30.1		49.5		25.8		50.0		30.9		50.7		35.8
	50.7	3	10.7		51.4	3	7.3		51.7	3	13.0		52.4				53.0		
	52.9		12.7		53.9		8.9		54.1		14.8		54.7				55.7		
	55.3		14.1		56.1		10.7		56.5		16.3		57.0				57.7		
	0.1		7.6		0.9		26.0		1.1		14.1		1.7				2.4		
	2.3		12.5		3.0		8.9		3.3		14.7		4.0				4.7		
	4.7				5.4				5.6				6.3				7.0		
	7.0				15.9		30.1		19.4		25.8		25.8		30.9		40.2		35.8
	2.5804		50.636		2.5805		51.445		2.5812		51.764		2.5832		52.318		52.7		52.972
	32.06		-18.31		32.05		-19.08		32.00		-15.88		32.30		-19.90		32.67		-2.79
	-19.05		-28		-19.08		-33		19.66		-33		19.90		-31		20.89		-1.27
			-1.43				-1.38		51.72		-1.37		52.2		-1.30		52.97		
	50.61				51.45				51.38		30.64		51.53		30.78		20.78		30.60
	-18.31	2	30.62		19.05	3	30.68		32.34		57.71		32.39		62.30		32.19		62.91
	32.33		50.62		32.40		51.43		33		32.00		32.00		31.96		31.96		31.96
	-28		32.06		32.33		32.02		32.01		19.75		32.09		20.34		31.88		21.05
	32.05		18.56		32.07		19.41												
			50.62				51.43				51.75				52.30				52.95
			-18.31				-19.06				-19.39				-19.94				-2.75
			+1.29				-1.34				-1.34				-1.33				-1.27
			-1.43				-1.34				-1.27				-1.33				-1.27
			30.59		30.64		30.64		30.65		30.65		30.72		30.72		30.62		30.64
35	2	55.0	3	47.5	2	56.9	3	42.4	2	51.0	3	47.0	2	55.8		3	0.8		
		56.5		50.5		58.0		43.1		53.0		49.3		57.3			1.8		
		111.5		98.0		114.9		65.5		104.0		96.3		113.1			2.6		
		55.75		49.00		57.45		42.75		52.00		48.15		56.55			1.30		
		+33.3				+21.3				+26.0				+21.4			11.2		
		1.36736				1.32838				1.41497				1.33041			1.23553		
		1.43690				1.39792				1.48451				1.39995			1.30507		
		+27.35				+21.00				+30.52				+25.11			+20.19		
	37	55.75			37	58.41				37	52.00			37	56.55		38	1.30	
	38	23.10			38	22.45				38	22.52			38	21.66		38	21.99	
										44	25.83			44	26.69		44	26.86	
	+28	44	25.28		44	25.90				44	25.97			44	26.69		44	26.86	
						-1.352					-1.388				-13.62			-13.68	
					44	12.4				44	11.91			44	13.07		44	13.2	
					45	0.7				45	0.8			45	1.0		45	1.2	

-22

 $\Sigma = +28$ 44 25.25
-13.80

+48.3 48.1

44 25.90
-14.00

+48.9 48.7

44 25.83
-14.10

+47.9 47.6

44 26.69
-14.30

+48.0 47.8

44 26.86
-14.50

22 Camelopardalis - S.P.

18 4 18 6 4 37.46 (FHT)

110.38 (-021)

-266

Sept 2

Sept. 7

Sept. 10.

+041

log 10 4702
9.97121log 10 4702
9.97121
12668
0.09740
9.67391

4 21.7	40.0	4 23.7	39.1	4 24.7	18 4 11.5
27.6	42.2	29.2	42.6	30.2	12.8
33.4	46.0	34.9	48.4	36.3	43
45.0	52	46.9	130.1	47.9	12.1
50.5	42.7	52.7	43.4	53.6	
-56.7		55.4		-58.5	
2.6		4.2	43.3	5.2	5 40.5
5.6		10.2	44.3	11.3	43.0
19.9		21.8	48.0	22.8	47.0
26.0		27.4	156	28.5	105
31.7		33.3	45.2	34.5	43.5
324.0		349.7	452	354.5	4 13.1
300	42.7	300		300	
624.0		642.7		654.5	
5 56.73	56.73	5 58.43	58.43	5 59.50	59.50
38.4331	38.43	38.43	38.43	38.91	38.91
18.25	38.64	19.07	39.04	20.41	39.25
-99.66	18.43	-21.14	19.43	-21.60	20.29
+11.60		+1.50		+1.46	
-81		-1.21		-1.45	
4 378.2		37.18		37.91	

45	2 10.2	3 7.2	2 9.8	2 55.8	2 10.1
	0.3		0.2	47.1	1.7
	10.5	7.2	10.0	102.9	11.5
	5.25	3.60	5.00	51.45	5.90
	-140	+75.0	132	47.4	
	1.19613	1.87506	1.2457	1.67578	
	1.24403	1.97296	1.24007	1.71368	
	-17.74	-940	47 5.00	47 51.45	
	1.14613	1.12057	46 52.06	46 52.06	
	6.81984	0.79428	47 51.45	47 51.45	
	-661	-623	47 29.09	47 29.09	
	47 15.25	47 5.00			

~~1871phae~~
 $\times \mu$ Sagittarii

~~38 18 5 5~~
~~6 5~~

~~-21.5~~

~~-39~~

1871 Aug. 31

Sept - 3

Sept. 6

Sept - 18

log sin $\int 9.55597$

log cos $\int 9.96991$
 12669
 .09660

6 10.4	6 3.7	6 11.2	3.0	5 12.0	6 5.6
12.6	5.1	13.4	4.5	14.1	7.0
14.7	6.8	15.7	6.1	16.3	8.2
19.0	15.6	20.1	13.6	20.8	20.8
21.3	5.2	22.3	4.5	23.0	6.9
23.7		24.4		25.2	
25.8	6 42.4	26.8		27.1	
28.0	44.1	28.9		29.7	
32.3	46.1	33.3		34.0	
34.8	12.6	35.6		36.2	
36.9	44.2	37.7		38.4	
259.5	5.2	47.4	4.5	207.16	6.9
		6.24.48			
6 23.60		24.48		6 25.18	
6 4.72		4.70		462	
18.88		18.79		29.57	

25 1 40.3	2 28.1	1 37.6	1 44.5	2 43.9	2 36.2
47.0	34.6	44.1	48.9	49.7	47.0
87.3	62.7	81.7	93.7	93.6	85.2
43.65	31.35	40.85	46.85	46.80	42.60
+18.4		+20.0	+18.2		
1.26482		1.30103	1.26245		
1.36142		1.39763	1.35905		
+22.98		+24.98	+22.66		
26 43.65		26 40.85	26 46.85		
27 6.63		27 8.83	27 9.71		
27 4' 18.28		4 18.48	4 21.36		

η Sagittarii
18 8 42

-36.48

1871 Aug. 29. Aug. 31. Sept. 1 Sept. 2 Sept. 6

8	58.68	45.3	8	59.1	8	47.0	8	59.5	8	53.0	8	59.9	9	36.0	8	0.8	7	51.5
	1.0	49.8		4.7		48.6		1.8		55.1		2.3		37.7		3.3		53.0
	3.6	51.9		44.1		50.5		4.5		56.7		5.0		39.7		5.9		59.6
	8.8	150.0		9.6		14.61		9.7		16.8		10.0		23.4		11.2		91
	11.4	50.0		12.0		48.7		12.2		55.6		12.7		37.8		13.7		53.0
	14.0			14.7				15.0				15.3				16.3		
	16.6			17.2		9	35.3	17.3		9	36.1	17.9				18.8	8	32.8
	19.2			19.8		87.4		20.0		38.0		20.6				21.3		
	24.0			24.9		40.8		25.2		40.6		25.4				26.5		
	26.6			27.6		113.5		27.8		11.47		28.0				29.0		
	29.2			30.0		37.8		30.0		38.2		30.6				31.6		
	213.0	8	50.0	221.0	8	48.7		223.0	8	55.6		227.79	37.1		178.48	53.0		
	60.1			60.1		378		60		38.2		60						
	153.0			161.0				163.0				167.7						
	9	13.91		9	14.64			9	14.82			9	15.24		8	16.22		

Coydini 9.77744

Coycos 9.90349
12669
03018

5	1	25.3	1	14.4	2	9.0	1	11.3	2	00.5	2	6.8	12	1.8	2	7.0
		33.7		22.0		16.8		23.9		59.1		15.2		28.6		11.9
		59.0		36.4		25.8		40.2		157.9		22.0		50.4		15.9
		29.50		18.20		12.90		20.10		29.95		11.00		25.20		9.45
		+22.9		+25.9		-23.2		+19.2		-23.4		-22.6		+23.3		
		1.37840		1.41330		1.36549		1.28330		1.36922		1.35411		1.36549		
		1.40858		1.44348				1.31848		1.39940		1.38429		1.39567		
		+25.62		+27.36				-20.88		-25.03		-24.02		+24.72		
		6	29.50	6	18.20			6	20.10		4.81	7	11.02	6	25.60	
		6	55.12	6	45.96			6	40.62		6	39.52	6	46.77	6	57.03
-36	44	677		48	57.61			48	52.33			43	58.42		44	172

Sagittarii

18 12 33

-29.53

1871

Sept. 2

Sept. 3

Sept 6^m

Sept. 7

no. minutes.

Sept. 18

Note.
Reverse the change
in the relations between
the microscopes between
Sept. 18 and Sept. 29
Sept 18 2 microscopes
Sept 29 2 microscopes

12	51.2	12	42.3	12	51.3	12	45.5	11	52.3	11	45.1	12	52.6	12	47.0	12	47.7	12	57.4
	53.6		44.2		53.7		47.1		54.6		46.7		55.0		46.2		70.0		58.9
	56.0		46.3		56.3		48.9		56.9		48.3		57.4		49.7		7.4		68.5
	0.7		12.8		0.9		2.15		1.7		2.01		57.4		24.9		14.2		176.8
	3.1		44.3		3.2		47.2		4.1		46.7		4.2		48.3		16.7		58.9
	-5.4				5.7				-6.5				4.6				18.9		
	7.9				8.1				8.8		12 27.5		6.9	13	19.3		21.2	13	42.4
	10.1				10.4				11.3		29.2		9.2		20.0		23.7		44.0
	14.8				15.3				16.0		30.8		11.8		39.3		28.3		45.2
	17.3				17.6				18.3		87.5		16.4		19.6		30.8		11.6
	19.9				20.0				20.7		29.2		18.5				33.1		43.9
	24.0	12	44.3		24.2	12	47.2		25.2	12	46.7		26.1	12	48.3		208.0	12	55.9
	180				180				180				25.7						43.9
	160.0				62.5				71.2				25.7						
	13 5.45				5.68				12 6.47				13 6.88				12 18.91		

$\log \sin 9.69743$

$\log \cos 9.93804$
12669
.06473

10	3	4.0	3	4.0	3	9.8	3	58.7	3	2.9	3	40.0	3	51.9
		13.2		12.8		16.1		5.2		12.5		48.9		0.1
		17.2		16.8		25.9		63.9		15.7		68.9		182.0
		8.60		8.40		12.95		31.95		7.85		44.45		58.00
		12.1		18.5		119.8		119.8		118.6		118.6		118.6
		1.22428		1.26714		1.29667		1.29667		1.26951		1.26951		1.60296
		1.37301		1.33190		1.36140		1.36140		1.33424		1.33424		1.66667
		+2472		+2145		+2258		+2258		+2119		+2119		98.5
		13 8.60		13 8.40		13 12.95		13 12.95		13 7.85		13 7.85		13 58.00
		13 33.32		13 29.87		13 35.93		13 35.93		13 29.44		13 29.44		13 58.00
		-29 50 44.97		50 41.52		50 47.58		50 47.58		50 41.09		50 41.09		50 40.25

Cont-
no. minutes.

η Serpentis.

18 14 29

Aug 28 18 14 39.76 -2° 55' 42.9 8 = -2° 55' 48.5
 Sept 2 2 68 8 42.8
 7 60 8 42.9
 12 52 8 42.6
 17 44 8 42.6
 22
 27

-0.5
+71

-2.56

18 13 56.96 +0
 380.94 (115)
 38.15 ± 0.11
 (111)
 75
 79
 711
 76

92.9

1871

Sept 2

Sept 6

Sept 7

Sept 18

-0.16

14 47.0 14 40.7

14 48.0 14 43.0

14 56.5 14 38.9

15 0.4 15 49.3

49.0 41.8

50.1 43.8

58.9 40.0

2.42 50.5

51.1 43.1

52.2 45.8

0.7 41.0

4.6 51.4

55.1 5.6

56.3 42.9

2.8 119.9

8.5 1.2

57.3 41.9

58.4

5.0 39.9

-10.8 50.4

59.3

6.4

-12.8 28.5

1.5

2.4 1522.0

4.8 29.5

3.4

7.5 23.4

16.8 30.5

7.6

8.6 24.8

20.9 8.5

7.8

10.7 70.2

23.0 29.5

11.8

12.7 23.4

24.9 29.5

102.7

304.3

124.2

139.9

14. 57.34

30.5

120

14 50.4

14 59.34

59.336

121 0.84 48.40

15 2.72 12.718

14 39.68

12 39.62

39.60

39.12

12.66

59.80

2.24

23.30

59.34

0.39

0.84

12.70

-19.85

20.78

0.11

39.54

39.66

39.68

39.74

39.55

39.70

39.62

1.07

1.33

1.59

59.32

0.37

38.22

38.11

38.09

38.28

23.18

-19.66

-20.75

-21.14

-23.18

-19.66

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-23.18

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✓
x 5 Urs. Min.

