1882phae.proj.1802R

KG
11366
v.798

Time Service

Aug 28-1882 to April 8-1883

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1882phae.proj.1802R

1	19
2	38
3	57
4	76
5	95
6	114
7	133
8	152
9	171

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1882phae.proj.1802R

Aug. 28.3

δ Bootis

15 8

22.5	12.1	946
25.0	9.6	6
27.3	7.1	4
29.9	4.6	5
32.4	2.1	5
37.3	57.2	5
39.8	54.6	4
42.3	52.3	6
44.9	50.0	9
47.3		473

19 | 8983

15 8 47.28

15 10 46.62

−119.26

+ 43

+ 97

+ 140

−117.86

μ Bootis

15 17

38.4	30.8	92
41.0	28.0	0
43.6	25.6	2
46.4	23.0	4
49.0	20.5	5
54.1	15.1	2
56.7	12.5	2
59.3	9.9	2
2.0	7.3	3
4.5		45

19 | 877

15 18 4.62

20 3.60

−118.98

+ 24

+ 97

+ 121

−117.77

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β Cor. Bor

15⁻ 20

36.8	24.1	0.9
39.2	21.7	9
41.5	19.3	8
43.8	17.0	8
46.2	14.6	8
50.8	10.0	8
53.2	7.5	7
55.7	5.1	8
58.0	2.6	6
0.4		04

19) 75

15 21 0.39

22 59.83

−119.44

+ 62

+ 97

+ 159

1 = −117.85

2 = .81

3 = 77

4 = 86

329

mean = −117.82

α Cor. Bor.

15⁻ 27

21.0	7.3	883
23.1	5.0	1
25.5	2.8	3
27.9	0.3	2
30.1	57.0	1
34.8	53.3	1
37.1	51.1	2
39.5	48.7	2
42.0	46.5	5
44.1		441

19) 8381

15⁻ 27 44.11

29 43.60

−119.49

+ 71

+ 97

+ 168

−117.81

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1882phae.proj.1802R

Aug. 29.3

μ Bootis

15h 17m

38.2	30.6	88
40.8	27.9	7
43.5	25.3	8
46.0	22.5	5
48.7	19.9	6
54.0	14.9	9
56.6	12.2	8
59.2	9.6	8
1.7	7.0	7
4.4		44

19)830

437

15h 18m 20s 3.58

−119.21

+ 24

+ 97

+ 121

−118.00

−2 +2 3.58

ζ Cor. Bor

15h 32m

32.6	24.4	57.0
35.3	21.8	1
38.0	19.3	3
40.4	16.6	0
43.0	14.0	0
48.2	8.9	1
50.9	6.3	2
53.5	3.7	2
~~56.3~~	1.2	—
		—

16)9369

585.6

15h 32m 34s 57.79

−119.13

+ 28

+ 97

+125

−117.88

−2 +2 57.79

α Serpentis

15h 36m

8.8	50.5	593
10.9	48.4	3
13.1	46.4	5
15.1	44.2	3
17.2	42.1	3
21.3	38.0	3
23.4	35.9	3
25.5	33.9	4
27.6	31.8	4
29.7		297

19)3638

15h 36m 29.67

15h 38m 29.98

−120.31

−2 +2 29.98 + 1.41

+ 97

+ 238

−117.93

118.00
117.88
117.93
281

mean = −117.94

These three observations, reduced with the value of $u = -1.57$ (as ~~taken~~ found from my next observations), give −118.03, −117.91, & −118.09, respectively. Mean = −118.01

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Aug. 29.4

β Delphini

21 29 26.1

43.2	23.8	93
45.5	21.7	3
47.6	19.5	3
49.7	17.5	2
51.9	13.0	4
56.2	11.0	2
58.4	8.9	4
0.4	6.7	3
2.4		1
4.5		45

19 | 880

21 30 4.63

4.87

−120.24

+ 103

+ 97

200

−118.24

χ Delphini

21 61

6.7	48.5	55.2
8.8	46.3	1
10.6	44.2	48
12.8	42.1	49
15.0	40.0	50
19.1	35.9	0
21.2	33.7	49
23.5	31.6	51
25.4	29.5	49
27.4		274

19 | 5225

21 31 27.49

27.89

−120.40

+ 116

+ 97

213

−118.27

α Delphini

21 32

4.5	21.7	262
6.8	19.6	4
9.0	17.5	5
11.1	15.3	3
13.2		132

9 | 1186

21 32 13.18

13.36

−120.18

+ 100

+ 97

197

−118.21

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1882phae.proj.1802R

α Cygni

21 35⁻

0.4	58.4	588
3.1	55.5	6
5.8	52.7	5
8.9	49.8	7
11.9	46.8	7
17.7	40.9	6
20.6	38.1	7
23.4	35.1	5
26.3	32.3	6
29.0		290

19 | 55567

21 35 29.30
28.40
−119.10
− 13
+ 97
119.23
− 118.26

γ Delphini

20 38

53.4	36.4	298
55.5	34.0	5
57.6	31.8	4
59.9	29.7	6
1.8	27.8	6
6.4	23.4	8
8.6	21.2	8
10.6	19.1	7
12.6	17.1	7
15.0		152

19 | 2819

20 39 14.84
14.99
120.15
+ 99
+ 97
196
−118.19

ϰ Cygni

20 48

27.7	18.5	1062
30.1	16.0	1
32.6	13.5	1
35.2	11.0	2
37.7	8.5	2
43.0	3.4	4
45.4	1.0	4
48.1	58.3	4
50.6	55.6	2
53.1		53.1

19 | 10093

20 40 53.12
52.60
−119.49
+ 29
+ 97
126
− 118.22

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1882phae.proj.1802R

76 Draconis

20 48

44.0	54.9	389
49.4	50.0	394
54.1	46.0	401
1.1	39.8	399
4.7	35.1	398
9.5	28.6	381
16.1	24.1	402
20.4		204

15) 2968

20 49 19.79

50 69.08

109.29

0.253 120.24

171 .40

277 .18

281 .15

4) 982 4) 97

−.245 ÷120.24

7.207 +109.29

6.96) − 10.95 (1.57

696

3990

3480

510

n = − 1.57

ν Cygni

20 50

26.5	15.8	1023
29.4	13.0	4
32.1	10.4	5
34.8	7.6	4
40.4	2.1	5
43.0	59.3	3
45.8	56.7	5
48.5	53.8	3
51.0		510

17) 8702

20 50 51.19

50.39

−119.20

+ 8

+ 97

105

− 118.15

118.25

.15

.22

.26

19

21

24

27

8) 179

− 118.22

ζ Cygni

20 58

14.6	11.8	864
17.4	9.0	4
20.3	6.0	3
23.2	3.1	3
26.0	0.2	2
31.9	54.5	4
34.6	51.9	5
37.6	49.0	6
40.2	46.0	2
43.4		434

19) 8207

20 58 ~~14.7~~

43 19

42.37

−119.17

− 5

+ 97

119.22

− 118.25

These 9 stars were not worked up wholly till Aug. 31st + so the old value of n = 1.78 was used till that date

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1882phae.proj.1802R

Aug. 29.8
O Gemin.

~~6 43 4.07~~

6 42	39.1	29.1	8 2
	41.6	26.5	1
	44.1	24.0	1
	46.6	21.5	1
	49.1	19.0	1
	54.0	14.0	0
	56.6	11.5	1
	59.0	9.0	0
	1.7	6.6	3
+2	4.1		1
+3		19) 771	
351			
356			

6 43 4.06
6 45 3.56

−119.50
+ 42
+ 97
+ 139
−118.11

Applying the
usual $\Delta = -1.57$
to this star
gives −118.26

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1882phae.proj.1802R

Aug. 30.2

μ Bootis

15	17	40.8	27.8	86
		43.2	25.1	83
		46.2	22.5	7
		48.7	19.9	6
		53.8	14.6	4
−4		56.3	12.0	3
+2		59.1	8.4	5
		1.7	6.8	5
		4.1		41

$17\overline{)720}$

4.22

15 18 4.22

356

−119.34

+ 24

+ 97

+ 121

118.13

Applying the new value of $\mu = -1.57$ to this star gives −118.16

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Aug. Sept.

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1882phae.proj.1802R

Aug. 31.2

α Bootis

14 7 36.4 40.2 366
58.6 38.0 6
0.6 35.8 4
2.9 33.5 4
5.2 31.4 6
9.5 27.1 6
11.6 24.9 5
13.9 22.7 6
16.1 20.5 6
18.3 183

19)3472
1827

14 8
10 1857
−120.30
+ 87
+ 97
+ 184
−118.46

20).28
.014
3
−07
+ 2
18.62

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1882phae.proj.1802R

Aug 31.45

V Cygni

20 50

23.6	18.0	1016
26.3	15.3	6
29.0	12.7	7
31.6	9.9	5
34.4	7.1	5
40.0	1.7	7
42.7	59.0	7
45.4	56.3	7
48.0	53.5	5
50.9		509

$19)\overline{9654}(50.81$

95

154

152

20

−3
+2

20 50 50.81
20 52 50.37

−119.56
+ 8
+ 97
+ 105
−118.51

Z Cygni ~~27~~

20 58

14.5	11.4	859
17.3	8.5	8
20.1	5.6	7
23.0	2.8	8
25.8	00	8
31.5	54.0	5
34.4	51.4	8
37.1	48.6	7
40.0	46.0	60
42.9		429

$19)\overline{8149}(42.89$

76

54

38

169

152

170

−3
+2

20 58 42.89
21 0 42.35

−119.46
− 5
+ 97
119.51
−118.54

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1882phae.proj.1802R

Sept. 1.5

74 Cygni

21 29

50.8	44.4	352
53.4	41.6	0
56.1	39.0	1
58.8	36.4	2
1.5	33.6	1
6.9	28.3	2
9.4	25.7	.3
12.1	23.0	1
14.8	20.1	49
17.5		175

19) 3336 (17.56
19
143
137
106
95
110

−1
+2
1735

21 30 17.56
21 32 17.36

−#119.80
+ 12
+ 97
+ 109
−118.71

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Sept. 24

1900.

43.0	34.0	170
45.4	31.4	68
48.1	28.7	68
50.7	26.2	69
53.1	23.8	69
58.3	18.7	70
0.8	16.1	69
3.4	13.6	70
6.0	10.9	69
-9	8.5	85
+2		
867		

19) 1607 (846
152
87
76
110

1900 1 8.46
1903 8.60

-120.14
+ 30
+ 97
+ 127
-118.87

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Sept 4.3 R Lezeau

19.0	6.4	95.4
22.0	3.6	.6
24.9	0.6	.5
27.7	7.7	.4
30.5	4.9	.4
36.1	59.1	.2
39.0	56.2	.2
41.9	53.2	.1
44.9	50.5	.4
47.9		47.7
		12.9

18 49 47.68
18 51 47.46
-119.78
-.05
-.03
+.97

1327 slow = 118.89

.25
.21
.24
.17
-.17
7.04
47.61
.46

Clock 394
8h 02m 00s
1 19.18
10 54 32.17
18 57 51.35 = 394
18 55 52.31 = 1327
96
394 ult 1327 = +119.04

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Sept. 5.4

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Sept. 6, 2 Polaris Lo. 6. α Boötes

29.4	34.6	4.0	5.6	9.6	5.2
03.1	01.0	4.1	8.0	7.3	5.3
30.0	25.4	3.4	0.2	5.1	5.3
03.1	01.3	4.4	2.1	2.9	5.0
32.3	32.4	4.7	4.4	0.7	5.1
04.5	00.3	4.8	8.7	6.2	4.9
32.5	32.4	4.9	10.9	4.1	5.0
05.3	00.4	5.7	13.1	1.9	5.0
32.2		32.2	15.0	9.7	5.0
		4.2	17.6		17.6
					10.4

49.01
49.62
49.32
-.85
48.47

43.45
.36
43.81) 75.26 (1.72
43 81
31450
30667
7830

13 13 27 32.25
13 16 48.47
196.22
120.96
75.26

$n = -1.72$

13 14 08 17.55
1 14 10 18.51
.14
.9
-.13
+.02
18.62
.51

-120.96
+.55
+.39
+.97

132 slow = 119.05

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1882phae.proj.1802R

Sept. 7.2

2.0	3.6	57.6	6.0	8.7	4.7
4.4	1.0	.4	8.1	6.6	.7
7.0	8.4	.4	0.4	4.4	.8
9.7	5.9	.6	2.4	2.2	.6
2.2	3.2	.4	4.6	0.1	.7
7.4	8.0	.4	8.9	5.9	.8
0.0	5.6	.6	1.0	3.8	.8
2.5	2.9	.4	3.1	1.6	.7
5.1	0.3	.4	5.2	9.4	.6
57.7		57.7	17.3		17.3
		13.9			6.7
					17.36

.345
.005
-.24
+.02
56.59
.31

17 08 57.73
17 10 58.37

-120.64
+.16
+.11
+.97 or +.89

17?slow = 119.40 or 119.48

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1882phae.proj.1802R

Sept. 9. 3

α Cyg (+44.9)

outside wires

34	20	35		
58.5 58.7 115.2	7	59	2	55.1
61.2 53.7 49	18	36	4	.2
64.1 50.8 9	21	7	38	2 4.9
67.1 47.9 0	24	5	7	0 4.8
69.9 45.1 0	27	3		
27.50	20	35	27	48
	20	37	28	24
		− 120.7	6	
		− .14		
		+ .97 (or .89)		

119.93 (or 120.01)

β Cygnae (+36.13)

outside wires 20 40

26.1 76.8 102.9	4	1	4	61.7 1 0 1
28.5 74.3 8	4	4	1	59.3 4
31.1 72.0 2	4	8	6	56.5 1
33.8 69.3 1	4	8	8	54.0 2 8
36.3 66.9 2	5	1	6	
51.51	20	4	0	51 56
	20	4	12	52 47
		− 120.91		
		+ 21		
		+ .97 (or .89)		

119.63 (or 119.71)

Various threads are unusually discordant, but don't account for difference of 4t between the two stars. See

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1882phae.proj.1802R

Sept-12.2 Rhyme

7.4	4.7	2.1
0.3	1.9	.2
2.2	8.9	.1
6.1	6.1	.2
9.0	2.3	.3
4.8	7.7	.5
7.6	4.7	.3
0.3	1.6	.1
2.1	8.9	.0
46.0		46.0

1.8

18 49 46.09
18 51 47.26

-121.17
- .05
- .04
+ .89

132 slow = 120.37

~~255~~
.25
1
.26
.5

+.13
+.02
47.11
.26

394 = 11 26 04.59
+7 29
+8 12.76
2 02.18

~~4~~ ~~06.77~~
18 56 18.35
1327 = 18 54 17.93

394 rel to 1327 = +120.42

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1882phae.proj.1802R

20

Sept. 15.1

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1882phae.proj.1802R

Sept 15, 2

Ⓒ Herculis

6.7	8.6	5.3
9.1	6.0	.1
1.9	3.2	.1
4.3	0.8	.1
7.0	8.0	.0
2.0	3.0	.0
4.9	0.2	.1
7.1	7.9	.0
0.0	5.1	.1
12.6		12.6
		10.4

.245
.2
+.04
+.02
14.45
.55

17 50 12.55
17 52 14.55
−122.00
+.85
+.17
+.89
1327 slow = 120.85

Siedelburg 11 37 54.24
Bond 394 = 6 07
1 00.29
17 45 54.53
Gradeham 1327 = 17 43 53.28
394 ahead 1327 +121.25
394 fast of 1327 = 121.25

+25

53.28

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1882phae.proj.1802R

Sept. 16.2 Ophiuchi

0.7	3.0	3.7
3.2	0.3	.5
~~5.9~~ 6.0	7.7	.6
8.5	5.1	.6
~~1~~ 2.0	2.5	.5
6.0	7.3	.6
9.0	4.7	.7
1.7	2.0	.7
4.3	9.4	.7
17.0		17.0
		15.6

19	10	16.82
19	12	19.15
		-122.33
		+.13
		+.09
		+.89
1327 slow =		121.22

.255 / 14 / .37 / .3 / +.03 / +.02 / +.02 / 19.03 / .36

.37 / -.1 / +.02 / +.02 / 19.11 / 15

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1882phae.proj.1802R

Sept. 18.1 @ Hera.

5.9	7.8	3.7
8.4	5.0	.4
1.0	2.4	.4
3.4	0.0	.4
6.1	7.3	.4
1.3	2.0	.3
3.9	9.3	.2
6.6	6.9	.5
9.1	4.2	.3
11.8		11.8
		13.4

-.025
+02

17 50 11.71
17 52 14.49
-122.78
+.15
+.11
+.89

1327 slow = 121.63

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1882phae.proj.1802R

Yoft: 19.2

31 Pegasi

1.7	4.0	5.7
2.9	1.8	.7
6.0	9.7	.7
8.0	7.6	.6
0.1	5.5	.6
4.4	1.3	.7
6.5	9.1	.6
8.5	7.0	.5
0.7	4.9	.6

$13^m\ 42^s.8$ 42.8

15.5

22 13 42.82

22 15 46.79

-123.97

+.71

+.50

+.89±

1327 slow = 121.87

.065
15
.05
.2
-.01
+.02
46.78
.79

7 Yacentau

5.9	0.0	5.9
9.3	6.8	6.1
2.4	3.3	5.7
5.8	0.2	6.0
8.9	7.1	6.0
5.1	0.7	5.8
8.3	7.4	5.7
1.5	4.1	5.6
4.8	1.1	5.9

$24^m\ 28^s.0$ 28.0

17.7

22 24 27.93

22 26 30.53

-122.60

-.27

-.19

+.89±

1327 slow 122.17

.12
2
.10
.2
-.02
+.02

Value of π uncertain, but mean of both stars is not seriously affected by it.

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1882phae.proj.1802R

Sept. 22/23 ①

			Tests				
	6.9	6.1 ?	3.0 ?		6.1	4.3	0.4
	8.8	4.0 ?	2.8		4.0	6.4	.4
(4.0)	0.8	2.0	(4.8) 2.8		2.0	8.8	.8
(1.9)	3.0	0.0	(4.9) 3.0		0.0	0.8	.8
(9.9)	5.0	7.9	(4.9) 2.9		7.9	2.9	.8
(5.8)	9.0		(4.8)				10) 3.2
(3.7)	1.1		(4.8)	34.3			5.32
(1.6)	3.1		(4.7)	76.1			
(9.2)	5.2		(4.4)	55.2			
	7.2		(7.2)	1st Lecture		11 58 47.37	
	9.2		15) 5.5	2nd " "		60 55.32	
	1.6		7.37			11 59 5	
	3.7					~~12 00~~ 81.34	
	5.8					12 01 56.71	
						-125.37	
						+1.56±	
	9.9	2.9	2.8			±.89±	
	1.9	~~0.8~~	2.7			1327 Zeros = 122.92±	
	4.0	~~8.8~~	2.8				
	—	6.4					
	—	4.3					

62 60.27
58 24.65
215.62
.0165
107810
129372
21562
3557730

~~61~~ 6
01 60.27
3.56
56.71

-8°13'

0.9125
0.0038
.916
1.17±
6412
916
1557

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1882phae.proj.1802R

26

Sept 26.2

R Lyra

3.4	0.8	4.2
6.1	7.9	.0
9.0	5.0	.0
2.0	2.1	.1
5.0	9.1	.1
0.8	3.6	.4
3.6	0.7	.3
6.3	7.9	.2
9.1	6.0	.1
42.1		42.1

1.5

1849 42.08

46.87

− 124.7 x9

+.05

+.04

+.87

1327 slow = 123.73±

12 21 16.33

6 39

1 05.55

19 01 21.88

18 59 18.17

.29

394 fast of 1327 = 123.71

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1882phae.proj.1802R

Sept: 27.2

R Lyrae

2.3 9.6 ~~1.9~~

5.0 ---

8.0 4.0 2.0

0.9 1.0 1.9

3.5 8.0 1.5

9.3 ---

2.3 9.3 1.6

5.0 6.7 1.7

8.0 3.5 1.5

0.8 0.8

(Adds)

157) 12.9

18 49 ~~41~~.86

51 ~~41~~.84

-.39 -12~~4~~.98

1.02 +.05

47.11 +.04

46.84 +.8~~2~~3

1327 slow = ~~124.00~~ 124.06

12 25 12.87

~~11 45 47.25~~

6 24

103.08

~~18 10 50.49~~

18 50 15.95

18 48 12.23

394 fact of 1327 = 123.72

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1882phae.proj.1802R

Oct 17 B Amigas

21.4	79.9	101.3
24.3	76.9	.2
27.0	74.1	.1
30.3	71.2	.5
33.1	68.2	.3
39.0	67.2	.2
42.0	59.2	.2
44.9	56.2	.1
47.8	53.4	.2
50.6		50.6
		11.7
	5− 48	50.62
	5− 50	57.29
		−126.67
		− .09
		− .06
		+ .83
		125.99

.40
.16
−.24
+.02
57.51
.29

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1882phae.proj.1802R

~~Oct 2.~~

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1882phae.proj.1802R

Oct 2.3

T Pegasi.

1.9	6.9	8.8
4.2	4.6	8.8
6.7	2.3	9.0
8.8	0.1	8.9
1.1	8.1	9.2
5.6	3.4	9.0
8.0	1.3	9.3
0.1	9.2	9.3
2.3	6.9	9.2
44.7		44.7
		10.2
23	12	44.54
23	14	52.29

$-127.75 \pm$

$+.49 \}\pm$

$+.34 \}$

$+.88$

1327 elem = $126.04 \pm$

Wire discordant. Value of n need [illegible].

12	44	55.63
10	19	
	1	41.69
23	05	37.32
23	03	31.30

394 part of 1327 = 126.02

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1882phae.proj.1802R

Oct 3.2 R Lyrae

8.0	1.0	9.0	9.0
0.9	3.6	1.6	8.9
3.7	5.0	8.5	8.6
6.7	4.9	1.5	8.8
39.4	2.1	4.7	39.4
	8.0	4.3	3.7
	4.9		

18 49 39.41
18 51 46.68
−127.27
−.05
−.03
+.88
1327 elem = 126.47

.29
.4
+.12
+.02
46.54
.68

12 48 52.18
6 08
1 00.45
18 57 52.63
18 55 46.27
394 part of 1327 = 126.36

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1882phae.proj.1802R

Oct. 3.2 4 α Lyrae

4.6	7.4	2.0
7.1	4.8	1.9
9.8	2.1	1.9
2.3	9.3	1.6
4.9	6.9	1.8
0.5	1.4	1.9
3.2	8.9	2.1
5.8	6.2	2.0
8.3	3.6	1.9
51.0		51.0
		18.1

18 30 50.95
18 32 58.65 3
- 127.68
+.11
+.08
+.48

1327 obs = 1265.1

.26
.83
+.08
+.02
58.53
.53

---

12 52 48.74
5 48 4
0 56.675 10

18 37 45.77 35
18 35 38.20

394 feet of 1327 = 127.15

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1882phae.proj.1802R

Oct 7.2 R Leonis

9.3	6.5	5.8
2.1	3.7	.8
5.0	0.8	.8
7.9	7.9	.8
0.8	5.0	.8
6.3	9.3	.6
9.3	6.4	.7
2.1	3.6	.7
5.0	0.9	.9
7.9		37.9
		16.8
		37.89
18	49	46.56
18	5-1	47.39
		8.67
		-128.70
		- .08
		+.88
		+128.70

.85
1
+.26
+.02
47.11
.39

1327 slow = 127.87

---

13 04 38.39
5- 5-1
57.66
18 5-6 36.05-
18 5-4 28.32

394 fast of 1327 = 127.73

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1882phae.proj.1802R

Oct. 9.2

θ Lyra

19958.7	19.5	182
1.2	16.9	181
3.8	14.2	180
6.4	11.7	181
9.0		9.0
		814
1910		9.04
1912		18.56
		-129.52
		+ 23
		+ 92
		+ 115
1327 slow		128.37

24)50
25
5

.134
1.72
268
938
134
.23048

.047)-.08

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1882phae.proj.1802R

Oct-13.5 B Androm. Reduced to Middle.

04.8	2.5	02.3
07.3	5.0	.3
09.8	7.5	.3
12.0	10.0	.0
17.1	15.1	.0
19.9	17.6	.3
22.4	20.1	.3
24.9	22.6	.3
27.4	25.1	.3
		21

1 01 02.23
1 03 12.94
-130.71
+.21
+.15
+.92

1327 slow = 129.43

$\delta = 35° 00'$

$\sec \delta = \frac{1}{.819}$

.819) 2.06 (2.51
1638
4220
4095
1250

.045
.017
.062
.6
+.04
+.02
12.88
.94

---

13 28 17.70
11 12
1 50.39
24 42 08.09
0 39 58.47

394 feet of 1327 = 129.62

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1882phae.proj.1802R

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1882phae.proj.1802R

Oct 15.4, 1882 6 Pegasi.

0.1	3.6	3.7
2.4	1.4	.8
4.4	9.1	.5
6.7	7.0	.7
8.9	5.0	.9
8.1	0.6	.7
5.4	8.3	.7
7.4	6.0	.4
9.7	4.0	.7
22.0		2.0
		16.1

	23	44	21.85
	23	46	33.63
			131.78
			+.56
			+.41 ±
			+.92
1327 slow	=		129.87 ±

.040
.014
.026
.7
-.02
+.02

13	96	10.82
10	11	
	1	40.37
23	48	51.19
23	46	41.77

394 feet of 1327 = 129.42

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1882phae.proj-1802R

Oct 20.4 α Andr 22 Andr

5.7	2.7	8.4		3.6	
7.9	0.4	8.3		0.7	
0.1	7.7	7.8	1.0	7.8	8.8
2.6	5.5	8.1	3.8	4.7	8.5
5.0	3.1	.1	7.0	2.0	9.0
9.8	8.9	.7	2.8	6.1	8.9
2.2	6.3	.5	5.7	3.1	.8
4.7	4.0	.7	8.5	0.1	.6
6.8	1.4	.2	1.1	7.1	.2
09.1		09.1	04.1		04.1
		2.9			4.9

.03
.014
.044
.7
±.03
±.02
22.07
.12

0h 00 09.15
02 22.12
−132.97
±.37
±.26±
±.92±
131.42±

.078
.028
.09
.7
±.06
±.02
16.18
.28

.045
.017
.062
.7
±.04
±.02
16.45
.71

0h 02 04.26
04 16.71
−132.45
−.10
−.07±
±.92±
131.70±

α Pegasi

1.7	9.1	0.8
4.0	6.7	0.7
6.0	4.9	0.9
8.3	2.8	1.1
20.7		20.7
		4.2

.04
.01
.05
.07
±.04
±.02
33.55
.61

23 44 20.47
46 33.61
−133.14
±.57
±.41
±.92
131.23

planets

6.1	1.7	7.8
9.8	7.9	.7
3.4	3.9	.3
7.1	0.0	.1
1.1	6.1	.2
8.9	8.7	6
2.4	5.0	.4
6.0	1.1	.1
9.8	7.6	.4
23.9		23.9
		13.5

23 46 28.71
48 35.23
−131.52
−.62
−.43
±.92
131.65

1.537
.912
.62

.10
.02
.12
.9
±.09
±.02
35.12
.23

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1882phae.proj.1802R

Evidently the arithmetic value of m is wrong.

The upper pair combine so as easily to eliminate m giving

~~(8x.42)+70~~ ~~(37x.42)~~
~~90~~

$$\frac{(10 \times 42) + (37 \times 70)}{47} = 47)3010(64 \qquad \text{or } 132\text{)clear} = 131.64$$

420
2590
3010
282
190
188

The lower pair give 131.23
131.65
4)1.88
.44

or 132clear = 131.44

131.4 or 131.5 is probably as good as we can estimate. But we reasonably to be expected error in m will account for the discrepancie. Probably the observations are bad.

Ar 9.2 128.35
10.4 131.45
(11.2) 3.10
.28

4.5
144
116

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1882phae.proj.1802R

Oct 25.0 -12 14

I	II	II ⊙	
55	54/6	58	micrm
45.1	40.4	57	42.75
42.0	42.6		42.80
41.0	44.7		42.85
38.7	46.9		42.80
36.5	49.0		42.75
34.4	51.0		42.70
32.3	53.1		42.75
30.1	55.2		42.65
28.1	57.5		42.85
		13 57	42.77
		13 59	57.95
			135.18
11-1.13			1.94
1.72			0.92
1327 Shw			132.32

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1882phae.proj.1802R

BR. 26.3 (+6 7.1)

110	282	393
135	261	6
157	239	6
176	219	5
200		

19 49 1978
19 49 3402
−134.44
+1.37
+ 92
131.95

Obs without illumination search visible

Uhl's

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1882phae.proj.1802R

Oct. 26.7

α 2m Maj. (+40 31 / +38 5)

8 48

45.5 71 2 116.7 / 6
48.9 67 7 4
52.1 64 3 5
55 3 61 2
58.3

8 48 58.28
α 8 51 11.34

−133.06
− 37
+ 92

64

1327 Klum = 132.51

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1882phae.proj.1802R

CN 27 8 (+15 13)

3 Loops

11 40

5	~~40~~ 50.1	~~41~~	3.1
6	52 2		5.1
7	54 3		7.2
8	56.6		9.3
9	58.7		11 4
	~~50.0~~ 54.38		7.22

11 40 50.10

11 ~~43~~ 4.63

− 134 53

+64 + 1, 10

+ .92

1727 Chw 132.51

1284
2.14

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1882phae.proj.1802R

Oct 28, 2 (+38 40)

2 Lyrae

18 3

33.6 54.7 88.3

36.2 51.9 81

38.8 49.2 0

41.7 46.5 2

43.8

18 30 44 04

18 32 58 04

− 134.00

+ .13

+ .92

132.95 slow

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1882phae.proj.1802R

Oct-30.3

5.1	4.6	9.7
8.1	1.6	.7
1.0	8.6	.6
3.9	5.6	.5
7.0	2.9	9.9
3.0	7.0	0.0
5.9	3.9	9.2
8.8	0.9	.7
1.8	7.8	9.6
5-4.8		5-4.8
		15.7

.25
.3
-.07
+.012
8.852
.77

21 22 54.83
25 08.77
-133.94
-.12
-.08
+1.03
133.11

137 slow =

1882phae.proj.1802R

Nov. 22/82

η Pegasi

×	0.7	
5.4	8.3	33.7
8.0	6.2	4.2
0.5	3.4	3.9
3.0	1.1	4.1
7.4	6.2	3.6
0.0	3.7	3.7
2.3	1.4	3.7
4.2	9.3	3.5
17.0		17.0
		15.4

.15
.01
.14
.6
-.08
+.02
32.31
.25

22 35 17.81
22 37 32.25-
-135.44
+.35
+.24
+1.03

1327 slow = 133.82

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1882phae.proj.1802R

Nov. 4.2

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1882phae.proj.1802R

Nov 5.4 U Pisc.

4.7	1.2	5.9
7.1	8.7	5.8
9.3	6.2	5.5
1.7	4.0	5.7
4.1	2.0	6.1
8.8	7.2	6.0
0.9	4.9	5.8
3.1	2.4	5.5
5.4	0.0	5.4
8.0		8.0
		16.7

1 10 47.88

.01c 1 12 64.01

−136.13

+.41

+.29

+1.03

327 obs = 134.40

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1882phae.proj.1802R

Nov. 8.4 q Aurigæ

6.9	1.7	8.6
9.0	9.5	.5
1.3	7.1	.4
3.6	5.0	.6
5.8	2.9	.1
0.4	8.1	.5
2.6	6.0	.6
5.0	3.9	.9
7.0	1.7	.7
9.2		9.2

19. 57

1 56 19.30
2 02 36.59
37.16

- 137.29
+.48
+.34
+1.03

135.44

.055
.018
.037
.018
-.02
+.02

1882phae.proj.1802R

Nov 9.3 ζ Pegasi

ζ Pegasi

0.0	1.9	1.9
2.0	9.8	.8
4.1	7.6	.7
6.2	5.6	.8
8.3	3.4	.7
2.5	9.2	.7
4.5	7.1	.6
6.6	5.1	.7
8.7	3.0	.7
1.0		1.0
		16.6

.135 / 2 / ±.08 / ±.02

22 33 20.83

35 38.43

-137.60

+.74

+.52±

+1.03±

1327 obs 135.31±

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1882phae.proj.1802R

Nov. 11.4 η Pic.

~~5.8~~	8.5	4.3
8.0	—	
0.1	4.3	.4
2.2	2.0	.2
4.3	9.8	.1
8.6	5.9	.5
0.9	3.8	.7
3.0	1.7	.7
5.1	9.3	.4
57.2		57.2

0.5

.00
.01

1	22	57.18
1	25	15.01

−137.83
+ .65
+ .46±
+1.03±

1327 abs 135.69±

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1882phae.proj.1802R

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1882phae.proj.1802R

Nov 14.4 41 Aries

6.9	3.0	9.9
9.0	1.0	0.0
1.3	8.6	9.9
3.8	6.2	0.0
6.1	3.9	0.0
0.9	9.2	0.1
3.0	6.9	9.9
5.1	4.8	9.9
7.7	2.1	9.8
50.0		50.0
		-.5

.09
.02
.07
.2
-.01
+.02

2 40 49.97
2 43 07.91
-137.94
+.41
+.29
+1.03±
136.21

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1882phae.proj.1802R

Nov 15. 4

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1882phae.proj.1802R

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1882phae.proj.1802R

Nov. 18.2

ℒ Mus. Maj. L. C.

9.6	0.6	0.2
7.7	2.7	0.4
5.6	4.9	0.5
3.4	6.8	.2
1.5	8.7	.2
9.6	1.0	.6
7.5	3.0	.5
5.5	4.8	.3
3.3	6.9	.2
1.4	9.0	.4
9.4	1.0	.4
7.5	3.3	.8
21^h	21^m	$45^s.5$

β Cephei N.C. $45^s.27$

9.5	8.4	7.9
1.3	6.2	7.5
8.4	4.0	7.4
5.4	1.9	7.3
7.5	9.9	7.4
9.4	7.7	7.1
1.7	6.0	.7
3.6	4.0	.6
5.7	1.6	.3
7.5	9.6	.1
9.4	7.7	.1
1.5	5.8	.3
		$53^s.2$
21^h	24^m	16.9
		53.89

74 Leggi

1.0	4.9	5.9
3.7	2.1	.8
6.2	9.3	.5
9.0	6.9	5.9
1.9	4.1	6.0
7.1	8.8	5.9
9.8	6.0	.8
2.5	2.3	.8
5.1	0.7	5.8
57.9		57.9
		17.3
21	29	57.91
	32	16.03
		138.12
		+ .08
		+ .05
		+ 1.12
		136.87

.21 .2 .04 +.02

3 Leggi (Mie Bestimm.)

0.2
3.9
4.8
1.4
2.8
6.5
0.7
4.6 0.9
7.9 8.7
4/1.5

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1882phae.proj.1802R

α Ursae Maj. L.C.

Obsd. Time Transit

21h 21m 45s.21

24 7.45

−142.24

.39
.4
+.16
.02
7.27
7.45

α Cephei M.C.

Obsd Time Trans.

21h 24m 53s.68

27 9.62

−135.94

.30
.4
+.120
+.02
9.48
9.62

α Ursae maj. L.C.

Obsd. Sidereal Time

21h 21m 45s.21

24 7.45

−142.18

135.73

6.45

5.55

1.16

900

555

345

β Cephei M.C.

21 24 53.68

27 9.62

−135.94

2.798
2.755
5.553

$n = 1.77$

3.55) 6.30 (1.77

355

350

345

2650

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1882phae.proj.1802R

Nov. 22.3

16 Pegasi

3.1	8.8	1.9
5.2	6.3	.5
7.8	4.1	.9
0.0	1.8	.8
2.1	9.7	.8
6.9	5.0	.9
9.0	2.8	.8
1.1	0.4	.5
3.5	8.0	.5
25.8		25.8

16.4

25.86

21 45

47

−138.69

+.44

+.31

+1.12

137.02

.155 .16 −.00 7.02 44.83 .75

63.29 .44

1882phae.proj.1802R

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1882phae.proj.1802R

Nov 24.5 α Persei

11.0	14.5	5.5			
14.1	11.2	.3			
17.4	8.1	.5			
20.8	5.0	.8			
23.8	1.9	.7			
30.1	—	—			
33.1	52.2	.3			
36.5	49.1	.6			
39.7	46.0	.7			
42.9		42.9			
~~46.0~~		13.3			

α Persei

52.2	—	
54.5	—	
56.7	—	
58.7	—	
0.7	25.6	6.3
4.9	21.6	.5
6.9	19.5	.4
9.0	17.2	.2
11.1	15.2	.3
13.1		13.1
		1.8

3 13 42.78
3 16 01.37
-138.59
- .26
- .18
139.03

3 16 13.16
3 18 32.89
-139.73
+ .76
+ .53
138.44

.06
.02+
.08+
.8
+.07
+.02
1.28
1.37

.05
.02-
.07-
.8
+.05
+.02
32.82
.84

76
26
102

103
76
618
721
828
1144

44
26
264
88
1144

Giving weight 20 as to eliminate error of π
we have - 138.88 uncorrected for level.
+ 1.14 correction " "
1327 slow = 137.74

102)8972(88
816
812
816

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1882phae.proj.1802R

Nov 30. 3

ϑ Aquarii

8.2	9.9	8.1
0.5	7.9	.4
2.3	5.9	.2
4.5	3.7	.2
6.7	1.7	.4
0.7	7.5	.2
3.0	5.5	.5
4.9	3.5	.4
7.0	1.4	.4
22^h 8^m		19.1
		2.9
	8	19.15
	10	39.88
		−140.73

.27 .01 .26 .6 +.16 +.02 58.11 58.29

.12 .01 .11 .6 +.07 +.02 39.79 39.88 .13 .6 +.08 +.02 45.87 .97

31 Pegasi

7.7	4.5	6.8	1.3
9.7	6.7	4.7	.4
1.7	9.0	2.7	.7
1.0	0.4		.4
3.0	8.3		.3
7.2	4.1		.3
9.2	2.0		.2
1.3	0.0		.3
3.5	7.8		.3
22^h 13^m	25.5		
	12.7		
13	25.67		
15	45.92		
	−140.30		
	+.71		
	+.50		
	+1.14		
3			
(27 slow	187.95		

3 Lacertae

6.5	3.0	9.5
9.7	9.7	.4
3.2	6.3	.5
6.3	2.9	.2
9.8	9.7	.5
6.4	2.9	.3
9.6	9.6	.2
3.0	6.3	.3
6.4	3.0	.4
22^h 16^m	39.6	
	12.9	
16	39.68	
18	58.29	
	−138.61	

7 Lacertae

8.3	2.1	0.4
1.7	9.0	.7
4.9	5.8	.7
8.0	2.8	.8
1.3	9.8	1.1
7.6	3.2	0.8
0.5	0.0	.5
4.0	6.9	.9
7.1	3.7	.8
22^h 24^m	10.5	
	7.2	
	10.38	
22 26	29.10	
	−138.72	
	−.26	
	−.18	
	+1.14	
	138.02	

.25 .6 +.15 +.02 28.93 29.10

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1882phae.proj.1802R

~~Nov 30. 3 continued~~

F

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1882phae.proj.1802R

Dec 23

72 Pegasi.

5.3	3.8	8.6
7.8	0.9	.7
10.0	8.5	.5
2.6	6.0	.6
5.0	3.8	.8
9.8	8.9	.7
2.1	6.7	.8
4.6	4.3	.9
6.8	1.8	.6
23h	25m	4.99
		6.5

.14

.145
.4
+.06
+.02
2.93
10.01

25m 49.34

23 28 10.01

-140.67
+.32
+.26
+1.14
138.95
.00
+1.14

Androm.

7.1	3.3	0.4
9.9	0.2	.1
2.7	7.7	.4
5.6	4.9	.5
8.4	2.0	.4
4.0	6.4	.4
6.9	3.7	.6
9.4	0.9	.3
2.4	8.1	.5
05.1		5.1
		3.7

23 30 05.19

.18
.4
+.07
+.02
25.18
.27

23 32 25.27

-140.08
.00
+1.14
138.94

Using α = -1.2 sun has time by Andromeda unchanged. Also
" " 1327 along by 72 Peg = 139.15

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1882phae.proj.1802R

Dec. 3.4 α Persei. ζ Tauri

9.6	3.1	2.7	4.0	6.2	0.2
2.9	9.8	.7	6.1	4.1	.2
5.9	7.0	.9	8.1	2.0	.1
8.9	3.7	.6	0.3	0.1	.4
2.3	0.4	.7	2.7	8.0	.7
8.5	4.0	2.5	6.8	3.4	.2
2.0	1.0	3.0	8.9	1.4	.3
5.0	7.3	2.3	0.9	9.4	.3
8.1	4.3	2.4	3.0	7.2	.2
+.0	3 4 13	41.0	3 22	05.0	
		5.8		2.6	
		41.31		05.14	
	16	01.41	24	26.78	
		-140.10		-141.64	
		-.26		+.69	
		-.21		+.55±	
		+1.14		+1.14	
1327 slow		139.43	1327 slow	139.26±	

.06 .03 .03 .3 -.01 +.02

.06 .02 .04 .3 -.01 +.01

Bond 394

16	49	22.01
11	01	
	1	48.58
27	52	10.59
3	49	57.58

394 fast of 1327 = 139.01

Using $n = -1.2$ we have for 1327 slow

by α Per. . 139.27

by ζ Tauri 139.67

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1882phae.proj.1802R

Dec 4.3

21 32

74 62 sec

6.4	0.2	6.6
9.1	7.4	6.5
1.9	4.8	.7
4.3	2.0	.3
7.1	9.3	.4
2.7	4.0	.7
5.5	1.3	.8
8.0	8.8	.8
0.7	6.0	.7

53.2

5.7.