41083

18.14.55 181356.96
86.36 56.88

$$\begin{array}{r} 56.82 \\ 56.93 \\ 56.63 \\ \hline 56.83 \end{array} \quad \begin{array}{r} -2 \\ +1 \\ -31 \\ \hline -11 \end{array}$$

143

-613
Aug. 31

-622
Sept 1

Sept. 7⁻⁵⁴⁷

- 449
Sept. 10

$$-20^2 = 46.$$

log riv 9.88923

logos 8.77310
12669
888979

Revised the
calculations

[illegible]

14.29.75 mean of all
13 59.88
30.07

45	2	54.1	3	11.0
		56.1		2.9
		110.2		13.9
		55.10		6.95

109 Herculis

+40 18 18 12 18 18 12.05

12.05

+35 +21.43

1871

Sept-2

Sept-3

Sept-6

Sept-7

Sept-10

28 18 18 13.62 +21° 42' 58"
 29 18 18 13.62 +21° 42' 58"
 30 18 18 13.62 +21° 42' 58"
 31 18 18 13.62 +21° 42' 58"
 32 18 18 13.62 +21° 42' 58"
 33 18 18 13.62 +21° 42' 58"
 34 18 18 13.62 +21° 42' 58"
 35 18 18 13.62 +21° 42' 58"
 36 18 18 13.62 +21° 42' 58"
 37 18 18 13.62 +21° 42' 58"
 38 18 18 13.62 +21° 42' 58"
 39 18 18 13.62 +21° 42' 58"
 40 18 18 13.62 +21° 42' 58"

4 Praecoris 18 22

S = +21° 42' 45.8"

Coyser 9.86822

Coyser 9.86803
12.669
0.09472

18	20.1	18	10.7	18	20.4	18	11.5	17	21.1	17	17.7	18	21.5	18	14.0	18	31.0	18	46.7
22.3	12.2	22.5	12.6	23.4	18.6	23.6	18.6	23.6	18.6	23.6	18.6	23.6	18.6	23.6	18.6	23.6	18.6	23.6	18.6
24.6	13.9	24.8	13.8	25.5	19.7	26.0	19.7	26.0	19.7	26.0	19.7	26.0	19.7	26.0	19.7	26.0	19.7	26.0	19.7
29.0	6.8	29.2	7.9	29.9	26.0	30.3	26.0	30.3	26.0	30.3	26.0	30.3	26.0	30.3	26.0	30.3	26.0	30.3	26.0
31.1	12.3	31.6	12.6	32.3	18.8	32.7	18.8	32.7	18.8	32.7	18.8	32.7	18.8	32.7	18.8	32.7	18.8	32.7	18.8
33.4		33.7		34.3	18.0	34.9	18.0	34.9	18.0	34.9	18.0	34.9	18.0	34.9	18.0	34.9	18.0	34.9	18.0
35.7		35.9		36.7	1.9	37.0	1.9	37.0	1.9	37.0	1.9	37.0	1.9	37.0	1.9	37.0	1.9	37.0	1.9
38.0		38.1		38.9	3.0	39.2	3.0	39.2	3.0	39.2	3.0	39.2	3.0	39.2	3.0	39.2	3.0	39.2	3.0
42.3		42.5		43.2	4.4	43.7	4.4	43.7	4.4	43.7	4.4	43.7	4.4	43.7	4.4	43.7	4.4	43.7	4.4
44.5		44.7		45.4	1.5	46.0	1.5	46.0	1.5	46.0	1.5	46.0	1.5	46.0	1.5	46.0	1.5	46.0	1.5
46.7		47.0		47.6		48.1		48.1		48.1		48.1		48.1		48.1		48.1	
27.18	12.3	4.0478	12.6	378.317	18.7	383.018	18.7	383.018	18.7	383.018	18.7	383.018	18.7	383.018	18.7	383.018	18.7	383.018	18.7
18	32.43	18	32.43	17	34.39	18	34.39	18	34.39	18	34.39	18	34.39	18	34.39	18	34.39	18	34.39
33.434		33.67		34.39		34.82		34.82		34.82		34.82		34.82		34.82		34.82	
33.43	33.92	33.67	33.67	34.39	34.39	34.82	34.82	34.82	34.82	34.82	34.82	34.82	34.82	34.82	34.82	34.82	34.82	34.82	34.82
13.53	13.83	13.67	13.67	13.53	13.53	13.83	13.83	13.83	13.83	13.83	13.83	13.83	13.83	13.83	13.83	13.83	13.83	13.83	13.83
19.90	19.89	20.16	20.14	20.93	20.91	21.38	21.26	21.38	21.26	21.38	21.26	21.38	21.26	21.38	21.26	21.38	21.26	21.38	21.26
33.43-19.66		33.67-19.50		34.39-20.79		34.82-21.14		34.82-21.14		34.82-21.14		34.82-21.14		34.82-21.14		34.82-21.14		34.82-21.14	
-19.65-24		-19.52-23		-20.78-22		-21.11-22		-21.11-22		-21.11-22		-21.11-22		-21.11-22		-21.11-22		-21.11-22	
18 13.78-1.48		13.95-1.46		13.61-1.41		13.91-1.39		13.91-1.39		13.91-1.39		13.91-1.39		13.91-1.39		13.91-1.39		13.91-1.39	
-24		-22		-22		-22		-22		-22		-22		-22		-22		-22	
13.54+12.65		13.53 12.08		13.99 11.97		13.49 12.07		13.49 12.07		13.49 12.07		13.49 12.07		13.49 12.07		13.49 12.07		13.49 12.07	
33.42		33.65		34.37		34.80		34.80		34.80		34.80		34.80		34.80		34.80	
-19.68		-19.94		-20.75		-21.17		-21.17		-21.17		-21.17		-21.17		-21.17		-21.17	
-1.18		-1.22		-1.23		-1.22		-1.22		-1.22		-1.22		-1.22		-1.22		-1.22	
-1.48		-1.46		-1.41		-1.39		-1.39		-1.39		-1.39		-1.39		-1.39		-1.39	
12.08	10	12.03	05	11.98	00	12.02	03	12.02	03	12.02	03	12.02	03	12.02	03	12.02	03	12.02	03
35 4 48.7		4 48.2		4 55.9	10 0 41	40 0 41.2	0 48.0	40 0 41.2	0 48.0	40 0 41.2	0 48.0	40 0 41.2	0 48.0	40 0 41.2	0 48.0	40 0 41.2	0 48.0	40 0 41.2	0 48.0
51.9		52.0		57.3	49.2	49.0	49.1	49.0	49.1	49.0	49.1	49.0	49.1	49.0	49.1	49.0	49.1	49.0	49.1
100.6		100.2		113.12	96.3	25.12	97.1	25.12	97.1	25.12	97.1	25.12	97.1	25.12	97.1	25.12	97.1	25.12	97.1
50.30		50.10		56.60	48.15	12.60	48.55	12.60	48.55	12.60	48.55	12.60	48.55	12.60	48.55	12.60	48.55	12.60	48.55
+21.1		+21.1		+15.7		+20.8		+20.8		+20.8		+20.8		+20.8		+20.8		+20.8	
1.32428		1.32428		1.32428	1.9590	1.32428	1.9590	1.32428	1.9590	1.32428	1.9590	1.32428	1.9590	1.32428	1.9590	1.32428	1.9590	1.32428	1.9590
1.41900		1.41900		1.41900	1.29062	1.41900	1.29062	1.41900	1.29062	1.41900	1.29062	1.41900	1.29062	1.41900	1.29062	1.41900	1.29062	1.41900	1.29062
+26.25		+26.25		+26.25	1.953	+26.25	1.953	+26.25	1.953	+26.25	1.953	+26.25	1.953	+26.25	1.953	+26.25	1.953	+26.25	1.953
39 50.30		39 50.10		39 56.60	56.60	40 12.60	56.60	40 12.60	56.60	40 12.60	56.60	40 12.60	56.60	40 12.60	56.60	40 12.60	56.60	40 12.60	56.60
40 16.50		40 16.30		40 16.13		40 16.13		40 16.13		40 16.13		40 16.13		40 16.13		40 16.13		40 16.13	
33.59		33.59		33.59		33.59		33.59		33.59		33.59		33.59		33.59		33.59	
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1871 Sept-18 Sept-2. Sept. 3 Sept 6 Sept 7 Sept 8

25 5.4 25 44.8 9.4 47.4 13.4 92.2 21.5 46.1 25.6 29.7 33.7 26 58.8 37.9 0.4 45.8 2.3 49.9 18.15 53.9 60.5 326.2 2.5 46.1 26 60.5	26 7.7 13.7 17.7 21.8 25.8 58.7	26 32.4 34.2 37.1 13.7 34.6	25 53.7 25 37.4 57.7 39.6 1.7 43.1 10.0 120.1 14.0 40.0 -18.0 22.0 26.0 34.3 38.1 42.1 317.6 25 40.0 120 197.6 26 17.96	25 54.4 25 39.4 58.3 41.6 2.5 93.6 10.4 46 14.5 41.5 -18.5 26 50.3 22.5 52.5 26.7 55.7 34.7 5.8 38.8 52.9 42.8 324.1 25 41.5 120. 204.1 26 18.55	25 54.6 25 41.7 58.7 43.9 2.9 47.3 11.0 12.9 14.9 44.3 -19.0 22.9 26 35.8 27.0 30.1 39.1 43.2 328.4 26 44.3 120 208.4 26 18.94	54.9 25 38.0 58.7 40.0 3.0 79.0 10.9 39.5 14.9 -19.2 23.5 27.2 35.3 39.2 43.2 380.8 25 39.5 120 200.8 26 19.18 19.09
55 2 5.5 1 55.3 0 58.7 13.3 64.1 55.8 18.8 119.4 114.5 9.40 59.70 57.25 -16.4 -50.8 -16.9 1.21749 1.95856 1.22789 1.05008 1.83235 1.06048 -11.22 -61.82 -11.49 56 9.40 56 57.70 55 57.25 66 58.18 56 57.88 55 48.76 +59 25 50.17	0 58.7 55.8 114.5 57.25 -16.9 1.22789 1.06048 -11.49 55 57.25 55 48.76 27 25.9	0 22.7 17.0 41.7 20.85 +37.7 1.58764 1.44123 +25.78 55 20.55 55 46.63 27 17.2	0 22.0 1 9.4 18.0 6.0 40.0 15.4 20.00 7.70 +37.0 1.06820 1.40077 +25.17 55 20.00 45.15 27 3.18	0 24.1 0 59.0 20.8 56.0 44.9 115.0 22.45 57.50 +54.6 1.53808 1.37167 +23.52 55 22.45 55 45.77 27 2.38	0 23.1 20.2 43.3 24.68 +39.6 1.58770 1.43029 +26.83 55 21.65 55 48.58 26 59.87	

✓✓
✓ Aquilae

18 28 1 18 28 11.17 +0.04
11.23

-16 -8.20

1871 Sept 2. ^{60-459.2}

Sept 6 ⁵⁶⁻⁵⁶⁴

Sept 7 ⁵⁶⁻⁵⁴⁷

Sept 8

Sept 10 ⁵⁵⁻⁴⁴⁹

-016

28 30.1 28 18.1
22.1 19.1
24.2 20.1
28.4 27.2
30.5 18.6
32.6
34.7
36.8
40.9
43.0
45.1
35.84/28 18.6

28 21.1 28 15.1
23.2 16.3
25.3 17.6
29.4 19.0
31.5 16.3
33.6 28 57.3
35.7 58.6
37.8 59.8
41.9 25.7
44.0 56.6
46.0
36.9.5 28 16.3

21.6 28 9.7
23.6 11.1
25.7 12.6
29.8 33.4
31.9 11.1
34.0
36.1 47.3
38.1 47.9
42.4 45.2
44.3 47.6
46.4
37.39 28 11.1

28 30.1 28 42.6
32.2 43.7
34.4 6.3
36.3 43.2
38.5
41.1
35.4 28 50.0
37.5 57.3
41.7 1.3
43.7 50.6
45.8
36.71 28 17.3

28 21.0 28 15.8
23.0 17.4
25.1 18.8
29.1 32.0
31.4 17.3
33.4
35.4 28 50.0
37.5 57.3
41.7 1.3
43.7 50.6
45.8
36.71 28 17.3

log sin 9.16116

log cos 9.99539
126.69
122.08

28 32.58 32.58
12.90 32.56
19.69 12.90
19.66
-19.66
+4 32.56
-1.73
18 28 11.23 +.07
-1.73

28 33.59 33.59
12.85 33.57
20.72 12.85
20.72
-20.72
+4 33.57
-1.68
11.16 -20.75
+0.08
-1.68

28 33.59 33.59
12.83 33.58
21.17 12.83
21.16
-21.14
+4 33.58
-1.66
11.23 +.08
-1.66

28 34.31 34.31
12.81 34.31
21.49 12.81
21.16
-21.14
+4 34.31
-1.64
11.20 +.07
-1.61

28 33.37 33.37
12.78 33.37
20.69 12.78
20.57
-20.60
+4 33.37
-1.61
11.20 +.07
-1.61

40 1 55.3
62.1
117.4
58.70

11.22 24
1 52.9 2 47.3
56.5 52.3
109.4 99.6
34.70 49.80

24 11.23 24
1 41.9 2 29.4
48.7 35.7
90.6 65.1
45.30 32.55
25.25

11.17 29
151.8 2 36.0
56.3 41.2
108.1 77.2
54.05 38.80

+11.40
1.14613
1.26821
+18.54
41 58.70
42 17.24
-8 19 28.89

+17.02
1.23805
1.36013
+22.91
41 54.30
42 17.61
19 29.26

+22.8
1.56987
1.67145
+30.20
41 45.30
42 15.50
19 29.15

+16.1
1.52375
1.64583
+44.24
41 54.05
42 15.50
19 29.03

W

x L Lyrae.

+80 18.32.34 32 34257.101
34.16

+06 +38.40

1871 Sept 18

Sept 2

Sept 3

Sept 6

Sept 7

Sept 8

Aug 28 18 82 35.86 +38° 40' 9" 8 = 38° 39' 53"

Left 2 75 11 102 +.9

7 64 11 107 +.5

12 52 12 111 +.4

17 35.40 12 115 +.4

22 117 +.2

27 118 +.1

11.8 +.0

11.7 -1

-1020

32 40.0 32 29.7

32 40.1 32 30.4

32 41.0 32 23.3

32 41.9 32 29.8

32 41.7 32 33.2

42.7 31.0

42.8 31.8

43.8 24.5

44.1 31.3

44.2 35.7

45.1 32.6

45.6 34.4

46.3 26.1

46.7 32.9

46.9 35.1

50.6 9.33

51.6 6.6

51.5 23.9

52.0 31.0

52.1 107.0

53.2 31.1

53.2 32.2

54.2 24.6

54.7 31.3

54.8 35.7

55.7

56.0

56.8 10.7

57.1 19.4

57.4 20.6

58.3

58.6

59.4 14.1

59.8 20.6

59.9 22.2

-1.0

-1.1

-1.6 24

-2.4 26

-2.6 27

6.3

6.5

7.3 25

7.7 26

7.9 27

9.0

9.1

10.0 25

10.4 26

10.7 27

11.6

11.5

12.5 25

12.9 26

13.3 27

63.5 32 51.1

65.4 32 32.2

38.4 32 24.6

32.5 32 31.3

32.5 32 31.3

55.77

55.92

55.5 32 24.6

57.2 32 31.3

57.2 32 31.3

35.74

35.92

32.5 32 24.6

32.5 32 31.3

32.5 32 31.3

20.02

20.22

21.10

21.6

21.6

-19.66

-19.50

-20.79

-21.14

-21.14

-1.18

-1.46

-1.45

-1.45

-1.45

-1.49

-1.47

-1.41

-1.38

-1.38

18 32 34.14

34.12

34.11

34.23

34.23

-1.49

-1.47

-1.41

-1.38

-1.38

34.21 .23

34.07 .07

34.12 .13

34.19 .21

710 2 55.6

55.9

110.9

55.45

2 56.8

56.7

113.5

56.75

2 48.3

47.8

96.1

48.05

3 36.3

36.8

73.1

36.55

2 55.1

55.3

110.4

55.20

+24.4

1.39270

1.41193

+25.82

42 55.45

43 21.24

+23.7

1.37445

1.37398

+24.77

42 56.75

43 21.52

+32.2

1.50846

1.52709

+33.60

42 48.05

43 21.91

+25.9

1.41330

1.43253

+27.07

42 55.20

43 22.24

+38 39 27.08

- 3.44

+39 23.64

+40 10.2

39 26.83

- 3.43

+39 23.40

+40 10.3

39 26.64

- 3.50

+39 23.14

+40 10.6

39 26.08

- 3.42

+39 22.66

+40 10.7

-06 +0 46.6 46.5

+0 46.9 46.9

+0 47.5 47.4

+0 48.0 47.9

$\delta' = +38$ 39 27.08

-16.50

39 26.83

-16.60

39 26.64

-16.90

39 26.08

-17.00

Aymal

2 Aquarii. ln. 2055 1835

18.35.5

- 9.11

1871 Sept 6 Sept 7 Sept. 8 Sept 24

35	22.5	35	11.7	35	23.0	35	13.5	35	23.2	35	15.3	35	25.4	35	30.8
	24.5		18.1		25.0		15.0		25.4		16.9		27.5		31.8
	26.7		19.9		27.1		16.0		27.6		18.2		29.5		33.2
	30.8		56.3		31.3		44.8		31.7		50.4		33.8		5.8
	32.9		18.8		33.4		14.9		33.7		16.8		35.7		31.9
	-35.0				35.5				35.7				37.8		
	37.1				37.6		48.9		37.9				39.8		
	39.2				39.7		50.0		40.0				42.0		
	43.1				43.8		51.0		44.1				48.1		
	45.4				45.8		149.9		46.2				48.2		
	47.5				47.9		49.9		48.4				50.4		
	38.4.7				39.0.1				39.3.9				416.2		
		26	18.8			35	14.9			35	16.8			35	31.9
	35	34.97			35	35.46			35	35.81			35	37.84	

logarithm 9.20302

log 100 9.99440
12669
12109

30	2	21.9	3	7.0	2	12.3	2	57.2	2	13.7	3	21.5
		26.1		11.3		19.9		4.1		19.0	2	56.0
		45.0		15.3		32.2		61.3		32.7	6	27.5
		24.00		9.15		16.10		30.65		16.35	3	06.75
		+16.2				+20.6				119.0		25.9
		1.20952				1.31387				1.27875		0.7065
		1.32061				1.43446				1.39984		0.8254
		+21.41				+27.22				+25.11		+7.79
		32 29.00				32 16.10				32 16.35		30 05.70
		32 45.41				32 48.32				32 41.46		33 16.59
		9 57.06				9 54.97				9 53.11		10 28.19

X 51 Cephei - S.P.