.205
.13
+.04
+.02
15.65
.71

21 29 53.30
32 15.71

−142.41
+.08
+.02
+1.08

1 ~~55~~

1327 sec = 148.23

Unaffected by fact that many values of n were used.

Dec 4.0 Bath Tin Ball ~~16.5 16 53 18.56~~
~~16 53 18.56~~
~~See page 76~~
about 1° late.

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1882phae.proj.1802R

Dec. 4.8

6 Cam Ven			6 Cam. Ven.			12 Cam. Ven.		
5.0	8.7	3.7	2.0	5.7	7.7	3.2	6.3	9.5
7.6	6.0	.6	4.5	3.0	7.5	5.8	3.7	.5
0.3	2.3	.6	7.3	0.9	.6	8.5	1.0	.5
3.0	0.6	.6	9.8	7.6	.4	1.9	8.3	.6
5.7	7.9	.6	2.6	5.0	.6	3.8	5.7	.5
8.7	1.0	2.7	.7	8.0	9.7	.7	9.2	0.4	.6
6.4	3.7	9.9	.6	0.8	6.8	.6	1.7	7.8	.5
9.0	6.4	7.1	.5	3.4	4.2	.6	4.5	5.0	.5
1.9	9.0	4.5	.5	6.0	1.5	.5	7.0	2.5	.5
4.5		41.9		12h	17m	58.8	12h	48	09.8
7.1		15.3				15.0			5.8
9.9		41.8				58.79			09.96
2.7	20	04.67				20 04.67	12	50	32.71
		-142.86				5.88			-143.75
		+.08							+.10
		2.02							+.08
		+1.08							+1.08
1327 chan		141.68					1327 chan		142.69

Using $n = -1.2$ we have by 6 Cam Ven 1327 chan = 141.69

12 " " " " = 141.75

1882phae.proj.1802R

Dec. 5.0 1327 and signals from Washington.

16 57 15.12	16 57 15.12	16 57 15.12
17 15 52.7	17 16 23.8	17 16 23.8
18 37.58	19 08.68	19 37.68

23 41.11
15.5
23 56.6 = Bost + Wash

−2.95
−0.10

18 34.53

Trial

2 21.7 ±
20 56.2 ±
23 56.6

16 57 15.12	16 57 15.12 (make circuit take for hmm.)	16 57 15.12
17 17 23.0	17 17 53.05	17 18 23.05
20 07.88	20 37.93	21 07.93

#

16 57 15.12
17 18 53.1
21 37.98

Wash to Camb. = 0h 23m 41.11
Camb to Bost = 15.50
Wash to Bost = 0 23 56.61
3.778
.155
24 00.54

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1882phae.proj.1802R

		5-3	18.56	5-3	18.56	5-3	18.56	5-3	18.56
	16	~~5-7~~	~~15.12~~	~~5-7~~	~~15.12~~	~~5-7~~	~~15.12~~	~~5-7~~	~~15.12~~
Washington	23h	5-7m	00.s	5-7	30.	5-~~8~~	00.	5-~~8~~	30.
		3	56.06	3	56.14	3	56.23	3	56.31
		24	00.54	24	00.54	24	00.54	24	00.54
		~~18~~ 22	15.16 ~~+1.72~~	~~14~~ 22	~~45.34~~ ~~41.80~~	~~19~~ 23	15.33 ~~11.69~~	~~19~~ 23	~~45.41~~ ~~41.97~~
	17	15-	52.7	16	23.8	16	52.8	17	23.0
			~~0.0~~						
			142.46		141.44		142.53		142.41

		5-3	18.56	5-3	18.56	57.12 5-7	15.12
	16	~~5-7~~	~~15.12~~	~~5-7~~	~~15.12~~		
	23	5-9	00.	59	30.	~~6~~ 60	60 00.
		3	56.39	3	56.47		3 56.55
		24	00.54	24	00.54		24 00.54
		~~24~~ 20	~~+2.05~~ 15.49	~~24~~ 20	~~42.13~~ 36.67		21 15.65 22 ~~+2.21~~
		17	53.05	18	23.05		18 53.1
			142.44		143.52		142.55

.46
.44 ×
.53
.41
.44
.52 ×
.55
7).55
142.48

1327 shown by Washington signals 142.48
" " " our observations 141.78
Our observations slow by Washington 0.7
Discrepancy

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1882phae.proj.1802R

q Peti

Dec 5.4 (Perri

7.0	8.3	5.3
9.0	6.1	.1
1.0	4.1	.1
3.0	3.1	.1
5.2	0.1	.3
9.3	6.0	.3
1.4	3.9	.3
3.4	1.9	.3
5.7	9.9	.6
2 55	47.7	
	12.1	
~~2 56~~	~~11.5~~	
	47.64	
2 56	11.58	
	-143.94	
	.85	
	.68±	
	+1.08	
	141.33±	

(Low Dec)

B Perri

~~7.1~~	~~15.9~~	0.0
~~3.2~~	~~16.7~~	7.2
5.1	1.2	4.8
7.2	4.0	1.9
9.2	6.7	9.2
	2.0	4.0
	4.9	1.0
	7.5	8.2
	0.2	5.6
12.9		

	5.9
	5.9
	6.0
	5.9
	5.9
	6.0
	5.9
	5.7
	5.8
	12.9
	17.9
2 55	12.94
2 60	36.03
	-143.09
	+.06
	+.05
	+1.08
	141.90

Mr. Chandler has pointed out that the value of n used is erroneous. It is not intended to use such declinations that this will ordinarily be material. But the last determination (Nov. 18) was wrongly calculated, and thereby apparently the n had not changed, when in reality it had. Correcting this we get n = -1.16. The value n = -1.2 will be accurate enough for S Antiti and B Perri.

B. Pers.	S Anti-
-143.09	-143.72
+.06	+.57
+.01	+.01
+1.08	+1.08
141.94	141.96 = 1327 slow.

1327 slow =

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1882phae.proj.1802R

~~q d~~ ~~δ Antiz = Para~~

2.9	6.4	9.3
5.0	4.2	.2
7.1	2.1	.2
9.3	0.0	.3
1.6	7.9	.5
6.0	3.4	.4
8.1	1.1	.2
0.2	9.0	.2
2.4	6.9	.3
4.8		34.8
		12.4
3	02	34.65
3	04	58.37
		-143.72
		+.57
		+.46 ±
		+1.08
		142.61 ±

(Adopted 20°)

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1882phae.proj.1802R

Dec. 6.2 π Aquarii

3.4	4.7	8.1
5.4	2.6	8.0
7.6	0.5	8.1
9.6	8.3	7.9
1.8	6.4	8.2
5.9	2.3	8.2
7.9	0.3	8.2
0.0	8.1	8.1
2.0	6.1	8.1
4.0		4.0
		0.9

22 16 54.05
22 19 18.45

144.40 -.40
-.27 +.90
-.05 +.18
+1.08 +1.08
143.24 142.24

.13
.1
-.01
+.02

1327 clow = 142.24

7^2 α Lacertae

x		
7.0	4.4	1.4
0.3	1.1	.4
3.7	8.1	.8
6.9	4.8	.7
3.0	8.7	.7
6.3	5.3	.6
9.3	2.2	.5
2.8	9.0	.8
5.8		5.8
		13.7

22 24 05.72
22 26 28.95

143.23 -.23
+.90 -.27
+.18 -.05
+1.08 +1.08
141.07 142.47

1327 clow = 142.47

Going α 7 towards triple right- 1327 clow = 142.41
thus eliminating error of n (used value n = -1.2)

.47
1.41
.24
4) 1.65
.41

Going π Aquarii triple right- 1327 clow = 142.30

24
3
72
47
4) 119
.30

1882phae.proj.1802R

Dec ~~Dec 6 (Civil Time)~~ Boston Time Ball

8:30 A.M. dup. $3^h\ 30^m\ 00^s$ before noon Dec 6.

~~Dec~~ ~~Ha~~ Sidl Time mean noon = 17 01 11.67

$-\{3\ 30\ 00.\}$

~~+~~ − 0 34.50

($8^h\ 30^m$ A.M. accord to 394

(Comb. Sidl time of ~~dup, assum 394 right by Bost. M.T.~~) 13 30 37 ~~46~~.17

1327 slow of ditto assuming ~~394 ditto noon~~ 394 mean by Boston M.T. 2 23.07

Time by 1327 for $8^h\ 30^m$ A.M. by ~394 13 28 ~~14~~.1

Chronom^r Time by 1327 observed for dup 13 28 15.1

Yardmin of ball as observed with Dunny comb Clocker 1.0

Dec. 6.0 noon. 17 01 11.67

2 22.87

Time by 1327 ~~for noon dup~~ for 12 M. by ~394 = 16 58 48.8

49.7

Apparent Yardmin of Ball 0.9

4:00 P.M. dup. 17 01 11.67

4 00.

+ 39.43

17 05 51.10

2 23.00

17 03 28.1

28.6

Apparent Yardmin of Ball 0.5

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1882phae.proj.1802R

~~Dec. 5th 4.0 (out of date)~~

Dec. 6.0 Washington Mean Signals.

17 01 11.67	01 11.67	01 11.67	01 11.67	01 11.67
23 57 00.	58 30.	59 00.	59 30.	60 00.
3 56.06	3 56.30	3 56.39	3 56.47	3 56.55
17 02 07.73	03 37.97	04 08.06	04 38.14	05 08.22
~~17 24 00.54~~	~~24 00.5~~			~~22 49.4~~
17 19 48.9	21 19.1	21 49.3	22 19.3	22 49.4

16 57 15.12	57 15.12	57 15.12	57 15.12	57 15.12
23 57 00.	58 30.	59 00.	59 30.	60 00.
3 56.06	3 56.31	3 56.39	3 56.47	3 56.55
16 58 11.18	59 41.43	61 11.51	60 41.59	61 11.67
2 22.88	2 22.88	2 22.88	2 22.88	2 22.88
16 55 48.30	57 18.55	58 48.63	58 18.71	58 48.79
17 19 48.9	21 19.1	21 49.3	22 19.3	22 49.4
24 00.60	24 00.55	24 00.67	24 00.59	24 00.61

394 feet of 1327 (sidereal-time-interval as per comparison recorded in Pocket-Record No. 12)

.60
.55
.67
.59
.61
5)3.02
.60

Mean 24 00.60
3.93
23h 56s.67

Correction for reducing Boston Mean Time as furnished by H.C.C. to Washington Mean Time as furnished by Naval Obsy.

23 56.67
Long. Boston east of Wash 23 56.61

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1882phae.proj.1802R

Dec 7.2 γ Pegasi

12 hrs

8.0						9.6	1.0	0.6
0.0								
9.9						1.8	8.9	.7
2.3	0.4	8.X	.4	8.0	0.4			
4.5	8.5	.X	.5	0.X	8.5	9.8	7.0	.8
6.5	6.X	.6	.4	2.X	6.2	5.7	4.4	.5
0.7	4.1	.7	.6	4.4	4.1	7.8	2.7	.5
2.8	2.0	.5	.5	6.4	2.0	1.9	4.5	.4
4.9	7.9	.5	.6	0.7	7.9	4.1	6.4	.5
7.0	5.7	.5	.5	2.8	5.7	6.1	4.0	.1
9.3	3.6	.5	.5	4.9	3.6	8.1	2.1	.2
1.X		.4	.3	7.0	1.3			
		9.3	.3					
		4.9	4.6					
		9.26	.24					

0 19 49.24

21 40.2

4.5

21 40.24

Watham Wash. Signals of Dec. 6.0 continue.

Wash. to Camb.	23m 41.11	17h 21m 15.66	21 15.66	21 15.66	21 15.66	21 15.66	21 15.66
	3.778	23 57 00.	58 30.	59 00.	59 30.	60 00.	
	.112						
	23m 45.00	3 56.06	3 56.31	3 56.34	3 56.47	3 56.55	
Wash. to N.Y. & Wash. to N. Dec. 5.	16 57 34.55	17 22 11.72	23 41.97	24 12.05	24 42.13	25 12.21	
	3.89						
Camb. to N.Y. & Camb. to N.	16 57 30.66	17 19 48.9	21 19.1	21 49.3	22 19.3	22 49.4	
	23 45.00						
	17 21 15.66	2m 22.82	22.87	22.75	22.83	22.81	

22.82
.87
.75
.83
.81
5)4.08
22.82

1327 alone of Camb. Sidl. Time according to Washington signals } 2m 22.82

1882phae.proj.1802R

Waltham

Dec 7.0 17 05 08.23
17 33 50.4

Dec 7.0 Washington Time Signals.

17h	23	15.9	23m	40.s00	(coincidence)	24m	15.s05	24	45.1	25m	15.3	25m	45.3	26m 15.4
23	56	31.	57	25.		57	30.	58	00.	58	30.	59	00.	59 30.
	3	55.98	3	56.05		3	56.14	3	56.23	3	56.31	3	56.39	3 56.47
17	23	42.88		.05			41.19							

~~16 57 24.55~~

17 01 31.10
3.89
17 01 27.21
23 45.00
17 25 12.21

17h	25m	12.s21	25m	12.s21		25m	12.21	25m	12.21	25m	12.21	25m	12.21	25m 12.21
23	56	31.	56	55.		57	30.	58	00.	58	30.	59	00.	59 30.
	3	55.98	3	56.05		3	56.14	3	56.23	3	56.31	3	56.39	3 56.47
17	25m	39.19	26	03.26		26	38.36	27	08.44	27	38.52	28	08.60	28 38.68
17	23	15.9	23	40.00*		24	15.05	24	45.1	25	15.2	25	45.3	26 15.4
0h	2m	23.s29		23.s26			23.30		23.34		23.32		23.30	23.28

.29
.26
.23
.34
.32
.30
.28
7)2.02
.29

Mean 2m 23.s29 = 1327 slow according to Washington signals.

* Coincidence

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1882phae.proj.1802R

Dec 8,4 δ Persei

~~4~~.1	5.0	9.1
7.0	1.9	8.9
0.1	9.0	9.1
3.3	6.0	9.3
6.2	3.0	9.2
2.2	~~6~~.8	9.0
5.4	3.6	9.0
8.4	0.7	9.1
1.3	7.7	9.0
		14.7
		10.4
3	3~~2~~	14.55
3	34	38.81
	-2	24.26
		-.17
		-.04
		+1.04

127 stars = $2^m\ 23^s.43$

o Persei

2.5	0.9	3.4
4.9	8.5	.4
7.3	5.9	.2
9.7	3.9	.6
2.1	1.2	.3
7.0	6.4	.4
9.6	4.0	.6
1.8	1.5	.3
4.2	9.1	.3
		36.8
		13.3
3	3~~4~~	36.70
3	3~~7~~	01.32
	-2	24.62
		+.29
		.06
		+1.04

132 stars = 2 23.23

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1882phae.proj.1802R

D cc 9.3 Ti Androm

0.0	9.1	9.1
2.2	6.7	8.9
5.0	4.1	9.1
7.2	1.7	8.9
9.8	9.1	8.9
4.7	9.2	8.9
7.0	2.0	9.0
9.5	9.3	8.8
1.9	7.0	8.9
		9.3
		8.8

.145
.009
.15
3
-.04
+.02

0 28 14.46
0 30 39.45
-2 24.99
+.26
+.05
+1.04

1927slow = 2^m 23.64

1882phae.proj.1802R

Dec +11.7 12 Cam. vm.

~~0.3~~	3.3	3.6
2.9	0.7	.6
5.5-	8.0	.5-
8.1	5.2	.3
1.0	2.5-	.5-
6.0	7.2	.2
8.8	4.8	.6
1.3	2.0	.3
4.1	9.3	.4
		6.8
		13.8

12 48 06.73
50 32.48
-2 25.75-
+.11
+.02
+1.04
1727 alone = 2m 24s.68

.26
.02
.24
.5-
-.17
+.02
32.68
.48

1882phae.proj.1802R

Dec 12.3 γ Androm. [Merz Cir.]

1.5	6.9	8.4
4.1	4.1	.2
6.9	1.3	.2
9.7	8.7	.4
2.6	5.7	.3
8.0	0.1	.1
0.8	7.5	.3
3.7	4.6	.3
6.3	2.0	.3

19.1

2.6

1 54 19.14

1 56 45.45

− 2 26.31

+.02

.00

+1.04

2m 25s.25

1327 slow =

.115
.02
.095
6
−.06
+.02
45.49
5

1882phae.proj.1802R

Dec 13.4 q Aurigae

9.3	8.8	8.1
2.3	5.9	.2
5.2	3.0	.2
8.3	9.9	.2
0.1	6.9	.0
7.1	1.1	.2
0.1	8.0	.1
3.1	5.0	.1
6.1	2.0	.1

39.0
1.2
5- 05- 39.06
8 05.79
2 26.73
-.12
-.02
+1.04
2 25.63

.11
.03
.14
.7
+.10
+.02
05-.07
.79

1327 alone =

1882phae.proj.1802R

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1802phae.proj.1802R

Dec 15.2 0 Androm

4.0	3 5.0	1 4.0
0 4.8	0 8.4	.2
3 4.3	1 8.8	.1
6 4.3	5 6.0	.3
9 4.0	8 8.3	.3
4 5.6	6 7.9	.5
1 8.2	3 4.9	.1
0 4.1	1 8.0	.1
2 3.9	8 4.3	.2
	0 5 6.7	
	11 .5	
22	5-4 05.61	
	5-6 33.03	
	2 27.42	
	+ .02	
	+ .00	
	+1.04	
	2 26.36	

.19
.2
-.17
+.02
33.15
.03

1327 23 09 56.47
74 5-1 00.

1882phae.proj.1802R

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1882phae.proj.1802R

Dec 17.2

0 Andromm

7.2	2.7	9.9
0.0	9.9	.9
2.8	7.0	.8
5.7	4.1	.8
8.3	1.5	9.8
4.0	6.0	0.0
6.7	3.1	9.8
9.4	0.5	.9
2.1	7.7	.8

05.0

17.7

22 5 05.93

5 6 32.99

− 2 27.06

+.02

.00

+1.04

1327 elem = 2 26.00

.19
.9
+.17
+.02
32.80
.99

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1882phae.proj.1802R

Dec. 18.3 μ Andromedae

2.1	4.3	6.4
4.9	1.8	.7
7.7	9.2	.9
0.1	6.5	.6
2.8	4.0	.8
6.8	8.9	5.7
0.6	6.1	6.7
3.3	3.6	.9
5.8	1.0	.8

0 47 48.3

58

48.30

50 17.23

~~2 18.93~~

− 2 28.93

+.14

+.09

+1.04

2 27.72

.13
.61
.14
.3
+.04
+.02
+.06
~~12.48~~
17.17
17.23

1327 slow

1327 0 40 54.26

34s. 60.00

μ Andromedae.

7.8	3.0	0.8
9.9	0.6	.5
2.5	8.2	.7
4.5	5.1	6
6.7	3.9	.6
1.5	9.6	1.1
3.7	7.1	.8
5.9	4.8	.7
7.9	2.7	.6

40.3

6.7

0 47 40.35

~~50 17.31~~

~~− 2 36.96~~

~~+.14~~

~~+.04~~

+1.04

~~2 35.74~~ 2

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1882phae.proj.1802R

19.3 π Andromedae.

9.9	9.6	9.5
2.3	7.0	.3
4.7	4.7	.4
7.2	2.1	~~8~~ .8
	09.7	
28	6.2	
28	09.69	
30	39.24	
	~~48.93~~	
− 2	29.55	
	+.26	
	+.05(±)	
	+1.04	

1327 slow = 2 28.20(±)

1327 0 40 54.26
3457 00.