18.35.42

92 46

14.41 = P

18.32 = A A

13.79

87 14 1861 - A A

17.70 = P.

15.56 +1.13
 13.33 -1.08
 13.51 -80
 12.06 -235
 14.48 +7
 13.79 -62
 13.79

1871

Sept. 2

Sept. 3.

Sept. 6.

Sept. 7

Sept. 8

(7.33 = ill.)

35 3.2	36 46.7	35 2.9	36 39.6	35 40.3	37 31.4	36 32.6 a	57.4	37 21.7	75
5.0	2.0	4.8	56.3	35 23.4	—	37 56.0 e	59.0	22.4	22.25
6.4	13.2	6.3	13.0	40 5.5	—	—	—	24.4	24.4
	37 0.6		35.0						
35 44.3	46.3	35 43.6	46.2 46.0	35 40.3	—	37 21.4 c	57.2	37 57.6	57.3
46.1	46.3	46.2	46.0	35 23.4	—	38 40.6 d	59.2	59.2	59.0
46.4		46.3		40 5.5	—	—	—	0.5	37. 59.0
36 29.0	37 0.6	36 25.5	37 6.0	37 21.4	—	—	58.2	38 40.0	51
30.2	30.3	27.9 27.8	—	—	—	39 22.6	—	41.4	41.70
31.8		29.8	—	—	—	39 21.0	—	43.7	41.70
37 51.9	54.5	37 50.8	52.9 52.6	—	—	39 22.4	—	39 22.1	10.6
54.6		54.1	—	—	—	39 21.4	—	23.2	37.22.58
57.0		—	—	—	—	—	—	25.3	—
38 36.5	38.1	38 34.4	36.2	—	—	39 21.95	—	40 3.9	13
38.2	38.1	35.8	36.2	—	—	—	—	5.3	40 6.43
39.7		38.3	—	—	—	—	—	7.1	—
39 11.7	19.6	39 12.0	15.7 15.0	—	—	—	—	40 48.9	15
19.6	19.6	15.7	15.0	—	—	—	—	50.6	40.50.50
21.5		21.3	—	—	—	—	—	52.0	—
40 0.4	2.2	39 59.6	1.0 1.1	35 3 57.5	—	39 21.95	—	39 24.05	—
2.1	2.2	1.0 1.1	—	51.2	—	12.17	—	12.69	—
4.1		2.8	—	—	—	9.78	—	11.36	—
40 42.2	41.8	40 42.0	44.8	—	—	—	—	—	—
45.0	41.8	44.0	44.8	—	—	—	—	—	—
47.3		45.5	—	—	—	—	—	—	—
42 8.9	10.6	42 7.2	9.0 8.9	3 59.6	—	4 4.3	—	4 6.3	—
11.4	10.6	9.0	8.9	51.2	—	55.2	—	57.4	—
12.5		10.6	—	111.0	—	159.5	—	183.7	—
	20.37	10.6	19.27	55.50	23.57	59.75	22.28	61.85	24.38
42 51.1	-19.68	42 52.8	-19.94	—	-20.75	—	-21.17	—	-21.26
52.0	53.3 49.52	54.8538	41.50	—	+11.67	+	+11.32	—	+11.32
55.9	+3.12	—	+2.68	—	+1.17	—	+6.2	—	+0.34
43 33.7	13.33	32.4	13.51	—	(15.06)	—	13.00	—	14.48
35.8	36.0	34.6 34.4	—	—	—	—	—	—	—
38.5		36.3	—	—	—	—	—	—	—
39. 20.04 20.37	39. 18.94	19.27	—	23.57	—	—	—	—	—
10.10 10.20	10.20	10.64	—	12.75	—	—	—	—	—
9.94 10.17	8.74	8.63	—	18.42	—	—	—	—	—
11.38.4	+13.29	12.350	—	Rij +11.18	—	—	—	—	—
2.145.1	2.124.3	2.124.3	—	0.2830	—	—	—	—	—
0.95582	0.93386	0.93386	—	2.04889	—	—	—	—	—
35 4 3.7	4 4.0	-85.9	—	0.86435	—	—	—	—	—
54.7	55.0	—	—	0.85866	—	—	—	—	—
56.6	59.0	—	—	7.22	—	—	—	—	—
57.30	59.50	—	—	—	—	—	—	—	—
-8.03	-16.1	-8.58	—	-7.22	—	—	—	—	—
38 57.30	38 57.50	57.50	—	38 57.50	—	—	—	—	—
38 50.27	38 50.27	50.92	—	38 48.28	—	—	—	—	—
92 43 58.08	43 58.43	—	—	44 00.7	—	43 58.89	—	43 58.89	—
92 45 10.10	45 10.35	—	—	45 8.84	—	45 8.64	—	45 8.64	—
92 45 8.7	45 8.7	—	—	45 8.9	—	45 6.5	—	45 6.5	—
87 14 26	14 25	—	—	14 20	—	14 18	—	14 18	—
14 17	14 16	—	—	14 11	—	14 09	—	14 08	—
92 45 58.3	58.4	—	—	58.9	—	58.1	—	58.2	—
80.1 50.8	50.8	—	—	50.0 50.8	—	52.6 53.3	—	54.9 55.6	—
+71 I	—	—	—	—	—	—	—	—	—
+160	+160	—	—	+166	—	+164	—	+16.9	—

$$\delta = +20^{\circ} 25' 28.0''$$

X 110 Herculis.

18 40 07 40 668(-14)
~~4-68~~

+ 20, 26.

1891

Sept - 56

Sept - 10

Sept 18

Sept 21 + 011

Sept 24

-017

40	16.4	40	8.0
	16.5		9.3

40	16.8	40	14.5
	18.9		15.9

40 17.9 18 40 12.5
20.1 13.9

40 18.3 40 16.3
20.5

$$\begin{array}{r} 27.040 \quad 30.3 \\ 29.2 \end{array}$$
 $\log a = \sqrt{9.84297}$

9-97178
 12669
 89847

27.5		
31.7	40	54.1
33.9		55.7
38.3		57.0
40.2		17.1
42.6		55.8
324240		9.2
2947	2	9.473
8.19		29.05
21.28		8.05
-21.15		7.140
-121		29.45
-113.1		-21.17
40	660	-2.26
		-1.51
		6.57
		5.9

	27.1		
	32.1	40	47.1
	34.3		48.9
	38.6		50.1
	40.8		14.5
	43.0		48.1
108.7	40	15.2	
40	29.88		
40	8.14		
	21.74	29.88	
	24.74	29.88	
		8.14	
-21.61		21.88	
-12.0		29.88	
-1.46			
6.47		-21.6	
		-1.1	
		-1.46	
		6.5	
		6.1	

33.2	40	53.9
35.5		54.9
39.8		58.8
42.1		15.6
44.2		55.2
	40	13.8
3416		
40 3105	31.055	
798	31.04	
23.06	7.98	
-2318	23.20	
1.1	31.04	
1.30		
6.5-8	-23.19	
	-1.30	
	6.54	
	JJ	

$$\begin{array}{r} 33.7 \\ 35.9 \\ 40.0 \\ 42.4 \\ 44.8 \\ 345.640 \quad 163 \\ - \\ 40 \quad 31.42 \quad 31.418 \\ 793 \\ 2349 \quad 3140 \\ -2656 \quad 283 \\ +100 \quad 2064 \\ -1.25- \quad 31.40 \\ 6.61 \quad -23.60 \\ +.00 \\ -125 \\ 655 \\ 87 \end{array}$$

157340 34.3
 $-$
 3146 31.460 65
 747
 2359 81440 6
 -2374237 75
 $+0$ 31.44
 -1.19
 6.53 -2378
 $+0.01$
 -1.19
 6.67
 53

$$\begin{array}{r} 55 \quad 2 \quad 3.1 \\ 7.5 \\ 10.6 \\ 5.30 \\ + 20.2 \\ 130.535 \\ 640.382 \\ + 25.39 \\ 57 \quad 5.30 \\ 57 \quad 30.60 \\ + 20 \quad 35 \quad 17.91 \\ - 22.74 \\ + 24 \quad 54.97 \\ 25 \quad 41.7 \end{array}$$

2 12.4 2 52.6
14.7 54.2
271 106.1
13.55 53.1

+ 14.7
116782
1.26579
+ 1044
54 18.65
54 81.99

25 1636
- 23.09

+ 26 53.27
25 41.4

$$\begin{array}{r} 2 \quad 57.9 \quad 3 \quad 48.0 \\ \quad 7.8 \quad \quad 58.3 \\ \hline 125.7 \quad 106.3 \\ 32.25 \quad 53.15 \\ \hline + 17.2 \\ 1.23553 \\ 1.33400 \\ + 21.18 \\ \hline 58 \quad 2.50 \\ 58 \quad 24.8 \\ \hline 24 \quad 2392 \\ - \quad 24.48 \\ \hline 23 \quad 59.44 \\ 25 \quad 41.7 \end{array}$$

2 20.3
15.5
35.8
17.90
+ 15.1
1.178.98
1.277.45
+ 15.94
57 17.90
57 36.84
25 11.51
- 24.44
24 4
59.07
25 41.8

32.5
32.1
64.6
32.30 Reg.
+ 1.2
279.5
17785
150
8 8230
8 33.80

$$-35 + 0 \quad 46.2 \quad 45.9$$

+0 48.1 47.7

42.3 42.0

54.7
 $+0$ ~~144.1~~ ~~143.7~~
 54.7

$$8' = +20 \quad 25 \quad 17.71$$

$$1320$$
$$\begin{array}{r} 25 \quad 1636 \\ - 1340 \\ \hline \end{array}$$
$$\begin{array}{r} 24 \quad 23.92 \\ - 13.70 \\ \hline \end{array}$$
$$\begin{array}{r} 25 \quad 11.51 \\ - 13.80 \\ \hline \end{array}$$

+1.32 6419
B.A.6.6419-

18 43 48

52.51-

(17) Sept 24 Sept. 6.

Sept - 7

Sept. 8

Sept 9.

Sept 21

44 7.8 43 44.2 43 52.1 43 35.1 43 52.8 43 38.6 43 53.5 43 40.1
11.2 45.8 56.1 36.6 56.4 39.8 56.8 41.2
14.7 47.6 59.5 38.7 58.8 41.6 0.0 42.8
18.1 17.6 6.2 20.4 6.6 120.0 7.0 44
21.6 45.9 9.7 36.8 10.1 40.0 10.3 41.4
73.4 -13.0 44 34.0 13.4 13.6 13.6 13.6
44 14.68 16.5 34.8 16.7 44 35.0 17.2 20.6
log 9.90149 19.7 20.3 20.6 27.4 30.8
26.6 34.4 27.0 34.2 34.2
30.0 36.4 33.8
33.4 32.7.3 43 40.0 271.4 43 41.4
43 45.9 18.0 16.0 120.0
323.3 43 36.8 147.3 151.4
143.3 44 13.39 44 13.76
13.03

43 27.1 43 54.1 43 45.7
38.3 57.8 47.3
40.2 1.2 13.0
115.6 7.7 46.5
44 34.9 11.2
36.4 14.7
38.5 18.1
21.4
28.2
31.4
34.9
43 38.5 280.8 43 46.5
12.0
160.8
44 14.62

log 9.78097
12669.66
990766

43.1359

30 302.4
2 26.6
5 29.0
2 44.50
+28.8
1.45939
1.36705
+23.28
32 44.50
33 07.78
+52 49 40.57

2 11.9 2 57.8 2 13.8 2 57.1 2 15.3
8.8 55.8 13.8 57.5 13.0
20.7 113.6 27.6 114.6 28.3
10.35 56.60 13.80 57.30 14.15
+36.2
1.55877
1.46637
+29.27
32 10.35
32 39.62
50 8.73

2 13.8 2 57.1 2 15.3
13.8 57.5 13.0
27.6 114.6 28.3
13.80 57.30 14.15
+33.4
1.52395
0.43141
+27.00
32 13.50
32 40.50
50 7.55

2 15.3
13.0
28.3
14.15
+32.4
1.57055
1.41821
+26.19
32 19.15
32 40.84
50 8.01

2 227 1
+14.9
-24.9
1.39622
1.30386
20.73

2 227
19.9
42.6
21.30
+28.1
1.44641
1.38657
+22.72
32 21.30
32 44.02
50 433

$$S = +33^{\circ} 12' 51.6''$$

+3
+1
+0
+0
+1

28 18 45 2066
2 57
7 48
12 37
17 26
22 15
27 103
32 91
37 179

+33° 13' 64"
20 70
16 66
8 60
24 84
8 6
8 8
8 8
8 8

17
22
27
2
7

B Lyræ -

+6.5 18 45 12 416 1900. +0.3
1904

+16 33.13

1871 Sept 6⁵⁶⁻⁵⁶⁴ Sept 7⁵⁶⁻⁵⁴⁷ Sept 10⁵⁵⁻⁴⁴⁹ Sept 24⁵⁰²⁺⁰²⁷

-0.19

45 40.4	45 27.2	45 16.5	45 27.6	45 20.6
46 29.6	46 17.6	46 30.6	46 22.0	
47 32.2	47 18.7	47 32.6	47 23.3	
48 36.8	48 37.1	48 52.8	48 37.4	48 5.9
49 39.2	49 39.6	49 17.6	49 39.9	49 21.9
50 41.6	50 42.1	50 42.4	50 42.4	
51 44.0	51 44.5	51 46 2.3	51 44.8	51 46 5.0
52 46.6	52 47.0	52 5.7	52 47.4	52 6.6
53 49.2	53 51.8	53 5.2	53 52.2	53 8.3
54 51.9	54 54.2	54 11.2	54 54.7	54 19.9
55 54.6	55 56.7	55 3.7	55 57.1	55 6.6
56 57.4	56 60.1	56 17.6	56 62.1	56 21.9
57 60.1	57 62.1	57 17.6	57 62.1	57 21.9