1327 0 41 53.71
3451 ~~48.29~~

ε Andromedae

~~π~~ Andromedae		
0.7	7.6	8.3
2.9	5.0	7.9
5.1	2.9	8.0
7.7	0.4	.1
0.0	8.1	.1
4.6	3.4	8.0
6.9	1.0	7.9
9.2	4.8	8.0
1.9	6.3	.2

.14	.13		54.0
.01	+.01	29	8°.5
.15	.14		03
.3	.3		54.50
.04	+.04	32	23.66
39.18	+.02	30	39.22
39.22	.10		
.02	.66		~~44.72~~
39.24			63
		− 2	29.76
			{+.37 / +.07 ±}
			+1.04
			~~2 27.68 ±~~
			2 28.15 ±

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1882phae.proj.1802R

Dec. 20.3 π Andromedae. ∫ Andromedae

4.4	3.8	8.2			
7.0	1.2	.2			
9.3	8.9	.2			
1.9	6.4	.3			
4.2	3.9	8.1			
9.0	8.9	7.9		5.0	
1.7	6.5	8.2	8.3	2.5	0.8
4.2	3.9	.2	0.8	0.1	.9
6.7	1.6	.3	3.0	7.8	.8

.14 .01 .15 .46 +.069 +.02 .0611 39.14 39.249

09.6 28 1.6 09.08 30 39.24 30.21 −2 29.76

.13 .01 .14 .46 +.06 .04 +.02 .02 5.54 5.58 5.60 5.68

35.4 30 2.9 30 35.41 33 5.68 −2 30.27

+.26 +.05 +1.04 2 28.41 2 28.86

+.33 +.07± 1.04 2 28.83±

1327 clow 1327 clow

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1882phae.proj.1802R

Dec. 21.3 o Bass. π Andromedae

	2.3	4.1	6.4	3.7	2.8	6.5
	6.0	1.1	7.1	6.0	0.3	6.3
	9.0	8.0	7.0	8.6	8.0	6.6
	2.0	4.9	6.9	1.0	5.7	6.7
	5.0	2.0	7.0	3.6	3.1	.7
.15 .01 .16 .5 .08	1.3	5.9	7.2	8.5	8.3	.8
	4.4	2.8	7.2	0.9	5.7	.6
14.01	7.5	9.8	7.3	3.5	3.2	.5
14.09 .02 14.11	0.6	6.7	7.3	5.8	0.8	.6
		43.5			08.1	
	35	9.9		28	5.4	
		43.52	.15 .01 .16 .5 .08 .02 39.14		08.28	
	38	14.11		30	39.28	
	-2	30.59	39.24	-2	31.00	
		-.18			+.26	
		-.08			+.05	
		1.04			1.04	
	2	~~29.34~~		2	~~30~~.65	
		29.76			29	

1327 slow

1327 slow.

This result seems to be discredited by all other evidence.

1327 2 04 52.94
9451 60.

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1882phae.proj.1802R

Dec 24.3, 1882. The "5-39 stumm" being not-at-hand (can't find it-tonight) we will commence using the "Berliner Astronomisches Jahrbuch" für 1883"; since we are already within 10 days (or less) of Jan 0, 1883.

γ Androm.

5.6	0.9	6.5
8.2	8.0	.2
1.0	5.2	.2
8.9	2.7	.6
6.7	9.9	.6
2.1	4.4	.5
4.9	1.6	.5
7.7	8.8	.5
6.5	6.0	.5
		2.1
		4.2

.16
.7
+.11
+.02
45.16
.31

1 54 13.22
1 56 45.31
− 2 32.09
+.02
.00
+1.04

1327 elem = 2 31.03

β Arietis.

9.7	9.7	9.4
2.0	7.1	.1
4.8	4.7	.5
7.0	2.1	.1
9.7	9.7	.4
4.7	4.7	.4
7.1	2.1	.2
9.6	9.7	.3
2.1	7.0	.1
		4.6
		12.1

.11
.7
+.06
+.02
26.86
.96

2 00 04.64
2 02 36.96
− 2 32.32
+.22
+.04
+1.04

1327 elem = 2 31.02

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1882phae.proj.1802R

Dec. 25.3 1882.

π Andromedae

1.9	~~2~~.0	2.9
4.3	8.6	.9
6.7	6.0	.7
9.1	3.7	.8
1.6	1.1	.7
6.7	6.2	.9
9.0	3.9	.9
1.4	1.3	.7
4.0	8.9	.9

~~06.4~~ 06.4

~~0 24~~ .8

0 28 06.41
0 30 39.20
— 2 32.79
+ .31
+ 1.04
2 31.44

1827 slow

δ Andromedae.

8.9	6.7	5.6
1.3	4.1	.4
3.6	2.0	.6
6.0	9.5	.5
8.2	7.0	.2
~~8~~.1	2.3	.4
5.6	9.8	.4
8.0	~~9.8~~ 7.5	.5
0.3	~~7.6~~ 5.1	.4

.14
.6
+.05
+.02
~~05.85~~
05.60
05.62

~~25.1~~
~~22.28~~
19.88
22.73
0 33 05.60
~~2 44.87~~
2 22.87
+.42±
+1.04
2 21.41

1827 slow

1882phae.proj:1802R

~~Dec. 25.5 1882.~~ Test Calculation suggested by Prof. R. Sirius

~~Obsd. time of transit~~ T = 1h 14m 54.s18 44m 00.s06 54m 19.s07 58m 09.s62

T = Obsd time of transit: R.A. = Right-Ascension corrected for diurnal aberration. δ = decl

Sirius T =	1h 14m 54.s18	44m 00.s06	54m 19.s07	58m 09.s62	60m 10.s53
R.A. =	16 42.17	46 26.65	56 45.44	60 36.50	62 37.07
R.A. - T =	-1m47.s99	-1 26.59	-2 26.37	-2 26.88	-2 26.54
Corr δ	+43.73	+.74	+.95	+.63	+.84

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1882phae.proj.1802R

Orbit-Calculation, continued.

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1882phae.proj.1802R

Dec. 26.7 1882.

γ Bootis.

1.7	4.9	6.6
4.4	2.0	.4
7.0	4.5	.5
9.7	6.6	3
2.3	3.9	.2
7.6	8.9	.5
0.4	6.1	.5
2.9	3.6	.5
5.7	1.0	.7

+.02
+.02
21.40
21.44

48.2

24 4.4

24 48.23

14 27 21.44

- 2 33.21

+ .11

+ .02

+ 1.84

1827 slow 2 32 .84

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1882phae.proj.1802R

Dec. 28.2 1882

22 Andromedae

2.8	1.3	4.1
5.6	8.0	3.6
8.4	5 4.3	.7
1.3	2.3	.6
4.3	9.6	.9
0.0	8.7	.7
2.9	0.8	.7
5.9	7.8	.7
8.9	4.8	.7

41.7

1 16.4

41.86

04 15.66

33.80

−0.09

+1.14

2 32.75

ζ Andromedae

2.9	9.0	1.9
5.8	6.0	.8
8.6	3.3	.9
1.2	0.6	.8
4.0	7.9	.9
7.7	2.0	1.7
2 4.6	9.4	2.0
5.1	6.5	1.6
8.1	3.6	.7

.20
.3
.06
.02
24.70
.78

0.8

17 0.1

23 29 50.93

32 24.78

− 2 3 3 35 86

− .01

+ 1.14

1327 low = 2m 33s.22

32.75

1882phae.proj.1802R

Dec. 29.4. 1882.

Alle Sterne markirt 1 Stern Lange.

θ Aurigae

7.7	9.5	7.2
0.2	6.9	.1
2.7	4.4	.1
5.3	1.8	7.1
8.1	8.8	6.9
3.0	3.8	6.8
5.7	1.4	7.1
8.0	8.9	6.9
1.0	6.3	7.3

13.7

10.2

49 18.54

5 51 47.40

− 2 34 36.86

+ .16

+ .03

+ 1.14

1327 slow 2 33 37.53

= 2 33.53

.9
.2
.02
.7
.2
−.01
+.02
47.39
47.40

β Aurigae

3.7	7.0	10.7
6.7	4.1	.8
9.5	1.1	.6
2.4	8.2	.6

2.52

2.9

48 25.42

5 50 59.89

− 2 34.67

− .09

− .02

+ 1.14

1327 slow 2 33.54

.7
.2
−.01
+.02
59.88
59.89

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1882phae.proj.1802R

Jan. 23/1883

ε Persei

Gr. 75°0

9.0	0.9	4.5	5.4	57m 14.5	58m 54.5	08.5
1.1	3.5	1.7	.2	21.2	47.0	8.2
3.8	6.0	9.0	.0	30.2	36.7	6.9
6.4	8.8	6.4	.2	38.3	28.6	6.9
9.0	1.5	4.2	.7	46.0	19.7	5.7
	6.9	8.1	.0	57 55.4	58m 12.3	07.8
	9.5	5.7	.2	58m 02.5		02.5
	2.3	2.9	.2	45		13) 46.5
	4.9	0.1	.0	33.~~45~~		
			27.5	−.03	3 58	03.58
			11.4	+.18	3 60	33.60
2.85				.60	− 2	30.02
−.02				12.029	2	35.25
+.02	3	47	27.60	0.829		−05.23
	3	50	02.85	11.200		
	− 2		35.25		11.2) 5.23 (0.47	
			+.03	~~$n = -0.45$~~	448	
			−.24	$n = -0.47$	75°0	
	2		35.86			

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1882phae.proj.1802R

There is a large collimation error to be applied to this page. See W. A. R.'s book.

Jan. 3.3, 1883.

ε Persei

3.4	7.0	10.4
6.0	4.1	.1
8.7	1.7	.4
1.2	8.9	.1
4.0	6.1	.1
9.4	0.9	.3
2.0	8.0	.0
4.7	5.5	.2
7.3	2.7	.0

3 30.0

1.6

3 47 30.08

3 50 02.84

-2 32.76

2.85
-.03
+.02
02.84

ζ Persei

2.0	0.5	2.5
4.5	8.0	.5
6.8	5.5	.3
9.1	3.0	.1
1.8	0.7	.5
6.5	5.8	.3
8.9	3.5	.4
1.2	1.0	.2
3.7	8.7	.4

16.1

3.3

3 44 16.17

3 46 49.07

-2 32.90

.08
.01
.07
.3
-.02
+.02
49.07
49.07

Groombridge 750

27.4	06.8	4.2
24.9	59.1	4.0
44.1	60.9	5.0
52.1	41.7	3.8
60.6	33.4	4.0
09.0	24.9	3.9
16.8		16.8

13) 13.7

3 58 17.05

3 60 33.47

-2 16.42

33.32
-.03
+.18
.47

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1882phae.proj.1802R

4.3

Jan. 4 1883.

	48 Hcp. Tau	o Tauri	ε Eridani	ζ Tauri	ν Persei	ξ Tauri	9 Hcp. Camelop.
T	3 2 58.03	15 56.95	24 51.18	32 1.41	34 40.86	37 57.74	44. 36.49
R.A.	5 37.81	32.82	26.72	38.66	17.42	33.92	13.87
T-RA	-2 39.78	-2 35.87	-2 35.54	-2 36.85	-2 36.68	-2 36.18	-2 37.38

n = +.90

b = 0

1327 slow 2 36.60

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1882phae.proj.1802R

Jan. 9.0 1883. (1)

8	31^m 45^s.7	51.4	37.1
0.4	48.0	49.0	7.0
2.5	40.3	46.9	7.2
4.7	42.4	44.6	7.0
7.0	44.7	42.3	7.0
18	49.0	37.9	6.9
19	1.3	35.6	6.9
	3.6	33.3	6.9
	6.0	31.1	7.1
	8.2	29.0	7.2
	10.4	26.7	7.1
	2.5	24.4	6.9
	4.8	22.0	6.8
	7.0	19.9	6.9
	21.4	15.0	6.4
	3.8	13.0	6.8
	6.0	10.9	6.9
	8.1	08.8	6.9
	30.4	21^m 06.5	6.9

-1.1

+17.9

20^m 18.47

19^h 22^m 56.11

-2 37.64

-11.19

2 36.45

2 38.83± = 132.2 lam

10.891
.392
21782
98019
3126)38.27
4.27

60.38
4.27
56.11

38 17.9 (.47
15 2
370
266

Assume n = +1.90
h = 0 as in page 103

Lam -22°05' = -0.4057
0.9125
1.318
.9
1.186

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1882phae.proj.1802R

Jan 11.3 — α Andromedae — α Cassiop.

5.1	4.2	9.3	3.1	4.7	7.8
7.3	1.9	.2	6.2	1.6	.8
9.9	9.3	.2	9.1	8.5	.6
2.3	6.8	.1	2.4	5.1	.5
4.8	4.3	.1	5.3	2.3	.6
9.8	9.6	.4	1.7	6.0	.7
2.2	7.0	.2	4.8	3.0	.5
4.8	4.6	.4	7.7	0.1	.8
7.1	1.9	.0	0.7	7.0	.7
		59.5			33.8
		11.4			16.1
0	27	59.60	0	35	33.85
	30	38.95		38	12.68
	− 2	39.35		− 2	39.83
		+.23			+.16
		+.60			
If $n = +.90$		0.00	If $n = +.90$		0.00
If $n = 0$		2 39.58			2 39.67

10.65 −.02 +.02 — 38.95 −.02 +.02

.26 .2 .234 .14 2 .162

1327 clom = 2^m 39.53 independent of n, but assumed 0.

Polaris 26.6.

#12	10	16.3	14 34.8	51.1
		22.7	26.3	49.0
		30.8	17.9	48.7
		48.4	15 05.7	54.1
		53.3	58.2	51.5
		58.1	53.4	51.5
	11	18.6	31.3	49.9
		23.1	26.3	49.4
		33.2	22.0	55.2
		54.5	12 04.7	59.2
			15 59.3	59.3
				577.0

21) 1289 (6.14
126
29
29
50

1 12 56.14
1 16 17.00
− 200.86
− 159.59
+ 41.27

4) .103
−.026
+.680
26.29
77.00

39.35 .6514
39.53 1.0970
39.59 1.374

43.78
1.37
42.41) 41.27 (.98
38169
31010
29687
13230

.974 — 31010 33928

$n = +0.974$

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1882phae.proj.1802R

Jan 12.3 v Aurigæ

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1882phae.proj.1802R

Jan. 17, 1883 ∝ Coron. Bor.

9.6	6.0	5.6
~~0.2~~ 2.0	3.6	.6
4.1	1.3	.4
6.5	9.0	.5
4.9	6.4	.4
3.4	2.1	.5
5.8	9.8	.6
8.0	7.5	.5
0.4	5.1	.5

029

~~15 27~~ 14.8

15 27 02.78

29 44.03

− 2 41.25

− .36 9

.00

1327 slow = 2 41.64

43.86
+.15
+.02
44.03

.40
.90
.36±

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1882phae.proj.1802R

Jan. 15.2, 1883. ζ Androm.

	μ Androm.		
5.1	9.0	1.1	10.1
7.4	1.7	8.7	.4
9.8	4.0	6.0	.0
2.1	6.9	3.3	.2
4.3	9.3	0.9	.2
8.7	4.8	5.7	.5
1.0	7.2	2.9	7.1
3.2	9.7	0.3	.0
5.6	2.4	7.8	.2
			35.0
			1.7
		Σ)	35.09
	6	50	16.82
		-2	41.73
			-.14
			.00
	1327 slm	2	41.87

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1882phae.proj.1802R

Sun. 16.3 1883 B Anderson.

9.7	0.0	9.7
2.1	7.2	.8
4.8	4.9	.7
7.4	2.2	.6

.16
.4
7.06
.02
12.07
12.15

30.0
~~6.9~~ 7.3
29.81
~~30.7~~

1 a 0
1 3 12.15
- 2 42.34
- ,21
.00

1327 Sun 2 42.55

1882phae.proj.1802R

Jan 18.3 η Androm.

7.6	9.8	7.4
0.0	7.0	.0
2.7	4.4	.1
5.1	2.0	.1
7.9	9.3	.2
3.1	4.0	.1
5.8	1.2	0
8.3	8.9	.2
0.9	6.2	.1
		33.8
		111.0
0	47	33.58
	50	16.79
	- 2	43.21
		- .12
		.00
		43.33

.17
.2
.034
+.04
+.02
16.79
.79

1927 elem. ~~2 43.03~~

= 2 43.33

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1882phae.proj.1802R

Jan 21 6. 1883 E Cor. Bor.

7.0	3.4	10.4
9.4	1.1	.5
1.8	8.9	.7
4.0	6.5	.5
6.2	4.1	.3
1.0	9.7	.7
3.4	7.3	.7
5.7	4.9	.6
8.0	2.6	.6

.02
.1
+.03
+.02
44.60
44.65

00.2
5.2

15 50 00.27
15 52 44.65
-2 44.38
-.39
.00

1327 slow 2 44.77

1882phae.proj.1802R

Jan 22.3 & Perei

0.6	4.5	5.1
3.4	1.8	.2
6.0	9.0	.0
8.9	6.5	.4
1.4	3.8	.2
6.9	8.4	.3
9.6	5.8	.4
2.1	2.9	.0
4.9	0.3	.2

.16
.2
−.03
+.02

3 47 17.6
11.4
47 17.60
50 02.62
− 3 35.02
− .07
.00
3 35.09

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1882phae.proj.1802R

Jan 23.3 ~~B Anderson~~ o Pisc. B Anderson

2.0	4.1	6.1			
4.1	1.7	5.8			
9.0	7.2	6.2	6.7	6.8	3.5
1.0	4.9	5.9	9.1	4.1	.2
3.1	2.9	6.0	1.6	1.7	.3
6.0	0.2	6.2	4.0	9.1	.1
		18.0			26.7
		0.2			5.8
1	10	18.01	1	00	26.64
1	13	03.25			
+	03	12.06	1	03	12.06
- 2		45.24	- 2		45.42
		- .37			- .19
		.00			.00
1327 atom =		2 45.61			2 45.61

.17
.2
- .03
+ .02

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1882phae.proj.1802R

Jan. 25.3, 1883. ν Persei

2.2	7.4	10.0
5.0	5.0	.0
7.6	2.0	9.6
0.4	9.6	10.0
3.3	6.4	10.1
8.4	1.1	9.9
1.7	8.2	.9
4.3	5.5	.8
7.2	2.9	10.1
		300
		18.4

.27
.04
21.36
.17
+02
.19

3 34 29.97
3 37 17.19
- 2 47.22
.00
.00

1327 chron = - 2 47.22

δ Persei

0.5	1.7	2.2
3.3	8.4	1.7
6.4	5.4	1.8
9.7	2.3	2.0
3.0	9.1	2.1
8.9	3.0	1.9
1.9	9.8	1.7
5.0	7.0	2.0
7.9	4.0	1.9
		5.10
		18.3

3 31 50.96
3 34 38.33
- 2 ~~46.64~~ 47.37
+.16
.00
~~2 46.68~~

1327 chron = 2 47.21

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1882phae.proj.1002R

Com. 26.2 1883 α Trianguli

			2.3
8.3	7.3	0.0	7.3
0.9	9.9	7.5	.4
3.0	2.0	5.0	.0
5.4	4.5	2.8	.3
0.2	9.2	8.0	7.2
2.6	1.6	5.8	.4
4.4	3.9	3.4	.3
7.X	6.1	1.0	.1

.16
.4
+.06
+.02
25.98
26.06

96 48.6
10.6
1 43 38.62
1 46 26.06
– 2 47.44
– .33
.00

1327 elm = 2 47.77

β Arietis

2.6	8.7	9.3
4.8	4.3	.1
7.0	2.0	.0
9.2	0.0	.2
1.4	7.7	.1
5.8	3.4	.2
8.0	1.2	.2
0.1	9.0	.1
2.3	7.0	.3

24.8
11.3
1 45 24.60
48 11.80
– 2 47.20

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1882phae.proj.1802R

Jan 27.4 C Aurigae

7.0	6.8	3.8
9.4	4.3	.7
2.0	1.9	.9
4.4	9.4	.8
		6.9
		8.1
4	46	36.90
4	49	24.95
	2	48.05
		−.24
		.00

12
3
104
+.02
24.89
.95

Interpolation = 2m 48.s29

1882phae.proj.1802R

Jan 20.5 ϑ Androm pr.

7.0	2.6	9.6
9.9	9.8	.7
2.7	6.9	.6
5.3	4.0	.3
8.2	1.2	.4
3.8	5.9	.7
6.5	9.0	.5
9.1	0.2	.3
2.0	7.4	.4

54.8

~~54~~ ~~54.3~~

1 53 54.75

1 56 44.63

2 49.88

−.02

.00

2 49.90

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1882phae.proj.1802R

Jan 31.4 Z Mean

4.3	5.9	0.2
6.4	3.9	.3
8.5	1.8	.3
0.6	9.7	.3
2.7	7.2	.4
6.9	3.5	.4
8.9	1.2	.1
1.0	9.2	.2
3.0	7.1	.1
5		5.1
		22.4
& 46		25.13
49		14.99
− 2		49.86
		− .79
		.00
2		50.65

.07
.1
+.01
+.02
14.96

(Morning:

3.0	5.0	8.0
5.9	2.0	7.9
8.9	9.0	7.9
2.1	5.9	8.0
5.1	2.7	7.8
1.4	6.4	7.8
4.7	3.3	8.0
7.8	0.1	7.9
0.9	7.0	7.9
5		3.9
		18.1
& 48		23.95
51		14.75
− 2		50.80
		+ .21
		.00
2		50.59

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1882phae.proj.1802R

Feb. 1,3 1883. α Draig.

1.9	9.0	10.9
4.0	6.7	.7
6.5	4.2	.7
8.9	2.0	.9
1.2	9.6	.8
5.9	4.9	.8
8.2	2.5	.7
0.6	0.0	.6
3.0	7.8	.8
	35.4	
	7.3	

1 43 35.38
1 46 25.97
-2 50.59
-.33
.00

1327 sl mr = 2 50.92

.16
.2
-.03
+.02
25.98
25.97

-2 50.59
-3 29.40
+38.41
37.81

43.776
.569
43.207 | 38.41000 (.89
34556
38444

5 4
6 5
7 6
8 7
9 8

5)30
3)6

2.065
2
4.130 m = +.89

43.207 | 37.81000 (.88
34556
32440
m = +.88

Polaris U.C.

24 25.1
29.4
35.3 24 29.9
29.9
52.4
58.7
25 03.8
24 58.3
22.3
29.5
34.6 25 28.8

51.6
26 00.2
08.5 26 00.7

23.4
31.2
35.7 26 30.1

These minutes are all less by 1 or 2 large.

147.9
30.2
29.4
29.6
0.84
29.76
28.56
27.76
57.56
28.44
27.60

57.08
+.68
-.20
57.56

Equal = mutual + 2.065
log. 4.130 = .615795
" sec δ = 1.641385
2.257180
const = -180.84

$5_0 - 6_1 = -2.753$
$5_0 - 6_2 = -3.441$
$5_0 - 7_0 = -4.130$
$5_0 - 7_1 = -4.818$
$5_0 - 7_2 = -5.506$
-20.648 -4.130

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1882phae.proj.1002R

log 2.065 = 0.3149
0.0273
log sec δ = 1.6413
1.6686
1.9562

Int. of declination
46.62 = 90.41
16.54 30.14

14m 29.9 62.76 2.75 = 13 27.74
2 00.55 3 0.95 12 29.35

14 58.3 77.70 3.44 40.60
2 30.67 13 40.60

27.63

15 28.8 93.24 4.13 13 15.56
3 00.81

27.99

16 00.7 108.78 4.82 14 11.92
3 30.95

29.75

16 30.1 124.32 5.51 14 25.78
4 01.09

29.01
3.73
12m 28.5 55
75

147.9
1 15 29.6
3 0.84
1 12 28.76
1 15 57.56
-3 28.80
-2 50.59
43.2 / +38.21 .88
3456
3650
m = +.88

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1882phae.proj.1802R

Heb. 5.3 ε Persei ζ Tauri

2.0	5.7	7.7	9.5	1.9	1.4
4.7	2.0	.7	1.4	9.7	1.1
7.2	0.2	.4	3.8	7.3	1.1
0.1	7.8	.9	5.7	5.3	1.0
2.8	5.0	.8	7.9	3.3	1.2
8.0	9.6	.6	2.0	9.1	1.1
0.8	6.9	.6	4.2	7.0	1.2
3.4	4.1	.5	6.5	4.9	1.4
6.0	1.7	.7	8.7	2.9	1.6
		08.8			20.7
		15.7			11.8
3	47	08.83	3	51	20.62
	50	02.76		54	13.56
	−2	53.53		−2	52.94
		−.08			−.62
		.00			.00
1327 alam =	3	53.61		2	53.56 = 1327 alam

.21 .4 +.08 +.02 2.26 .36

.15 .4 +.06 +.02 13.46 .56

Gram. 750 n.B.

	41.4	58 0.4	41.8
56	49.1	56.1	45.2
	57.3	47.0	44.3
57	06.5	39.7	46.2
	14.8	30.9 47.0	45.7
	~~22.4~~	57 ~~39.7~~	22.4
		57	~~30.9~~ 3.6
	~~3~~		
	3	57	22.33
	4	0	27.28
		−3	4.95
		−2	52.94
			+12.01

27.16 −.06 +.1855 27.28

12.03 .22 11.81

11.8) 12.00 (1.02
118
200
n = +1.02

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1882phae.proj.1802R

Feb 7.3 Emissions

9.2	5.0	4.2
1.8	2.9	4.7
4.0	0.5-	4.5
6.2	8.1	4.3
8.7	6.0	4.7
3.1	1.3	4.4
5.2	9.0	4.2
7.7	6.8	4.5-
0.0	4.4	4.4
2.0		2.0
3		0.9

.07	.05
.2	.2
+.01	+.02
+.02	+.02
34.26	46.50

6 33 5-2.21

36 ~~46.57~~

— 2 54.33

- .40

.00±

2 54.73

1882phae.proj.1802R

Feb. 8, 2 Johnson

1.7	7.0	8.7
4.5	4.3	.8
7.1	1.6	.7
9.9	8.8	.7
2.9	6.0	.9
8.1	0.5	.6
1.1	7.7	.8
9.9	5.0	.9
6.7	2.0	.7

9.3

7.1

1 53 59.37

56 44.45

- 2 55.08

- .02

+ .05

1727 hrs = 2 55.05

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1882phae.proj.1802R

Feb. 8.5 γ Herculis

1.2	4.4	5.6
4.0	1.8	.8
6.5	9.1	.6
9.1	6.5	.6
2.0	3.9	.9
7.3	8.6	.9
0.0	5.9	.9
2.7	3.1	.8
5.2	0.2	.4

58.22
+.02
53.24

58.0
16.5
~~15.5~~
7

16 85 54.87

16 88 53.24

~~5.88~~
− 2 5~~4.48~~

Ch ∠ +.05
−.09

~~.47~~

1327 Sl.m. = 2 5 5.41

1882phae.proj.1802R

Feb. 9.3 π Geminn.

0.3	9.8	10.1
2.9	7.3	10.2
5.1	4.8	9.9
7.6	2.1	.7
0.1	9.5	.9
5.0	4.9	.9
7.5	2.4	.9
0.0	9.9	.9
2.5	7.4	.9

14.8
14.3

7 37 04.96
7 39 60.53
− 2 55.57
− .22
+.05

1827 slm = 2 55.74

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1882phae.proj.1802R

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1882phae.proj.1002R

Feb. 11.8 η Herculis

9.7	2.9	2.6
2.3	0.1	.4
4.9	7.5	.4
7.7	4.9	.6
0.2	2.2	.4
5.6	6.9	.5
8.2	4.1	.3
1.8	1.5	.3
3.5	8.9	.4
		56.1
		4.0

.34
2
+.17
+.02
53.22
53.31

16 35 56.21
16 38 53.31
. 2 57.09
−.09
+.05
1327 slow = 2 57.14

1882phae.proj.1802R

Feb. 12.2 γ Androm.

9.1	4.6	3.7
2.0	1.7	.7
4.7	9.0	.7
7.6	6.2	.8
0.3	3.4	.7
5.8	8.0	.8
8.4	5.1	.5
1.3	2.2	.5
4.0	9.5	.5

46.8
15.7

1 53 46.83
1 56 44.37
2 57.54
−.02
+.05
2 57.57

.20
.7
.106
+.02
44.41
.37

1882phae.proj.1802R

Feb. 12.

	η Herc			α Lyrae			
	9.0	2.0	1.0	4.0	6.8	10.8	
	1.5	9.2	0.7	6.7	4.0	.7	
	4.2	6.7	0.9	9.2	1.4	.6	
	6.9	4.5	1.4	1.5	9.0	.8	
	9.9	1.5	1.7	4.6	6.3	.9	
	5.0	6.6	1.6	0.0	1.0	1.0	
	8.0	4.0	2.0	2.7	8.2	10.9	
	0.4	1.2	1.6	5.3	5.7	11.0	.27 / .3 / +.08 / +.02 / 54.21
34 / .3 / +.10 / +.02 / 53.22	2.9	8.3	1.2	7.5	3.0	10.8	54.31
53.34			55.5			00.3	
			12.6			7.8	
	16	35	55.66	18	30	00.41	
	16	34	53.34	18h	32m	58.31	
		− 2	57.68		− 2	57.90	
			− .04			− .10	
			+.06			+.05	
1327 sl m		= 2	57.72			57.95	
					2	57.00	

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1882phae.proj.1802R

17) 80 (.4)
66
120
119

Feb 13.3 ζ Aurigae ~~α Aurigae~~ α Aurigae

2.0	1.2	3.2	8~~9~~.2	0.5	8.7						
4.5	8.8	.3	0~~X~~.8	8.2	9.0						
7.0	6.2	.2	2~~8~~.9	6.2	9.1						
9.4	9.9	.3	4~~X~~.9	4.0	8.9						
1.9	1.2	.1	7~~8~~.0	2.0	9.0						
6.9	6.4	.3	1~~2~~.1	7.9	9.0	5.0	9.1				4.1
9.1	4.0	.1	~~2.0~~ 2	5.7	—	8.1	5.8				.9
1.7	1.5	.2	5~~4~~.1	3.8	8.9	1.1	3.0				.1
4.1	9.1	2	7~~8~~.3	1.5	8.8	4.1	0.0				.1
		26.7			59.6			~~07.0~~			07.0
		11.6			8.0						1.2
.19			.21								
.4			.4								
-.08			-.08								
+.02	4	46 26.61	+.02		06 59.47			05 07.18			
24.72	4	49 24.67	5.52								
.67	— 2	58.06	05.56	5h	08m 05.46	5	08	05.46			
		- .25			~~5.99~~		- 2	58.39			
		+ .05						+ .11			
								+ .05			
	2	5~~7.86~~ 58.2					2	58.39			

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Feb. 13.8 α Lyrae — β Böotis — α Bor. Bor.

3.3	6.3	9.6
6.0	3.6	.6
8.6	1.0	.6
1.3	8.4	.7
4.0	5.7	.7
9.1	0.5	.6
1.9	7.7	.6
4.4	5.0	.4
7.0	2.4	.4
	59.8	
	1.50	

3.5	9.9	3.7
6.0	7.4	.4
8.2	5.1	.3
0.7	2.9	.6
3.0	0.7	.7
7.7	6.1	.8
0.0	3.8	.8
2.1	1.3	.4
4.4	9.1	.5
	46.9	
	1.51	

.27
.4
+.10
+.02
58.21
58.33

14h 29m 59.79
14h 32m 58.33
14h 57m
15h 26m 46.80
15h 29m 44.97

- 2 58.54
- .10
+.05
1327sl.m. = ~~2 58.69~~
2 58.59

- 2 58.17
- .38
+.05
2 58.50

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Feb. 17.0 ⊙

		61m	
59$\bar{}$	04.9	59.9	64.8
	06.9	57.6	4.7
	08.9	55.7	.6
	11.0	53.5	.5
	13.0	51.5	.5
	17.3	47.0	.3
	19.4	45.0	.4
	21.6	42.9	.5
	23.8	40.8	.6
	25.9	38.7	.6
	28.0	36.6	.6
	30.1	34.3	.4
	32.2	32.1	.3
	34.4	30.0	.4
	38.6	~~23.8~~ 25.7	.3
	40.7	~~21.6~~ 23.8	.5
	42.7	~~19.5~~ 21.6	.3
	45.0	— 19.5	.5
	47.0	61 ?	----
			8.8

22 00 32.24
~~22 03 39.29~~
~~21 49 15.72~~
~~.76~~
.05

22 00 32.24
22 03 31.71
− 2 59.47
− .70
+ .05
3 00.12

1882phae.proj.1802R

Feb. 17.3 α Persei α Tauri

7.8	1.3	9.1
0.9	8.1	.0
4.1	5.0	.1
7.3	2.0	.3
0.7	8.7	.4
7.0	2.4	.4
0.1	9.0	.1
3.3	5.9	.2
6.6	2.9	.5

-.26
.2
+.05
+.02
.17
.24

59.6 7
11.8
59.62

3 ~~+6~~ 12 ~~00.24~~

3 16 00.24

− 3 00.62

+ .25

+ .05

1327 clow = $3^m\ 00^s.32$

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Feb 18.3 α Per.

7.2	1.0	8.2
0.6	7.9	8.5
2.7	4.9	.6
7.0	1.3	.3
0.1	8.3	.4
6.3	1.9	.2
9.7	8.5	.2
2.9	5.5	.4
6.0	2.5	.5
	59.0	
	9.3	
2h	2m	59.5 17
3	16	00. 22
	2m	59.05
−		01.05
		+.25
		+.05
1327 above	3m	00.75

9.44444
sin δ = 0.51556
cos γ = 9.86845
8.32222
8.70623
diurnal var. = ±.05

.77
.05
−.03 85
−.05
55.23
55.15

3.123
.456
2.267

γ2	Mag.	Min.	L.b.
18	29.4	18 23.6	35 53.0
	31.3	21.4	52.7
	33.7	19.0	52.7
	35.8	16.7	.5
	38.2	14.2	.4
	40.8	11.9	.7
	42.8	9.9	.7
	44.8	7.3	.1
	47.0	5.1	.1
	49.7	2.9	.6
	51.9	18 0.7	.6
	54.0	18 58.5	.5
	3	18 56.5	
		7.1	
	3	18 56.24	
		20 55.15	
		−2 58.87	
		.3 01.05	
		−2.18	

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1882phae.proj.1802R

Feb 18. 8 After the stars of this morning the sidereal clock Frodsham #1327 was put forward 4 minutes by Prof. Rogers, without disturbing the pendulum or the seconds hand.

S Ophiuchi

Feb. 18. 8	2.8	4.2	7.0
	4.7	2.1	6.8
	6.8	0.0	6.8
	9.0	7.9	6.9
	1.0	5.8	6.8
	5.2	1.8	7.0
	7.4	9.7	7.1
	9.3	7.6	6.9
	1.3	5.5	6.8
		23.4	
		4.5	

+.02
14.10
14.12

16 5 23.45
16 8 14.12

~~2 50.67~~
- 3 00.67
- .87
+.05
3 01.49

$\log \delta = -0.0592$

$\log \varphi = 0.9125$
- .9717
.9
-.87453

1882phae.proj.1802R

The alloc next page.

Feb 1913 α Aurigae

3.6
6.2
9.3
2.6
5.2

1.5⁻ ?
4.3 2.0 6.5
7.2 9.1 .3
0.3 6.1 .4

03.3
1.5

5h 09m 03.21s ±
08 05.32

+1-02.11± = +57.89±
+.11 +.11
+.05⁻ +.05⁻

+1m-01.95⁻± = +58.05⁻±

Error of 1327 =
1327 fast = 5h 8m.05⁻±

β Tauri

0.9 8.0 8.9
3.1 5.7 .8
5.4 3.3 .7
7.9 0.9 .8
0.1 8.5⁻ .6

5.0 ~~7.3~~ 3.7 .7
~~7.3~~ ~~9.6~~ ~~3.7~~ 9.10 .6
9.6 ~~1.9~~ ~~1.8~~ .6
1.9 ~~4.2~~ ~~6.7~~ 6.0 .6

54.2
6.7
6.5

5h 19m 54.34
18 55.90

+1-01.56
-.37
+.05⁻

+1-01.88

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1882phae.proj.1802R

Feb 19.3. S Ursa Min. L.C.

8	38.8	13 16.1	49.9
	38.4	13 3.8	52.2
	57.5	50.5	48.0
9	10.6	38.6	49.2
	24.8	29.4	54.2
	34.8	18.6	53.4
	43.5	12 6.5	50.0
	57.4	56.5	53.9
	47.6	10 9.8	44.0	53.8
	21.1	30.7	51.8
	31.6	19.6	51.2
	46.8	11 9.0	55.8
		10 37.2	54.2
			47.6
		6 10	55.90
		9	44.10
			71.80
			57.89

25 / 47.6 (1.9
25
226
225

+.17
−.27
44.20
44.10

16.867
.970
+15.897
17.84

15.497 / +13.9100 (.87
127176
119240
111279

n = +.87

17.84) 13.91 (.78
12488
14220
14272

n = +.78

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1882phae.proj.1802R

Feb XQ 20.8 η Herculis

4.1	7.4	1.5
8.7	4.7	2.4
9.3	2.0	.3
2.0	9.3	1.3
4.8	6.8	1.6
0.0	1.3	.3
2.8	8.7	5
5.3	6.0	.3
8.0	3.3	.3

5 0.8
13.3

16 39 50.70
16 38 53.61
+1m -02.91
-.09
+05
+1m -02.95

β Herculis.

	8.7	
3.2	6.4	9.6
5.3	4.0	9.3
7.6	2.0	9.6

09.8
5.3

16 26 09.76
16 25 12.28
+1 -2.52
-.47
+.05
+1m -2.94

+0.3
+0.2
12.23
12.78
+.03
+.02
12.23
12.28

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1882phae.proj.1802R

Feb. 21.3

6.9	6.0	2.9	9.4	6.2	5.6
9.2	3.6	.8	1.8	4.0	.8
1.7	1.0	.7	4.0	1.8	.8
4.1	8.7	.8	6.5	9.0	.5
6.6	6.1	.7	8.8	6.8	.6
1.7	1.2	.9	3.6	2.0	.6
4.0	8.8	.8	5.8	9.9	.7
6.4	6.2	.6	8.2	7.5	.7
8.9	3.8	2.4	0.6	5.3	.9
		7			
		21.5			53.0
		7.4			16.2

α Aurigae

.17	4	50 21.99
.2	4	49 24.53
-.03		1.02
+.02		
11.01		
11.00		
.20		
.2		
-.04		
+.02		
24.55		
24.53		

+1 - 03.14
- .24
+.05
+1 - 03.33

Gmn of 1327 =

β Tauri

.15	5	19 52.85
.2	5	18 55.86
-.04		
+.02		
55.88		
55.86		

+1 - 03.01
- .93
+.05
+1 - 03.29

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1882phae.proj.1802R

Feb 23.3 (Amigar

5.9	5.0	0.9
8.3	2.4	.7
0.9	0.0	.9
3.1	7.8	.9
5.8	5.2	1.0
0.7	0.1	.8
3.0	7.9	.9
5.5	5.5	1.0
8.0	2.9	.9

20.4

8.4

4 50 20.44

4 49 24.49

+1 +04.05

−.24

+.05

+1 −04.34

.20
.4
−.08
+.02
24.55
.49

1882phae.proj.1802R

Feb. 23.8

γ Herculis

2.7	5.7	8.4
5.0	3.0	.0
7.9	0.6	.5
0.5	7.9	.4
3.1	5.0	.1
8.5	9.7	.2
1.1	7.0	.1
3.8	4.5	.3
6.4	1.7	.1
	49.0	
	2.1	

34
4
+.14
+.02
53.56
53.72

16 39 49.11
16 38 53.72

+1 -04.61
-.09
+.05
+1 -04.65
+55.35

β Herculis

9.5	7.0	6.5
1.7	4.9	.6
3.8	2.8	.6
6.1	9.5	.6
	08.0	
	2.8	

.30
4
+.13
+.02
12.23
12.37
40

16 26 08.26
16 25 12.37
+1 -04.17
-.47
+.05
+1 -04.59
+55.44

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1882phae.proj.1802R

Feb. 24. 2

α^2 Gemini. (+32 9)

7	27	
56.1	15.7	7.18
58.6	13.6	22
1.1	10 9	2.0
3.7	8.4	2.1
6.0		
~~7~~ 28	6.01	
27	10.44	

+1 − 4.43
− .24
+ .05
+1 − 4.62
55 38

β Gem (t 28.3)

7	38	
58.0	16.7	147
0.1	14 3	14.4
2.5	11.9	144
5.0	9.6	146
7.3		
7 39	7.27	
38	11 91	

+1 − 4.64
− .22
+ .05
+1 − 4.92
55.08

55.96
55.18
54.60

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1882phae.proj.1802R

~ 25.8

Feb. 24.8 γ Herculis

1.5	4.8	6.9
4.0	2.0	.0
6.9	9.5	.4
9.2	6.8	.0
2.1	4.1	.2
7.5	8.9	.4
0.0	6.1	.1
2.8	3.5	.3
5.4	0.8	.2
		48.0
		7 1.9

16 39 48.10
16 34 53.78
+1 −04.68
−.09
+05
5
+1 −04.72
+54.28

β Herculis

7.7	9.4	
7.1	7.1	4.2
9.5	5.0	.5
1.8	2.7	.5
3.7	0.6	.3
8.3	6.1	.4
0.3	8.8	.1
2.7	1.7	.4
4.8	9.5	.3
		07.0
		2.7

16 26 07.16
16 25 12.43
+1 −5.27
−.47
+05
+1 −5.69
+34.31

17)27 (16
17
100
102

.30
.4
−.120
+.02
12.53
12.43

66
4
.26
.34
4
−.14
+.02
53.90
53.78

The data here should be 25.8

54.30
55.2

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1882phae.proj.1802R

Jet 25.8

β Herculis (

16 2

η Herculis (+39 9)

16 38

39 4	58.9	9
40 0	56.1	1
42 7	53 4	1
45 3	50 7	0
48.0		

16 39 48.06

16 38 53 ~~78~~

+54.28

−.09

+.05 2

+54.24

1882phae.proj.1802R

Feb. 26.8 η Geminia

0.7	4.0	4.7
3.7	1.7	5.4
6.3	8.7	5.2
9.0	6.3	.3
1.7	3.8	.5
7.0	8.2	.2
9.6	5.8	.4
2.0	3.1	.1
4.9	0.3	.2
		47.7
		11.7
16	39	47.62
16	38	53.82
	+1	-6.20
		-.09
		+05
	+1	-6.24

34
3
-.10
+02
53.90
53.82

+53.71

see p. 158

-.06
-.11
53.08
53.11
1.63
.25
.41
.03
-.44
-.11
53.56

Ann. Eqhem. 55.03

η Mus. Min. 2.6

57	58.4	59	57.6	113.0
58	00.6		52.8	3.4
	06.5		46.5	3.0
	09.7		41.8	1.5
	16.0		37.0	3.0
	21.0		31.9	2.9
	25.5		26.7	2.2
	31.0		21.8	2.8
	35.8		16.5	2.3
	41.1		11.1	2.2
	46.5		5.7	2.2
	51.0	59	1.4	2.4
58			56.6	
				7.5

.06 1.93
.2 .2
-.91 .33
-.11 .03
55.54 .36
55.46

Ann. Eqhem. 16

-0.814
-7.322
-8.136

58 56.30
57 55.46
03
64.84
53.80
-7.04
+.86

6.14) 7.040 (.86
6512
5280
4884

~~m = +.86~~

6.14) 7.46 (.92
5526
1340

m = +.92 ?