45 13.8	45 29.1	45 25.2
46 31.5	46 26.5	
47 34.0	47 27.6	
48 38.9	48 19.3	
49 41.4	49 26.4	
50 43.9		
51 46.3		
52 48.7		
53 51.1		
54 53.5		
55 56.1		
56 58.6		

log m 9.73863

log m 9.92252

43 41.64	41 41.40	43 42.04	42 42.00	43 42.87	42 42.37
44 40.49	40 40.49	44 41.98	41 41.98	44 41.98	41 41.98
45 40.49	40 40.49	45 41.98	41 41.98	45 41.98	41 41.98
46 40.49	40 40.49	46 41.98	41 41.98	46 41.98	41 41.98
47 40.49	40 40.49	47 41.98	41 41.98	47 41.98	41 41.98
48 40.49	40 40.49	48 41.98	41 41.98	48 41.98	41 41.98
49 40.49	40 40.49	49 41.98	41 41.98	49 41.98	41 41.98
50 40.49	40 40.49	50 41.98	41 41.98	50 41.98	41 41.98
51 40.49	40 40.49	51 41.98	41 41.98	51 41.98	41 41.98
52 40.49	40 40.49	52 41.98	41 41.98	52 41.98	41 41.98
53 40.49	40 40.49	53 41.98	41 41.98	53 41.98	41 41.98
54 40.49	40 40.49	54 41.98	41 41.98	54 41.98	41 41.98
55 40.49	40 40.49	55 41.98	41 41.98	55 41.98	41 41.98
56 40.49	40 40.49	56 41.98	41 41.98	56 41.98	41 41.98
57 40.49	40 40.49	57 41.98	41 41.98	57 41.98	41 41.98
58 40.49	40 40.49	58 41.98	41 41.98	58 41.98	41 41.98
59 40.49	40 40.49	59 41.98	41 41.98	59 41.98	41 41.98
60 40.49	40 40.49	60 41.98	41 41.98	60 41.98	41 41.98

45 42.31	45 15.4	48 22.45	26.4
46 43.536		49 43.536	
50 43.81	43.82	51 43.82	
52 43.82	43.82	53 43.82	
54 43.82	43.82	55 43.82	
56 43.82	43.82	57 43.82	
58 43.82	43.82	59 43.82	
60 43.82	43.82	61 43.82	
62 43.82	43.82	63 43.82	
64 43.82	43.82	65 43.82	
66 43.82	43.82	67 43.82	
68 43.82	43.82	69 43.82	
70 43.82	43.82	71 43.82	
72 43.82	43.82	73 43.82	
74 43.82	43.82	75 43.82	
76 43.82	43.82	77 43.82	
78 43.82	43.82	79 43.82	
80 43.82	43.82	81 43.82	
82 43.82	43.82	83 43.82	
84 43.82	43.82	85 43.82	
86 43.82	43.82	87 43.82	
88 43.82	43.82	89 43.82	
90 43.82	43.82	91 43.82	
92 43.82	43.82	93 43.82	
94 43.82	43.82	95 43.82	
96 43.82	43.82	97 43.82	
98 43.82	43.82	99 43.82	
100 43.82	43.82	101 43.82	

10 0 17.8 0 59.1 4 51.9 0 5.0	0 - 3.6 1 47.6
17.8 57.0 54.3 44.3	- 2.7 47.8
35.6 111.1 106.2 84.3	6.3 95.4
17.80 58.05 83.10 44.85	0 - 3.15 47.10

+24.4	1.38739	1.42660	+27.33	9 53.10	10 2043	+22.96	9. 56.85	10 17.81
+33 12 29.21	12 29.92	12 29.92	12 29.92	12 29.92	12 29.92	12 29.92	12 29.92	12 29.92
- 9.08	- 8.59	- 8.59	- 8.59	- 8.59	- 8.59	- 8.59	- 8.59	- 8.59
+12 20.13	12 19.33	12 19.33	12 19.33	12 19.33	12 19.33	12 19.33	12 19.33	12 19.33
13 7.5	13 7.6	13 7.6	13 7.6	13 7.6	13 7.6	13 7.6	13 7.6	13 7.6

-14 +0 47.4 47.3 +0 48.3 48.2 +0 48.1 47.9

S' = +33 12 29.21 12 27.92 12 28.54
15.90 -16.00 -16.30

+0 19.5 19.4

11 58.46
-17.10

Sagittarii

18 47 5 47 15.94 (-0.3)

15.92 - 0.4

-26.27

1871

Sept. 2

Sept. 7

Sept. 10

Sept. 18

Sept. 24

Coyne 9.64877

Coyne 9.95198
12669
.07867

47 23.7 47 13.0
26.6 15.0
28.2 17.0
32.7 15.0
35.0 15.0
37.4
39.7
42.0
46.5
48.9
51.1
47.1.2 47 15.0

47 38.39 38.38
14.09 38.36
20.29 17.87
20.30
-19.67
+1.30
-2.06
-19.68
+0.23
-2.06
15.86
15.86
87

47 24.9 47 15.5
27.4 19.8
29.8 21.1
34.2 59.4
36.6 19.8
38.8
41.2 57.6
43.4 0.4
45.0 2.3
48.2 16.3
52.5 60.1
42.8 47 17.8

38.34 38.82
17.93 38.80
20.71 17.60
20.72
-2.11
+1.28
-1.99
-2.11
+1.27
-1.99
15.88
15.91
93

47 25.6 47 20.3
27.8 21.4
30.1 22.7
34.8 64.4
37.0 21.5
39.3
41.6 47 58.0
43.8 59.7
48.5 101
50.8 178.8
53.0 59.6
102.3 47 21.5

21.37 38.25
21.87 38.24
21.38 38.23
-21.61 38.24
7.28
-1.94
-21.64
+1.22
-1.94
15.98
15.88
94

47 27.1 47 15.8
29.5 14.2
31.8 18.3
36.4 51.3
38.7 17.1
41.0
43.2 48 3.2
45.5 4.7
50.2 6.2
52.5 14.1
54.8 4.7
45.0 47 17.1

47 40.97 40.97
17.74 40.94
23.23 17.71
23.24 23.24
-23.15
-2
-1.50
-23.18
+1.02
-1.80
15.97
15.98
98

47 27.6 48 5.5
29.9 7.4
32.2 9.1
36.8 22.0
39.1 7.3
41.4
43.6
46.0
50.6
52.8
55.2
45.5 48 7.3

47 41.38 41.38
17.63 41.36
23.75 17.60
23.76
-23.74
-1.69
15.94
15.91
98

45 2 54.5
61.8
116.3
58.15
+22.4
1.35025
1.42892
-26.85
47 58.15
48 25.00
25 36.65

2 56.5 3 49.6
4.8 52.3
181.3 97.1
80.65 78.55
+19.0 -21.3
1.27871 1.32838
1.35742 1.40700
+22.78 -25.83
48 00.65 48.55
48 23.43 48 23.02
25 35.08

2 58.9 3 44.1
5.00 5.12
183.9 95.3
81.95 47.65
+17.7
1.24797
1.32664
+21.22
48 1.95
48 23.10
25 34.82

2 41.6 3 37.5
53.1 50.8
94.7 88.3
47.35 44.15
+23.9 28.7
1.37846 1.38177
1.45707 1.46394
+23.65 23.65
48 47.35 48 44.15
48 16.00 48 15.70
26 27.65

4 41.6 4 15.4
415.4 167.0
28.50
-25.9
1.41330
1.49197
-31.00
49 28.50
48 37.06
26 9.11

5' Lyrae - 50 Draconis 1250

18 49 9

36 49

+30

1871

Sept. 6.

Sept. 7

Sept. 10

Sept. 18

Sept. 24

49 26.7	49 12.4	49 20.8	49 14.1	49 21.2	49 15.9	49 22.2	49 11.6	49 32.8	49 51.2
23.2	14.2	23.5	15.5	23.8	17.5	24.8	12.8	35.4	52.2
25.6	15.6	26.0	16.8	26.4	19.4	27.3	14.5	38.0	53.5
30.8	112.2	31.2	46.4	31.6	53.1	32.5	38.9	40.5	69
33.3	14.1	33.8	15.5	34.1	17.7	35.0	12.6	43.1	52.3
-35.8	49 59.2	36.3		36.6		37.6		49.8	
38.4	60.4	38.8	58.1	39.1	50 4.0	40.1	50 8.0		
41.1	114.6	41.5	59.6	41.7	6.0	42.8	9.9		
46.2	59.8	46.5	0.8	47.0	8.2	47.8	11.7		
48.1		49.1	17.5	49.5	18.2	50.5	29.6		
51.3		51.6	59.5	52.0	6.1	53.0	9.9		
395.1		399.1		403.0		413.6			

Coyan 9.77261

Coyan 9.90339
12.669
03008

49 35.92

49 36.28

49 37.60

49 38.96

30 4 8.3	4 8.2	4 55.2	4 10.2	35 02.0	41 1 56.2	0 31.9
8.2	11.1	58.1	13.0	4.8	3.2	4.0
16.5	19.3	113.3	23.2	6.8	7.8	6.0
6.25	9.65	56.05	11.60	3.40	5.80	0.10
+31.8	+20.8		+18.9		+25.0	-14.3
1.33846	1.31406		1.27646		1.39794	1.15342
1.36854	1.34814		1.30654		1.42894	1.18542
+23.36	+22.9		+20.25		3.2	-1.832
34 8.25	34 9.61		34 11.60		3.8 5.10	3.8 5.15
34 31.61	34 31.94		34 31.85		3.8 2.585	3.8 0.62
+36 48 16.74	48 16.91		48 16.50		4.8 2.206	4.7 4.73

$\delta = +43^{\circ} 46' 37.8''$
 $\times 13 \text{ Lyræ}$
 18 51 18 51 24.5 (113)
 24.58
 $+96$
 -01 143.46

$\delta =$
 -1 Aug 28 53.9 Sept 19 18 51 25.25 $+43^{\circ} 46' 56.9''$
 $+5$ Sept 2 54.7 22 65.14 56.8 +4
 -8 7 55.4 27 57 14 57.0 +2
 -9 12 56.0 200-2 37 14 57.1 +1
 -6 17 56.4 7 25.23 14 57.1 +0
 -4 17 56.4 12 09 14 57.0 -1
 17 17 14 56.3 -3
 22 81 14 56.3 -4
 27 24.67 14 55.8 -5

Sept 24 Sept 2 Sept 6 Sept 7 Sept 18 Sept 21

51 32.3 51 17.9	51 29.3 51 19.2	51 30.1 51 29.0	51 30.6 51 20.9	51 31.9 51 19.0	51 32.1 51 21.6
35.0 27 19.3	32.0 21.2	33.0 30.1	33.5 22.5	34.8 20.2	34.8 23.0
37.9 26 20.7	35.0 23.2	35.9 32.0	36.2 24.2	37.5 21.3	37.8 24.7
43.7 25 57.9	40.8 63.6	41.6 33.0	42.0 7.6	43.2 0.5	43.8 93
46.5 28 19.3	43.5 21.2	44.5 12.41	44.5 22.5	46.1 24 20.2	46.4 23.1
49.3 28	46.3	47.3 31.0	47.7	48.8 28	48.3
52.0 27	49.1	50.2 52 9.4	50.6 52 9.0	51.8 32 14.6	52.1
55.0 30	52.0	53.1 12.6	53.5 10.3	54.6 28 16.2	54.9
Capit V 0.6 36	57.7	58.5 14.6	59.0 12.0	0.3 27 17.7	0.7
9.84006 3.5 29	0.7	1.6 16.6	2.0 3 13	3.0 27 48.5	3.5
6.5 30	3.4	4.5 53.2	4.8 10.4	5.9 27 16.2	6.3
542.3	38.8	40.6 13.3	54.8	35.8	36.13
57 19.3	120 51 21.2	120.1 51 31.0	57.47.64 51 22.5	180 51 20.2	180 51 23.1
Capit V 5.85884	509.8	520.6	51 26.07	538.0	541.3
12.669	26.17	26.07	21.57	23.6	25.167
9.8520	20.17	21.26	21.57 31 47.64	23.5	25.167
48.79	16.33	17.81	21.57 31 47.64	23.5	25.167
25.28	26.06	25.96	21.57 31 47.64	23.5	25.167
26.48	20.29	21.35	21.57 31 47.64	23.5	25.167
-23.74 23.52	-19.67	-20.80	-21.11	-23.18	-23.18
+2 49.28	-1.58	-1.54	-1.54	+0.4 48.89	-1.10 49.19
-11.18	-1.60	-1.50	-1.47	-1.19	-1.10
-23.75	-19.68	-20.76	-21.18	-23.20	-23.60
51 24.40 +0.03	24.49 -0.44	24.49 -0.54	24.48 -0.52	24.47 -0.04	24.53 +0.19
-1.02	-1.60	-1.56	-1.47	-1.19	-1.96
24.54	24.61	24.51	24.57	24.46	24.50
.56	.83	.52	.89	.48	.51

35 1 54.1	1 18.2	1 27.2	2 7.8	1 18.9	2 4.1	2 3.8	2 56.2	1 24.2
36.0	16.2	23.8	5.8	17.9	2.5	14.6	5.4	20.3
	34.4	51.0	13.6	36.6	6.6	15.4	10.1.6	44.5
	17.20	25.50	6.80	18.30	3.30	7.70	80.80	12.25
+30.0	+25.1	+16.3		+25.1		+18.7	-27.3	+26.1
1.97715	1.39967	1.21219		1.39967		1.45788	2.93616	1.41664
1.46232	1.38487	1.19739		1.38487		1.44308	2.92136	1.40184
+28.98	+24.26	+15.75		+24.26		+27.74	-26.78	+25.23
	36 17.20	36 25.50		36 18.30		37 7.70	37 0.00	36 28.25
	36 41.46	36 41.25		36 42.56		37 35.44	37 34.41	36 47.95
Σ	+43 46 6.89	46 7.10		46 5.78		45 12.91		46 0.87
	+ 1.04	+ 1.53		+ 1.44		+ 0.95		+ 0.11
	+46 8.33	+46 8.63		46 7.23		+45 13.86		+46 1.98
	46 54.7	46 55.23		46 55.4		46 56.35		46 56.7

+0.02 +0 46.4 46.4 +0 46.7 46.7 +0 48.2 48.3 +1 42.6 42.6 10 54.7 54.7
 $\delta +43$ 46 6.89 46 7.10 46 5.79 45 12.91 46 0.87
 -16.90 -17.50 -17.60 -18.70 -18.90

$\delta = +14^{\circ} 53' 41.2''$ $\times \epsilon \text{ Aquilae}$

18 53 38

 $+27 +46 +14 53$

$1871 \text{ Sept } 24$ $+02 +027$ $\text{Sept } 2$ $-60 -459$ $\text{Sept } 6$ $-56 -564$ $\text{Sept } 7$ $-56 -547$ $\text{Sept } 15$ $+04 +041$ $\text{Sept } 21$ $+0 +011$

-116	58.4	53	48.0	53	54.8	53	46.8	53	55.9	53	49.1	53	56.2	53	49.9	53	58.0	53	48.6	1853	58.3	1853	58.0
0.5	47.2		57.0		48.3		58.0		56.9		58.3		58.3		51.8		6.0		47.0	04		1.3	
2.7	50.3		59.1		50.2		0.2		52.0		0.4		6.4		52.9		2.1		48.6	2.6		5.2	
6.9	14.7	5	3.3	14	53		4.3		2.5		4.8		15.4	6	6.5		6.5		14.1	6.8		4.0	
9.0	49.2		5.4		48.4		1.5		50.8		6.9		51.5		8.6		47.1			8.9		5.1	3
11.1			7.7				8.1				9.0				10.7					-10.9			
13.2			9.8				10.7	54	22.7		11.2		28.6		12.9	54	43.3			13.1			
15.3			11.9				12.9		23.8		13.3				14.9					15.2			
17.5			16.0				17.1		25.6		17.4				19.2					19.3			
21.6			18.2				19.2		21.5		19.6				21.3					21.6			
23.8			20.3				21.4		23.8		21.7				23.4					23.8			
18.20	53	47.2	53	53	48.4		21.4	53	50.8		21.8	53	51.5		17.7	53	47.1		18.0	53	51.3		
12.20	11.090		7.59	7.59	7.59		9.4	8.62		9.8	8.98		10.6	10.690		10.6	10.690		12.0	10.99	10.99		
54	1109	1009	1109	1109	1109		54	8.63	8.61	54	8.98	8.98	54	10.69	10.69	54	10.69	10.69	54	10.99	10.99		
47.8	47.8	47.8	47.8	47.8	47.8		47.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8	47.8		
20.8	20.8	20.8	20.8	20.8	20.8		20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8		
-23.74			-19.6				-20.8				-21.1				-23.8					-23.8			
0	11.07		-1.46		7.57		-1.15		8.60		-1.15		8.97		-1.41		10.67			-1.36		10.99	
-1.30	-23.75		-1.68		-19.69		-1.62		-20.76		-1.60		-21.18		-1.41		-23.28			-1.36		-23.60	
53	46.05	$\pm .05$	46.08		46.06		46.06		-1.15		46.08		-1.15		46.11		-1.01			46.07		$\pm .00$	
	180		-1.68		-1.62		-1.62		-1.62		-1.60		-1.60		-1.41		-1.41			-1.36		-1.36	
4603			46.08		46.08		46.08		46.08		46.04		46.05		46.05		46.05			46.01			
05			.10				.08				.06		.07				.02						
21.9			+19.2		+17.8		+17.5				+23.6		+19.7										
1.34044			1.28330		1.25042		1.24364				1.37291		1.28344										
1.45231			1.39517		1.36229		1.35481				1.48478		1.40634										
2.833			+24.44		+23.03		+22.64				+30.53		+25.49										
28	48.00		28	48.00	28	49.05	28	48.75		29	34.25		29	34.15									
29	128.4		29	128.4	29	12.58	29	11.39		30	4.78		30	4.78									
53	35.51		53	35.51	53	35.77	53	36.96		52	43.57		53	29.71									
-	29.33		-	29.33	-	28.85	-	29.16		-	31.67		-	31.58									
53	06.18		53	06.18	53	06.92	53	07.80		52	11.90		52	57.92									
53	53.2		53	53.2	53	53.5	53	53.5		53	54.1		53	54.2									

-42 $+0$ 47.0 46.6 $+0$ 46.6 46.2 $+0$ 45.7 45.2 $+1$ 42.2 41.8 $+0$ 56.3 55.9

$\delta = +14$ 53 35.51 53 35.77 53 36.96 52 43.57 53 29.71
 -12.00 -12.30 -12.30 -12.90 -13.00

σ Lyrae.

18 49 9

36.49

13 Lyræ.

18. 51. 18

+26

43. 46.

1871

Sept 21

Sept. 23.

32.1	51	21.6	51	32.0	51	12.4
34.9	28	23.0		34.8		19.6
37.8	25	24.7		37.8		21.0
43.4	56	9.3		43.3		58.0
46.3	25	23.1		46.2		19.3
48.3	30			48.1		
52.1	28			51.9		
54.9	28			54.8		
56	31	23.1		0.5	51	19.3
3.5	25			3.3		
6.3	28			6.2		
361.2				999		
140.						
541.2				51.4	9.08	
49.20				25.62		
25.68						
.82				23.46		

log 9.83893

 log 9.88863
 12669
 9.98532

 35 1 24.2
 20.3
 44.5
 22.25

 +26.1
 1.41664
 1.40176

 +25.23
 36 22.5
 36 49.8

+43 46 0.87

 1 59.7
 36.0
 95.17
 47.85

 +29.8
 1.47422
 1.45754

 2881
 36 47.5
 37 16.6

45 31.65

E Aquilae.

18.53.38

14.53-

(18) + 27 Sept 21

Sept. 17	18 53	47.50	
22		42	5
27		33	9
Oct - 2		47.23	10
7		13	10

 $\delta = +14^{\circ} 53' 41.2''$

58.353 50.0

0.4 51.3

2.5 52.6

6.7 53.9

8.9 51.3

10.9

13.0

15.2

19.4 53 51.3

21.7

23.8

180.8

60.

120.8 10.982

54 1098

47.44

23.54

Cayli 9.40968

Boyer 9.58518
12669
11187

25 4 58.7

46.6

106.3

53.15

+17.7

1.25444

2.40634

+25.48

29 58.15

30 18.64

+14 52 29.71

 $\delta' = +14^{\circ} 52' 29.71''$

g Aquilae.

18 55.57

-3.53

v. Piacenti 1855

1871 - 07 Sept. 23 Oct. 4 Oct. 5 Oct. 8.

56	19.7	56	12.5	56	25.0	56	2.455	57.0	55	2.7	55	2.7
	21.7		14.0		26.1		4.3	58.0		4.7		4.6
	23.8		15.0		27.6		6.4	59.0		6.7		6.7
	27.9	11.5	56	10.5	187	10.5	24.0		10.9		38.5	
	29.9	13.8		12.5	26.2	12.5	58.0		12.9		39.4	
	31.9			14.6		14.6			15.0		40.7	
	34.0			16.6		16.7			17.0		11.86	
	36.0			18.6		18.7			19.1		39.5	
	40.2	56	13.8	72.8	56	22.855	58.0		23.255		39.5	
	42.2					24.9			24.3			
	44.3					27.0			27.4			
	351.6					160.8			163.9			

logarithm 8.83075

logarithm 9.88800
12669
12569

56 31.96

56 14.56

56 14.62

55 14.90

15 0 51.0
13.7
24.7
22.35

+18.2

1.26007

1.28576

+24.31

32.35

56.66

-3 53 8.31

0 50.0
2.0
137.0
86.50

-11.6

1.06440

1.17015

-15.49

15 58.50

15 43.01

52

53 54.66

0 17.4
24.3
41.7
2.085

+16.6

1.24442

1.34579

+22.17

15 20.85

15 43.02

52

53 54.67

1 13.2
17.2
30.4
15.70

-24.6

1.88084

1.51663

-22.86

16 15.20

15 42.34

53 53.99

π Sagittarii. *Redd. 21*
and micromer scale.

19 1 55

-21.14.

1871-39 Sept 21 Sept 24 Sept 23 Oct 4 Oct 5

Dir J. 55891
m

Dir J. 96947
12669
.09616

2	17.7	2	17.7	2	17.6	2	10.8	2	0.1	52.4	2	0.31	52.1
	19.9		20.0		19.8		12.0		2.4	54.0		2.5	53.0
	22.1		22.1		22.0		13.2		4.6	55.4		4.8	54.6
	26.5		26.5		26.5		6.6		8.9	11.8		9.0	9.9
	28.7		28.7		28.7		12.0		11.2	53.9		11.3	53.2
	30.8		30.9		30.8				13.4			13.5	
	33.0		33.1		33.0				15.6			15.6	
	35.1		35.4		35.1				17.7			17.9	
	39.7		39.8		39.7				22.1			22.2	
	41.8	13.7	42.0	12.1	41.9	12.0			24.4	1	53.9	24.5	53.2
	44.1		44.2		44.0				26.6			26.8	
	338.4		340.4		339.1				147.0			148.4	
	-								-				
2	30.85		2	30.95		2	30.83		2	1336		2	1349

0 0 0.7
 4 48.2
 10.89
 54.45

+17.1
 1.28300
 1.32916
 +2134
 34 54.45
 35 15.05

-2 12 27.44 ✓

35 0 37.5
 13.0
 15.05
 28.25

+18.8
 1.27410
 1.37032
 +2346
 35 25.25
 36 48.71

13 0.36

35 0 11.9
 4 4 35.2
 7 4 14.71
 34 3 53.55

+18.5
 1.27410
 1.37032
 +2346
 34 53.55
 35 17.01 ✓

12 28.66

0 57.6
 8.7
 68.3
 84.15

+19.5
 1.29003
 1.38619
 +2433
 36 4.11
 36 28.48

13 40.13

0 57.8
 1 5.6
 68.4
 84.20

+20.3
 1.30750
 1.40366
 +2533
 36 4.20
 36 22.53

13 41.18

B.A. 6. 6561.

19 4 34

-21.52.

-40

1871

Sept 21

Sept 24

Sept 23

Oct 4.

Oct. 8

sin $\int 9.54106$ cos $\int 9.96457$
12669
.09426

1	57.6	4	54.0	4	57.8	4	49.3	4	57.7	4	51.5	4	33.0	4	40.7	4	37.7
	59.9		55.3		0.0		50.5		59.8		52.7		34.1		42.8		38.6
	2.0		56.6		2.2		51.6		2.0		54.2		34.7		45.0		16.3
	6.5		15.9		6.7		14		6.5		58.7	4	49.0		49.5		38.1
	8.6		55.3		8.9		50.5		8.7		52.8		51.2		51.8		
	-10.8				11.2				10.9				53.4		54.1		
	12.9				13.2				13.1				55.7		56.3		
	15.2				15.4				15.3				57.9		58.4		
	17.7				17.9				17.7				267.2		2.8		
	22.0	4	55.3		22.1	4	50.5		22.0	4	52.8		4	53.9		5.1	38.1
	24.3				24.3				24.2						7.2		
	29.5				18.7				24.0						59.3		
	120.				60				120								
	119.5				121				120.9								
	5	10.86			5	11.06			5	10.90			4	53.44		4	53.97

40 3 35.6
22.6
58.2
29.10

+15.6
1.19312
1.28738
+1238
43 29.10
13 48.48

Sp.

21 0.13

4 7.2
3 43.2
11.0.4
3 55.20

+20.6
1.31887
1.40813
+2549
43 55.20
44 2079

21 32.44 ✓

4 9.1
3 46.1
3 57.6

+15.2
1.26007
1.35433
+2261
43 57.60
44 2021

21 31.86

3 33.5
42.6
16.1
58.05

+15.9
1.25003
1.38429
+2422
43 38.05
44 0227

21 1392 ✓

3 35.3
42.6
77.9
138.95

+15.9
1.20140
1.29566
+1975
43 38.90
43 58.50

21 10.35 ✓

Sagittarii

19 7.27

-25.29 -48

1871 Oct 8 Sept 21 Sept 24 Sept 23 Oct -4 Oct -5

7 32.77	26.5	7 49.57	41.0	7 49.77	43.2	7 49.67	44.9	7 32.1	7 26.8	7 32.37	26.6
34.9	27.9	51.8	42.3	52.0	44.6	51.8	46.9	34.4	28.0	34.4	28.0
37.2	29.6	54.1	43.3	54.2	46.2	54.1	48.8	36.7	30.0	36.7	29.4
41.7	24.0	58.5	41.6	58.8	44.0	58.7	45.9	41.2	28.3	41.3	24.0
44.0	28.0	0.9		11.1	44.7	0.9		43.5	28.3	43.6	28.0
46.38	7.7	-3.1		3.4		3.3		45.8		45.9	
48.5	9.0	5.5		5.7		5.5		48.0		48.2	
50.8	10.3	7.8		7.9		7.7		50.3		50.3	
55.5	27.0	12.3		12.5		12.3		54.9		55.0	
57.7	9.0	14.7		14.7		14.7		57.0		57.3	
58.07	28.0	17.0		17.0	44.7	16.9	45.9	59.4	28.3	59.6	28.0
509.3		275.0	41.6	277.0		275.5		503.3		504.6	
		240		240		240					
		35.2		37.0		35.5					
7 46.30		8 3.20		8 3.36		8 3.23		7 45.75		7 45.87	

hif
96037 2m

cor U. 91555
12.669
.08229

50 0	25.3	45 4	30.3	50 0	26.7	45 452.1	50 0	16.4	45 439.8	4 38.5
	33.2		18.2		12.0	50 014.5		4 51.0	48.1	48.2
	58.5		48.5		38.7	1.886		67.4	88.9	88.7
	29.25		24.25		19.35	83.30		83.70	44.45	43.35
	+18.3	-22.7	+21.6		+18.7			+17.3	+17.4	+17.9
1.26245	1.35600	1.33445		1.28186				1.23805	1.24055	1.25205
1.34469	1.43824	1.41667		1.35408				1.32029	1.32279	1.33509
1.3711	-27.6	+10.0		+22.6				+20.90	+21.03	+21.63
50 29.25	50 29.25	49 24.25		49 33.30				50 08.70	49 44.45	49 43.35
50 51.36	50 18.2	49 50.35		49 35.90				49 24.60	50 08.98	50 4.98
-25 27 13.47		27 2.00		27 37.65				27 36.25	27 17.13	27 16.63

Sept 23
Cant. motion
Reg.

Sept 24

✓ d Sagittarii

+3
+8
-2
+6
+4

-35-19.10.08 19 10 5.75+04
-19.11- 5.19+0

1871 Sept ⁺⁰⁺⁰¹⁰ 21 Sept ⁺⁰²⁺⁰²⁷ 24 Oct ⁺⁰⁷⁺⁰⁵⁹ 4 Oct ⁺¹⁴⁷ 22

-016

10	175.10	10.1	17.7	10	11.3	10	0.1	9	48.0	10	1.2	10	35.6
	19.6	11.8	19.9		12.1		2.3		49.7		3.4		40.2
	21.9	13.0	22.1		13.8		4.4		51.2		5.6		41.7
	26.3	49	26.4		20		8.8		148.9		10.0		0.5
	28.4	11.6	28.5		12.4		14.0		49.6		12.2		40.2
	30.7		30.7				13.1				14.3		
	32.7		32.8				15.3				16.6		
	34.9		35.0				17.5				18.7		
	39.2		39.4				20.8				23.0		
	41.4		41.5				24.1				28.0		
	42.6	10	43.8	10	12.4		26.3	9	49.6		24.4	10	41.2
	336.2		337.8				143.7				157.5		

in $\sqrt{9.21660}$

as $\sqrt{9.97519}$
126.69
-101.88

10	30.56	3.056	10	30.71	10	130.6	13.06	10	14.32	14.32
	6.93	30.57		30.70		6.70	13.04		6.40	14.30
	28.63	26.87		26.82		6.36	6.74			6.44
		6.87		6.82			6.30			7.86
	-23.56	23.57		23.78		-6.38			-7.79	
		30.54		30.70		-2	13.04		-2	14.30
	-1.78	-23.60		-23.73		-1.73	-6.35		-1.73	-7.81
10	5.22	-1.78	10	5.23	-1.73	5.11	-0.02	6.26	-1.25	-1.05
		5.15		5.21			-1.55			-1.25
		.18		23			5.12			5.19
							18			21

1910 5.205
5.19

30 2 19.0
7.2
26.2
13.10

+19.0
1.27875
1.3063
+29.03
32 13.10
32 32.13

-19 09 48.98 ✓

2 57.0
32.9
91.9
45.95

+19.3
1.26245
1.36433
+23.14
32 45.95
33 8.09

10 2074

2 16.6
25.9
42.7
21.35

+23.4
1.36822
1.47110
+29.58
32 21.35
32 50.93

10 258

-25.9
1.41330
1.51518
-32.22

w Aquilae.