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1882phae.proj.1802R

Feb. 27.2 ζ Persei see also next page.

7.8	6.1	3.9
0.0	3.9	3.9
2.5	1.4	3.9
5.0	9.0	4.0
7.5	6.5	4.0
1.3	2.7	4.0
4.8	9.2	4.0
7.0	6.8	3.8
9.6	4.4	4.0
		42.0
		14.5
3	47	41.97
3	46	48.22
	+1	-6.25
		-.27
		+.05
	+1	-6.47

.20
.2
+.04
+.02
48.16
48.22

ζ Persei

0.3	1.4	1.7
3.3	8.3	.6
6.5	5.9	.8
9.5	2.1	.6
2.7	9.1	.8
8.7	8.0	.7
1.7	0.0	.7
4.8	7.0	.8
7.7	4.0	.7
		29.6
		16.0
3	35	30.84
3	34	37.52
	+1	-6.68
		+.05
		+.03
	+1	-6.48

26
2
+.05
+.02
37.45
37.52

α Mus. Min. M.B.

10	57.4	22 00.1	
11	27.3	21 30.8	
	55.7	59.7	
12	27.2	20 31.2	
	58.2	59.8	
13	28.2	31.2	
	58.5	19 00.2	
14	29.1	29.3	
15	00.5	18 01.5	
	25.2	34.3	
16	02.4	17 01.5	

21) 54.9 (2.61
42
129
126
30

23) 54.9 (2.387
46
89
69
200
184
160
161

57.5
57.1
56.4
58.4
58.0
59.4
58.7
58.4
61.0
59.5
63.9
16 27.6
54.9
1 16 29.64
29.39

+53.53

α Mus. Min. M.B.

10	57.3	21 30.8	
11	27.3	59.7	117.0
	55.7	20 31.2	118.5
12	27.2	59.8	115.5
	58.2	31.2	118.4
13	28.2	19 00.2	118.4
	58.5	29.3	117.6
14	29.1	18 01.5	120.0
		34.3	123.4
15	00.5	17 01.5	122.0
	25.2	16 27.6	122.8
			16 02.4
			6.9
1		15	59.38
1		15	37.49
			21.84

-.13
+.68
36.94
37.49

21) 6.9 (.3
63
60

(over)

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1882phae.proj.1802R

Feb. 28.2 δ Persei

~~ε Persei~~

9.8	0.9	10.7
2.8	7.8	.6
5.9	4.6	.5
8.9	1.7	.6
2.0	8.5	.5
8.0	2.4	.4
1.0	9.5	.5
4.1	6.3	4
7.2	3.3	.5

30.3

5.0

δ 35 30.26

δ 34 37.50

+1 - 7.24

+.15

+.08

+1 - 7.04

.26
.1
+.03
+.02
37.45
37.50

sec p. 151 -6.25

53.75

21.84

43.12 | 31.910 (.74

30.184

| 17260

7 248

n = +.74

43.73
.61
43.12

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1882phae.proj.1802R

Feb. 28.8 η Herculis

0.3	3.0	3.3
2.7	0.7	.4
5.2	7.8	.0
8.0	5.0	.0
0.8	2.5	.3
6.1	7.3	.4
8.7	4.4	3.1
1.1	1.7	2.8
3.9	9.2	3.1
		46.7
		11.1

.34
.1
-.03
+.02
53.90
53.89

16 39 46.58
16 38 53.89
+1 -7.31
-.09
+05
50
+1 -7.36

1882phae.proj.1802R

March 12 1883 δ Persei

9.2	0.2	9.4
1.9	7.0	8.9
5.3	4.0	9.3
8.3	1.0	.3
1.3	8.0	.3
7.5	1.9	.4
0.6	4.9	.5
3.7	5.8	.5
6.6	2.7	.3

29.7
12.6

+.02 3 35 29.66
+.45 3 34 37.43
.47
+1 -7.81
+.15
+.05
+1 -7.6X6

δ Persei

6.6	5.0	1.6
9.0	2.7	.7
1.3	0.1	.4
3.5	7.9	.7
6.2	5.3	.5
1.0	0.5	.5
3.4	8.0	.4
6.0	5.7	.7
8.3	3.1	.4

40.8
14.7

+.02 3 47 40.77
48.16 3 46 48.14
46.14
+1 -7.41
-.27
+.05
+1 -7.68

1882phae.proj.1802R

March 2.3 1883 α_2 Geminor.

8.3	7.3	5.6
0.8	4.9	.7
3.4	2.3	.7
5.9	9.9	.8
8.1	7.5	.6
3.0	2.7	.7
5.6	0.0	.6
8.0	7.8	.8
0.3	5.3	.6

02.8

15.8

7 28 02.84

7 27 10.37 (Ann. Eph.)

+1 -7.53

-.26

.00

+1 -7.79

+1 -8.04

~~+1.62 Ann. Eph.~~

1.27

.11 .2 .22 + .11 .2 -.02 +.02 10.87 10.37

1882phae.proj.1802R

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1882phae.proj.1802R

Mar 4, 3 η Gemini.

4.4	9.0	3.4
6.7	6.9	3.6
8.9	4.4	3.3
~~2.0~~ 1	2.1	~~3.1~~ 3
3.4	0.1	3.5
7.9	5.9	.8
9.9	3.3	.2
2.1	1.2	.3
4.5	9.0	.5

46.8

13.5

6 16. 46.71

15 55.02

+1 −08.31

−.~~35~~ 35

,00

Eun 1327 = +1 −08.~~76~~ 66

.17
.13
−.05
+.02
55.05
.02

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1882phae.proj.1802R

March 4.8

γ Draco.

1.5	7.6	9.1
4.8	4.1	8.9
7.8	1.0	8.8
1.1	7.6	.7
4.5	4.1	.6
1.1	7.7	.8
4.6	4.2	8.8
8.0	1.3	9.3
1.1	7.5	8.6

~~7.~~ ~~44.6~~

8.2

.40
.3
+.12
.02
53.30
53.44

17 54 44.43
17 53 53.44

+1 − 9.01
+ .37
00

8mm 1327 = ++ ~~88.84~~ +1 − 08.78

1mm δ = 1.274
1m φ = 0.913
.344
.9
+.245
.3096

∝ Ophi.

1.8	4.1	5.9
4.0	2.0	6.0
6.0	9.8	5.8
8.1	7.7	5.8
0.92	5.5	5.7
4.5	1.2	5.7
6.4	9.0	5.4
8.7	7.0	5.7
1.0	5.0	6.0

30m 23.0
17.0

17 30 29.89
17 29 31.25

++ − 7.36
− .48
.00
+1 − 7.84

β Draco.

4.8	2.3	7.1
8.0	8.8	6.8
1.3	5.3	6.6
4.8	2.3	7.1
8.5	9.0	7.5
5.0	1.9	.9
8.3	8.6	6.9
1.7	5.0	6.7
5.1	1.5	6.9

48.3
8.8

17 24 48.46
17 27 47.60

+1 − 9.14
+.44 + .65 2
55.58
+1 − 08.70 .11
56.34 2
16

log mm δ. 9.13127
" sec δ 0.86880
8.32222

log cos φ = 9.86845
~~9.85927~~
9.05927

7mm.466 = +.11
1mm δ = 10.465
" δ' = 7.022
1.257
+6.065

6.090 | 1.00
6.065
2500

+1 − 08.88 = mm 1327

M. Lo. March 4.8 & Mos. Mi

57m 43.2	44.4	58m 87.6
46.8	39.7	86.5
51.8		
57.2	33.7	85.5
54m 02.7	28.3	85.5
07.2		
12.2	24.0	86.7
18.0	19.3	86.5
23.0	13.3	85.5
28.9	08.6	86.6
32.7	59 04.4	87.4
38.0	58.2	87.1
43.7	55m 53.9	86.6
	54 47.8	85
1.6 3.4	58 ~~27.6~~	87.8
	58m	43.7
		6.0
16	58m	43.24
16	57	56.34
		+46.90
		+5 02.99
		+4 08.09

6.06) 4.09 (.658
36 36
3540
3030
5100

m = +1.00
m = +0.66

1882phae.proj.1802R

Mar 5.3 ν Geminorum

?	8.6	
6.3	6.2	2.5⁻
8.3	4.0	.3
0.5	1.8	.3
3.9	9.6	.5⁻
7.1	5.0	.1
9.7	2.8	.5
1.9	0.6	.5
4.0	8.3	.3

46.1
3.1

6 16 46.16
15⁻ 55.00
+1 −08.84
.35
.00
+1 −09.19

.17
.4
−.07
+.02
55.05⁻
.00

51 Cephei N.6.

45⁻	53.1	48	44.2	37.3
46	05.7		31.8	7.5
	19.3		15.7	5.0
	34.9	48	00.1	5.0
	49.3		47.0	6.3
48	04.7	48⁻	32.3	7.0

13 14.1
1.08
48 17.0
14.1

−.09
+.32
40.46
40.69

6 47 18.08
6 45 40.69

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1882phae.proj.1802R

~~Polaris H. L. Mar. 5~~

~~9m 53.s3~~

~~55.3~~

~~54.0~~

~~51.4~~
~~58.8~~
~~65.7~~

21m 55.s3
55.s9
~~59.3~~
59.3
?
61.0
55.5
55.7
57.3
54.6
56.7
54.0
55.3
53.3

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1882phae.proj.1802R

Mar 5 Polaris N. C.

$15^m\ 55^s.7$ = mid. wire			55.7
15^m 24.9	16	25.4	10.3
57.3		55.5	12.8
24.8		24.3	09.1
54.6		61.0	15.6
25.1		30.4	15.5
58.7		?	
?		28.0	
54.0		57.3	13.3
21.2		25.6	06.8
55.3		55.9	11.2
22.9		28.7	11.6
$9^m\ 53^s.3$	21^m	$55^s.3$	08.6

3) 120.5
7) 40.17

$1^d\ 15^m\ 55^s.74$
$l\ \ 15\ \ 33.84$
$+21^s.90$
$+51.16$

43.3) 29.26 (.676 = m
25 98
3280
2031
2490

~~54.86~~
~~.04~~

33.72
−.15
+.27
33.84

43.72
.42
43.30

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1882phae.proj.1802R

Mar 7. 2 γ Androm.

6.5	1.9	8.4
9.1	9.0	.1
2.6	6.2	.2
4.7	0.4	.1
2.5	0.9	.4
3.0	5.1	.1
5.8	2.5	.3
8.6	9.8	.4
1.3	6.9	.2

34.1

2.3

1 57 34.12

1 56 43.96

+1 -09.84

-.01

.00

+1 -09.85

.14
.4
+.06
+.02
43.88
.96

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1882phae.proj.1802R

March 7.4 B Geminorum. ~~δ Draconis L. C.~~

8.6	5.4	4.0
0.7	3.0	3.9
3.0	0.8	3.8
5.6	8.3	3.9
7.9	6.0	3.9
2.6	1.4	4.0
5.0	9.0	.0
7.3	6.7	.0
9.7	4.3	.0
		01.9
		18.4

.15
4
+.06
+.02
11.69
11.77

7 39 01.97
7 38 11.77
+1 -9.80
-.24
.00
+1 -10.04

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1882phae.proj.1802R

Mar 8.3 β Geminor.

8.1	5.1	3.6
0.4	2.6	3,0
2.9	0.4	3.3
5.0	7.8	2.8
7.1	5.7	2.8
2.1	1.0	3.1
4.3	8.9	3.2
6.9	6.3	3.2
9.2	3.9	3.1
		01.6
		10.7
7 39		01.56
38		11.76
+1 - 10.20		
		-.25
		.00
+1 - 10.45		

.16
.3
+.05
+.02
11.69
.76

S Mus. Min. L.B.

8	38.0	13 13.4 106.4
	46.0	13 01.4 7.4
	59.1	50.6 9.7
9	11.1	39.2 10.8
	18.8	24.1 2.9
	31.3	14.0 5.3
	42.3	12 05.4 7.7
	57.8	49.8 7.6
10	07.5	38.0 5.5
	19.4	29.5 8.9
	31.7	15.0 6.7
	40.8	17 03.4 4.2
		10 54.0
		36.6

25)36.6(1.46
25
116
100
160
150

-.26
+.09
49.93
47.76
.76

18	10	53.46
18	9	49.86
		63.60
		49.76
		-13.76
		-13.84

16.865
0.538
-17.403

17.403)13.8400(.796
12 1 821
16 6790
+ 3 9 2 24
15 6 6 21
9 1 6 3 0
8 7 0 1 5

n = +.79

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1882phae.proj.1802R

March 8.8 ∞ Ophiuchus

2.4
0.2
8.2

6.3	6.0	2.3
8.7	4.0	.7
3.0	9.8	.8
5.6	7.5	.5
7.0	5.3	.3
9.1	8.3	.4

21.1
3.1

13) 31
.24

.29
3
.09
+.02
31.40
31.33

17 30 21.24
17 29 31.33
+1 -10.09
-.48
.00
+1 -10.57

0.913
0.224
.69
.7
.48

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1882phae.proj.1802R

Mar 9.2 γ Androm.

5.7	1.0	6.7
8.5	8.1	.6
1.1	5.3	.4
4.0	2.7	.7
6.9	0.0	.9
2.3	—	
5.0	1.9	.9
7.9	8.9	.8
0.2	6.0	.2

33.3

5.5

1	57	33.32
1	56	43.93

+1-10.61

-.02

.00

+1-10.63

.14
.2
+.03
+.02
43.88
.93

(Aurigae

9.1	8.3	7.4
1.6	6.0	.6
4.6	3.5	.5
6.4	1.0	.4
9.0	8.4	.4
4.0	3.8	.8
6.2	1.1	.3
8.9	8.8	.7
1.3	6.1	.4

13.8

14.3

4	50	13.75
4	49	24.19

+1-10.44

-.18

.00

+1-10.62

.22
.2
+.04
+.02
24.13
.19

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1882phae.proj.1802R

March 9. Polaris M.C.

15m	43.3	20	47.1	90.4
11	12.3	20	15.5	87.8
	46.8		46.1	92.9
12	13.3	19	15.2	88.5
	47.3		45.6	92.9
13	13.5	18	15.5	89.0
	48.8		46.3	95.1
14	16.4	17	15.8	92.2
	46.9		48.8	3.7
15	16.8	16	14.0	0.8

.68
+.27
-.12
31.34
31.49
31.92

21) 15.2 (.72
147
50

15m 46.9
15.2

1 15 45.72
1 15 31.49
14.23

43.710
0.893
42.817

49.39
.84

42.82 / 35.990 (.83
34256
3040
4564
13140
12846

n = +.83

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1882phae.proj.1802R

Mean 11.2 β Per.

6.6	0.9	7.5
9.1	8.1	.2
2.0	5.3	.3
4.6	2.7	.3
7.1	0.0	.1
2.9	4.4	.3
5.4	1.8	.2
8.1	9.1	.2
1.0	6.2	.2

23.6

11.9

3 01 23.63

3 00 34.57

±1-10.94

-.05

.00

±1 -10.99

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1892phae.proj.1802R

March 11, 8 α Tyrae.

1.7	4.6	6.8
4.1	1.8	5.9
7.0	9.1	6.1
9.6	6.3	5.9
2.1	0.9	6.0
7.6	8.7	.3
0.3	5.9	.2
2.8	8.2	.0
5.2	0.8	.0
		48.0
		0.7

+.02
59.11
59.13

14 33 48.04
14 32 59.13
+1 -11.09
-.09
.00
+1 -11.18

γ Draconis

2.3	2.0	4.3
5.8	8.8	.6
9.0	5.5	.5
2.3	2.2	.5
9.0	5.5	.5
2.3	2.0	.3
5.8	8.8	.6
9.0	5.5	.5
		42.2
		4.0

17)4.0
.2

1.257
0.913
.344
.5
.27

17 54 42.24
17 53 53.72
+1 -11.48
+.27
.06
+1 -11.21

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1882phae.proj.1802R

Mean 12.2 JJ Anderson

5.0	0.3	5.3
7.8	7.5	.3
6.4	4.9	.3
3.1	2.0	.1
6.0	9.2	.2
1.5	3.8	.3
4.2	1.0	.2
7.1	8.1	.2
9.9	5.4	.3

32.8

12.0

1 57 32.63

1 56 43.89

+/- 11.26

- .01

.00

+/- 11.27

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1802phae.proj.1802R

March 12, 8 γ Draconis

8.8	5.2	4.0
2.0	1.8	3.8
5.5	8.7	4.2
8.9	5.2	4.1
2.1	1.8	3.9
8.7	5.3	4.0
1.7	1.9	3.6
5.4	8.5	3.9
8.6	5.3	3.9
		41.4
		14.2

.40
.1
+.04
+.02
53.70
53.76

17 54 41.96
17 53 53.76

+1 -11.80
+.27
.00
+1 -11.53

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1882phae.proj.1802R

March 18.3

β Geminorum

1.6	9.1	10.7
3.8	6.8	.6
6.2	4.4	.6
1.0	9.7	.7
3.2	7.4	.6
5.7	5.0	.7
8.0	2.7	.7
		00.2
		4.8

.18
.2
−.034
+.02
11.67
~~11.64~~
11.67

7 39 00.32
7 38 11.67
+1 − 11.33
−.30
.00
~~+1 − 11.64~~
+1 − 11.65

μ Geminorum.

1.0	6.0	7.0
3.2	4.0	.2
5.6	1.5	.1
7.9	9.8	7.2
0.0	6.9	6.9
4.8	2.6	7.4
6.8	0.3	.1
9.1	8.0	.1
1.3	5.8	.1
		43.5
		10.6

.30
.2
−.034
+.02
54.87
54.85

6 16 43.56
6 15 54.85
+1 − 11.29
−.40
.00
+1 − 11.69

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1882phae.proj.1802R

Mark 13.8 α Lyrae

1.2	4.0	5.2
8.9	1.4	.3
6.3	8.8	.1
9.0	6.2	.2
1.7	3.5	.2
7.0	8.1	.1
9.7	5.5	.2
2.3	3.0	.3
5.0	0.1	.1
		47.8

.33
.2
+.07
+.02
59.11
59.20

18 33 11.5

18 33 47.61
18 32 59.20
+1 -11.59
.09
.00
+1 -11.68

γ Draconis

8.6	5.0	3.6
2.0	1.9	.9
5.4	8.3	.7
8.7	5.2	.9
2.0	1.9	.9
8.7	6.1	.8
1.6	1.8	.4
5.0	8.3	3.3
8.8	5.6	4.4
		41.9

.40
.2
+.08
+.02
53.70
53.80

16.8

17 54 41.88
17 53 53.80
+1 -11.92
+.27
.00
+1 -11.65

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1882phae.proj.1802R

March 14.2

β Geminorum

6.9	3.7	10.6
9.0	1.2	.2
1.4	8.9	.3
3.6	6.7	.3
6.0	4.3	.3
0.8	9.6	.4
3.0	7.2	.2
5.4	4.9	.3
7.7	2.5	.2
	00.2	
	3.0	

.17
.3
−.05
+.02
11.69
11.68

7 39 00.2
7 38 11.67
+1 −11.47
−.30
.00
+1 −11.77

μ Geminorum

1.0	5.8	6.8
3.2	3.4	.6
5.4	1.1	.5
7.8	9.0	.8
0.0	6.8	.8
4.4	2.2	.6
6.8	0.0	.8
9.0	7.8	.8
1.1	5.6	.7
	43.3	
	6.6	

.17
.3
.05
.20
.3
−.06
+.02
54.87
54.83

6 16 43.35
6 15 54.83
+1 −11.48
−.40
.00
+1 −11.88

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1882phae.proj.1802R

Mar 15.2 3 Pers. See also p. 177 δ Persei

2.0	0.7	2.7
4.3	8.1	.4
6.9	5.7	.6
9.3	3.1	.4
1.9	0.9	.8
6.5	6.0	.5
9.0	3.5	.5
1.3	1.1	.4
3.9	8.8	.7

47m 36.1
5.1
47 36.27
46 47.92
+1 −11.65
−.24
+.05
+1 −11.84

.18
.4
.1
−.07
+.02
47.97
.92

4.7	5.7	0.4
7.6	2.7	0.3
0.8	9.5	0.3
4.0	6.4	0.4
6.9	3.3	0.2
3.1	7.3	.4
6.0	4.4	.1
9.0	1.1	.1
2.0	8.2	.1

25.1
2.4
3 33m 25.13
34 37.13
+1 −12.00
+.13
+.05
+1 −11.82

.23
.4
−.09
+.02
37.20

1882phae.proj.1802R

March 15.8

.40
4
+.16
+.02
5-3.70
5-3.88

ζ Draconis

8.1 4.7 2.8
1.6 1.2 2.8
5.0 8.0 3.0
8.2 4.7 2.9
1.6 1.1 2.7
8.1 4.9 3.0
1.5 1.4 2.9
4.8 8.0 2.8
8.1 4.9 3.0
41.3
8.2

17 54^m 41.43
5-3 5-3.88

+1 - 12.45
+.27
+.05
+1 - 12.13

ζ Gyrae

0.7 3.5 4.2
3.1 0.9 .0
5.9 8.2 .1
8.7 5.7 .4
1.2 3.0 .2
6.6 7.8 .4
9.2 5.0 .2
1.8 2.3 .1
4.3 9.8 .1
47.0
1.7

.33
.4
+.13
+.02
5-9.11
5-9.26

18 33 47.09
14 32 5-9.26

+1 - 12.17
-.09
+.05
+1 - 12.21

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1892phae.proj.1802R

March 15. Polaris U. C.

18	47.3	19	47.0	34.3
14	17.7	19	17.1	34.8
	47.8		49.7	37.5
18	17.7	18	16.3	36.0
	48.5		48.5	6.0
16	16.6	17	16.4	3.0
	49.5	16	49.4	8.8
		16	20.0	
			46.5	
	1	16	18.10	
	1	15	29.82	
			48.28	
			47.83	

15) 46.5 (3.10
2.77

.07
+.65
29.21
29.82

43.69
.80
42.89

β Ursa. Min. U. C.

51	25.5	27.8	113.3
	28.3	25.6	3.9
	30.9	22.8	3.7
	33.7	20.3	4.0
	36.2	17.7	3.9
	38.7	14.8	3.5
	40.9	11.9	2.8
	43.7	09.6	3.3
	46.3	07.1	3.4
	48.9	04.3	3.2
	51.8	52 02.0	3.8
	54.1	51 59.1	3.2
			51 56.8
			18.5
14	51		56.75
14	51		5.34
			51.97

25) 18.4 (.752
175
130
125
50

.66
.4
+.26
-.06
5.18
5.92

Polaris U. C.

12	47.3	49.7	97.0
13	17.7	14	16.3	6.0
	47.8		46.5	6.3
14	17.7	17	16.4	4.1
	48.5		49.4	7.9
15	16.6	16	20.0	6.6

13) 3.4 (.26

15 49.5
3.4

1 15 48.26
1 15 29.82
18.44
47.83

42.9 / 29.39 (.685
25 74
3650
3432
2180
2145

$n = +.69$

9.423 24
sec 50.576 76
cos 9.864 45
8.322 22
8.763 43

diur. aber = ±.06

51.87
48.35
-3.02

-3.687
.614
-4.251
-4.251

4.25) 3.020 (.71
2975
450

$n = +.71$

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1882phae.proj.1802R

March 16.2 γ Androm.

3.8	9.2	3.0
6.8	6.7	.5
9.3	3.8	.1
2.2	1.0	.2
5.0	8.1	.1
0.5	2.8	3.3
3.1	9.8	2.9
5.9	7.1	3.0
8.8	4.3	3.1
	31.6	
	10.8	

.12
.4
−.05
+.02
43.88
43.45

1 57 31.57
1 56 43.85
+1 −12.28
−.01
+.05
~~+.00~~
~~+1 −12.32~~
~~+1 −12.24~~
1 −12.24

ζ Arrigae

7.2	6.6	3.8
9.8	8.1	.9
2.2	1.7	.9
4.8	9.0	.8
7.2	6.7	3.9
2.1	1.9	4.0
4.6	9.2	3.8
7.1	6.8	.9
9.6	4.3	3.9
	12.0	
	17.9	

20.
.5
−.10
+.02
24.13
24.05

4 50 11.94
4 49 24.05
+1 −12.11
−.14
~~+.00~~
~~+1 −12.29~~
+1 −12.24

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1882phae.proj.1802R

March 17.3 β Geminorum.

5.8	2.7	8.5
8.0	0.3	.3
0.5	7.9	.4
2.8	5.5	.3
5.6	8.2	.2
9.8	8.6	.4
2.1	6.3	.4
4.7	3.8	.5
6.9	1.5	.4
	59.1	
	3.5	

7 38 59.28
7 38 11.63
+1 - 12.45
- .26
+ .05
+1 - 12.66

.17
.5
-.05
+.02
11.69
11.63

59.18
11.63
47.55
12.45

α Geminorum

3.3	2.0	5.3
5.8	9.7	.5
8.1	7.2	.3
0.8	4.8	.6
3.2	2.5	.7
8.1	7.7	.8
0.4	6.1	.5
2.9	2.7	.6
5.2	0.3	.5
	57.8	
	14.5	

7 28 57.76
7 27 10.36
+1 - 12.60
- .20
+ .05
+1 - 12.75

.17
.3
+.05
+.02
10.29
10.36

57.76
10.36
47.40

Amer. Ephem.

1882phae.proj.1802R

Mar 20.8 α Lyrae

9.2	2.1	1.3
2.0	9.5	1.5
4.3	7.0	1.3
7.1	4.0	1.1
9.7	1.7	1.4
5.0	6.1	1.1
7.7	3.2	0.9
0.3	6.8	1.1
2.8	8.1	0.9

45.7
11.3
45.59
59.43
-13.84
-.08
+.05
-13.87

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1882phae.proj.1802R

March 21.1

γ Androm.

2.0	7.5	9.5
5.0	4.8	.8
7.7	2.0	.7
0.7	9.1	.8
3.2	6.3	.5
6.7	9.8	.5
1.4	8.0	.4
4.2	8.4	.6
7.0	2.5	.5

29.7
15.0

h m s
1 56 29.79
1 56 43.77

+1 -13.98
.02
-.14
+.05
+1 -14.07
1 -13.95

α Arietis

3.8	9.6	3.4
6.0	7.3	.3
8.1	5.0	.1
2.5	0.7	.2
4.8	6.4	.2
7.1	6.2	.3
9.5	4.0	5

15) 97 (6
90
7
75

21.7
9.7

h m s
2 1 21.65
2 0 38.27

+1 -13.62
-.84
+.05
+1 -13.91

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1882phae.proj.1802R

March 21,8 α Lyrae

9.0	1.8	10.8
1.5	9.0	.5
4.1	6.5	.6
6.8	8.7	.5
9.4	1.1	.5
4.7	5.8	.5
7.4	3.1	.5
0.0	0.6	.6
2.7	7.9	.6

45.3
5.4

18 38 45.28
18 32 59.46
+1 - 14.18
- .08
+.05
+1 - 14.21

γ Draconis

6.7	2.8	9.5
9.8	9.7	.5
3.1	6.1	.2
6.5	2.8	.3
9.8	9.7	.5
6.4	3.0	.4
9.7	9.8	.5
3.1	6.3	.4
6.7	3.1	.8

39.6
13.7

17 54 39.72
17 53 54.12
+1 - 14.40
+.24
+.05
+1 - 14.11

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1882phae.proj.1802R

March 22.1 γ Androm, see also next page. ζ Persei

1.9	7.1	9.0	9.4	8.0	7.4
4.5	4.3	8.8	1.9	5.5	.4
7.4	1.6	9.0	4.2	3.1	.3
0.0	8.9	8.9	6.8	0.7	.5
2.8	6.0	8.8	9.2	8.1	.3
8.4	0.3	8.7	4.0	3.3	.3
1.2	7.7	8.9	6.3	1.0	.3
4.0	5.0	9.0	8.8	8.7	.5
6.7	2.3	9.0	1.2	6.2	.4
	29.3			33.8	
	8.4			13.2	

.12 / .1 / −.01 / +.02 / 43.77 / 43.78

.05 / .1 / −.01 / +.02

.1 / .1 / −.02 / +.02 / 47.79 / 47.79

1	57	29.44	.44
1	56	43.78	.78
+1	−14	.32	.34
		.02	−.02
		−.14	+.05
		+.05	
+1	−14.43		
		.24	

+1 − 14.31

3	47	33.69	
3	46	47.79	
+1	−14.10		
		−.21	
		+.05	
+1	−14.26		

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1882phae.proj.1802R

March 22.1 Polaris N. C. | ε Ursa Min. L. C.

9	45.3	21	45.2	90.5	57	48.5	59 51.1	99.6
10	13.2	21	12.4	85.6		55.5	46.6	102.1
	46.3		45.1	91.4		59.7	41.3	101.0
12	13.2	20	14.4	87.6	58	05.1	35.3	100.4
	46.1		44.8	90.9		09.2	30.9	100.1
13	14.9	19	13.3	88.2		14.8	25.5	0.3
	44.5		43.0	87.5		20.4	20.7	1.1
14	18.7	18	18.3	82.0		24.0	15.9	99.9
	45.0		46.1	91.1		~~30.2~~	~~26.6~~ 11.2	?
15	15.4	17	15.3	90.7	59	40.2 05.3	~~20.7~~	95.5
	43.3		42.8	86.1		~~45.2~~ 40.2	~~15.9~~	?
	12.8	16	13.4	86.2		~~50.4~~ 45.2	~~59 11.2~~	?

25) 50.2 / 2.01

-.08
+.64
26.64
27.28

43.67
.89
42.78

15 42.4
50.2

1 15 44.41
1 15 27.28
17.13
45.66

42.78 | 28.590 | .67
25 68
2862

n = +.67

19) 204 (1.07
19
140

19) 19.4
1.02
1.56
.25
+.39
+.03
58.81
59.23
-.11
59.12

4h 58m
16 57

-7322
0.614
-8.04

8.04) 5.000 (.62
4824
1760
1608

n = +.62

58 50.4 / 50.5 / 20.4

50.02
59.23
50.99
45.90
4.89
-5.00

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1882phae.proj.1802R

March 23.3 β Yanni

7.3	4.4	1.7
9.7	2.0	.7
2.0	9.6	.6
4.3	7.2	.5
6.7	5.0	.7
1.5	0.2	.7
3.9	7.9	.8
6.1	5.5	.6
8.5	8.1	.6

40.9
15.8

.19
.1
-.02
+.02
55.28

8 19 40.83
8 14 55.24

+1 -14.26
-.26
+.05

+1 -14.47
+1 -14.66

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1882phae.proj.1802R

March 23.8 α Cygnae

8.2	1.2	9.4
0.9	8.7	.6
9.6	6.0	.6
6.1	3.4	.5
8.7	0.3	.0
4.1	5.2	.3
6.9	2.5	.4
9.5	9.9	.4
2.1	7.2	.3

44.7
13.2

19 33 44.69
19 32 59.53
+1 - 14.84
-.08
+.05
+1 - 14.87

.33
2
+.07
+.02
59.44
59.53

β Cygni

3.1	9.7	2.8
5.4	7.2	.6
7.7	5.1	.8
0.0	2.7	.7
2.2	0.3	.5
7.1	5.7	.8
9.4	3.3	.7
1.7	1.1	.8
4.1	8.7	.8

46.3
6.8

19 26 46.35
19 25 60.98
+1 - 14.63
-.27
+.05
+1 - 14.85

.30
.2
+.06
+.02
60.92
60.98

δ Draconis 2.6.

1.0	9.0	10.0
6.9	8.7	.6
2.1	8.2	.3
7.2	2.8	.0
2.8	7.3	.1
3.6	6.7	.3
9.1	1.2	.3
4.3	6.0	.3
9.7	0.6	.2

/5.1
.22

19 13 15.12
19 12 30.97
~~+1 - 15.85~~
44.15

~~+1 - 15.85~~
+1 - 14.84
- 1.01
45.16
44.15

.60
2
+.12

log δ = 9.5837
0.4163
8.3222
cos δ 9.8684
8.6069

$\Delta\delta = \pm .04$

+.12
-.04
30.89
30.97

-2.41
.80

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1882phae.proj.1802R

March 24.3 α Aurigae

9.6	8.9	8.5
2.5	5.9	.4
5.4	2.8	.2
8.6	9.8	.4
1.4	7.0	.4
7.2	1.1	.3
0.3	8.0	.3
3.2	5.0	.2
6.1	2.2	.3

4
~~8.92~~
8.2

5 8 49.17
5 7 64.48
+1 -15.31
+.09
+.05
+1 -15.17

.25
.3
-.07
+.02
4.53
4.48

β Geminiorum

3.1	0.0	3.1
5.4	7.8	.2
7.8	5.3	.1
0.1	3.0	.1
2.6	0.8	.4
7.2	6.0	.2
9.7	3.8	.5
2.0	1.1	.1
4.1	8.9	.0

5-6.6
11.3

7 38 56.59
7 37 71.48
+1 -14.89
-.26
+.05
+1 -15.10

.19
.3
-.06
+.02
11.52
11.48

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1882phae.proj.1802R

Mar 25.2 β Tauri

6.6	x	
6.9	1.1	0.0
1.1	8.8	9.9
2.7	6.4	0.1
5.9	4.0	9.9
0.6	9.2	9.8
2.0	7.0	0.0
5.3	4.7	0.0
7.7	2.3	0.0
		40.0
		16.7

5 19 ~~40~~ 39.98
5 18 55.22
+1 -15.24
-.25
+.05
+1 -15.44

.19
.4
-.08
+.02
55.28
.22

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1882phae.proj.1802R

March 25.8 β Cygni

2.3	8.9	1.2
4.6	6.6	.2
6.9	4.2	.1
9.2	1.9	.1
1.7	9.5	.2
6.2	4.8	.0
8.7	2.5	.2
0.9	0.2	.1
3.2	7.9	.1

45.7
10.9

.30
.1
+.12
+.02
60.90
61.04

19 26 45.57
19 25 61.04
+1 -15.47
-.27
+.05
+1 -15.69

α Aquilae

9.3	1.1	0.4
1.4	8.9	.3
3.5	6.9	.4
5.7	4.8	.5
7.8	2.7	.5
1.9	8.7	.6
3.9	6.7	.6
6.1	4.5	.6
8.1	2.5	.6

50.2
4.7

.27
.1
+.11
+.02
5.32
5.45

.913
.151
.762
.7
.53

19 45 50.25
19 44 65.45
+1 -15.20
-.53
+.05
+1 -15.68

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1882phae.proj.1802R

March 26, 3 Geminn

2.1	9.1	1.2
4.6	6.7	.3
7.0	4.3	.3
9.1	2.0	.1
1.5	9.7	.2
6.1	5.0	.1
8.6	2.7	.3
1.0	0.2	.2
3.2	7.8	.0

55.7
11.4

7 98 55.60
7 97 71.44
+1 -15.84
-.26
+.05
+1 -16.05

.19
5
-.10
+.02
11.52
11.44

.17
.5
-.085
+.02
12.52
12.46

.913
.097
.816
.7
.5712

& Gem. Min.

6.1	7.7	3.8
8.2	5.7	.9
0.2	3.4	.6
2.3	1.4	.7
4.4	9.2	.6
8.5	6.1	.6
0.7	3.1	.8
2.8	1.0	.8
4.7	8.7	.6

5 6.8
16.42

7 93 56.85
7 92 72.46
+1 -15.61
-.57
+.05
+1 -16.13

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1882phae.proj.1802R

Mar 27.8 γ Aquilae

6.0	7.9	3.9
8.0	5.8	.8
0.1	3.7	.8
2.1	1.6	.7
4.2	9.3	.5
8.4	5.2	.6
0.5	3.1	.6
2.7	1.0	.7
4.8	9.0	.8
~~6.9~~		26.9
		16.3

19 41 26.86
40 42.85
+1 - 15.99
- .49
+.05
+1 -16.43

.27
.4
-.11
+.02
42.99
.85

1882phae.proj.1802R

March 28.2 γ Andromeda, see also p.p. 194, 195 α Arietis

9.6			6.6	1.4	8.0
2.2			8.8	9.0	7.8
5.1	9.2	4.3	1.1	6.8	7.9
7.7	6.6	.3	3.2	4.8	8.0
0.5	3.8	.3	5.4	2.4	7.8
6.1	8.2	.3	0.0	8.0	8.0
8.9	5.7	.6	2.3	5.6	7.9
1.8	2.7	.5	4.6	3.4	8.0
4.5	9.9	.4	6.8	1.1	7.9
		27.2			190
		2.9			18.3
1	57	27.19	2	1	18.96
1	56	43.74	2	0	35.25
		+1 -16.56			+1 -16.79
		-.02			-.35
		+.05			+.05
		+1 -16.52			+1 -16.59

15 29 49
15
140
135

.6
.3
+.02
+.02
43.70
43.74

.4
.3
+.01
+.02
35.27
35.30
25

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1002phae.proj.1802R

March 28.8 α Ygnae

6.6	9.5-	6.1
9.1	6.9	.0
2.1	4.1	.2
4.5-	1.5-	.0
7.1	?	
2.5-	8.7	.2
5.1	1.0	.1
7.8	8.2	.0
0.3	5.7	.0
	43.0	
	.6	

.33
.3
-.10
t.02
57.77
59.69

18 33 43.03
18 32 59.69
+1 -16.66
-.07
+.05-
+1 -16.68

β Cygni

1.4	8.0	9.4
3.6	5.5-	.1
5.9	8.3	.2
8.8	0.8	.1
0.7	8.7	.4
5.0	8.9	.2
7.6	1.7	.3
0.1	9.3	.4
2.3	7.0	.3
	44.7	
	12.1	

.30
.3
-.09
t.02
61.20
61.13

19 26 44.64
19 25- 61.13
+1 -16.49
-.26
+.05-
+1 -16.70

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1882phae.proj.1802R

March 28.2 Polaris M.C. see also next page

~~10m 40.3~~
~~11 08.6~~
10 13.0
40.3
11 08.6 21 15.1
41.4 43.2
12 12.1 20 13.2
41.3 40.8
13 13.6 19 12.4
41.3 42.2
14 13.3 18 11.1
43.3 44.1
15 13.2 17 12.4
42.6 16 43.2
16 12.5

+.68
-.01
85.71
26.38

43.65
.893
42.76

10m	13.0	21	15.1	88.1
	40.3		43.2	83.5
11	08.6	20	13.2	81.8
	41.4		40.8	82.2
12	12.1	19	12.4	84.5
	41.3		42.2	83.5
13	13.6	18	11.1	84.7
	41.3		44.1	85.4
14	13.3	17	12.4	85.7
	43.3		43.2	86.5
15	13.2	16	12.5	85.7

15 42.6
8.2

1 15 42.36
1 15 26.38
15.98
43.45
+27.47

28) 8.2 (36
69
130
138

42.76) 27.470 (.64
25656
18140
17104

n = +.64

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1882phae.proj.1802R

March 28.3 Gr. 1374 4.6.