19 11 46 11 45.66
45.66-4
+2
+2
0

Sept. 17 19 11 47.23
22 15
27 106
27 97
12 46.88
17 80
22 78
27 63
46.53

+11 22
108
10

45
4.7 +2
4.8 +1
4.8 +0
4.8 +0
4.7 -1
4.5 -2
4.2 -3
3.9 -3

$\delta = +11^{\circ} 21' 52''$

+20 +11.21.

(871)

Sept 21

Sept 23

Oct 5

Oct

-016

9.29403

9.299192
12669
11811

58.2 11	54.6 11	58.2 11	53.0 11	40.8 11	45.66
0.2	55.8	0.2	54.5	42.9	53.1
2.3	57.1	2.3	55.8	45.0	56.0
6.5	17.5	6.5	13.3	49.3 12	13.2
8.6	55.8	8.6	54.4	51.3	14.6
10.8		10.7		53.4	16.1
12.8 12	31.4	12.9		55.5	13.9
15.0	33.2	15.0		57.6	14.8
18.1	35.3	19.0		61.8	
21.2	49	21.2		63.8	
23.2	33.3	23.4		66.0	
17.79				587.4	
11.2 11	55.8	11.2 11	54.4	12	14.6
12 10.72	10.710	12 10.73	10.727	53.40	53.400
47.16	1	47.18	23.60	46.92	
-23.58	10.70	-23.60	10.71	6.48	
-1.50	47.16	+2	47.13	+26.47	53.38
	23.54	+1.47	23.58	+1.26	46.92
11 45.66		45.68		45.68	45.66

10.70

10.71

53.38

-23.60
+1.00
-1.50

-23.59
+1.00
-1.47

-6.46
+1.00
-1.26

45.60

45.66

45.68

0 46.2 1 35.7 1 20.3
35.1 36.5 48.9
84.3 72.2 2 09.2
42.15 36.10 1 04.60

1 36.0
41.9
77.9
38.95

+14.7
17319
429130
+1956
0 42.15
1 01.81
+11 21 46.64
-36.06

+16.3
121219
133030
+2140
1 04.60
1 2600
21 22.35
-34.68

-21.2
132634
144445
-2783
1 38.55
1 11.12
21 37.23
-24.74

21 10.58
+22 4.7

20 47.67
22 4.7

21 02.49
22 4.8

-4.8 +0 54.1 53.6 +1 17.0 16.5 +1 2.3 1.9

$\delta = +11^{\circ} 21'$
46.64
-12.60

21 22.35
-12.60

21 37.23
-12.70

1871 phase proj. 1449

✓
✓
Draconis.

19.12.31-12 31.11(-05)
67.26-+03 31.08

Sept. 17	19	12	32.51	-01	+67° 26' 24.0"	+6
22			31.11	30	24.6	+5
27			31.82	29	25.1	+3
Oct-2			31.52	30	25.4	+3
7			31.23	29	25.7	+3
12			30.93	30	25.8	+0
17			30.63	30	25.7	T0
22			30.33	30	25.5	-2
27			30.03	30	25.2	-3
Nov 1			29.73		24.8	

S = +67° 26' 39"

-42 +2.41 1871 Sept 24 Sept 25 Oct 4 Oct 8 Nov 2

12 45.0	13 12.8	12 23.9	12 21.6	12 5.5	11 49.0	12 5.9	11 56.2	12 17.4	11 16.7
50.2	16.2	29.1	3.1	11.0	52.1	11.3	57.8	33.5	14.6
55.7	18.9	34.3	5.2	16.2	58.0	16.3	61.1	38.9	24.1
110	17.9	45.0	9.9	26.7	15.8	26.9	17.5	44.0	6.0
6.3	15.9	50.6	3.3	32.3	52.7	32.4	58.4	49.4	20.7
		55.6		37.6		37.8		60.3	
		11.0		42.8		43.2		65.6	
		6.4		48.2		48.8		70.9	
		17.3		53.7		54.2		12.0	
		22.6		4.4		64.8		6.7	
		25.0		9.0		70.2		42.6	
				42.5		41.6			
				11 53.0		11 58.4		13 24.1	
				12 37.5	37.5	12 37.8	37.8	38.7	38.7
				31.9	55.0	31.2	19.1	29.6	6.6
				23.8	255.7	6.1	37.5	9.1	8.7
				31.1	31.6	31.3	31.0	28.0	2.0
				23.9	23.9	6.1	6.7	+9.5	2.5
				+10	+17	+17	+17	+4.1	5.6
				-84	-31	-08	-08	+1.4	31.0
				31.09	30.98	31.09	31.09	31.07	31.07
				55.60	55.76	37.46	37.55	38.75	
				35 3 35.6	-23.75	36 0.8	-23.97	2 27.7	-6.2
				0.4	+06	122.5	+14	26.6	+14
				35.4	-87	241.65	-81	56.3	-28
				17.7	31.04	31.09	31.09	28.15	30.99
				4.06	11	00	09	31.07	31.07
				-20.3	+52.5	+44.8	+29.5	-41.3	
				1.80	1.42	1.64	1.59	1.01	
				1.01	1.43	1.35	1.30	1.32	
				-10.3	+26.9	+27.6	+20.2	-2.1	
				58 17.2	57 41.6	57 28.1	57 31.8	58 13.9	
				58 07.6	58 08.6	57 52.5	57 52.1	58 52.7	
				+67° 24 40.68	24 39.73	24 57.18	24 56.21	24 55.61	
				+25.89	+26.15	+26.20	+27.05	+26.97	
				+67 25 06.57	25 05.88	25 23.88	25 23.26	25 22.53	
				+ 26 24.8	26 24.9	26 25.5	26 25.7	26 24.8	

+39 +1 19.2 18.6 +1 19.0 19.4 +1 02.1 2.5 +1 2.4 2.8 +1 2.2 2.5
S' = +67 24 40.68 24 39.73 24 57.18 24 56.21 24 55.61
-20.90 -21.00 -21.60 -21.80 -20.90

1871 ⁺¹⁰⁰ Oct. 29 ⁺¹⁹² Nov. 2

13	54.7	13	27.0	14	25.4
	58.0		28.0		26.4
	1.4		28.6		27.7
	6.3		20.8	14	9.3
	11.6		115.4		12.5
	15.0		28.8		16.3
	18.4				19.7
	22.0				23.2
	25.7				51.5
	32.2	13	28.9	14	26.5
	35.7				
	286.0				
	12.8				
	16.0				
	150.9	15.0	9.0	16.2	162.60
	7.31		16.07	6.99	
	2.78			9.27	
			15.07		
			15.07		16.24
			- 7.91		- 9.53
			- 15		+ 14

15	0	9.8	0	60.2
		8.9		52.4
		18.7		11.2
		9.35	0	56.30
				- 10.2 ✓
		146.3		1.12254 100.60
		1.6658		0.91765 0.91341
		1.57037		- 8.19
		+ 37.19		15.56.30 56.30
		15 9.35		15 48.11
		15 46.54		
		7 1.81	7	0.24
		+ 9.71		+ 10.63
		7 11.82	7	10.87
		8 12.9	8	12.1

+ 1 1.3 1.5 + 1 01.2 1.3

7 18.1
- 20.90

7 0.24
- 20.20

⁻⁴⁶
X' Sagittarii

Process 19 17

19 17 14

-24.46

1871

Oct 4

Oct 5

Oct 8

Oct 22

17 20.17 13.1
22.3 13.8
24.4
25.9 26.9
33.4 13.4
35.8
38.1
42.5
44.6 17 13.4
46.7
8
368.0
33.45

29.1
31.3
33.6
35.9
38.1
40.0

17 33.60

17 20.3 18 1.9
22.5 3.1
24.9 4.3
29.4 5.6
31.5 14.4
34.0 3.6
36.2
38.5
43.1 18 3.6
45.3
47.5
37.3.2

17 33.93

17 21.1 17 12.9
23.3 14.2
25.6 15.6
30.2 12.7
32.4 14.2
34.6
36.9
38.1
43.7 17 14.2
46.0
48.2
38.1.1

17 34.65

5 1 29.5
39.5
69.0
34.50

+ 20.4
1.30903
1.39442
424.80
6 34.80
6 59.30
- 24 44 10.95

5 2 25.7
35.2
60.9
30.45

- 29.7
1.47286
1.55758
- 36.2
7 30.45
6 54.35
44 6.00

5 1 80.2
40.7
70.9
35.45

+ 20.4
1.30860
1.39442
+ 24.80
6 85.45
7 00.20
44 11.90

5 Aquilae-

19 18 59 18 59 62 (+02)

59.66 +02

+3
+5
76
+3
+4

Sept. 17 19 19 1.29
22 21 08 +20 51' 497"
27 13
Oct-2 05
7 0.86
12 88
17 80
22 72
27 0.63 .09
54

497"
498 +1
498 +0 S = + 2° 51' 34.3
498 +0
497 -1
496 -1
494 -2
492 -2
490 -2

+05
+64

+2.52

+02 +027

+08 +040

+04 +045

+07 +048

+10 +147

1871

Sept 24

Sept 23

Sept 25

Oct 5

Oct 22

Sum 8.68907

cos 9.99996
126.69
126.15

19 12.7 19 6.0	19 12.5 19 1.3	19 12.9 19 10.4	18 55.2 19 22.0	18 56.2 19 0.6
14.7 7.0	14.5 2.7	14.9 11.3	57.1 23.3	58.3 21 1.5
16.8 8.2	16.5 3.6	16.9 12.3	59.3 24.7	60.3 20 2.1
20.8 21.2	20.7 7.6	21.0 40	3.9 7.0	4.4 41 1.0
22.8 7.1	22.8 2.5	23.1 11.3	5.5 23.3	6.5 21
24.8	24.8	25.2	-7.5	8.5 20
26.8 19 48.9	26.8 19 48.9	27.3	9.5	10.6 21
29.0 50.3	29.0 50.3	29.4	11.6	12.7 21
33.1 51.4	33.1 51.4	33.4	15.7	16.8 21
35.2 150.6	35.2 150.6	35.7	17.7	18.8 20
37.4 50.2	37.4 50.2	37.4	19.8	20.9 21
274.5 19 7.1	531.1 19 2.6	572 19 11.3	212.3 19 23.3	214.0 19 1.0
19 24.95 24.955	19 24.83 24.827	19 25.20 25.200	19 7.48 7.482	19 8.55 8.545
23.78 24.74	23.64 24.81	24.04 25.18	6.48 7.47	7.83 8.58
-23.74 23.74	-23.60 23.60	-23.97 24.00	-6.47 6.45	-7.79 8.74
-1.56 24.94	-1.57 24.81	-1.59 25.18	-1.38 7.47	-1.10 8.53
-23.75	-23.59	-23.97	-6.46	-7.81
18 59.60 +1.00	59.66 +1.00	59.69 +1.00	59.63 +1.00	59.67 +1.00
-1.56	-1.57	-1.54	-1.38	-1.01
59.63	59.65	59.67	59.63	59.63
63	67	68	60	65

30 1 25.0
55.0
80.0
2 10.00

+17.8
1.25042
1.37657
+2.350
31 10.00
31 33.80
31 30

+2° 8 45.45
57 14.55
46.60

50 27.95
51 44.8

1 18.4 2 23.2
47.8 51.6
66.2
2 03.10

+32.3
1.38830
1.47443
+2.962
31 31.10
31 32.52

51 154.3
47.42

50 28.01
51 44.8

1 28.3
55.0
26.3
181.5

+13.9
1.19301
1.26916
+1.859
31 13.15
31 31.84

51 16.61
47.77

50 28.84
51 44.8

1 35.0
41.9
76.9
38.45

-15.8
1.19866
1.32481
+2.173
31 35.45
31 17.32

51 31.03
47.44

50 43.59
51 44.7

2 22.4
88.0
130.4
2 5.20

+7.4
0.86823
0.99538
+9.80
31 55.20
31 15.10

51 33.25
47.68

50 45.62
51 44.2

-60 +1 16.8 16.2 +1 16.8 16.2 +1 16.0 15.4 +1 01.1 0.5 +0 58.6 58.0

S = +2 51 14.55
-10.50

51 15.43
-10.50

51 16.61
-10.50

51 31.03
-10.40

51 33.25
-9.90

1871 251 34.32

1871 Oct. 2³ +100 Nov. 2⁺¹⁹²

18	56.3	18	50.9	18	57.8	50.0
	58.3	20	52.3		59.7	51.5
	0.4	21	53.7		1.7	52.7
	4.6	22	54.8		6.0	42
	6.6	23	21.7		8.9	51.4
	8.7	24	52.9		12.0	
	10.7	25			14.1	
	12.8	26			18.3	
	16.9	27			20.4	
	18.9	28			22.5	
	21.0	29			23.05	
	21.5	30	52.9		12.0	51.4
	12.0				110.5	
	9.5				10.04	10.04
19	6.65	50.55	19	0.52		
	0.70	8.64				10.03
	7.95	7.72		9.52		54
		7.92				9.49
		8.64				10.03
		-9.23				-9.53
		-1.08				-0.92

30	53.4	0	51.7
	81.2		49.9
	18.6		101.6
	28.30		50.80
	+15.7		+18.6
	1.19590		1.26951
	1.32205		1.39566
	+2099		+2486
30	88.30	30	50.80
31	19.22	31	15.66
51	29.06	51	32.69
	-46.87		45.16
50	42.19	50	43.53
51	44.2	51	43.8

+1 2.0 1.4 +1 00.3 +0 59.7

51 29.06 51 32.69
- 9.90 - 9.50

+73
4 Cygni -
19 21 23

+36.3

1871 Sept 24 Sept. 23 Sept. 25 Oct. 5 Oct. 8

21 40.321 28.8	21 39.9 21 36.7	21 40.321 44.5	21 22.721 12.7	21 23.021 9.4
42.7 30.4	42.5	42.9	25.2 13.9	25.4 11.3
45.2 31.8	45.0	45.4	27.7 14.7	— 13.0
50.3 91.0	50.2	50.5	32.8 11.3	32.0 33.7
52.9 30.3	52.7	53.0	35.3 13.8	35.4 11.2
-55.4	-55.2	-55.5	37.8	38.3
58.0	57.7	58.0 22 21.2	40.3	—
0.6	0.3	0.5 22.4	43.0	—
5.6 21 20.3	5.5 21 26.7	5.7 21 45.4	48.0 21 13.8	— 21 11.2
8.1	8.0	8.3 6.8	50.5	—
10.8	10.5	10.7 22.7	53.1	—
369.9	367.5	370.8	416.4	—
240	240	240	—	—
609.9	607.5	610.8	—	—
22 55.44	22 55.23	22 55.53	21 37.85	—

$\sin \sqrt{9.76974}$

$\cos \sqrt{9.90768}$
126.69
0.03438

15 4 54.2
21.5
75.7
37.85

+25.1
1.39967
1.43404
+22.1
19. 37.55
20 45.02
+36.02 43.33

20 060.8
27.2
88.0
44.00

+12.5
1.26717
1.30154
+20.2
19. 42.00
20 4.02
2 44.33

20 68.3 0 49.2 15 42.13
35.0 23.0 23.7
103.3 72.2 45.0
51.65 36.10 22.50

+11.0
1.04139
1.07576
+11.1
19 51.65
20 38.6
2 44.89

15 42.13
23.7
45.0
22.50

+24.0
1.38021
1.41458
+25.95
19 22.50
19 48.48
2 09.87

4 17.7
15.2
35.9
17.95

+26.9
1.55021 42.980
1.41458 1.46417
+29.13
19 17.95 17.95
19 48.48 48.08
2 1.27

Oct. 16

Oct 22

Nov. 2

21	49.5	21	23.4	21	15.1	21	25.0	21	12.2
	50.4		25.4		16.3		27.5		13.3
	51.5		28.5		17.6		30.0		15.0
	151.4		33.6		19.0		35.1		25.8
34.2	50.5		36.3		16.3		37.6		10.5
36.8			38.7				40.2		13.5
39.4			41.2				42.7		
41.9			43.8				45.2		
44.5	21	50.5	48.9	21	16.2		50.3	21	12.5
196.8			51.5				52.8		
			54.0				55.4		
			425.8				441.8		
21	39.36	21	38.71				40.16		

21	58.0	13	4	22.7	4	20.7
	2.3			26.2		16.7
	61.3			48.4		39.4
	80.65			24.45		19.70
-11.1		+22.4			+26.7	
1.04582		1.35025			1.42681	
1.07869		1.38462			1.46088	
-12.12		+24.25			+28.90	
20	0.65	19	26.45		19	19.70
19	48.64	19	48.70		19	48.60
2	59.71	2	59.68		2	59.75

B leggni

Sept-17 19 25 32.69
22 59
28 40
oct-2 39
7 29
12 19
17 .08
22 97
27 1.87 .10
77

41' 416"
420 +.4
423 +.3
425 +.2
426 +.1
426 +.0
425 - .1
423 - .2
420 - .3

$\delta = +27^{\circ} 41' 25.2''$

+25

1871

Sept 24

Sept-23

Sept 25

Sept 28

Oct 4

-0.18

25 42.525 33.6	25 42.3 25 34.1	25 42.6 25 31.9	25 37.1 25 24.725 46.1
44.7 34.8	44.5 35.2	44.8 32.4	27.0 47.2
47.0 36.1	46.8 37.0	47.1 33.4	29.3 48.9
51.7 14.5	51.5 16.3	51.7 35.0 33.7	34.0 22.2
54.0 34.8	53.9 35.4	54.0 13.27 35.9	36.3 47.4
58.3	58.1	56.4 33.2 38.4	38.7
58.7	58.5 26 16.2	58.8 26 11.0 40.8	40.9
1.0	0.8 17.7	1.1 11.9 43.1	43.3
5.5	5.4 18.7	5.7 13.0 191.9	48.0
7.8	7.7 22.6	6.0 5.9	52.3
10.3	10.1 17.5	10.4 11.9	52.6
37.5	67.6	70.6	425.1
240 35 34.8	25 56.15	25 56.42	25 37.1 26 47.4
615.5	32.57 56.145	32.53 56.418	25 38.65 38.645
25 58.32 56.818	23.58	23.89	22.35
32.57	56.13	56.40	6.30 88.63
23.57	23.60	23.57	8.42 -6.38 32.30
-23.44	23.61	23.72	8.84 4.33
1.39 56.30	-1.41 56.13	-1.37 56.40	88.36 +1.19 38.63
25 31.20 -23.78	31.16 -23.59	31.10 -23.97	31.10 -6.03
+1.01	+1.02	+1.02	+1.05
-1.39	-1.41	-1.37	-1.31

9.66806

9.98720
12669
0.07882

10 2 01.1	31.17 19	31.15 17	31.08 9	31.07 9	31.11 13
1 28.4	2 62.1 2 52.1	1 59.0 3 43.5	2 25.8	2 23.2	2 23.2
3 89.5	2 7.8 18.2	2 5.0 11.5	1 49.6	64.8	64.8
4 41.5	4 9.9 76.3	4 4.0 55.0	7 5.4	12.0	12.0
4 41.5	4 41.5 35.15	4 2.00 27.50	67.70	3 44.00	3 44.00
+21.5	+20.7	+22.2	+1.3	-8.6	-8.6
1.33244	1.31597	1.36549	0.11394	0.94445	0.94445
1.40633	1.38986	1.43938	0.18783	1.01859	1.01859
+25.49	+24.54	+27.50	1.1548	-10.422	-10.422
41 44.75	41 44.95	41 42.00	42 7.70	42 4.00	42 4.00
42 10.24	42 9.99	42 9.50	42 9.29	41 53.58	41 53.58
40 38.11	40 38.86	40 38.85	40 39.11	40 54.77	40 54.77
-15.14	-15.40	-15.54	-15.86	-15.55	-15.55
40 22.97	40 23.46	40 23.31	40 23.55	40 39.22	40 39.22
41 42.1	41 42.1	41 42.2	41 42.3	41 42.5	41 42.5

-24 +1 20.0 19.8 +1 18.6 18.3 +1 18.9 18.7 +1 18.7 18.5 +1 18.3 30

$\delta = +27^{\circ} 40' 38.11''$
-16.90
40 38.86
-16.90
40 38.85
-17.00
40 39.11
-17.00
40 54.77
-17.30

Nov-2 ⁺¹⁷⁺¹⁹²Oct-5 ⁺⁰⁷⁺⁰⁴⁸Oct-8 ⁺⁰⁷⁺⁰⁶⁵Oct-16 ⁺⁰⁷⁺⁰⁷⁹Oct-22 ⁺¹⁰⁺¹⁴⁷Oct-24 ⁺⁰⁶⁺¹⁸⁰

25	273	25	22.0	25	24.8	25	18.9	25	25.1	25	53.2	25	26.5	25	13.2	25	25.8	25	17.3	25	26.2	25	18.8
	276		23.0		27.1		19.5		27.4		54.5		28.8		14.4		28.1		18.8		28.5		19.2
	31.9		25.0		29.3		21.3		29.7		56.0		30.9		15.8		30.4		20.0		30.7		19.5
	36.5		1.00		34.0		6.00		34.4		13.7		35.6		13.4		34.9		5.61		35.3		20.0
	38.8		23.3		36.4		20.0		36.7		54.6		38.0		14.5		37.3		18.7		37.9		77.5
	41.1				38.7				39.1				40.3				38.6				40.0		19.4
	43.5				41.0				41.5				42.6				42.0				42.4		
	45.8				43.3				43.7				44.9				44.3				44.7		
	50.4				48.0				47.7				48.4				48.0				48.4		
	52.8				50.4				49.4				51.7				51.3				51.6		
	55.0				52.6				50.7				54.2				53.7				54.1		
	44.27				42.5.6								44.2.9				43.6.4				44.0.8		

41.15	41.155	25	38.69	38.690	25	39.08	39.08	25	40.26	40.264	25	39.67	39.672	25	40.08	40.072
1.75	41.14		32.33	38.6		32.27	39.06		32.10	40.25		32.47	39.66		31.95	40.01
9.36	31.70		6.36	32.28		6.81	32.22		8.16	32.01		7.70	32.52		8.18	31.90
-9.55	9.44		-6.44	6.38		-6.89	6.84		-8.18	8.20		-7.79	7.74		-7.96	8.15
+9	41.14		+1.14	38.67		+4	39.06		+4	40.25		+5	39.66		+3	40.05
-59			-1.17	-6.46		-1.11	-6.88		-54	-82.2		-81	-7.51		-79	-7.79
31.10	+9.53		31.09	+0.03		31.12	+0.03		31.18	+0.04		31.12	+0.08		31.12	+0.05
	-59		-11.7			-1.11			-94			-51				

401	33.7	31.11	12	29.17	31.08	9	10.0	31.10	12	20.5	31.13	10	27.1	31.12	13	31.40
	30.3		31.1				9.3		22.1		28.8					
	6.40		6.08				19.5		42.6		5.59					
	32.00		30.40				9.65		21.30		24.05					

+17.8	+18.7	-15.5	+25.8	+21.0
1.25042	1.27184	1.19033	1.41162	1.3222
1.32431	1.34573	1.26438	1.48551	1.39611
+2110	+2217	-1838	+3059	+2480
41 3200	41 3840	42 9.65	41 21.30	41 27.95
41 53.10	41 52.57	41 51.29	41 51.89	41 52.84
40 55.25	40 55.78	40 57.08	40 56.46	40 55.51
-15.98	-15.39	-16.02	-15.88	-15.48

40	59.27	40	40.39	40	41.06	40	40.58	40	40.03
41	41.8	41	42.6	41	42.6	41	42.5	41	42.5

1 0.25 2.3 +1 2.2 1.9 +1 1.5 1.3 +1 1.9 1.7 +1 2.3 2.0

40	55.25	40	55.78	40	57.08	40	56.46	40	55.51
-	16.60	-	17.40	-	17.40	-	17.30	-	17.10

1871phae.proj.1419
 1928
 -25.11
 -1.47

1929.1929

1871 Sept 23 Sept 28 Oct 4 Oct 27

29 3.3	29 3.8	28 45.7	28 42.1	28 46.0	28 37.9	28 47.2	28 40.6
5.5		47.8	43.8	48.0	38.9	48.3	41.7
7.8		50.2	44.8	50.3	40.4	51.6	42.7
12.2		54.9	107	54.9	117.2	56.0	50
14.6		57.1	43.6	57.2	39.1	56.4	41.7
16.9		59.3		-59.4		0.6	
19.2		1.5		1.6		5.0	
21.4		3.7		4.0		5.1	
25.9	29 3.8	8.4	28 43.6	8.5	28 39.1	9.7	28 41.7
28.3		10.6		10.8		12.0	
30.6		12.9		13.0		14.3	
185.7		252.1		353.7		307.2	
		300		300		300	
		65.21		653.7		7.2	
	29 16.88	19 59.28		28 59.43		29 0.65	

29 9.62892

29 9.98603
 12669
 .08332

30 1 42.3
 16.5
 568
 29.40

+13.1
 1.11727
 1.20859

+15.1
 31 29.40
 31 45.24

-20 8 56.92

1 39.5
 8.5
 480
 24.00

+16.7
 1.19590
 1.27922

+19.02
 31 29.00
 31 43.02

8 54.67

0 59.7
 9.0
 687
 34.35

+20.3
 1.30780
 1.39082

+24.59
 31 43.5
 31 28.94

8 40.55

1 53.8
 12.5
 766
 38.30

+15.9
 1.27646
 1.35978

+22.90
 31 8.30
 31 31.22

8 42.87

✓ (#1)
K Aquilae
19 3000
- 7 19
-13

+13
+6
+8
+5

30 3272
29 5400 (+07)
57.08 +0.06

1871

Sept 24

Sept 25

Oct 5

Oct 22

30 10.1	30 6.8	30 10.3	30 6.4	29 52.8	45.0	29 53.7	29 45.4
12.2	7.8	12.2	7.5	54.8	46.0	55.8	46.6
14.3	9.3	14.4	8.4	56.8	48.0	57.7	47.8
18.4	23.9	16.5	22.3	0.9	20.0	2.0	19.8
20.5	7.9	20.7	7.4	2.0	46.7	4.1	46.6
22.6		22.8		5.1		6.1	
24.7		24.8		7.1		8.2	
26.8		26.9		9.2		10.3	
30.9	7.9	31.0	7.4	13.3	46.7	14.4	46.6
33.0		33.0		15.4		16.4	
34.9		35.2		17.5		18.5	
24.6		29.6		23.5		24.7	
		22		18.0		18.6	
				58.9		67.2	
30 22.8	22.58	30. 22.71	22.71	30 58.8	5.02	30 6.11	6.11
58.80	22.56	29 58.7	22.70	58.52	5.06	58.24	6.10
23.88	58.77	58.14	58.70	6.56	58.59	58.31	58.0
	23.79	24.54	23.95		6.47	2.09	2.09
		58.64				6.10	57.07
- 23.74	22.56	24.08	22.70	- 6.47	5.06	- 7.79	
- 0	- 23.75	23.97	- 23.97	- 1	- 6.46	- 1	- 7.81
- 1.70	- 0	- 1.68	- 0.01	- 1.02	- 0.01	- 1.24	- 1.02
	- 1.70		- 1.68		- 1.52		- 1.24
29 57.14		57.05		57.08		57.07	
	57.11		55.04		57.07		57.05
	13		06		08		05

40 1 31.6
51.0
36.6
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+147
1.1622
1.27046
+1952
41 1830
41 37.82
- 7 18 49.47

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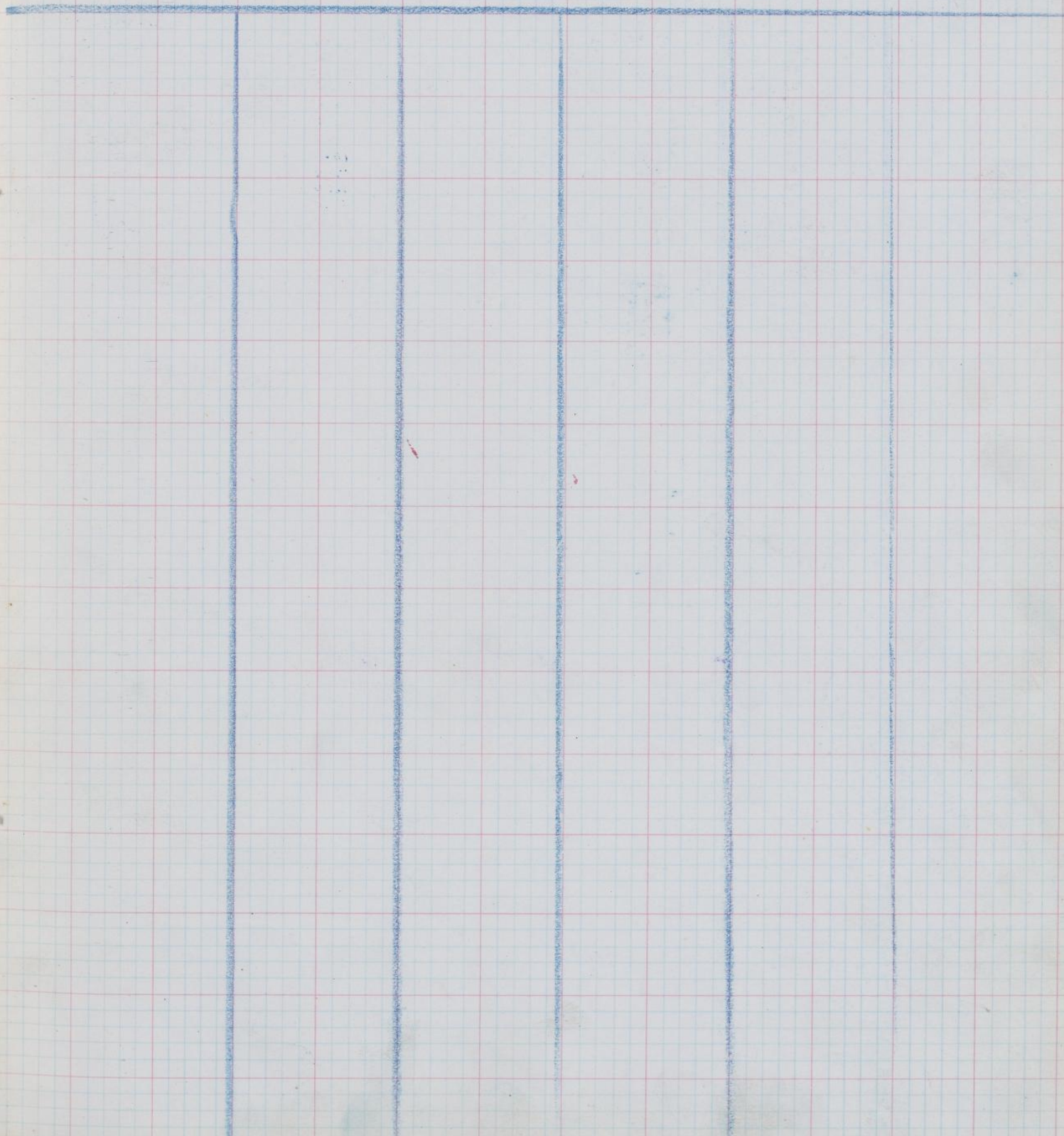
+153
1.18469
1.30783
+2032
41 33.10
41 33.42
18 45.07