45m	11.2 ?	48.9
	49.9	43.3
	47.2	40.2
	55.0	33.3
46	02.2	?
	10.2	11.7
	25.3	48 04.2
	33.1	56.7
	40.7	49.9
	48.2	41.7
	55.6	26.2
47	03.1	47 18.4
		47m 11.0

.70
.3
+.21
13.97

3.540
.893
4.433

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1882phae.proj.1802R

March 29.2 β Tauri

4.9	2.0	6.9
7.1	9.7	.8
9.5	7.2	6.7
2.0	5.0	7.0
4.2	2.5	6.7
8.9	7.9	.8
1.1	5.3	.4
3.7	3.0	.7
6.0	0.9	.9

~~8.3~~ 83

7.2

5 19 38.38

5 18 55.26

+1 -16.88

-.24

+.05

+1 -17.07

.19
.2
-.04
+.02
55.24
55.26

ζ Persei

6.7	5.1	1.8
9.1	2.8	1.9
1.7	0.1	1.8
4.1	7.9	2.0
7.4	5.4	1.8
1.1	0.5	1.6
3.9	8.1	2.0
6.0	5.9	1.9
8.5	3.3	1.8

30.9

17.6

3 47 30.92

3 46 47.78

+1 -16.86

-.20

+.05

+1 -17.01

.14
.2
-.03
+.02
47.79
47.78

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1002phae.proj.1002R

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1882phae.proj.1802R

March 30.8 α Gyrae

1.7	2.9	4.6
4.0	0.6	4.0
6.9	7.3	.2
9.4	4.7	.1
		42.1
		1.0

18 33 42.05
18 32 59.76
+1 - 17.71
-.07
+.05
+1 - 17.73

.33
.1
-.03
+.02
59.77
59.76

β Cygni

0.5	7.0	7.5
2.9	4.8	.7
5.1	2.3	.4
7.5	0.2	.7
9.9	7.7	.6
4.7	3.0	.7
6.9	0.7	.6
9.1	8.5	.6
1.6	6.0	.6
		44.0
		15.4

19 26 43.81
19 25 61.19
+1 - 17.38
-.26
+.05
+1 - 17.59

.30
.1
-.03
+.02
61.20
61.19

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1892phae.proj.1802R

March 31.1

γ Androm.

8.2	8.6	1.8
1.0	1.0	2.0
3.9	8.1	2.0
6.6	6.2	1.8
9.2	2.5	1.7
4.9	7.1	2.0
7.6	4.3	1.9
0.4	1.5	1.9
3.1	8.8	1.9

25.9

17.9

1 57 25.94

1 56 43.72

+1 - 17.78

-.01

+.05

+1 - 17.74

3.44

8 56

48.44

3451

1327

0 51 00.

- 8 + 48.44

+1 - 17.70

+2 - 25.74

α Arietis

8.2		
1.0		
3.9		
6.7		
9.1		
4.9	7.1	
7.7	4.3	
0.3	1.6	
3.1	8.8	

25.9

5.3	0.2	5.5
7.7	8.0	.7
0.0	5.9	.9
2.0	3.7	.7
4.5	1.2	.7
8.9	7.0	.9
1.1	4.5	.6
3.4	2.3	.7
5.7	0.0	.7

17.8

16.2

2 1 17.85

2 0 35.24

+1 - 17.39

-.33

+.05

+1 - 17.67

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1882phae.proj.1802R

April 1.1 δ Persei

7.9	9.0	6.9
1.0	6.0	7.0
4.2	2.9	7.1
7.1	9.9	.0
0.2	6.8	.0
6.2	0.8	.0
9.5	7.5	.0
2.7	4.7	7.4
5.3	1.5	6.8

18.6

9.8

3 34 18.52

3 34 36.80

+1 -18.28

+.11

+.05

Error 1327 = +1 -18.12

.13
.1
.01
+.02
36.80
36.81

Polaris M. C.

9m 39.4	41.0	80.4
10 10.9	21 09.4	80.3
38.7	41.0	79.7
11 08.4	20 10.1	78.5
38.2	42.9	81.1
12 10.9	19 13.0	83.9
39.8	43.6	83.4
13 08.5	18 09.6	78.1
38.8	41.9	77.7
14 10.0	17 10.4	80.4
40.8	40.7	81.5
15 10.8	16 11.2	81.7

1 15 43.9

10.6

1 15 40.42

1 15 26.02

14.40

25) 10.6 (42
100
60

+.64
-.04
36.38
26.02

43.646
1.048
+42.598

42.71
14.40

42.56) 28.310 (.665
25536
27740
25536
22040
21280

n = +.66

3451 46.13

+327 0 52 00.

~~2.2~~ δ Persei

2.2	5.6	4.0	9.6
3.7	8.0	1.5	.5
5.3	6.3	9.1	.4
7.2	2.9	6.6	.5
9.4	5.2	4.0	.2
5.6	0.0	9.5	.5
8.9	2.5	7.0	.5
	4.9	4.5	.4
	7.2	2.0	.2

29.9

13.7

3 47 29.72

3 46 47.64

+1 17.92

-.20

+.05

+1 -18.07

.20
.1
.026
+.02
47.64

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1992phae.proj.1802R

April 1.8 β Cygni

9.6	6.3	5.9
2.0	3.9	5.9
4.5	1.6	6.1
6.8	9.4	6.2
9.0	7.0	6.0
3.7	2.3	.0
6.0	0.8	.0
8.4	5.4	.9
0.9	6.0	.2

480

43.6

19 26 43.09

19 25 61.25

+1 -18.22

-.26

+.06

2mn 1327. +1 -18.43

.30
.1
+.03
+.02
61.20
61.25

345-1
1327

19 3 5 00

44.62

-3 +44.62

+1 -18.47

-2 +25.94

26.15

γ Cygni

7.0	0.4	7.9
9.9	8.0	.9
2.4	5.4	.8
5.0	2.8	.8
8.9	9.9	.8
3.1	4.8	.9
6.9	2.0	.9
9.7	9.2	.9
2.1	6.7	.8

439

17.6

20 19 43.93

20 18 02.45

+1 -18.52

-.04

+.06

+1 -18.51

.33
.1
+.03
+.02
2.40
2.45

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1882phae.proj.1802R

April 2.2 ~~Aurigae~~

α Aurigae

5.8	5.0	0.8
8.7	2.1	.8
1.7	9.1	.8
4.8	6.1	.9
7.3	3.0	.3
9.2	7.2	.4
6.4	4.5	.9
9.1	1.3	0.4
2.4	8.6	1.0
~~45.8~~		45.8
		7.1
5	8	45.37
5	7	64.26
+1		-18.89
		+.08
		+.05
+1		-18.76

.20
.2
-.04
+.02
4.24
4.26

-41.29

ε Tauri

6.5	8.7	0.2
8.7	1.4	.1
0.9	9.2	.1
2.9	7.1	.0
	5.5.0	
	0.4	
4	29 5.5.02	4
4	29 73.39	
+1		-18.37
		-.48
		+.05
+1		-18.80
		.78

.12
.2
-.02
+.02
13.39

.913
.292
.721

-41.22

~~#3455~~ ~~46.13~~
~~1827~~ ~~0 52 00~~

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1992phae.proj.1802R

April 28, α Lyrae

4.6	7.5	2.1
7.2	5.0	2
9.9	2.2	.1
2.4	9.6	2.0
5.0	6.9	1.9
0.5	1.6	2.1
3.1	9.0	.1
5.9	6.1	.0
8.3	3.7	0

41.1
0.6

18 33 41.03
18 32 59.86
+1 -18.83
-.07
+.05
+1 -18.85

.33
2
+.07
+.02
59.77
59.86

γ Boötis

6.7	0.4	7.1
9.2	7.7	6.9
1.9	5.0	6.9
4.6	2.5	7.1
7.5	9.9	7.4
2.8	4.3	7.1
5.3	6.5	6.8
8.1	8.9	7.0
0.7	6.1	6.8

43.4
9.5

20 19 43.50
20 18 02.49
+1 -18.79
-.05
+.05
+1 -18.79

.83
.2
+.07
+.02
2.40
2.49

April 30

846-1
1827

48.13
0 52 00
-3 +48.13
+1 -~~19.06~~ 18.93
-2 +~~26.05~~
+26.20

18.83
19.34
~~+19.06~~
5) .51
.10
18.83
18.93

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1882phae.proj.1802R

April 3.4 β Cygni see also next page.

4.9	5.5	4.4
1.1	3.1	.2
3.5	0.9	.4
5.9	8.6	.5
8.1	6.1	.2
2.9	1.6	.5
5.1	9.1	.2
7.6	6.9	.5
9.9	4.6	.5
		42.1
		3.5

.30
.3
+.09
+.02
61.20
61.31

19 26 42,18
19 25 61.31
+1 - 19.13
- .26
+.05
+1 - 19.34

- 40.66

*3451
1827

~~45.85~~

19 32 00.
-3 + 45.85
+1 - 19.34
-2 + 26.51

γ Cygni

2.3	4.0	6.3
5.1	1.2	.3
7.9	8.7	.6
0.5	5.9	.4
		43.1
		1.7

.33
.3
+.10
+.02
2.40
2.52

20 19 43.19
20 18 02.52
+1 - 19.33
-.05
+.05
+1 - 19.33

- 40.67

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1802phae.proj-1802R

Δ Aql 4.0 ζ Andromeda. See p. 206

7.1	2.1	9.2
9.5	9.3	8.8
2.2	6.6	8.8
4.9	3.9	.8
7.6	1.0	.6
3.1	5.4	.5
6.0	2.7	.7
8.9	0.0	.9
1.7	7.0	.7
		24.2
		9.2
1	5.7	24.38
1	5.6	43.72
	+1	-19.34
		-.01
		+.05
	+1	-19.30

-.11
-.04
-.00
+.02
43.70
43.72

5.0	6.5	1.5	7.0	8.6	9.6
7.0	9.3	.3	6.0	3.5	.5
9.1	2.1	.2	8.0	1.4	.4
1.1	0.1	.2	0.1	9.2	.3
3.1	8.1	.2	2.2	7.1	.3
7.4	4.0	.4	6.4	3.0	.4
9.4	1.9	.3	8.6	0.9	.5
1.6	9.8	.4	0.7	8.9	.6
2.7	7.7	.4	2.8	6.8	.6
5.7		15.7			24.8
7.7		12.7			14.0
		15.67		15.67	24.74
				24.74	
				20.20	
				39.22	
				-19.02	
				-.53	
				+.05	
			+1	-19.50	

⊙

~~44.57~~
9.122
.183
8.94
.4
-3.58
+.02
42.78
39.22

.83
.64
332
498
.53

Δ Aql 3.8 ζ Cephei G. C.

43	38.8
	46.0
	~~54.8~~ 8.8
	~~7.8~~
44	13.9
	28.0
	44.1
	58.7
45	11.0
	24.8
	40.1
	54.8
46	09.8
	21.7
	35.0
44½	478.5
18h 45	04.19
1	18.31
18 46	~~45.88~~ 22.50
6 46	27.89
	54.61
	40.87
	-13.54

14) 478.5 (34.19
42
58
56
25
14
130

+1
0
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10
-11
-12
14) 77
3 | 5.6
1.83

2.065 = sgnett. interval
2.065
183
6196
16520
(2065 14)
3.77895

3.78 = 0.57749
= 1.31634
1.89383

cm = +78.31

30.66
.53
-21.19

21.19) 13.540 (.64
12614
8260
8476

σ = ±.64

28.22
-.11
-.32
27.89

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1882phae.proj.1802R

April 4.2 θ Ursæ Majoris & Draconis

0.8	8.0	8.8
4.0	4.6	.6
7.3	1.5	.8
0.7	7.9	.6
4.1	4.7	.8
0.9	7.8	.7
4.2	4.3	.5
7.7	1.1	.8
1.0	7.7	.7

4.2

6.5

2.8	4.3	7.1
4.7	2.1	6.8
6.9	0.1	7.0
8.9	8.0	6.9
1.0	6.0	7.0
5.1	1.9	7.0
7.1	3.7	6.8
9.2	5.5	6.9
1.0	3.5	6.8

33.3

8.6

9 22 33.45

21 52.59

+1 - 19.04

- .68

+.05

+1 - 19.67

.14

.4

-.06

+.02

52.53

.59

1.056

.64

422

6 336

.676

Gr. 1874. ~~April 6.~~

46 21.5	22.5	104.3
24.2	20.1	104.3
26.8	17.9	4.7
29.3	15.0	4.3
32.1	12.5	4.6
34.7	10.4	5.1
37.1	07.4	4.5
39.6	04.9	4.5
41.1	47 02.2	3.8
44.7	59.8	4.5
47.2	57.2	4.4
49.7	54.8	4.0

46 52.8

46

7 46 52.19

7 46 13.70

~~38.49~~

~~39.96~~

~~7 46~~ - 21.51

~~Diff~~ + 1.75

~~Sp~~ + .05

+1 - 18.71

~~40.26~~

.25

.4

-.10

+.02

4.46

4.38

1.289

.913

.376

9 25 44.34

9 24 04.38

+1 20.04

+.25

+.05

+1 - 19.74

- 40.26

25) 48.09

25

230

225

.72

.4

-.29

+.02

13.97

13.70

35.40

.913

2.627

#3451

1327

46.19

7 56 00.

- 3 + 46.19

+1 - 19.74

-2 + 26.45

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1882phae.proj.1802R

April 6.0 ($+60^\circ$ S.)

	0	50	
2.0		35.3	37.3
6.2		31.3	.5
10.4		27.0	.4
14.4		22.7	.1
18.7			

#27 0 50 18.68

x 0 49 39.24

-39.44

$-\{+.50$

$+.05$

-39.99

-0.83

+/ -20.56

$+.50$

$+.05$

+/ ~~-19.95~~

+/ -20.01

#345-1

1327

~~49.47~~

~~45.13~~

47.87

1 28 00.

$-3\ +47.87$

Assumed $+1\ -19.94$

$-2\ +27.93$

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1882phae.proj.1802R

6.3

April 6.3? β Geminor

0.3	2.7	3.0
2.7	0.3	3.0
5.0	7.8	2.8
7.2	5.3	2.5
2.0	0.9	2.9
4.4	8.6	3.0
6.7	6.3	3.0
9.1	3.9	3.0
	51.5	
	7.7	
7	38	51.45
7	37	71.23

+1 −19.78

−.24

+05

+1 −19.97

17) 7.7 (45
68
90
85
5

.20
.4
+.08
+.02
11.13
11.23

γ Geminor

7.6	0.6	8.2
9.7	8.5	.2
1.9	6.1	.0
4.0	4.0	.0
6.1	2.0	.1
0.4	7.6	8.0
2.5	5.3	7.8
4.8	3.3	8.1
6.9	1.1	8.0
	39.0	
	0.4	
6	31	39.02
6	30	58.63

+1 −19.61

−.41

+05

+1 −19.97

.18
4
+.07
+.02
58.54
58.63
.913
.296
.617

N.B. If we assume ~~+1 −19.95~~ ~~20.98~~ for Apr. 6.2 we shall be nearly independent of π.
Then at 6.0 we may call it ~~+1 −20.95~~ +1 −19.95

#3451 48.12

1327 7 59 00.

−3 +48.12

+1 −19.97

1327 assumed ~~−3 +08.09~~

−2 +28.15

~~#3451 48.13~~

~~1327 1 28 00.~~

(For minutes see Apr. 7.9

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1882phae.proj.1802R

April 6.9

~~#3451 48.19~~

~~1327 7 36 00.~~

#3451 10 57 48.79

1327 23 00 00.

3451-1327 = -3m +48s.79

3451 Assumed = -2 +28.5±

1327 Deduced = -1 +20.3±

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1882phae.proj.1802R

Apr 8.2 α Aurigae

1.3	3.7	8.0	6.7
4.3	6.4	0.0	.4
7.2	9.3	7.0	.3
0.2	2.3	4.1	.4
3.1	5.4	1.1	.5
6.1	1.3	5.0	.3
9.1	4.2	2.1	.4
2.1	7.2	9.1	.3
5.0	0.2	6.1	.3

43.1

3.7

5 08 43.19

08 04.13

+1 −20.94

+.07

+.05

+1 −20.82

.20 .2 +.04 +.02 4.07 13

.25 .17 .2 .2 +.03 +.02 54.91 .96

.39 .64 156 234 .25

β Tauri

1.0	8.0	9.0
3.3	5.8	9.1
6.7	3.1	8.8
8.0	1.0	9.0
0.3	8.6	8.9
5.0	3.9	8.9
7.3	1.5	8.8
9.7	9.1	8.8
2.0	6.8	8.8

34.4

8.5

5 19 34.45

18 54.96

+1 −20.51

−.25

+.05

+1 −20.71

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1882phae.proj.1802R

April 8.8 β Cygni

7.4	4.1	1.5
9.5	1.9	.7
2.0	9.3	.3
4.1	7.0	.1
6.8	4.8	.6
1.4	0.1	.5
3.8	7.8	.6
6.1	5.5	.6
8.5	3.0	.5

40.8
14.2

19 26 40.75
19 25 61.46
+1 -20.71
-.25
+.05
Enn 1327 = +1 -20.91

.30
.2
-.06
+.02
61.50
61.46

.39
.64
15.6
234
2496

γ Cygni

4.8	8.5	3.3
7.4	5.9	.3
0.1	3.7	.8
2.9	0.4	.3
5.5	7.8	.3
1.0	2.6	.6
3.7	9.8	.5
6.4	7.0	.4
9.1	4.5	.6

41.7
13.8

20 19 41.73
20 18 02.68
+1 -20.95
-.06
+.05
+1 -20.96

.33
.2
-.07
+.02
2.73
2.68

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1882phae.proj.1802R

Multiplication Table for cos φ = 0.7390 ; ℏ .788 7381

δ = latitude H. C. O. = 42° 22′ 48″.3 or =

	0	1	2	3	4	5	6	7	8	9
.0	0.0000	.0074	.0148	.0222	.0296	.0369	.0443	.0517	.0591	.0665
.1	.0739	.0813	.0887	.0961	.1035	.1108	.1182	.1256	.1330	.1404
.2	.1478	.155	.162	.170	.177	.185	.192	.200	.207	.214
.3	.2217	.229	.236	.244	.251	.259	.266	.273	.281	.288
.4	.2956	.303	.310	.318	.326	.332	.340	.347	.355	.362
.5	.3695	.377	.384	.392	.399	.406	.414	.421	.429	.436
.6	.4434	.451	.458	.466	.473	.480	.488	.495	.502	.510
.7	.5173	.525	.532	.540	.547	.554	.562	.569	.576	.584
.8	.5912	.599	.606	.613	.621	.628	.636	.643	.650	.658
.9	.6651	.672	.680	.687	.695	.702	.709	.717	.724	.732

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1892phae.proj.18028

Cambridge Sidereal Time of Boston Mean Noon = Amer. Ephem. − 19.s43

1883

	JAN.			FEB.			MAR.			APR.		
	h	m	s	h	m	s	h	m	s	h	m	s
1.	18	47	42.16	20	45	55.41	22	36	18.91	0	38	32.04
2.		47	38.72		49	51.97		40	15.47		42	28.59
3.		51	35.28		53	48.52		44	12.02		46	25.14
4.		55	31.84		57	45.08		48	08.57		50	21.69
5.		59	28.40	21	01	41.63		52	05.12		54	18.24
6.	19	03	24.95		05	38.19		56	01.68		58	14.79
7.		07	21.51		09	34.74		59	58.23	1	02	11.35
8.		11	18.06		13	31.30	23	03	54.78		06	07.90
9.		15	14.62		17	27.85		07	51.33		10	04.45
10.		19	11.18		21	24.41		11	47.89		14	01.00
1.		23	07.74		25	20.96		15	44.44			
2.		27	04.29		29	17.52		19	40.99			
3.		31	00.85		33	14.07		23	37.54			
4.		34	57.41		37	10.62		27	34.10			
5.		38	53.97		41	07.17		31	30.65			
6.		42	50.52		45	03.73		35	27.20			
7.		46	47.08		49	00.28		39	23.75			
8.		50	43.63		52	56.83		43	20.30			
9.		54	40.19		56	53.38		47	16.85			
20.		58	36.75	22	00	49.94		51	13.41			
1.	20	02	33.31		04	46.49		55	09.96			
2.		06	29.86		08	43.05		59	06.51			
3.		10	26.42		12	39.60	0	03	03.06			
4.		14	22.97		16	36.15		06	59.62			
5.		18	19.53		20	32.70		10	56.17			
6.		22	16.08		24	29.26		14	52.72			
7.		26	12.64		28	25.81		18	49.27			
8.		30	09.19		32	22.36		22	45.83			
9.		34	05.75					26	42.38			
30.		38	02.30					30	38.93			
31.		41	58.86					34	35.48			

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1002phae.proj:1002R

	00′	10′	20′	30′	40′	50′	60′
20°	.548		.542		.535		.529
21	.529		.522		.515		.508
22	.508		.502		.495		.488
23	.488		.481		.474		.467
24	.467		.460		.453		.446
25	.446		.439		.432		.425
26	.425		.418		.410		.403
27	.403		.396		.388		.381
28	.381		.373		.366		.358
29	.358		.350		.343		.335
30	.335		.327		.320		.312
31	.312		.304		.296		.288
32	.288		.280		.271		.263
33	.263		.255		.246		.238
34	.238		.229		.221		.212
35	.212		.204		.195		.186
36	.186		.177		.168		.159
37	.159		.150		.141		.131
38	.131		.122		.112		.103
39	.103		.093		.083		.073
40	.073		.063		.053		.043
41	.043		.033		.023		.012
42	.012		.002		.009		.020
43	.020		.031		.042		.053
44	.053		.064		.076		.088
45	.088		.099		.112		.124
46	.124		.135		.147		.160
47	.160		.172		.185		.199
48	.199		.211		.224		.238
49	.238		.251		.265		.279

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