0 57.1
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109.8
54.90

-416 x 154
1.64909 1.26450
1.74223 1.38714
-5822 +2443
40 54.80 40 54.80
41 19.33
18 30.98

0 51.6
59.9
11.15
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+195
1.29003
1.41317
+2589
40 55.55
41 21.69
18 33.29



Sagittae
 1931.18
 +16.10
 +2.29

1871 Oct-22. Sept-24. Sept-23. Oct-4. Oct-5. Oct-16.

31	23.0	31	37.3	31	39.5	31	36.0	31	39.3	31	32.6	31	21.8	31	25.5	31	21.9	31	24.0	31	32.0	31	41.4
	25.1		35.6		41.6		36.8		41.4		33.5		24.0		29.3		24.0		29.0		34.3		
	27.3		40.4		43.8		12.8		43.6		61		26.1		30.8		20.2		53.0		36.3		
	31.5		116.3		48.0		36.4		47.9		33.1		30.4		88.6		30.6		26.5		38.4		
	33.6		38.8		50.2				50.0				32.7		29.5		32.7				40.6		
	35.8				-52.3				-52.1				34.7				34.8				101.6		
	37.9				54.4				54.3	32	15.2		36.8				36.9						
	40.1				56.6				56.4		16.7		39.0				39.0						
	44.3				0.8				0.8		18.0		43.3				43.3						
	46.5				3.0				2.9		19.9		45.4				45.6						
	48.6				5.1				5.0		16.6		47.6				47.6						
	393.7	31	38.8		395.3	31	36.4		393.7	31	33.1		381.8	31	29.5		382.6	31	26.6		31	41.4	
					16.0				16.0														
					575.3				573.7														
31	35.79			32	52.30			37	52.15			31	34.71			31	34.78			31	36.32		

22.5
 744472

22.5
 258248
 12469
 10917

10	2	41.1	10	2	52.1	3	41.0	2	50.2	2	27.9	2	28.2	2	44.1
		46.9			24.0		11.2		22.0		37.0		34.9		50.6
		8.80			7.61		52.2		72.2		6.69		63.1		94.7
		44.00			38.55		26.10		36.10		33.45		31.55		47.35
		-3.0			+15.7				+19.0		+5.2		+8.2		-5.1
		0.4772			1.20140				1.27875		0.71600		0.91908		0.70757
		2.58627			1.31057				1.38792		0.82517		1.02825		0.81674
		-3.62			+20.44				+24.43		+6.68		+106.7		-6.52
		12.4400			12.38.55				12.36.10		12.33.45		12.31.55		12.47.35
		12.40.14			12.38.99				13.00.53		12.40.18		12.37.22		12.40.84
		"			"				"		10.8.22		10.6.13		10.7.56
		+16.10			9.48.36				9.47.82						

Oct 2³

31	23.2	31	41.0
	25.5		42.2
	27.4		43.5
	31.7	12	40
	33.5		42.8
	36.0		
	38.0		
	40.3		
	44.5		
	46.7		
	48.8		
	395.7	31	42.0

31 35.97

10 2 46.5
 52.3
 48.1
 49.05

-6.8 ✓
 2.77511 + 0.79930 ~
~~0.88752~~ 0.90847
 - 7.112 - 8.10
 12 49.05 12 49.05
 12 49.24 12 49.5
 10 7.40

B.Lb. 6137
 19 33 20
 +63 08
 +198

1871 Sept 24 Sept 23 Sept 25 Oct 8 Oct 16

33 21.4 33 34.5	33 21.3 33 35.1	33 21.4 33 11.0	33 22.9 34 0.4	33 4.5 33 15.0
26.0 46 36.0	25.8 36.3	25.8 2.5	27.5 4.2	4.3 18.4
30.4 44 40.0	30.3 71.4	30.5 5.0	32.2 7.0	14.1 21.0
39.7 33 11.05	39.5 35.7	39.9 7.2	36.5 11.6	23.0 54.4
44.1 36.8	44.0	44.4 15.7	41.4 3.9	27.6 18.1
46.8	48.6	49.0 3.9	16.0 5	32.1
53.3	53.1 34 11.9	53.2 33 53.9		36.8
57.7	57.6 12.8	57.9		41.1
6.9	6.8 14.3	7.1		50.5
11.8	11.4 39.0	11.6		55.1
16.2	16.0 19.5	16.4		59.6
35.6 23 26.8	35.4 23 35.7	35.7 23 2.9	34 2.7	35.4 0.33 18.1
16.0	16.0	16.0		
53.6 2	53.4 4	53.7 4		
34 48.75	34 48.58	38 48.85	34 32.10	33 32.10

sin 9.95039

cos 9.65506
 12669
 938175

15 0 28.2	0 27.9 0 48.8	0 68.7 0 37.6	0 20.6	10 4 52.7
4 51.0	51.4 12.2	29.9 0.7	16.1	50.3
79.2	79.3 61.0	96.6 38.3	36.7	103.0
29.60	29.65 30.50	19.30 19.15	18.35	51.50
+11.9	+12.9	+14.4	-31.8	+14.1
1.07550	1.11059	1.65225	1.50243	1.14822
2.85730	2.87234	1.43400	1.28418	0.93097
+7.20	+7.82	+12.17	-12.26	+8.54
15 9.60	15 9.65	4 49.90	15 13.5	14 51.50
15 16.50	15 17.48	15 16.07	14 58.09	15 9.04
+6 3 31.55	30.88	31.88	49.26	48.31

Oct-24³

15.1

33	4.0	33	16.7
	8.5		18.7
	13.1		23.3
	22.3	5	8.4
	26.7		19.6
	31.4		
	35.7		
	40.4		
	44.7		
	54.3		
	58.9		
34	5.0	33	17.6

33 31.36

10	4	53.1
		53.0
		10.6
		53.05
		+11.8
		1.07188
		285363
		+414
		1453.05
		1500.19
		7 4816

P. Sagittae
1835-19

+17.10

+31

1871

Sept 25

Oct 4

Oct 8

Oct 16

Oct 22

25	27.8	35	20.7	35	10.1	35	17.3	35	14.6	35	5.0	35	11.7	35	5.4	35	16.3	34	59.7
	30.0		21.3		12.3		18.4		13.7		6.0		13.8		6.6		13.3		61.1
	32.1		23.0		14.5		19.7		15.8		7.6		16.0		8.7		15.5		62.4
	36.4		5.5		18.39		25.4		20.1		18.6		20.3		20.7		19.8		18.32
	38.5		21.8		20.9		16.5		22.3		6.2		22.4		6.7		21.9		61.1
	40.8				23.0				24.5				24.6				24.1		
	42.9	36	2.5		25.2				26.6				26.7				26.3		
	45.0		4.2		27.3				28.8				28.8				28.4		
	48.3		6.1		31.7				32.0				33.2				32.7		
	51.5		12.8		33.8				35.2				35.4				34.8		
	53.6		4.2		36.0				37.4				37.4				37.0		
	447.9	25	21.0		253.1	25	18.5		269.0	35	6.2		170.3	35	6.9		265.1	35	1.1

Sum 9.97005

Cor 9.98021
12669
.10680

10	2	30.8	3	24.9	2	18.1	1	58.3	1	57.8	1	52.7
		2.3		55.3		22.8		61.4		4.0		59.6
		33.1		50.2		40.9		119.7		61.8		112.3
		16.55		40.10		20.45		59.85		30.90		56.15
		+18.9				+4.5		+18.2		+17.7		+23.0
		1.27646				0.65321		1.26007		1.24474		1.36173
		1.38336				0.76011		1.36697		1.35487		1.46863
		+24.17				+5.76		+23.28		+22.64		+29.42
		12 16.55				12 20.45		11 59.65		12 0.90		56.15
		12 40.72				12 26.21		12 23.13		12 23.54		12 25.74
		+19										
	10	7.63				10 22.14		10 25.22		10 24.81		10 22.78

Nov 2

35	12.635	5.0
	15.0	6.4
	17.0	7.6
	21.4	19.0
	23.4	6.8
	25.7	
	27.5	
	29.9	
	34.3	
	36.4	
	38.6	
252135		6.0

25.65

10	1	591
		592
		1183
		5915
		+17.4
		1.29226 2878.0
		1.37716 1.39480
		+2.567+2.481
	11	5915 5915
	12	2396
10		2439

BAb. 6755

19 37 50

-32 13

-63

1871

Sept 24

Sept 28

Oct 4.

Oct 16

Oct 22

37 58.7 37 51.1
 110 52.7
 3.5 53.8
 8.3 54.6
 10.8 51.5
 -13.0
 15.6
 17.8
 22.9
 25.3 37 52.5
 27.7
 204.6
 60
 144.6
 38 13.14

37 — 38 20.8
 — 22.9
 — 24.2
 — 79
 55.3 22.6
 57.7
 0.1
 5.1
 7.5 38 22.6
 9.9

37 41.0 37 27.5
 43.4 28.4
 45.8 30.10
 50.7 55.9
 53.0 26.16
 -55.6
 58.0
 0.3
 5.2
 7.7 37 25.6
 10.1
 37 0.8
 240
 610.8
 37 55.53

38 13.4 37 42.4 37 48.2
 15.2 44.5 50.2
 17.0 47.0 98.4
 15.6 51.9 49.2
 15.2 54.3
 54.8 56.7
 57.2 59.0
 59.4 1.5
 62.0 6.3
 255.6 6.7 37 49.2
 38 15.2 11.3
 38 33.3
 240
 623.3
 38 56.66

37 57.12
 37 57.12

30 3 38.7
 10.8
 49.5
 24.75
 +20.6
 1.32045 31390
 1.37423 1.36798
 2367 + 2333
 33 24.70 24.75
 33 45.4 48.08
 -32 10 58.70

4 25.7 2 56.6
 56.1 61.2
 81.8 117.8
 109.0 5890
 27.3
 1.43616
 1.47024
 30922
 34 10.90
 33 39.98
 10 57.63

2 56.6
 61.2
 117.8
 5890
 +26.9
 1.42955
 1.48383
 +30.47
 32 58.90
 33 29.37
 10 41.02

3 40.0
 47.2
 67.2
 43.60
 -18.1
 1.25768
 1.31176
 -20.50
 33 43.60
 33 23.10
 10 34.75

3 18.9
 25.3
 44.2
 22.10
 +7.5
 0.88106
 0.72914
 +8.49
 33 22.10
 33 30.59
 10 42.24

$\delta = +10^{\circ} 18' 2.0''$ $+3$
 -2
 -72
 -73
 -71

γ *Squilar* $+18$

19 40 11 40 46.0+00

Sept-17 19 40 532 08+10°18' 149.1
 22 22 15.1 +2
 27 18 15.3 +2
 27 07 15.4 +1
 7 899 15.7 +0
 12 91 15.3 -1
 17 85 15.2 -1
 22 72 15.0 -2
 27 864 .08 14.8 -2

$+53$ $+111$ $+147$
 1871 Oct 22 Sept 24 Sept 25 Sept 28 Oct 5 Oct 16

40 4.0 40 0.4 40 204.40 42.6 40 20.740 19.1 40 2.739 56.0 40 4.3 40 20.9 40 4.540 10.1
6.1 2.0 22.5 43.8 22.7 19.8 4.8 57.1 6.4 25.0 6.5 11.4
5.2 3.0 24.6 56.4 24.8 36.4 6.8 58.1 8.4 39 54.0 8.7 12.3
12.3 5.4 28.8 43.2 29.0 19.4 11.0 21.2 12.7 55.4 12.9 33.8
14.4 1.8 30.8 31.0 31.0 5.7.1 13.0 5.7.1 14.8 56.8 15.0 11.3
16.6 32.9 33.0 35.2 40 51.6 15.1 17.2 40 34.8 16.8 16.2 17.1 2.1
18.6 35.0 37.0 37.2 41.6 17.3 19.3 35.8 18.9 subtract 19.2 2.1
20.7 37.0 41.3 43.3 43.6 23.5 37.2 25.3 21.0 1 second 21.2 2.0
24.9 43.3 45.5 45.7 45.7 25.6 17.8 27.3 27.3 25.4 25.3 2.1
26.9 45.5 36.4 540 19.4 27.7 35.9 29.4 29.4 29.6 2.1
29.1 181.5 40 2.7 36.2 40 43.2 36.4 540 19.4 16.6 7 39 57.1 18.5 39 55.4 18.7 540 11.3

40 16.53 16.527 40 32.92 32.918 40 33.14 40 15.15 15.155 40 16.5 16.845 40 17.05 17.045
8.72 16.01 5.19 23.95 33.12 9.13 14.74 8.97 16.83 8.80 17.03
7.81 8.72 8.19 23.96 9.14 6.02 9.13 6.88 8.97 8.92 8.10
-7.79 16.57 23.95 23.96 33.12 -5.59 15.19 -6.89 16.83 -8.18 17.03
+2 -7.86 +0 28.70 +1 -23.97 +1.1 -23.97 +1.1 -6.03 +1.1 -6.88 +1.1 -8.22
-1.12 +1.03 -1.09 +1.00 -1.12 +1.03 -1.12 +1.03 -1.12 +1.03 -1.12 +1.03
40 7.64 7.61 7.56 7.59 7.58 7.64 7.60 7.60 7.59 7.66 7.63

0 4 37.7 5 0 44.3 0 12.0 1 13.0 0 65.0 0 56.8 0 4 27.2 4 42.8
43.9 14.6 41.9 43.6 34.3 33.0 30.6 53.3
61.0 5.8.9 53.9 56.6 99.3 89.8 57.8 101.1
40.80 29.145 56.95 28.30 119.65 44.90 28.90 50.55
+13.8 1.1388 1.01284 1.13672 1.25633 1.13748 1.45004 1.33041
22 9.25237 +18.18 4 40.80 5 29.41 4 56.95 5 13.36 4 9.65 4 28.90 4 58.08 4 58.06

22 9.99294
 12669
 .11863

$+10^{\circ} 17' 49.37''$ -36.42 17 12.45 18 15.0	17 32.47 -35.42 16 57.05 18 15.2	17 33.36 -36.94 16 56.42 18 15.2	17 34.55 -37.14 16 57.85 18 15.3	17 51.26 -39.01 16 13.25 18 15.4	17 50.29 -37.77 16 12.47 18 15.2
-49.1 2.5 20 $+1$ 18.2 17.7 $+1$ 18.8 18.3 $+1$ 17.5 17.0 $+1$ 02.1 1.7 $+1$ 02.7 3.2					
$\delta +10^{\circ} 17' 49.37''$ -13.00	17 32.47 -13.26	17 33.36 -13.20	17 34.55 -13.30	17 51.26 -13.40	17 50.29 -13.20

405

(All the stars in this book have been read.)

Whole no. of stars in this book = 46

" " " " " " " " = 412

REF: 1442